

**Study of the Ruby-throated Hummingbird**

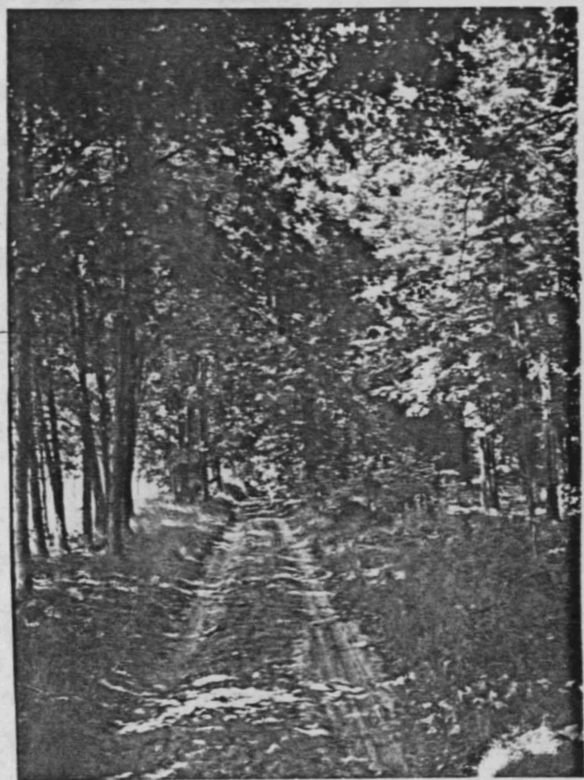
**by Jeannette Duer**

**University of Michigan Biological Station - Summer 1939**

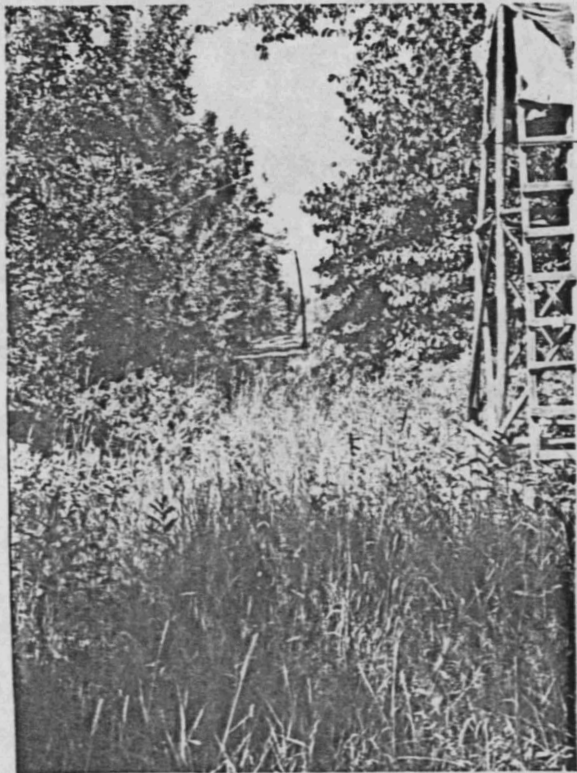
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Location of nest

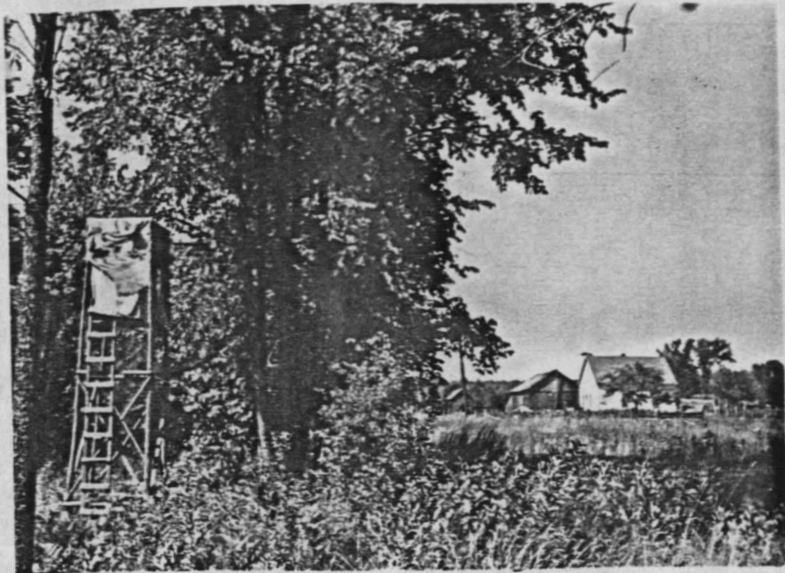


Road at north end of Burt Lake



Location of nest

Grassy lane at east side of  
Burt Lake

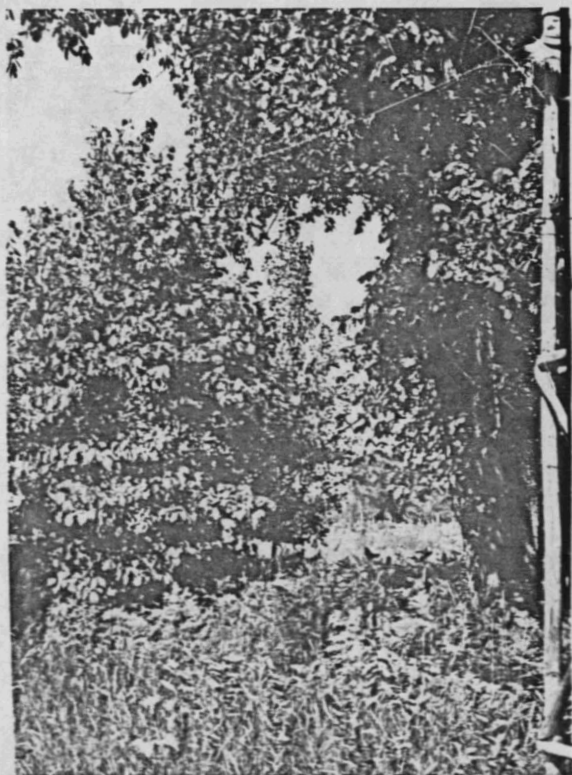


Bird blind at east end of Burt Lake



Open birch woods at east end of Burt Lake

Burt Lake about one hundred  
feet from the grassy lane.



Location of the nest

Clover field beyond elm tree

# Study of the Ruby-throated Hummingbird

by Jeannette Duer

This study of the Ruby-throated Hummingbird (*Archilochus colubris*)<sup>(Linnaeus)</sup> was made at the University Of Michigan Biological Station near Cheboygan, Michigan, during the summer session of 1939.

Three nests were found. They were located as follows:

- |                           |      |     |     |
|---------------------------|------|-----|-----|
| 1. East side of Burt Lake | T36N | R3W | S10 |
| 2. North of Burt Lake     | T36N | R3W | S3  |
| 3. Northwood's Camp       | T37N | R3W | S30 |

(see map on following page)

Ecology of region: The territory of these hummingbirds was in aspen, birch and maple associations. The nests were found in elm, red oak and red maple trees.

Plants found nearby were:

<i>Populus tremuloides</i>	<i>Vicia angustifolia</i>	<i>Epilobium angustifolium</i>
<i>Betula alba</i>	<i>Diervilla lonicera</i>	<i>Clintonia borealis</i>
<i>Quercus rubra</i>	<i>Hieracium auranticum</i>	<i>Gaultheria procumbens</i>
<i>Acer rubra</i>	<i>Apocynum androsaemifolium</i>	<i>Cornus cana densa</i>
<i>Acer saccharum</i>	<i>Apocynum cannabinum</i>	<i>Trientalis americana</i>
<i>Pinus strobus</i>	<i>Pteris aquilina</i>	<i>Vaccinium pennsylvanicum</i>
<i>Prunus pennsylvanica</i>	<i>Trifolium repens</i>	
<i>Thuja occidentalis</i>	<i>Trifolium hybridum</i>	

The woods were open for the most part and not far from Burt or Bouglas Lake. Bogs were nearby.

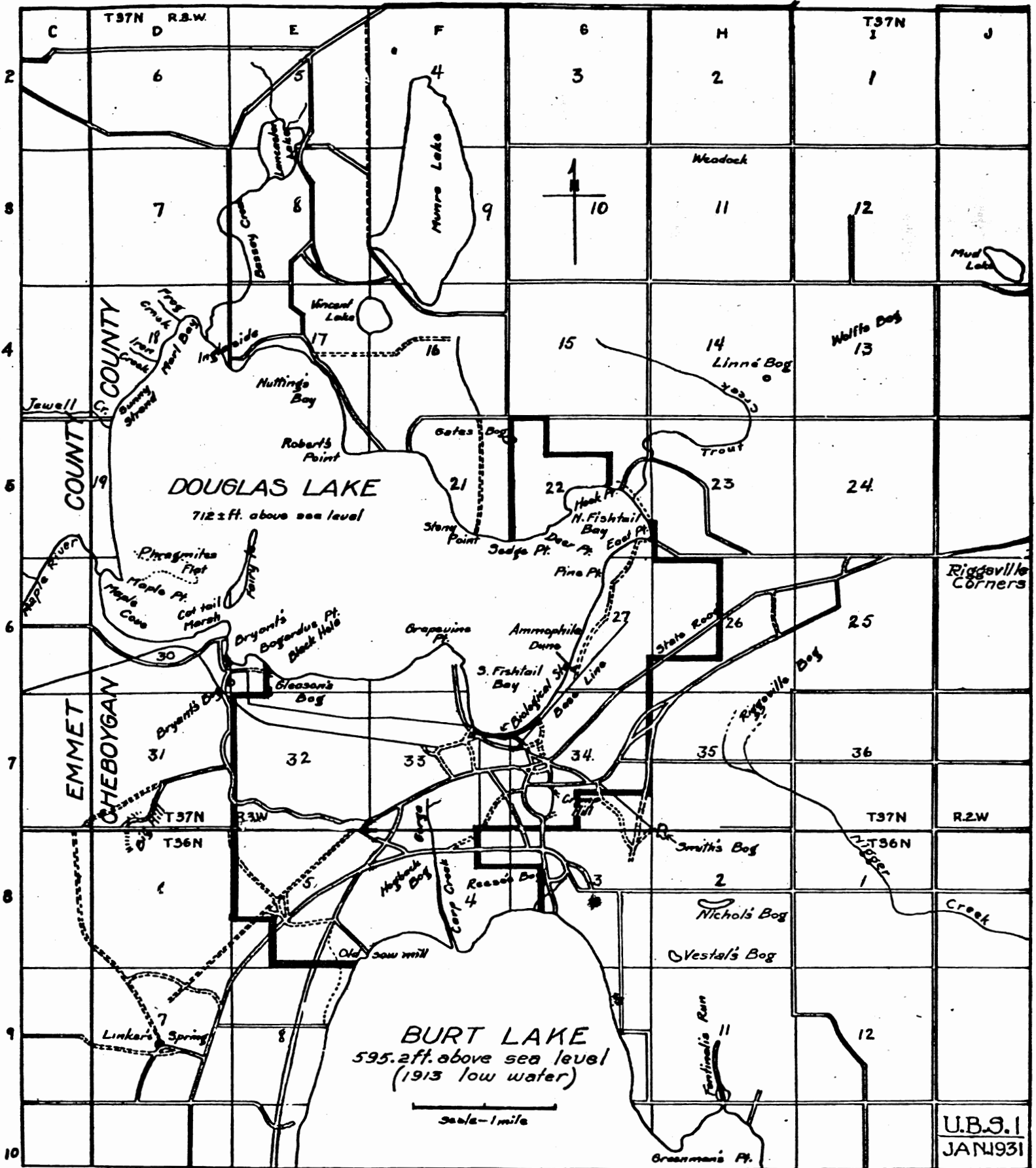
Lichens covered the trunks of some of the near trees.

Birds of the territory were:

Chickadee	Pewee	Song sparrow
Indigo bunting	Least flycatcher	Chipping sparrow
Flicker	Oriole	Catbird
Hairy woodpecker	Robin	Vesper sparrow
Downy woodpecker	Spotted sandpiper	

Food of birds:

Clover and garden flowers were visited by the hummingbirds. Insect life ~~was~~ plentiful and the sap of maple trees might have furnished the food.



DOUGLAS LAKE, MICH. AND VICINITY  
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**Nest location:**

The nests were found to be eleven and one-half feet high, twelve feet high and twelve and one-half feet high. They were saddled on branches less than one inch in diameter. Two of the branches sloped down and one rose slightly, which is contrary to general observations. Two of the nests were over roads and one was over a wide grassy lane.

Some protection was given all nests by overhanging leaves. Two of the nests were well shaded.

**Nesting materials:**

The nests were chiefly plant down with bud scales at the base, lichens (*Cetraria* sp.) covering the outside, and spider silk holding the whole together and spreading out along the branch in all directions binding the nest to the branch. The nest at Northwood's camp either did not have enough spider silk to attach it firmly or the change in position made when the branch was wired to the bird blind was too much; the nest began sliding off so that the young were on a decided slope and made the best of the situation by keeping their heads at the highest point.

**The eggs:**

The eggs are white, 1.3cm. long and .9cm. wide. Although egg laying was not observed the eggs must have been laid on the following dates:

Both nests at Burt Lake	June 25
Nest at Northwood's Camp	July 2

**Incubation:**

The male was not seen around the nest at any time. The female left the nest for food and many times in fear when anyone was in the blind. When not frightened away she usually remained on the eggs seven or eight minutes although one day it was only three or four minutes before she flew away for a minute or less.





Nest in elm at Burt Lake



Out of the nest. Sixteen days old. Female feeding young.



Young out of the nest at Burt Lake--July 24, 1939

#### Hatching of eggs:

One egg hatched on July ninth. The other egg did not hatch and was removed after several days.

#### Observations of the appearance of the young:

When first seen the young was not much over a centimeter in length and blackish in color with no down. In three days the spinal feather tracts had appeared. In six days the feather tracts were well advanced; the beak was orange in color and short and broad. In seven days the eyes were open if not before. The feathers were fuscous during the second week but showed a greenish sheen by the third week. The bill became more black every day and was longer and narrower. At the time of leaving the nest the beak was not more than half the length of the adult.

#### Feeding of young:

The interval between feeding seemed to be irregular probably due to fear on the part of the female. The time was usually less than thirty minutes.

During the first week the female fed the young and snuggled down on the young to protect them. During the second and third weeks she sat above the nest on a dead twig and flew from twig to twig when there was any noise in the blind.

Many times the female as she sat on the young would swing her head back and forth, rotating it about thirty degrees. She seemed to face so that one eye was on the blind.

At Northwood's where there were two young the one nearest the blind (to her left) was fed first. Each was usually fed three times; she fed one and then the other alternating very quickly. She pushed her beak far down the throat. It was only when the beak was very short that the yellow regurgitation could be seen.

The humming of the adult made by the very rapid beating of the wings would be sufficient to arouse the young; they would stretch their necks and open their beaks. When the adult had been gone for twenty minutes or more the young would frequently stretch out for food. The female may have

been near but there was no indication of it.

The female usually faced the young when feeding; however when they were young and the beak was short and broad they were fed from the rear. As the beak became longer feeding became more awkward. Several times the adult grasped the longer narrower beak of the young before getting into a favorable position for feeding.

The young was seen fed outside the nest when sixteen days old. On the twenty-second day the young flew across the grassy lane (at the east side of Purl Lake) and sat on a dead twig. The female returned five minutes later with humming of wings and a chipping noise; she flew from nest to branch upon which the young was perched and fed it after much difficulty with position and length of beak.

**Fear:** The adult showed fear by staying away from the blind, by giving short chirps from above during incubation, by chipping as she flew around and around the blind and perching on the blind during the brooding period. If a space of any size was left open for observation she would pause in mid-air facing the blind. This however was probably a defense act and was done in spite of fear.

#### **Defense:**

There was only one observation made of defense; a flycatcher flew into the tree near the nest. The adult flew at the intruder and chased it away.

#### **Reactions of young:**

They seem to show no fear. The two I have brought in and have caged are not disturbed apparently by numbers of people or by handling. The young during the first week in the nest did not respond to the touching of the bill. Sometimes the older nestlings would stretch their necks and open their beaks as though expecting food.

**Nest-sanitation:** If anything needed to be taken from the nest or the young the female probably took care of it for the egg shell was gone. The young voided their excreta by pushing the rear end of their bodies up over the top of the nest. The female was seen picking something too small to see, from the young.

### Behavior of young:

I have observed the young preen themselves but not often. The ones I brought in used their feet to remove cotton that was on their bills. In the nest and out they hummed their wings. After three weeks they were able to fly. They have a true hummingbird chipper which could be heard when they were hungry. I did not notice any great amount of activity on the part of the young that could be called nest-exercises. They were singularly quiet most of the time.

### Feeding caught hummingbirds.

The following combinations were used:

- |                             |   |          |      |       |
|-----------------------------|---|----------|------|-------|
| 1. egg yolk and honey       | } | dilute d | with | water |
| 2. cream and honey          |   |          |      |       |
| 3. brown sugar and egg yolk |   |          |      |       |
| 4. honey and water          |   |          |      |       |

### Methods used.

At first a pipette with food was held near or over the beak. The birds used their long tongues to take up the food. If they were very hungry they opened their mouths wide and drops of liquid were taken at one time similar to the feeding by the adult. As soon as a feeding apparatus could be arranged or held so that the drops of liquid were at the end of the pipette and the pipette was held away from the perch the birds fed while in mid-air as the birds do when feeding from flowers or from feeders which are used by those who wish to attract hummingbirds to their homes. A small vial was filled with food and wired so that it hung from the top of the cage. The birds went the whole length of the vial trying to locate the opening. When they found it they went directly to the mouth of the vial without any searching. Color is probably essential for locating the flowers in nature but apparently unnecessary when the birds are familiar with the location.

### Bathing of birds:

### Bathing of birds:

The birds became sticky with honey from the feeder and it was necessary to bath them. Small amounts of water were used to no avail so the birds were put in luke warm water and placed in the sun. The birds did not go into the water of their own accord. They survived the deeper water bath and the plumage was greatly improved in appearance.

### Summary:

1. Nests were found in the northern part of the Alleghenian region.
2. The nests were found on a variety of trees—elm, maple, oak and pine in woods that were fairly open, near lakes and bogs, fields of clover and flower gardens with many wild flowers such as *Diervilla lonicera* and *Epilobium angustifolium* abundant.
3. The nests were found over open lanes or roads on branches which were more or less horizontal or sloping down with some leaf protection but probably not easily reached by squirrels.
4. An effort was made to find the source of the nesting material but without success. Bud scales, plant down, spider webbing, and lichens were found on all nests.
5. The female was the only adult seen at the nests although males were seen accidentally here and there in the surrounding country.
6. The female, unless frightened away, stayed near the nest and on the eggs several minutes at a time without leaving when she left for just a moment. After incubation she stayed away longer, coming back to feed the young about every twenty to thirty minutes and during the first week of brooding staying on the nest protecting the young. During the second and third weeks the young were left more or less alone, one female staying over the nest on dead twigs.

7. Feeding was by regurgitation and the food that was seen was yellow and not too liquid in nature.

8. The adult had less trouble feeding when the beak was short and wide than when it was long.

9. The young were most inactive for the most part but moved about when hungry, stretching their necks and opening their mouths when the adult was heard or actually reached the nest. It was necessary for the adult to peck the beak of the birds at times to get any reaction. To void excreta the birds shifted about more, pushing the rear of the body higher and above the edge of the nest.

10. The female was not afraid to attack larger birds in defense of the nest.

11. The young make good caged birds. So few people have had opportunity to observe hummingbirds at close range that they attract a great deal of attention.

They are not difficult to feed. Although egg yolk was added to the honey and water, it is quite likely that a diet of honey alone would be sufficient. It was not possible to try any real food experiments in the short time available.

More research could be done on the subject and the leading zoos of the country might be questioned as to what they are feeding their hummingbirds.

Eagle Brand canned milk was heard about but not tried due to the difficulty of keeping food without the use of an ice box.

12. The hummingbirds had no song but were interesting because of the combinations of sound made by the chippering warning note and the humming of the rapidly beating wings.