

A LIFE HISTORY STUDY OF THE EASTERN ROBIN

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Conducted at Douglas Lake during the summer of
1939, under the direction of Dr. O.S. Pettingill, Jr.
and Dr. Theodora Nelson.

Not enough of field observations. Less
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General information for
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No dates!
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A LIFE HISTORY STUDY OF THE EASTERN ROBIN

This life history study of the Eastern Robin, Turdus migratorius migratorius, was made at the University of Michigan Biological Station located on Douglas Lake, Cheboygan County, Michigan. Six nests were located in and about camp during the last two weeks in July. Three of these were studied in particular, all of which were near the beach. Blinds were placed near the nests to aid the study. Weights and measurements of the young were taken each evening. Other observations were taken at various times covering a period of four weeks.

The head of the male Robin is black with three white spots,- one above and in front of the eye, one above and behind the eye, and one directly below the eye. The rest of the upper parts are dark slate color fading toward the tail. The tail is black with white tips to the outer tail feathers. The throat is white streaked with black. The breast and belly are bright cinnamon-rufous changing to white on the lower tail coverts. The bill is yellow tipped with black. The female is similarly marked but duller in color. These birds measure about ten inches in length. The young show similar coloration but have a very spotted breast. This spotting of the young shows the relationship of the Robin to the other thrushes most of which retain the spots in the adult plumage.

Distribution

The Robin is probably the most generally distributed of our land birds. It nests from the Gulf of Mexico northward to Alaska and from the Atlantic to the Pacific Ocean. Four

subspecies are included all very similar. West of the Rocky Mountains is the Western Robin which differs from the others by lacking the white tips of the outer tail feathers. These birds are not confined to any particular habitat. They are the most adaptable of our birds, being found in open plains and dense forests. Robins are most plentiful however near human habitations. Contrary to most birds they have increased in numbers since the coming of white man. In winter they are shy living deeper into the woods and swamps. Many reports show that they may stand winters as far north as Lake Superior but they are by no means plentiful north of southern Ohio, Indiana, and Illinois. South from there the numbers increase becoming very numerous in Florida, along the Gulf Coast and down as far as Guatamala in Central America.

Migration

The fact that many birds winter over in the north makes it difficult to determine exact migration dates. However birds become numerous in lower Michigan during the first two weeks of March. They reach this area at least by the first of April. Robins travel an average of seventeen miles a day during their northward trip. They follow the advance of spring. The average temperature for their arrival is about 35° F. Often they arrive while the snow is still with us bringing promise of spring. Migrations flights take place mostly at night. The males precede the females by about a week. It is now believed that all Robins migrate. Those nesting in Michigan migrating south and the winter visitants coming from the north in the fall. The southward migration takes place in October, the whole flock leaving together.

Territory

Before the arrival of the female the male Robin chooses the territory where he sings lustily and drives all other males away. As the females arrive the males do their best singing. Just as the first light of day begins to show the chorus begins. One male starts and soon there is a babble of voices. This singing lasts from a few minutes to over an hour depending on the weather. The song consists of four or five phrases with pauses between them. These phrases in turn are made up of two or three clearly-whistled notes with very short pauses between. The song varies greatly with the individual. Some may give as many as eight to ten different phrases. Later in the day shorter songs are given with an increasing amount given at dusk.

The nesting site

When a female accepts the male she accepts his territory. She at once starts to find a nesting site. Sometimes the male chooses a site but the female rarely accepts it. The site finally chosen depends on the habitat. In treeless areas nests are often built on the ground. Around human habitations they are placed on window sills, in eaves troughs, over doorways, or on any other convenient ledge. In wooded areas Robins prefer the crotch of a tree usually choosing the first up from the ground. Many are built on a horizontal branch not very far from the trunk of the tree. The kind of tree varies with the area. Of those studied one was in the first crotch of a birch, three were on horizontal limbs of oak trees, one on a branch of a maple, and the other on a branch of an aspen. Several used nests in the area were on ledges and trellises about buildings and several were in crotches of birch trees.

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The height of the nests varied from six to twentyseven feet above the ground. This is the general height though they may be on the ground or in high trees seventy feet above ground.

Nest building

The nest is built by the female though the male may help by carrying materials. Sticks were found laid across the crotch in one nest but not in others. The outside of the nest is of coarse grasses but maybe of strings or bits of cloth. It is loosely put together with strings hanging as much as a foot below the nest. Inside this is mud which aids in holding the rest of the nest together. One nest observed was built in dry weather when mud was hard to get. The bird substituted wet sand. This was satisfactory until soaked by rain when it fell from the tree killing the young birds. Inside the usual mud is fine grass put there by the female using both her head and feet to push the strands into the mud and weave them in together. This lining varies in amount. The finished nest is much neater in appearance from above than from below. It averages seven inches deep and six and one half inches in diameter on the outside. The inside is a deep cup- four inches in diameter and three and one half inches deep. Nest building takes from four to six days varying with the weather and the lateness of the season. The later the season the more hurriedly building is done and of course the weather is usually warmer thus aiding in drying the mud.

Eggs and egg-laying

As soon as the nest is completed egg-laying starts. The eggs are laid a day a part. They may be laid any time of day but are usually laid during the forenoon. The eggs are bright bluish green in color and are usually unspotted. They are very

beautiful against the grass lined nest. In the nests studied only one contained the usual four eggs. Two nests had three eggs and one only two. This small number may have been due to the lateness of the season. However small numbers of eggs were reported for earlier in the season. The reason for this may be the over population of Robins in this area. The eggs were very uniform in size shape, and color. The average size was twenty-eight mm. in length by twenty in diameter. They were somewhat tapered but not decidedly pointed. Those observed were the second or possibly the third set laid during the season as nests were not found until the last two weeks of July and the first week of August.

Incubation

In two of the nests observed the young hatched on the twelfth day after the nest was found. Apparently incubation had already started as Bergtold gives the period as thirteen to fourteen days. In most cases the female does all the incubating. In one of the nests the male was found doing about half of the incubating. This was very unusual. Robins leave their nest to feed during the early morning and again in the evening being gone from one fourth to one half of an hour. Shorter feeding periods were probably taken during the middle of the day. The period for feeding shortened toward the end of the incubation. The bird seeming to hurry back faster and settle herself more quickly. On approaching the nest she always removed any foreign material before settling down. Then she climbed into the nest settling herself by a sidewise motion to get the eggs in close to the breast.

Hatching

The eggs hatch on consecutive days as the female starts incubating as soon as the first egg is laid. In one case I

wit/nessed the hatching process. One egg had hatched during the night. The female had been making short trips for food for it. Then I noticed she appeared rather uneasy rising frequently and poking around in the nest. The fourth time she seemed to swallow something. Once more she settled down but not for long. Only a few seconds and she was up poking again, this time she was eating egg shells. Finally she picked up the large piece and flew away with it in her bill. Two little birds were in the nest. She soon returned with food which she gave to the older nestling and promptly hovered both. Following this she arose every two or three minutes to poke around in the nest. She assumed the listening pose between times. Later I tried to locate the shell but was unable to. The shell from the first hatching had been located about fifty feet from the nest. The next day the third egg hatched. During the days of hatching the male was not seen many times. When he came near he appeared to be on guard near the nest but took no part in the proceedings.

Description of young

The newly hatched Robins are nearly naked. Light colored down is found on dorsal tracts only. The skin is very light in color with no sign of feathers. The bill appears yellowish white and the inside of the mouth is yellow. The eye is entirely closed with slight color showing through the lid. The average weight of the young taken the evening of the day hatched was 6.72 grams. The two weighed soonest after hatching weighed 5.45 and 5.80. The one found in the morning weighed 9.00 grams at night. This showed how rapidly growth starts.

Feeding of young

The adult Robin starts feeding immediately after hatching. In fact the female returned with food after carrying away the

shell. Observations of feeding were rather limited on the first days. However trips seemed frequent; not more than fifteen to twenty minutes apart. The female did most of this hovering the young between trips. Food consisted of small earthworms and insects. The size of the food brought increased as the size of the young increased. After the third day trips became less frequent and the male took more part in the feeding. Hovering between feeding ceased except during rains, cool windy days, and during the night. In one nest the adults alternated on trips to the nest. The male arrived first; fed the young; and perched near by until the female came. They would invariably leave the nest together the female in the lead. Another pair had a different system. One would make several trips and then the other. Occasionally both came to the nest together but even then there was no evidence of one waiting for the other. Feeding was more frequent during the early morning and again in the evening. Frequency of feeding was less the last few days the birds were in the nest.

Sanitation

At nearly every call the parents made to the nest they took time to clean the nest. The first three days the fecal sacs were excreted irregularly into the nest. They were removed by the adults and quickly swallowed by them. By the third day the young seemed to excrete mainly after feeding. In this case the adults removed the sacs directly from the anus. These sacs were also swallowed. By the eighth day the young were able to rise high enough in the nest to drop at least part of the fecal sacs over board. It is this habit that makes the Robin be considered a dirty bird about buildings. Parents were seen to take some of

these sacs that "did not make it" and fly away with them in their bills. Whether they were dropped or swallowed could not be determined. In any case the inside of the nest was kept clean. The adults kept themselves clean by frequent dips in the lake. Both birds were seen on the shore, the male leading the way. A quick dip of the head followed by the rest of the feathered and much shaking of feathers was repeated several times by each bird.

Growth of young

The gain in weight (Graph 1) was very rapid. The greatest increase per day occurred on the sixth and seventh days. After that the weight increased but little. Increases in total length (Graph 2) and in length of wing (Graph 3) were gradual until feather growth started. The second day after hatching dark pigment appeared beneath the skin. This increased greatly the third day. By the fourth the primaries were emerging- the first to break through the skin. The next day the feathers were un-sheathing on the femoral, humeral, and ventral tracts but not much on the spinal, capital, or caudal tracts. All feathers were growing rapidly by the sixth day except the caudal. Increase in the length of wing was most rapid from the fifth to the ninth day. Increase in total length was quite constant being more rapid with the emergence of the tail feathers. Only slight increase in the tarsus was noted before the third day. After that growth was constant. (Graph 4). The bill showed greatest increase in length the six to the eighth day. A noticeable darkening of the bill accompanied this growth. The gape widened until the seventh day when maximum width was attained (Graph 5&6). Another change, harder to measure, was the change in the sounds made by the nestlings. Right from hatching they produced a

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faint chip similar to that of a "baby chick". This increased to a lusty clamor by the sixth day. A "call for help" developed on the eighth day. A Robin chirp was not noted until the day before the young left the nest.

Behavior of the young

The newly hatched Robins show but little response to their environment. Only the sound or touch of the adult or the touch of the hand getting any noticeable response; this a mere opening of the mouth for food. Soon a tendency to draw away from cold objects and to cuddle down in warm places was evidenced. By the third day this was very pronounced. A clinging or grasping action was noticed on the fourth day as the bird were removed from the nest. The eyes opened on the fifth day but seemed of little use till the following day. Response to heat and sunshine were observed on the sixth day when the young moved often in the nest in order to keep in the shaded portion of the nest. Mouths opened over the edge of the nest served as a cooling device. At the same time. No sign of fear was noted until the eighth day when a weak but effective alarm note was given.

Leaving the nest

As soon as the young have the primaries and secondaries sufficiently developed to fly with they leave the nest. This is usually nine to twelve days after hatching. The spotted feathers practically cover all the body by this time but the tail is still short. They have a Robin chirp and can be heard frequently calling for food. They are often seen hopping along on the ground following the adult and begging for food.

Post nesting activities

After the birds have flown the parents continue to feed them for several days. They remain in the territory

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during this time. One female tried to protect the nest two days after the young had flown showing that the territory was still in their possession. After a week or ten days the female usually builds another nest in the same territory. The male, according to Chapman and Forbush, stays with the young birds while the female does the building. My observations were taken too late in the season to get any information on this subject. After the nesting season is over both the adults and juvenals flock together in woods. This flocking starts in this area about the middle of July and continues until all Robins have left the nesting areas. Song ceases during this period. In some regions roosting areas are found. Here flocks come from all directions to roost at night returning each morning to the feeding areas. Before laws were enacted to protect Robins and other birds, people would go to these roosts at night with torches. While the torch was burning surrounding trees were shaken. The startled Robins flew toward the light where they were killed and carried away. Laws prevent this destruction at present.

Molting

During August and September Robins molt. The adults were starting to molt while the last of the young were still in the nest. Primaries are molted one at a time starting with the innermost. Thus the Robin is always able to fly. The juvenals lose their spotted plumage in this molt so they appear the same as the adults as they leave for the south.

Enemies

One reason Robins are numerous is the absence of enemies. Lice were very plentiful in the nests but did not seem to hinder the growth of the young. Other birds were not bothersome in the

area studied. Chipping Sparrows, Least Flycatchers, Red-eyed Vireos, and Goldfinches were found nesting in the area without signs of conflict. Robins seemed to be on guard however when Kingbirds entered their territory. No actual conflict was witnessed. Many other birds frequented the area unmolested--Cedar Waxwings, Wood Pewee, Rose-breasted Grosbeak, Baltimore Oriole, Purple Martin, Spotted Sandpipers and other water birds. Mammals were not plentiful in the area. According to Taverner cats are the worst enemy of Robins. Cats are not allowed in the area so there was no opportunity for observation. Probably weather conditions are responsible for most deaths among Robins.

Economic value

The economic status of the Robin is a little questionable. From my observations the Robin is decidedly beneficial. The food given the young consisted of earthworms, insects and insect larvae. The earthworms eaten are taken from damp places mainly so would have small influence on agriculture. The insects were mainly crickets, grasshoppers, white grubs, and other small insects not identified. This would be considered beneficial by any farmer. Roberts reports great quantities of white grubs, the worst pest of grassy lawns and golf courses, being eaten in quantities by Robins. He also reports grasshoppers, crickets, spiders, flies, cabbage worms, beetles, and bugs of many kinds included in their diet. On the other hand the earthworms and insects make up only about 42% of the total food consumed during the year. The rest is vegetable matter mainly berries. This is what gives the Robin a "black eye". Here in Michigan fruit is a major crop. In the cherry growing region there is little complaint

as there is so much fruit available. In areas where smaller fruits are grown the amount eaten by Robins is noticeable. The planting of mulberries or wild fruits near to the cultivated tends to reduce the amount of damage.

Intelligence

On approaching a Robin's nest one is invariably greeted by the alarm note of the male. This note gives away the presence of a nest. Thus what is meant for protection serves the opposite purpose. But the Robin has never learned that. In the presence of the Kingbird he is a little smarter. He gives a "twit" and then remains quiet till the visitor leaves. If Cowbirds enter the territory they are chased away. If the Cowbird gets to deposit her egg in a Robin's nest she is lucky. Or is she. The Robin, according to Friedmann, punctures the egg and takes it from the nest. This would indicate intelligence. But wait. Friedmann put in a Song Sparrow's egg which resembles the Cowbird's. It met the same fate as the Cowbird's. The small blue green egg of the Chipping Sparrow was then tried. This remained in the nest undisturbed. Color not size seemed to be the controlling factor. The Robin merely cleans the nest of off-colored materials. Again Friedmann experimented. This time he put a young Cowbird in a nest with young Robins. The adults made no distinction raising the bird with their own. In other words Robins are not as intelligent as might appear at first. There is however one behavior in which they show more intelligence than many common birds. They judge the size of the food to give the small bird. Not once did I see the Robin bring food too large for the nestling. The size of the food increased with the size of the young.

Conclusions

The Robin is one of the most friendly and most widely distributed of our common birds.

All Robins migrate. The summer residents traveling south as others arrive from the north to winter in Michigan.

Males always take part in feeding the young but their help during nest building and incubation varies in different pairs.

Fewer than the usual number of eggs per nest is found in this area probably due to over population of Robins.

The Robin is essentially a clean bird taking frequent baths and cleaning the nest at every trip.

The male has a varied song while the female and juvenals are limited to call notes.

The entire nesting performance, from nest building to the leaving of the nest, requires from four to five weeks and is repeated as many times as possible during a season.

The Robin has few enemies-- lice are the worst parasites and cats the worst predators.

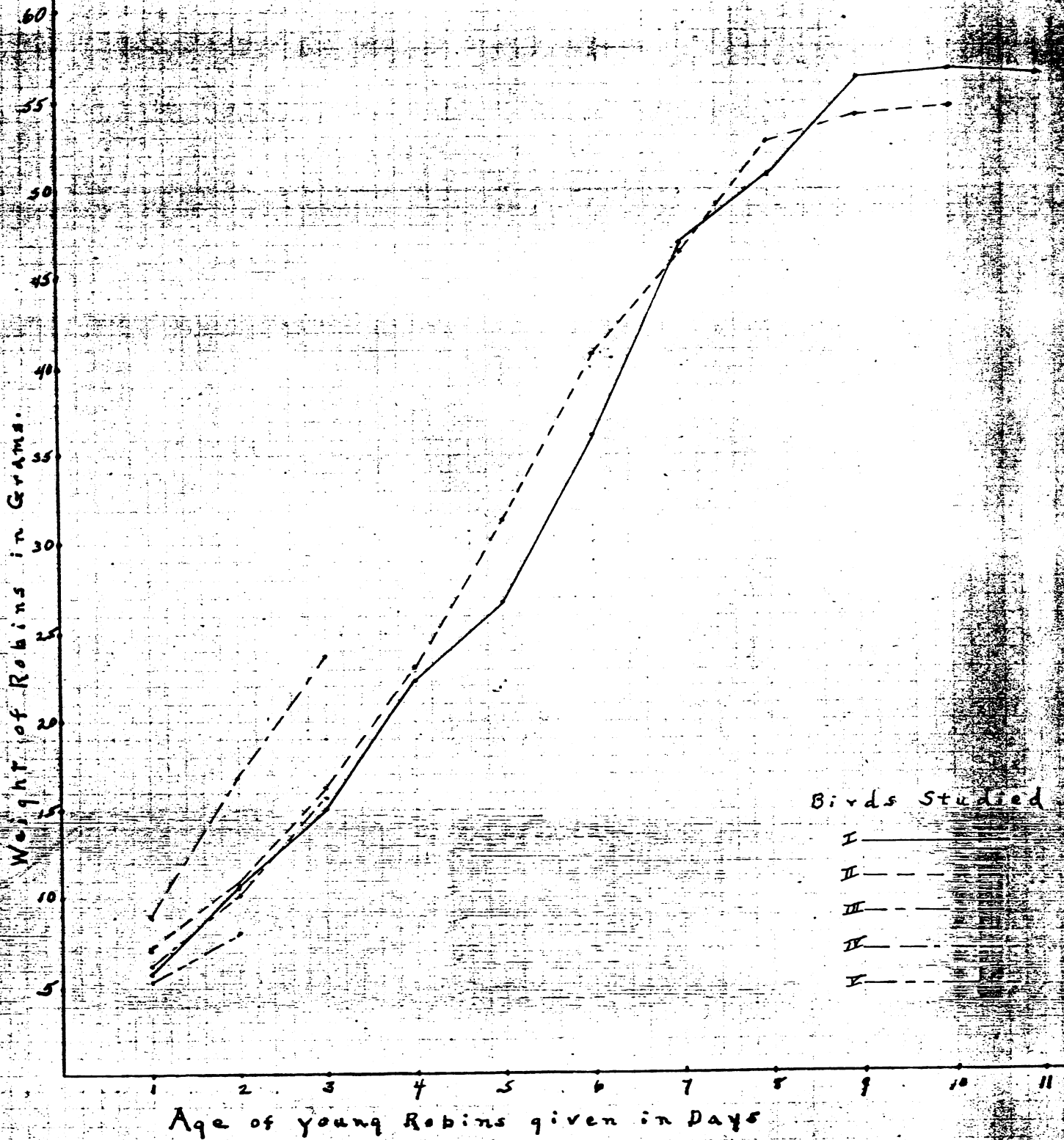
Robins do harm in destroying small fruits but this is more than offset by the harmful insects they destroy.

Robins show only average intelligence among the birds.

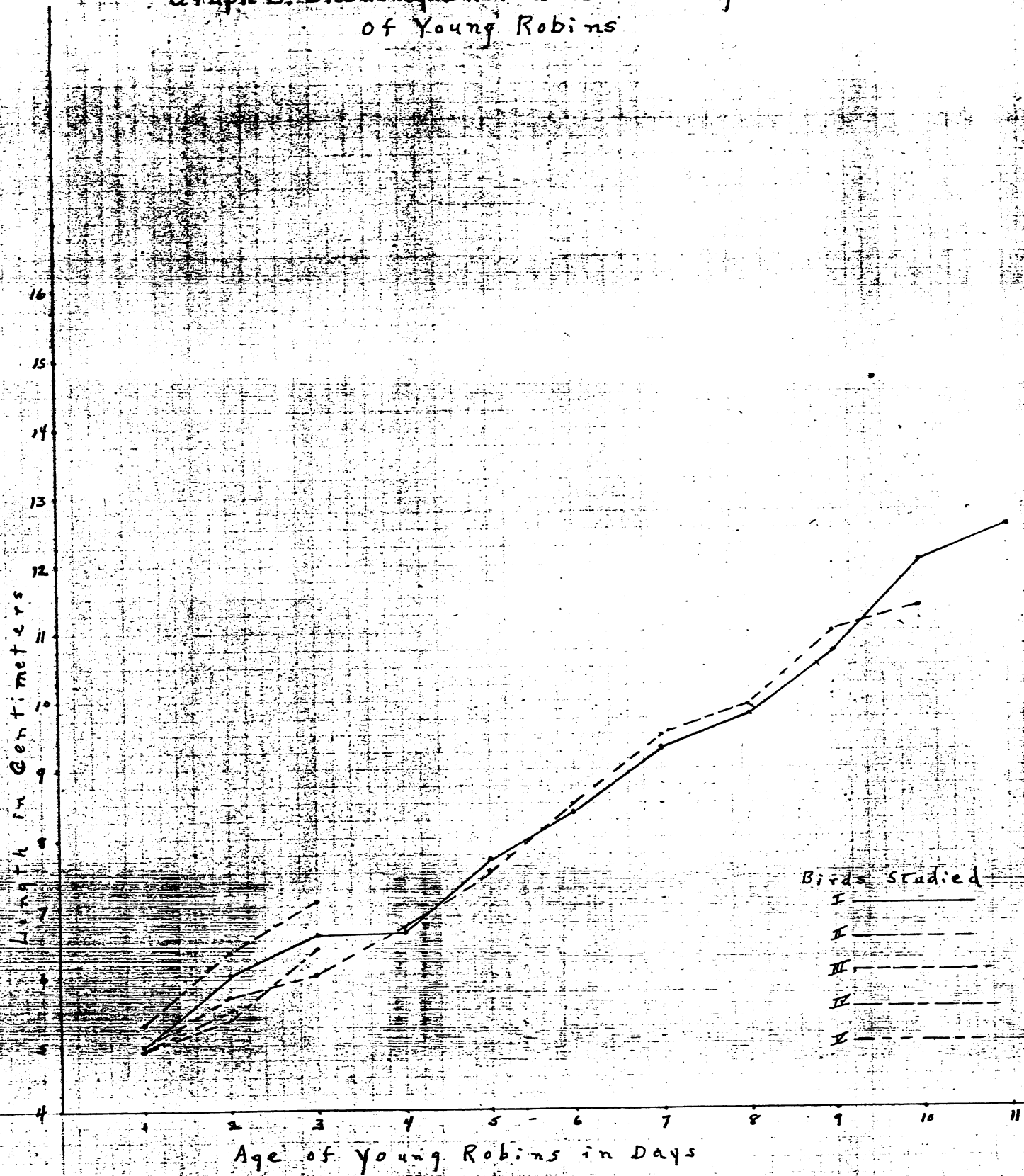
Bibliography

- | | | |
|-----------------|---|----------------------------|
| Aymar, G. C. | Bird Flight | P.178 |
| Barrows, W.B. | Michigan Bird Life | P.722-727 |
| Bergtold, W.H. | Incubation Period in Birds | P.98 |
| Chapman, F.H. | Birds of Eastern North
America | P.411-412 |
| Forbush, E.H. | Birds of Massachusetts III | P.406-416 |
| Friedmann, H. | The Cowbirds | P.185,193, 196,
259-260 |
| Nicholson, E.M. | The Art of Bird Watching | |
| Roberts, T.S. | Birds of Minnesota | P.112-121 |
| Roberts, T.S. | Bird Portraits in Color | P. 59 |
| Saunders, A.A. | A Guide to Bird Song | P.174-136 |
| Taverner, P.A. | Birds of Western Canada | P.349-350 |
| | A. O. U. Check List, 4th edition | |
| | Life Magazine April 24, 1939. The Robins Come | |
| | National Geographic Magazine, The book of Bird Life | P.14-15,
206-209 |

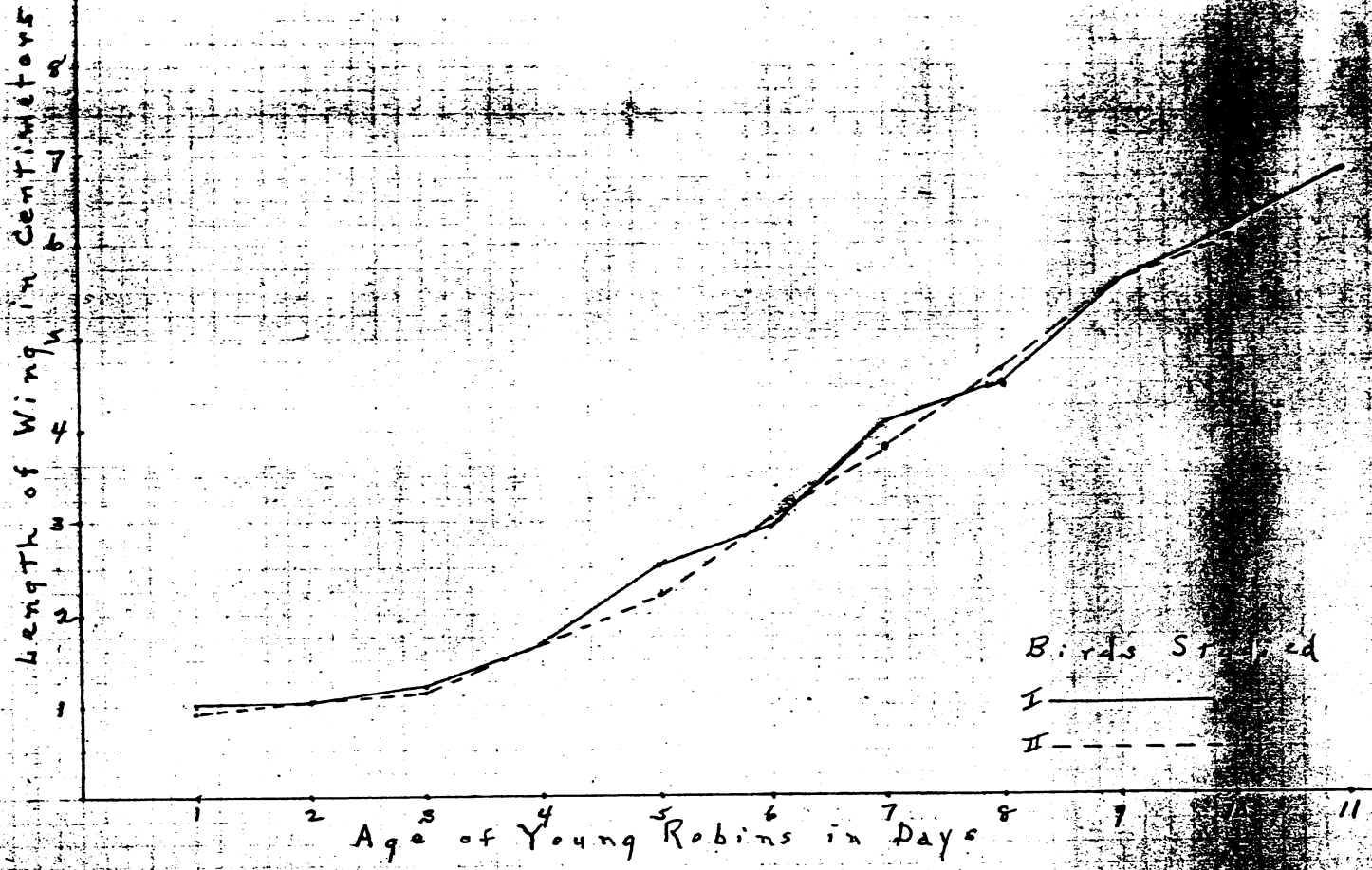
Graph 1. Showing Increases in Weight of Young Robins



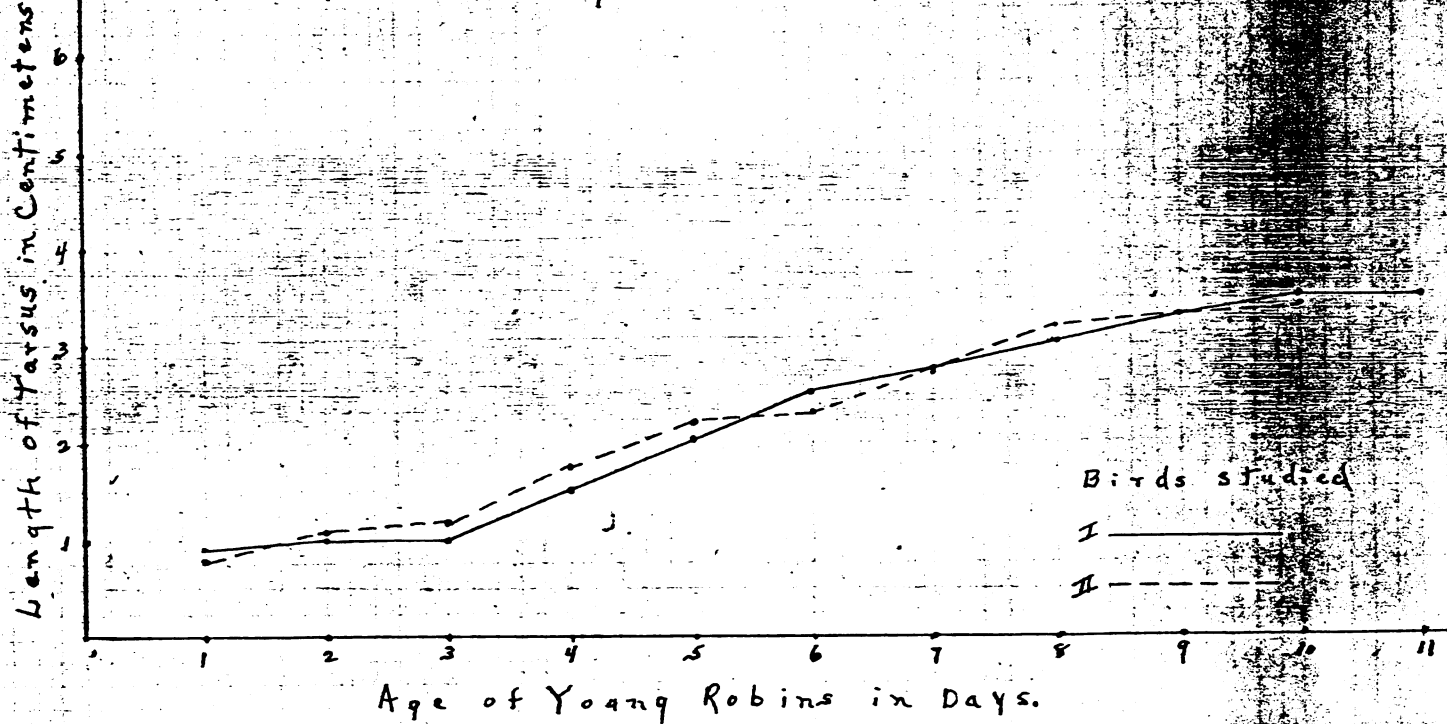
Graph 2. Showing Increases in length
of Young Robins



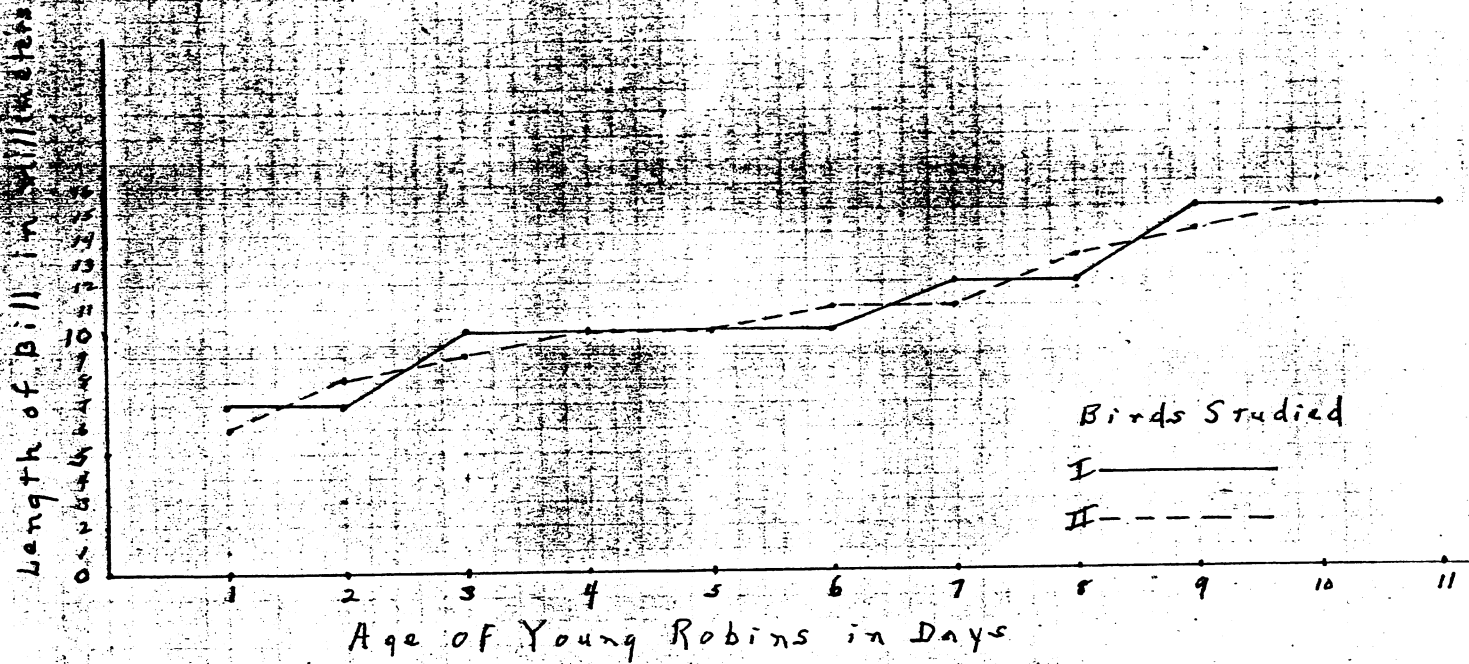
Graph 3. Showing Growth of Wings



Graph 4. Showing Growth of Tarsus



Graph 5. Showing Growth of Bill



Graph 6 Showing Growth of Gape

