

report of a Chipping Sparrow's Nest
University of Michigan Biological Station
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On the evening of July the sixth, 1933, a chipping sparrow's nest was discovered on the sandy beach of the shore of Douglas Lake on West State Street in South Fishtail Bay. It was located in the crotch of the topmost limb on one side of a small white pine tree, about four feet from the ground. The nest seemed interesting because the location was particularly hazardous. It was exposed to high winds coming directly across the lake as well as to the interruption occasioned by numerous observers, since the nest was plainly visible from the road side. The nest was made of dried grass, trimmed with roots with a lining of hair, rootlets and fine grasses. It was cup-shaped and the measurements were:

Outside diameter-three inches
Inside diameter-one and three quarter inches
Outside depth-one and three quarter inches
Inside depth-one and one quarter inches.

There were four light blue eggs with irregular dark spots, concentrated chiefly on the larger end. The nest was observed, however before the eggs were laid.

The female, evidently preparing to lay the eggs, sat quietly in the nest. Occasionally the male flew and perched on the low branches of a nearby paper birch uttering soft and subdued chips. He did not sing at this time. The male seemed attentive but at no time did I observe him feeding the female, who left the nest, ostensibly for this purpose about three times in an hour and a half. She remained away from four to eight minutes and then returned to the nest. Both birds seemed to have accustomed themselves to the constant interruption from observers because it was possible to approach very close to the brooding female before she would leave the nest. In flight, she uttered a soft, rapid chipping which would bring the male to his accustomed perch near the nest.

Neither bird, seemed greatly agitated however. Eggs, typically light blue, were laid in the following order:

First-July the seventh
Second-July the eighth
Third-July the ninth
Fourth-July the eleventh

They were laid early in the morning between 6:30 and 7:45 A.M. They measured .69x.48. After the eggs were laid, the brooding, done exclusively by the female, began. The breast feathers were fluffed out and the bird seemed to be able to fill the entire nest. She sat on the nest very quietly. Sometimes, the position would be unchanged for almost an hour. In changing her position, she moved slowly and slightly. Occasionally there would be more pronounced movements which seemed to indicate that the eggs were being turned in the nest. The female left the nest for feeding. Before leaving, she sometimes uttered a series of soft chips. If the male was in the vicinity, he flew to the nest as the female left it. He never sat in the nest or brooded the eggs but perched on the edge of it and looked in as if guarding the eggs. The female, at first, used to remain away for periods as long as seven minutes. As brooding progressed, the nest was left less frequently and the absences were of shorter duration. On one occasion the female remained away about two minutes. On two occasions the male was observed bringing food which he transferred to the female who did not leave the nest to receive it.

Whenever I came to the blind, the female would leave chipping softly but rapidly. Both the male and female would perch very near the nest and keep up a rapid but weak chipping but did very little flying about the nest during such interruptions. The female was far more readily disturbed during the first few days of the incubation period. Toward the close of the incubation period, it was possible to touch the brooding bird before she left the nest. The male perched, for the most part, out of sight of the nest but seemed ready to respond

to the calls of the female.

From July the ninth to July the nineteenth, incubation continued. On the evening of July the nineteenth, when I visited the nest, two of the young had hatched and the shells had already been removed. They were limp and motionless and covered with a fine dark brown down on the head and wing regions. In places, the down seemed almost an inch long. They lay in the bottom of the nest and made no sound. They were not fed at all on the first day of their lives., July the twentieth. The remaining two eggs hatched on July the twentieth and July the twenty-first. I found no evidence of egg shells when I visited the nest, indicating that they were probably removed immediately upon the hatching of the young birds. After the eggs were hatched the female sat even more closely on the nest, and the male, who had hitherto spent comparatively little time about the nest, became more attentive. I observed him feed the female three times in forty-five minutes. She, on the other hand, left the nest less frequently and for shorter intervals. In one hour she left twice; once for three minutes and once for five minutes. The young birds were kept at, it seemed to me, a higher temperature than the eggs. The second day of their lives the parents began to feed them. At first, only the two which had hatched on July the nineteenth were fed; then the third joined and at last, on July the twenty-first, all four were being fed. During the first two days the female did most of the feeding. She left the nest every seven minutes or so and returned with her beak full of small, and in some cases, even partially masticated insects. The female made no sound upon approaching the nest nor did the young, indicate by any sound that they were ready for food. The response seems to have been aroused by pressure on the body of the young birds when the female approached and perched on the side of the nest. Further evidence to corroborate this idea was

obtained when it was accidentally discovered that slight pressure on the sides or bottom of the nest would cause the feeding reflex to appear in the young birds.

For the first two days the young seemed less sensitive and gaped for food only on the actual approach of the female with the food in her mouth. Beginning with July the twenty-second, however their demands increased and the slightest breeze or passing disturbance which may possibly have swayed the nest slightly caused them to open their mouths. As far as could be observed, the stimulus, even if it were only the moving of one bird against another was necessary before the feeding response was evident. The young birds made absolutely no sound to attract the attention of the parents and the male and the female were likewise silent when the food was being brought to the nest.

On July the twenty-second the male began to take an active interest in the feeding. The two birds came to the nest constantly with food. The male seemed to bring larger insects like grasshoppers and caterpillars and it was surprising to see a bird three days old swallow an entire grasshopper. At first, the female sat on the nest until the male approached with food. Then she left the nest while the male fed the young by perching at the side and dropping the food down the extended throat of the nearest one. When the female returned with food, she warned the male of her approach with a soft chip. As soon as she perched on the side of the nest the male would leave for more food. After feeding the young, the female would settle on the nest to await the return of the male. To summarize the difference in behavior it may be noted that the male never sat on the nest, even in the most active time of feeding while the female invariably sat on the nest in between her foraging trips. During this period of active feeding the nest was rarely left entirely unattended. A record

was kept and it was noted that the young birds were fed sixteen times during one half hour., nine times by the male and seven by the female. The two were distinguished by the difference in behavior at the nest and by the fact that the male was slightly larger and darker and more intense in coloring.

Thus the feeding proceeded at a rate of once every two minutes. There seemed to be little choice as to the young bird which was fed. By observation it was noted that the following took place on two succeeding feedings.

Trip I
Bird A and B(determined by position in the nest) fed by the male
Trip II
Bird A fed by the female
Trip III
Bird B,C,D, fed by the male
Trip IV
Bird D fed by the female
Trip V
Birds A and B fed by the female.

Thus it will be seen that in five trips A was fed three times; B three times, C and D twice. No doubt a larger number of records would have indicated that each nestling was fed as frequently as every other nestling. The nest was closely guarded by both birds. During a violent rain storm on July twenty-third the female must have been on the nest the entire time because after the storm she was found sitting on the nest and the young were found warm and dry.

The nest was kept clean by both parents. Fecal sacs were carried in the bills of both male and female and dropped at a considerable distance from the nest.

Observation of the young Bird

For measuring, the rate of growth of the young, the bird that hatched last was chosen and measurements were begun on the evening of July twenty-first when the bird was about fourteen hours old. A table giving the salient information is attached. The behavior of the young bird and its rate of growth are interesting. When first measurements were taken it weighed 2.55 grams and its

eyes were closed. It was practically motionless; had no tail and except for the down covering its head and wings was naked. In the next week it increased its weight at the rate of about two grams a day. It did not show a loss of weight or remain stationary in weight at any time. Other evidences of growth and increase in activity were also noted. These may be summarized as follows.

July 21. There was only down. The feather tracts were naked. There was no tail. The eyes were closed and the bird did not move.

July 22. Conditions were much the same. There was no tail, the eyes were still closed, and very little activity. Sheathed feathers began appearing on the capital tract, the femoral, the ventral and other tracts.

July 23. There was the slight beginning of a tail. The bird squirmed in the hand and in the scale and the sheathed feathers grew longer on the capital tract and on the wings or alar tracts. There were the beginnings of sheathed feathers on the spinal tract and feathers were growing on the ventral tract and were first noticed on the outer and under sides of the legs. and on the side of the body, posterior to the legs

July 24. The young bird increased in activity and although the eye-slits seemed free the eyes were not opened during the measuring of the bird. The tail continued to grow. There was a fine down under the wings.

July 25. The eyes were completely open and the young bird increased surprisingly in activity. He attempted to scramble off the scale while being weighed and spread his wings but was unable to flap them. They closed rather slowly. The same feathers on the tracts were increased in size but were still completely encased in sheaths. New feathers were noticed around the eyes and the front of the head extending to the bill

July 26. The young bird was even more active. The entire head (especially the region around the eyes) was densely feathered. The humeral and alar tracts of the wings and both shanks were feathered. The femur was beginning to be feathered. The nestling flapped its wings and perched at the edge of the scale. The primaries had emerged partially from the sheaths revealing light brown black edged feathers. The tips of all the secondaries and tertiaries and the tips of the feathers around the neck were beginning to break through the sheaths. The natal down which had covered the head was rapidly falling out and being worn away.

On July the twenty-seventh, when I went to the nest, the three older birds squawked vigorously and flew from the nest and landed on the ground nearby. They ran in all directions rapidly, squawking loudly all the while. However, neither of the parents returned in response to the commotion. Since it was about 8:30 P.M., I thought that ~~perhaps~~ perhaps it might be best for the young to spend another night in the nest. So I rounded them up and replaced them after removing the youngest nestling for measurement. When I returned, however, the three older birds had left of their own accord, undoubtedly never to return to the nest. The oldest of them, therefore, spent from July the nineteenth to July the twenty-seventh, a period of only eight days in the nest. The young were heard at various distances from the nest the next day but I was unable to observe the parents feeding the young.

The bird I was measuring was placed in the nest although, he too, seemed ready to leave it. He was very active, spread his wings vigorously and flapped off the scale. All the feathers had emerged almost completely from the sheaths and only a small amount of down remained on the head over the eyes, on the scapular portion of the wings and near the tail. The young bird clutched

and perched on anything that seemed likely to afford support. The young bird had no opportunity to return to the nest, had they wished to, because the nest was disappeared the following day.

A very brief summary would tend to emphasize the fact that:

1. Chippingsparrows are evidently able to overcome certain adverse conditions and adapt themselves readily enough to have a brood successfully.

Apparently they do not desert readily.

2. The male does not assist in the actual incubation but becomes more active when feeding of the young begins.

3. There is no singing by the male after the female completes egg laying and whatever sounds are made are subdued and few in number.

4. The growth of the young is rapid and the nest is left after a period of about eight days.

Chart showing growth measurements of a nestling chipping sparrow
exclusive of growth in weight

Date	Length	Tail	Bill	Bill-eye	Bill-Gape	Bill-Nostril
July 21	39mm	none	6mm	7.5mm	7.5mm	2.5mm
July 22	40mm	none	6mm	8mm	8mm	3mm
July 23	45mm	none	6mm	9mm	9mm	4mm
July 24	48mm	4mm	7mm	10mm	11mm	4mm
July 25	51mm	4.5mm	7mm	10.25mm	11.25mm	5.2mm
July 26	55mm	8.5mm	7mm	12mm	11.5mm	5.5mm
July 27	60mm	9mm	8mm	12mm	12mm	5.5mm

II

Date	Eye-diam	Extent	RtWing	Prim	Foot	Tarsus-Toe
July 21	2.75mm	40mm	6mm	none	11mm	15mm
July 22	3mm	50mm	11mm	none	13mm	17.75mm
July 23	3.75mm	53mm	19mm	none	n.r.	25mm
July 24	5mm	55mm	21.5mm	none	n.r.	27.5mm
July 25	6mm	58mm	24mm	22mm	n.r.	28mm
July 26	6mm	70mm	29mm	22.25mm	n.r.	31mm
July 27	6mm	72mm	36mm	22.5mm	15mm	31mm

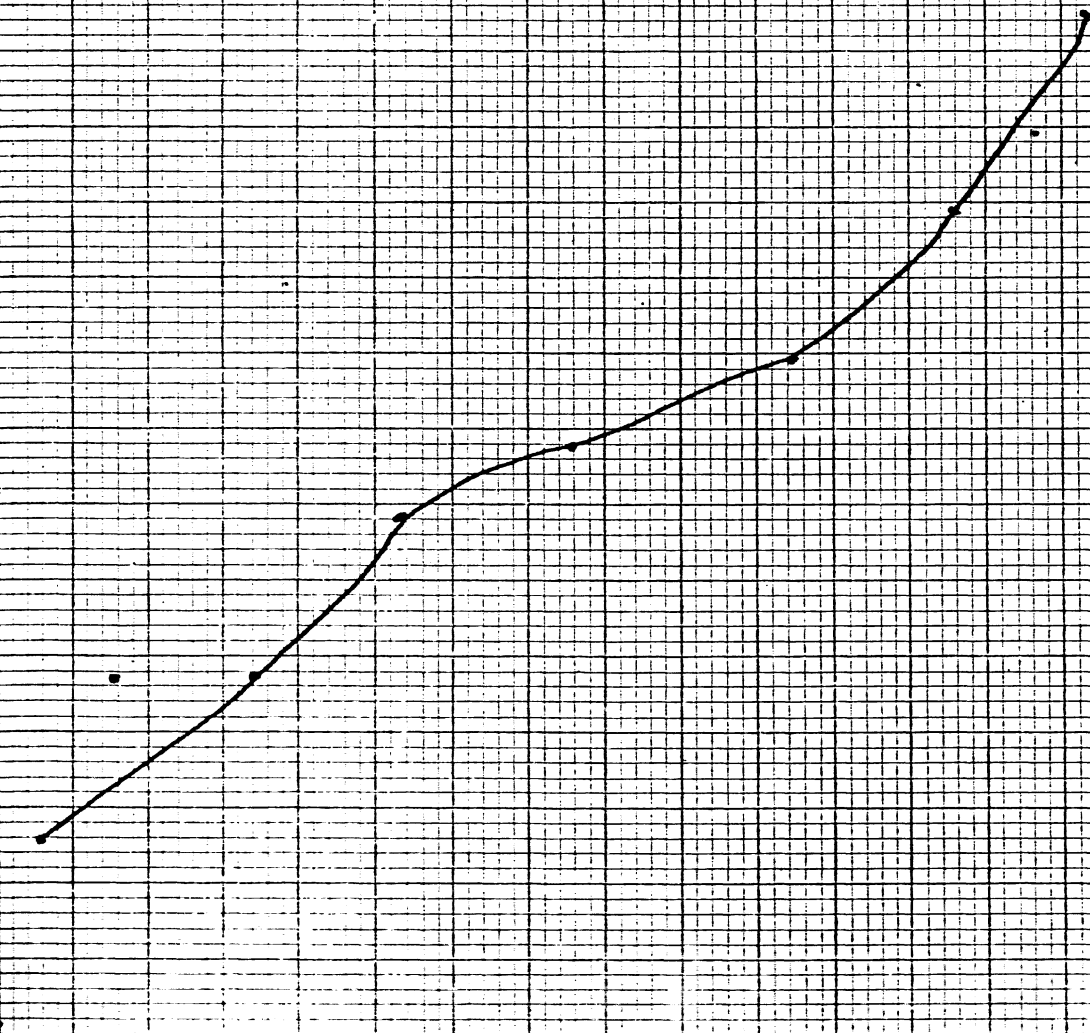
III

Date	Toe1	Toe2	Toe 3	Toe 4
July 21	5mm	4mm	5.8mm	4mm
July 22	7.1mm	5mm	8mm	4.25mm
July 23	8mm	6mm	9mm	5mm
July 24	8mm	6mm	11mm	11.9mm
July 25	10mm	8mm	13mm	11.9mm
July 26	10mm	8mm	13mm	9mm
July 27	10mm	8mm	13mm	9mm

7/21 7/22 7/23 7/24 7/25 7/26 7/27

7/21	2.55 gms
7/22	4.7 gms
7/23	6.68 gms
7/24	8.43 gms
7/25	9.83 gms
7/26	11.9 gms
7/27	13.8 gms

gms
15
14
13
12
11
10
9
8
7
6
5
4
3
2



Increase in weight - Chipping Sparrow nestling