

1937

Nesting Studies, Summer of 1937
at the University of Michigan Biological Station.

A. Rough-winged Swallow.

B. Phoebe. *Filed separately*

C. Ruby-throated Hummingbird. *Filed Separately*

Preston Smith.

The way the nest of the rough-winged swallow was reached by digging into the sand bank in which the nest-holes were located is described in the field notes, page 1.

Several questions came to mind while this study was going on. One was the reason for so many pairs of rough-winged swallows being around this one nesting site. Rough-wings are ordinarily supposed to nest in solitary nesting-sites in isolated pairs. Perhaps one reason for this was the lack of other suitable nesting sites in this region of sandy soil and rivers without steep slopes along their banks. There were about ten rough-wings around this one nesting-site. Only two of the burrows were found to contain eggs, the one investigated and one farther down the sand cliff. Perhaps the remainder of the birds were non-breeding birds; I am fairly certain they were not young of a first brood, as none had the rufous color of young birds. Or perhaps the raising of the young of one or two nests was to be a community project, to be carried on by all the birds. Miss Nelson suggests that maybe the unusually large number of eggs in the nest studied (eight) could be the layings of two females in one nest.

The gathering of nest-material by one of the flock showed me that the pine fascicles of my nest had probably been gathered on the beach just in front of the cliff. No artificial material was used in the nest, which was wholly of pine fascicles. The bird gathering nesting material was very helpless on the beach, usually landing just beside the material to be picked up, and scarcely moving any distance by the use of her feet. Apparently, the builder of my nest had used the first materials she came upon for building the nest.

The simplicity of the nest is well-accounted for by the

inability of the rough-wing to walk upon the ground and gather elaborate nest-materials. Also the simplicity of the nest is made up for by the nesting burrow. An elaborate nest is not necessary in such a place, as there is no danger of young birds falling out of it, or being harmed by the collapse of the nest in bad weather.

All the eggs do not hatch at one time. One egg, at least, hatched after all the others, and the female(?) was feeding the other seven birds before this last egg hatched.

At birth, the young are covered on the head and back with a soft natal down. The wing-feathers and feathers down the middle of the back are started by the second day, those of the wings being the longest. By the end of the second day the eye-lids are just beginning to separate. The blind young uttered two notes, a "cheep", "cheep", and less frequently a "sip". There was nearly a constant cneeping from the nest. The adults were observed with small white masses in their mouths, on which the young birds were probably fed. This was undoubtedly insect material gathered over the lake, as insects are the only form of life the swallows would obtain from flying over the lake the way they do. The food looked as if it was prepared in the mouth of the parent, as it had no definite shape--- just a small white mass. The few times the feeding was observed, the adults made several many trips in and out of the nest in a few minutes---a trip every four to six minutes. More than one adult was seen during the study with small white masses in their mouths. The feeding of the young in the nest was not observed, because the adults would not enter the burrow while I was looking at the nest through

the plate glass.

The adults showed great excitement and fear while I worked about the nesting-site, and while I watched the nest through the glass window. They flew about outside, uttering frequently their hoarse "turp" notes.

There was almost never a time when there was not at least one bird on guard at the nest-cliff, perched either in a small tree near the burrows or on a red pine fallen out in the lake. This was another reason for believing the nesting of these birds is a community project. Other members of the flock came and went, often the whole flock almost together, and the job of guard was probably passed around among these birds. Often two birds would be together at the entrance to the nest-burrow, perhaps the male and female. One bird, however, seemed the most set on feeding the young.

The actions of the birds after the young died (the cause of their death could not be determined) was interesting. One or both continued to come to the nest, and perch near the entrance of the burrow, often with food in their mouths. But they usually did not enter; after perching a while, they would fly on again. Several times one seemed to be courting and chasing the other. Perhaps the male already realized the failure of the first brood and was trying to get started with a second.

Perhaps the most interesting observation of all is the fact that nine days after the death of the young the whole swallow flock had left the region, apparently to the flocking of the swallow prior to their southward migration. If the young of the nest studied had not died, they would have probably just have left the nest, and the whole flock would have stayed in the region probably at least three or four days longer. This seemed to me to be the strongest argument for the community-nesting

theory. The whole flock of swallows had been retained at this nesting-site as long as there were young birds, and the whole flock left when the young birds died. The eggs observed in the burrow below the one studied were probably not fertile, or deserted.

Facts suggesting that the nesting of the rough-winged swallow is a project carried out by a whole flock:

1. Presence of non-breeding birds at the nesting-site.
2. Leaving of the whole flock of swallows when the young of only one nest died.
3. The large number of eggs in one nest--perhaps two sets.
4. The guarding of the nesting-site by various members of the flock, while the remainder of the flock was flying for food.

FIELD NOTES ON THE NESTING OF THE
ROUGH-WINGED SWALLOW.

June 30.

Rough-winged swallow's nest in sand bank just south of Pine Point and along the east shore of Douglas Lake looked into with a flashlight. One egg could be seen in the back of the nest-hole.

July 1.

8:40 A.M. Arrive at the nest-cliff, and begin to dig down from the top of the cliff to reach the nest. A hole is dug down in back of the supposed position of the nest, and then slowly the ground is removed toward the nest, until it is reached (10:30 A.M.).

10:30 A.M. Nest exposed carefully, and the ground removed from over the nest. 8 young birds. The one egg in this nest on June 30 must have been the last one to hatch; must have hatched between 4:30 P.M. June 30 and 8:40 A.M.

July 1. Young often say "cheep"; less frequently "sip."

10:30 on. Hole dug to expose the nest from above covered with a piece of glass, and *Pteris aquilina*, to shut out the light.

11:00 A.M. Leave the nest site, so parent may become accustomed to the new conditions.

2:10 P.M. Return to nest site and watch nest through the glass. No adult enters the nest. Excited calls of the whole swallow flock heard periodically without.

2:45 P.M. Move from position over nest to concealed position from which I can see the cliff and the birds. Glass covered up so as to darken the nest.

2:54½ Bird enters nest. One adult gathers pine fascicles on

sand beach just in front of the nest cliff, while mate looks on without helping. Carries material in every 3 to 10 minutes.

2:55 Adult comes out of nest.

3:01 Enters.

3:02 Comes out.

3:05½ Several of flock arrive.

3:07¾ Adult looks in nest hole but doesn't enter.

3:12 Both parents(?) at nest. Look in but don't enter. Coarse, harsh "Turp-turp", "turp-turp" of adults of the flock often heard.

3:13 More material is placed over the glass, so as to darken the nest more. This is done because the adults seem unwilling to enter the nest, perhaps because they see light in it.

3:15 Back at former place of concealment. One adult comes out of nest-hole.

3:18 Two boys pass on the beach.

3:19 A comes with small white mass in mouth. Perches on tree 10 feet from nest-hole.

3:22½ B looks in hole and leaves. Nothing in mouth.

3:24 White mass in A's mouth disappears (eaten?), and A leaves.

3:44 Some fly past, singing.

3:40-3:47 One or two perch on fallen red pine, apparently guarding.

3:46 One flies past, singing.

3:48 Many arrive, sing; one looks in hole, then flies on.
Two perch on tree near cliff and sing.

3:51 These two fly.

3:53 One approaches hole and sings.

July 1, 1911

Daily Development of Nestling

Name of bird *Rough-winged Swallow*

Date *July 1, 1911* Record by *Patton Smith*

Locality *Sandy cliff, on Pine Point, 4:15-25 P.M.*

Weight	gms.	Primary	15 mm
Length	62 mm.	Foot-body	35 mm
Tail	6+ mm.	Tarsus-toe	12 mm
Bill	5 mm.	Foot	18 mm
Bill-eye	1.5 mm.	Right foot	
Bill-gape	12 mm.	No.	Toe
Bill-nostril	3 mm.	1.	6
Eye-diam.	—X mm.	2.	8
Extent	106 mm.	3.	4
Wing rt.	48 mm.	4.	5

Appearance of feathers and changes in behavior.

Feathers down on top of head, all over back. Wing feathers and ones down middle of back just starting. Those of legs longest. Eyes just starting to break open the eyelids.

- 3:54 Two perch on fallen red pine.
3:58 Leave.
4:02 Some fly, sing.
4:07 Two arrive, perch on fallen red pine.
4:08 Both have left.
4:10 Three arrive, perch on red pine.
4:11 Leave.
4:12 Two perch on tree near cliff.
4:14 One enters lower nest-hole, to which bird was carrying
pine fascicles earlier in the afternoon.
4:15 Stop observing. 4:15-4:25 One young measured(see attached).

July 2.

- 8:35 A. M. Arrive at place of concealment, from which I can
see the nest-cliff.
8:35 One leaves nest-hole. Several around singing.
8:36 Looks in (white mass in mouth). Flies on.
8:37 Looks in (white mass in mouth). Flies on.
8:38 Looks in three times.
8:39 Enters.
8:39 plus Exit. Flies away.
8:40 Arrives; perches cliff-tree; white mass in mouth.
8:41 B enters lower nest-hole.
8:41 A gives warning note--"Chip; chip-chip."
8:42 A flies lakeward.
8:43 Three arrive.
8:44 plus Mother(?) arrives with food. Two court. Leaves.
8:45 Two at nest. One enters. Exit.
8:45½ Another enters. Two court. Exit.
8:46½ In and out of nest.
8:47 At nest. Leaves.
8:48 All arrive; one at nest.

8:49 One at nest. Leaves.
8:50 At nest with food; leaves.
8:50½ At nest; leaves.
8:51 At nest; leaves.
8:52 All leave.
8:52 plus. Three return.
8:53 Two at nest.
8:54 Leave.
8:54½ One at nest; leaves.
8:56 One at nest; leaves.
8:56½ One at nest; leaves.
8:57-8:59 One at nest; another there and left 4 times.
9:02 Two look in.
9:02½ One looks in. Another gathers nest material and goes in
lower nest.
9:05 One looks in nest-hole.
9:06-9:07½ Two at nest intermittently.
9:08 One at nest.
9:08 plus Leave position and go look in at nest through the
Glass. All 8 young are dead. Bodies removed.

July 11.

2:00 P.M. Nest site visited, to see if another set of eggs
has been laid, when young were removed from the nest.
No eggs have been laid. No swallows around the bank
or seen all day. Apparently have left to the flocking,
previous to the southward migration.