

## Ketterson / Nolan Research Group Collection

This document is part of a collection that serves two purposes. First it is a public archive for data and documents resulting from evolutionary, ecological, and behavioral research conducted by the Ketterson-Nolan research group. The focus of the research is an abundant North American songbird, the dark-eyed junco, *Junco hyemalis*, and the primary sources of support have been the National Science Foundation and Indiana University. The research was conducted in collaboration with numerous colleagues and students, and the objective of this site is to preserve not only the published products of the research, but also to document the organization and people that led to the published findings. Second it is a repository for the works of Val Nolan Jr., who studied songbirds in addition to the junco: in particular the prairie warbler, *Dendroica discolor*. This site was originally compiled and organized by Eric Snajdr, Nicole Gerlach, and Ellen Ketterson.

### Context Statement

This document was generated as part of a long-term biological research project on a songbird, the dark-eyed junco, conducted by the Ketterson/Nolan research group at Indiana University. For more information, please see IUScholarWorks (<https://scholarworks.iu.edu/dspace/handle/2022/7911>).

### License/Disclaimer Statement

By downloading this document or using any information contained therein, you agree to the license terms outlined at <https://scholarworks.iu.edu/dspace/handle/2022/8979>, which explain terms governing use, creation of derivative research, and requirements for citing the document.

PRAIRIE WARBLER NOTES

1956

BLOOMINGTON, INDIANA

Volume II

May 28 through June 30

Val Nolan Jr.



To 0928  
P. 0928  
May 28, 1956

+ 1200 prob  
Complete

314  
5/28/56  
VN

May 28, 1956

2.4 page  
339  
244

A windless morning with the moon in the west, after heavy rains from 1630 yesterday to about midnight or later; temperature 62°. Present from 0500 to 2000.

0513 at 0515 - The 2 males on V are calling their fight notes and singing insipid steps. I sit to watch 53F's nest.

0517 - 53F leaves the nest.

0524 - She returns. The males still sing.

0548 - 53F leaves to the S. I check the eggs; they are intact.

M53 has sung 96 times, approximately, since 0515. The 83rd song was a skid and the next a type-8; the rest have been insipid steps. He quits at 0549.

0554 - 53F returns from the S, goes around from the E to the W side, enters and faces S.

M53 begins to sing at about this time, steps as before until 0557 when he skids. At 0600 he quits after 14 songs.

0604 - 53F rises and looks down, doesn't probe.

0604 - He begins weak, but not faint, skids.

0607 - 53F probes in the nest for 10 seconds.

0613 - She leaves to the SW. M53 has sung steadily and regularly since 0604, 26 times. After the first 3 or 4, the songs became normal. At 0610 M54 began to sing skids.

It is 63°, windless, overcast but showing promise of

down  
05:17

0-0517-24  
215

dep S  
01:48-24  
35 leg in  
net

1st  
non wind

net S  
f S

0-0613-24  
05-13  
net

dep SV

315  
5/28/56  
VN

clearing.

0622 - 53F returns, enters from the W, faces S. I  
heard 1 or 2 songs during her absence but they didn't sound  
like M53 until one just before she entered. He then sings  
about 30 seconds after that; skids. 53F came straight back,  
didn't pause.

*h/s  
f/s All probes  
Recorded*

0631 - She probes for 1 second.

0632 - After 15 skids since she returned M53 sings type-  
8's N of the nest. So far today he's stayed S of it; near  
1. His songs are rather weak.

0640 - 53F probes for 3 seconds.

0643 - She probes, or possibly preens her breast, for  
10 seconds. He's still singing regularly at relatively long  
intervals.

0645-1/2 - After a song (35 to now) M53 brings food to  
the nest. The female stays well down. He sits on the rim  
for 30 seconds and at least 5 times thrusts the food down,  
apparently into the space between the female and the nest wall.  
She doesn't take it or react in any way. M53 then leaves,  
probably carrying the food. She raises her head to look after  
him, then settles deep again.

*A F B*

0647 - M53 begins type-8's.

0651-1/2 - 53F leaves and flies SW low. M53 sings 4  
times after she leaves. At 0653 he quits after 18 songs.

*O-0652-0700  
4+275  
deg SW*

I've removed 2 leaves that have screened the nest on past days and I'm watching it steadily and recording all 53F's probings, etc.

NB

2

20 18 0655 - M53 begins to sing type-8's. M54 sings a few type-8's; then I don't hear him. After 20 type-8's M53 switches to rather loud insipid steps.

0659-1/2 - 53F returns straight to the nest tree, lands 6 inches below, climbs, enters from the W facing S.

not  
for  
FS

27 min (4.0) 0700 - M53 has sung 27 songs since 0655 and is continuing to sing frequently and regularly. At 0704 he quits after 41 songs.

1

7 min he starts loud type-8's at 0708.

7 min (4.0) 0708 - 53F looks into the nest a moment. It is 64°. Another male is singing type-8's. I suspect it's M54. He quits after 1 minute.

0715-1/2 - M53 switches from type-8's, after 42 songs since 0705, to insipid steps. M54 has sung these for 2 or 3 minutes. I do not start a new count.

0717 - The sun shines for a minute.

0724 - M53 quits after 76 songs since 0705. M54 continues his step.

0727 - 53F after looking about and half rising (perhaps better, extending her neck) for a minute, leaves and flies 18 yards NE, stopping somewhere between me and the nest. Again I recorded all her activity while on the nest.

18 yds NE

NB

317  
5/28/56  
VN

D-0727-33  
85

0730 - M53 is singing insipid steps, and so is M54.  
They are faint, and counting is difficult. At 0732 M53  
switches to skids. He is S of the nest.

0733 - 53F returns to the nest from the N. She goes  
first to a blackberry 2 feet W of it. In 10 seconds she  
goes to the nest from the W, looks in, enters facing S.

M53 is now singing chatters after 1 skid. M54 sings  
regular insipid steps.

It is 65° at 0733. There is sunlight through a thin  
overcast.

0741 - 53F rises and probes for 10 seconds. She settles  
facing S as usual.

0742 - She repeats; looking and poking gently for 15  
seconds. She clearly eats a small object.

M53 is singing in the high trees of the E woods at  
the N end; his song is still a chatter. M55 is singing.

0745 - M53 sings once over my head, quits after 39  
songs.

0746-1/2 - M53 begins to sing in the big trees above me.  
M54 sings steps.

0747 - 53F probes for 1 second.

0755 - She looks in or probes for 5 seconds. The male  
still chatters in the E trees.

0756 - 53F probes for 5 seconds.

39  
whs  
p hr  
ch

put N

for  
fs

1 1/2

31 Ch  
3/12  
0756-1/2 - M53 quits after 31 songs. It's clouding over again.

0800 - M54 sings steps.

0803 - M53 begins to chatter in the SE corner of the pine field. It is 66°.

45 min (3.0)  
2 ch  
1  
4 ch  
0811 - 53F leaves to the SE (about 15 yards) after the same sort of looking about that I saw last time. M53 goes on singing. I go to look at the nest and he quits singing after 45 songs. He is near 1 in the SE corner; his quitting may be a coincidence.

The eggs are intact. It is 68°.

0817 - M53 sings 2 chatters and stops for 1 minute, resumes for a minute and sings 4 more.

0823 - I see 53F fly from the E trees to a yellow pine 10 yards from the nest. She feeds with great energy and speed for 1 minute, about 2-4 feet high.

0824 - 53F goes to the nest tree and lands on the E side. Instead of going through to the W, she simply goes around to the N side of the nest and enters facing SW. She is silent, as she has been every time today.

7 1/2  
0826-1/2 - M53 begins to chatter from the place he's been in most of the morning, SE of the nest in the corner of the field or the edge of the locusts. His song is not quite full volume.

O - 0814 - 24  
4+4  
dep SE

NE

SW

7 m  
0831 - 53F probes for 2 seconds. In half a minute she repeats.

20 m (2.7)  
0833 - She pokes vigorously for 3 seconds.

0836-1/2 - M53 quits singing after 27 songs in 10 minutes.

1 1/2  
0838 - He begins to sing exactly as before, comes NE, toward me. A male presumably M54, sings high skids, I think to the NW.

It is 69°, clearing and with a little sunshine.

36 m (3.8)  
0847 - 53F hops out of the nest, goes to a blackberry about 6 inches from it, appears to feed 2 or 3 times on it for about 15 seconds, flies SE toward where M53 sings. He sings once more to 0847-1/2, quits after 36 chatters. I got the impression 53F left the nest to investigate something.

O-2847-12  
11 75 S

dr SE

NR

1  
10  
1 1/2  
In 45 seconds M53 resumes his singing. I start a new count. At 0852 he quits after 10 songs.

0853-1/2 - M53 begins as before, moves N toward the nest.

21 m  
0855 - 53F goes to a Virginia pine 6 yards W of the nest, sits in its top for 15 seconds and calls "check" faintly twice. She then goes to the nest, enters from the W, faces S. M53 is singing loud chatters near the nest.

45  
FS

0900 - 53F resettles a little. The male is singing a short distance away; 21 songs since he began, but I don't start to count over. At 0902 he moves SE toward the corner of the field. I time 5 intervals at 18-19-13-20-12.



0909 - 53F is sitting high in the nest. It is 72°.

0910-1/2 - 53F probes deeply for 15 seconds.

38 (3.0)

0912 - M53 quits after 59 chatters. A few seconds later I hear a type-8, but I think it is M55. There are also high skids from the woods E of V; these probably are M53.

0917 - 53F looks out attentively for about 30 seconds.

4

2 SN

0919 - M54 begins loud skids, very near. T53; it sounds as though he's on this territory.

43+8

(4.5)

0920-1/2 - M53 starts to sing type-8's over my head. The first two are interrupted and fragmentary, as are 1 or 2 others. He must not be moving or I'd see him.

0925-1/2 - 53F probes for 6 seconds.

318

8

0930 - She hops out of the nest, goes to the blackberry as before and pecks at 2 or 3 things, flies NE. M53 is singing type-8's above me and continues to do so once or twice, then moves N in the woods. He sings on, but his song is faint. At 0931 he quits after 46 type-8's.

0-0930-39  
2

begin  
NE  
main

It is 72°, cloudy and threatening rain.

0939 - 53F comes to the nest directly (from the N, I'd guess), enters from the W and faces S. Immediately M53 begins type-8's.

not N  
W  
FS

I'm going to quit watching every move she makes on the nest, for the time being. I haven't quit looking at the nest for over 4 hours.

N/B

3  
L 0939 - M53 sings 3 type-8's, quits about a minute, and then goes on. He is N of the nest about 25 yards, going W.

0950 - 53F probes in the nest for 8 seconds, probably the first time she's done so since she began to sit. (I've looked at her pretty constantly.)

M53 is moving over the entire territory singing and is now near 1 after going S along the W side. M54 sings high skids remarkably nearby on the NW edge.

71(3.4) 1000 - M53 has sung 71 times since 0939 and is continuing. All are type-8's. I don't start a new count. M54 is still skidding on the E edge of his territory.

21171  
63  
80

1005 - 53F probes in the nest for 15 seconds. The male is now in the tree just S of me singing type-8's steadily and regularly.

1008 - 53F repeats her probing for 5 seconds.

38 hrs W 1009 - In 30 minutes the male has sung 109 times. I don't start over.

1014 - 53F leaves the nest exactly as she has the last 2 times, pausing for 30 seconds in the blackberry, then coming E toward where the male is singing in the big trees at the edge of the woods. M53 goes on regularly. I thought I might have heard 2 "tsu" calls as she came flying E, just after he sang.

O-1014-1023  
11+1.1  
Rt by  
Lp E

(3.6) 1017 - M53 quits singing after 136 straight songs.

21 mrr  
28 1019-1/2 - He sings a type-8 to the N in the field.

36  
36  
117  
220

2 1/2



1  
1022-1/2 - M53 flies to a weed 4 feet from the nest and  
perches 2 feet high. In 3 seconds 53F flies straight to the  
nest tree, enters from the W, faces S. M53 sits nearly motion-  
less for 45 seconds on his weed, facing the nest. He then flies  
fast and low to the N.

acc 0-7  
sk  
FS

9  
528  
1028-1/2 - M53 begins loud type-8's in the NE part of the  
territory; he's on the tall trees at the edge of the woods.

1045 - M53 is still singing loud type-8's at the edge  
of the woods. M54 begins insipid steps near the territory  
line, switches to skids.

53 18  
1046 - 53F probes in the nest for 15 seconds.

1046-1/2 - M53 falls silent after 63 songs.

1049 - The sun comes out, though most of the sky is pretty  
thoroughly overcast. It is 73°.

9 1/2  
1050 - M53 (?) begins high skids of the sort whose loca-  
tion is difficult to determine. After 3 or 4, he begins type-  
8's above me at 1052. I now think that the skids were M54's.

1054 - 53F leaves, goes to the blackberry, where she  
pauses 8 seconds but does not feed, flies SE.

0-1054-1100  
dep 13+12 S  
56

1500  
M53 now is skidding W of the nest and M54 is singing in-  
sipid steps. The skids are not as high as M54's, are less  
penetrating.

Both males are singing now, with skids and insipid steps  
used. It is hard to count M53's songs; they are irregular,  
about 15 to 1100. At 1058 he gives little bursts of 5 to 10

anger calls, although he is not near M54. (M53 is near 1, M54 near the center of 2.)

53F is feeding above me, calling "check" irregularly, sometimes once a second, sometimes every 10 seconds. The calls are loud and have a kissing sound.

1104 - 53F goes to the nest tree, hops to the nest from the W and across it to the blackberry where she picks at things for 20 seconds. *NTW*

1104-1/2 - 53F hops back to the nest from the E and faces SW. M53 is singing his dry skid about 10 yards N of the nest, M53 his high skid to the W. I've been counting M53's songs since 1100, when they first became a clear series. *f SW*

1109 - 53F probes for 4 seconds. (I forgot to note that 53F seemed to call louder and more frequently just after M53 sang; this happened 2 or 3 times, not invariably.) *FR*

1115 - M54 sounds so close I go to check him; he's singing loud from E of 2. M53 has nearly quit singing. By 1118 he's sung 52 times, and though he goes on, I start a new count because his interval seems so much longer. At about 1121 he begins to speed up; and both males sing loud skids. *5232(3)*

1124 - 53F has her bill open. It's 76°. She closes it in 10 seconds for about 10 seconds, opens it for 5. She's sitting high in the nest and has been for 10 seconds. *Heat Bill open*

The blackberry she goes to is in full bloom and probably has only been so for a day or two. This may account *just N/B*

324  
5/28/56  
VN

for her sudden interest in it, if it has a greatly increased number of insects on it.

2482

1128 - M53 quits after 24 skids sung irregularly.

2

1130 - The sky is partly clear (20%), and some sun shines for a minute or so.

1135 - 53F is obviously watching something on the leaves or on the blackberry below her.

B on nest

N B flying

1135-1/2 - She jumps out and goes down 1 foot where for 30 seconds she pecks at 1 or more things. Then she flies NE low.

O-1136-1145

dep NE

I check the nest: No developments.

1145 - I see 53F in the yellow pine mentioned earlier. She is feeding with great energy. I can see her pecking very rapidly at a large black ant that seems to elude her by crawling on the opposite side of the branch. Whether she is eating ants I can't be sure. She flies silently to the nest tree, lands 1 foot below the nest, sits for 10 seconds looking around, hops up to the N side, and enters facing S.

foot

ml  
fs

11 72

1151-1/2 - M53 begins insipid steps to the W of the nest.

53F is sitting high, looking with evident attention at the foliage around her.

B on nest

11 ins  
15 ch

1155-1/2 - M53 after 11 insipids sings chatters in the NE part of the pine field. Then he goes into the E big trees.

The female is still looking around her as before.

B on nest

1200 - M53 has sung 15 times and is continuing. I keep on counting.

1201 - 53F probes for 5 seconds. (I'm missing very little if any of such activity.)

1205 - 53F is looking at things below her.

1205-1/2 - She hops out, goes to the blackberry, and for 15 seconds feeds. She very clearly is getting insects, 3 or 4 of them, but too small for me to see. She flies SE into the edge of the woods.

1206 - I hear a quick series of "tsu" notes above me, and M53 quits singing after 40 chatters. I'm reasonably sure 53F flew to him and that the notes were the twitter PW's sometimes give when they meet close at hand.

1218-1/2 - 53F flies into a little tree near me and perches with her wings very slightly extended, her body stiff. She looks back, sitting 5 feet up. M53 flies past her over her head, his flight normal. She flies quickly after him; I think she may flutter a little. They go out of sight. He's been silent since she left the nest.

It's 80° and has been thundering to the SE since 1200.

1223 - M54 begins to sing high skids. 53F's calling "check" between me and the blind.

1224 - 53F goes directly to the nest but eats an insect just W of it, then sits for 30 seconds at nest level.

1224-1/2 - She hops up above the nest, enters from the W and faces S.

0 1205 - 1224  
2+3  
quite a few  
insects

1/2  
fly  
up & 1/2

5/9  
call down

8/9  
into the cage

net

up  
1/2

9 1/2

1225 - M53 sings skids between the nest and 1. M54's songs go on.

11 1/2 h

1230 - 53F leaves the nest and M53 quits singing after 11 skids. At 1234 he skids near 1 in the pine field.

O-1230-44  
1 S -  
3 notes  
3 notes

U

1243-1/2 - 53F flies straight to the nest from the S, looks in on the SE side; enters there and faces N.

net S  
FN

1245 - 53F sits high in the nest, probably not fully covering the eggs. She keeps her bill open about 1/4 inch most of the time (95%). It is sunny, 80°, quite humid.

B in nest  
with 53F

M53 is singing skids in the E trees, where he's been most of the time since 1234.

36 sec (2.57)

53F is clearly not incubating; she's simply tending the eggs by sitting over them, or, probably more accurately, standing over them. [Bearing on Odum's theory re incubation intervals?]

UB

1254 - She probes the eggs for 4 seconds.

1255 - She probes for 10 seconds. Her bill is open nearly constantly.

1255-1/2 - She turns and faces due W for the first time I can remember.

1258 - 53F makes a quick little movement to the side with both wings, as though using them to shape a nest. She then probes for 2 seconds.

1259 - She turns to face due S, sits down deep and incubates.

1259 - M53 falls silent after 36 skids on the SE edge of

the territory, probably all from high in the trees.

1300 - Silence.

1301 - M53 begins a series of very occasional insipid steps.

1302 - 53F is high on the nest again, crouching or standing.

1307 - M54 begins high skids but M53 continues his insipids.

1310-1/2 - 53F jumps out of the nest and sits almost motionless for 30 seconds about 3 inches below it. She then hops to the blackberry and feeds on its stem and flowers. Leaving it, she goes to the ground, in a minute returns to the berry. She never gets over 5 feet from the nest.

1311 - She hops to nest level, enters from the S facing N.

1315-1/2 - 53F leaves again as before, going into the nest tree and the blackberry. But in 1 minute she flies S. M53 is singing steps and he continues after she leaves.

1322 - M53 stops singing after about 38 steps. M54 has sung a few too.

A Broad-wing flies over with a little snake.

1334 - M53 begins skids in the SE corner, but he quits after 4 within 75 seconds.

1343 - M53 begins to sing in the field SE of the nest.

1343-1/2 - 53F flies straight to the tree, enters from the W and faces SE. She sits low. She may have called in the

O-1218-1357  
63  
dec  
B off

N13

200  
F N

O-1218-43  
1243  
long one  
return

dep S

Burgth

get  
F 56

21/35  
31  
170  
168

38-5

8

4  
4.5 h

8



field near the male before returning.

1349 - She sits up high for the first time, opens her bill. The male continues to sing in the pine field to the SE; all songs are skids.

1350 - The female turns to face SW, probes for 15 seconds. When she sits high there is a considerable space between her breast and the nest wall in the direction she faces.

M53 has come into the high trees just S of me.

The female's bill is wide open all the time, over 1/4 inch.

1358 - She hops out to the nest tree, in 5 seconds to the blackberry. There she feeds for 1 minute, then flies low toward the E. At the last moment she rises about 20 feet and lands in the edge of the woods trees about 10 yards or less from the singing male. She calls one faint "tsip." M53 pauses a few seconds in his singing, then goes on.

1400 - He's sung skids 51 times and seems just to have fallen silent.

1404 - He begins to skid again rather faintly to the N. I then see him feeding with darting movements directly overhead, about 25 feet up. He may have an encounter with a Wood Pewee.

1407 - 53F goes straight to the nest, faces S, sitting down low.

FSW

O-1358-1407  
6+4 S

NB fed  
up E

to S  
V B

5702(1)

4

not  
f

10 sk  
1 1/2  
M53 goes on singing as before. After 10 songs to 1411, he quits; but in 75 seconds he resumes so I don't start a new count.

It is getting rather dark and cloudy, and the temperature is 77°. 53F has her bill open and is sitting up high now.

17 sk  
7 min  
6  
2  
1421 - After 27 skids M53 switches to insipid steps. The sun is back. He sings 7 in 3 minutes and quits at 1424.

1433 - He sings 1 skid, changes to insipids near 1.  
1433 - 53F perches for 20 seconds on the E nest rim, flies low to the E for 15 yards. The male sings near the nest in the pine field.

1433 - 1433 - 46  
20 + 11 S

He quits after 20 songs to 1440.

1441-1/2 - M53 skids NW of the nest near the territory line, comes SE toward the nest.

1446 - 53F calls "check" 3 or 4 times NW of the nest near the male, flies straight to the tree, sits for 5 seconds just W of the nest, enters from the W and sits down deep facing S. She then rises a little.

1446 - 1446 - 46  
20 + 11 S

The male comes E toward me, still singing. At 1451 he goes into the trees about 30 feet overhead.

1451 - 53F probes for a few seconds.

495 (2 3-)  
1500 - M53 has sung 49 skids and is continuing in the high trees. 53F is sitting low. It is 78°, and it looks like rain. I keep on with the same count.



20 (2, 6)  
1507 - It rains lightly for 3 minutes. M53 becomes silent after a total of 69 songs.

2  
6 5/28  
1509 - M53 sings skids. W of the nest, 6 to 1514, when he stops.

1515 - The sun is out. 53F is sitting low, as she has 75% of the time since she last came to the nest. *Barn*

1521 - 53F hops out to the blackberry and feeds for 1 minute, paying special attention to the flowers; she then goes to another blackberry 3 feet from the nest, then back to the first. Next she perches 5 feet from the nest, 4 feet high, and preens her belly and stretches. Her manner is slow and leisurely. She goes back to the berry by the nest, feeds, goes to a weed stalk 6 feet away and simply sits about 1 foot high. At 1527 she goes to the nest, looks in, sits on the rim about 6 seconds, flies NE low out of my sight. *feeding  
dust  
NB  
Insects  
NB  
O-1521-40  
O-1527-5  
day NW*

9  
10 1/2  
1-3  
1523 - M53 sings faint insipid skids, about 10 to 1528. At 1530 he sings 2 more.

A Broad-wing flies over with a relatively large animal, about 6 inches long. There is some of the usual twittering on V. *Bug*

1540 - 53F goes straight to the nest, enters from the W faces S. She sits low. It is 78°. *sw  
fs*

10 1/2  
15 1/2 (2)  
1540-1/2 - M53 begins insipid steps between the nest and 1. He stops at 1547 after 15 songs.

1545 - The female has her bill open. I should mention that sunlight doesn't shine directly into the cavity at any time except possibly in the morning, as the result of my removing some leaves on the E side. 53F is sitting now in complete shade.

fish on  
nest

From 1545 on she sits high on the nest but not so far that her breast is away from the rim.

1555 to 1600 - M53 sings 17 insipid steps, faint, near

8  
17 L (3.2) 1.

1600 - He begins skids and goes N of the nest after the first, probably to the woods on the N. At 1602-1/2 he quits after 8 songs.

0-1601-13  
2 S

1601 - 53F leaves the nest directly, not staying near it so far as I can see. It is 80°, sunny and humid. The wind is from the S but is quite gentle; it has never been a factor today.

lrs  
weather

9/1

1612 - M53 skids in the center of the field, goes on doing so.

1613 - 53F returns straight to the tree, sits at nest level bobbing her tail for 5 seconds, goes 3 inches above the nest from the W, jumps in facing S. As usual she begins by settling down deep but in about a minute rises.

Net  
f S  
Behavior

1615-1/2 - 53F jumps out, sits W of the nest for 10 seconds about 2 inches away, enters as before after probing

NB

for 2 seconds on the rim. Her bill is open.

M53 is singing loud skids near the female, moving slowly S. At 1620 he flies to the top of the Virginia pine and seems to be looking down at the nest for 20 seconds. Then he goes W in the pine field singing.

1625 - 53F probes the nest for 5 seconds.

1625-1/2 - I hear the twittering noise that means a predator is near and look up to see a Broad-wing flying S. The trouble is I don't know what bird utters the fear call.

Bird W

M53 is singing skids S of me, first in the tall trees and then in the field.

At 1627 the female is sitting so deep she's almost out of sight. She continues this for 3 minutes, then rises a little, bill closed.

37 sk (2)

1631 - After 39 skids M53 switches to chatters and

I start a new count.

232

29 sk (3.2)

1636 - 53F gets off the nest, perches on the SE rim for 20 seconds looking down at something, settles back and sits as before.

3

20

2

1

1

1

1639 - 53F leaves the nest.

1640 - M53 quits after 29 chatters.

1643 - Two chatters in or even S of 1; at 1645, another.

O. 1639-172  
3 + 4 + 1 + 1

14?

In 1 minute M53 comes back into the SE corner, sings once.

At 1648 he begins to sing frequently near 1. At 1652-1/2

he stops after 14 songs.

6 1/2  
2 ch  
1659 - He begins with a chatter near 1.

1700 - He's sung twice and is continuing in a desultory way. I'll not break the count.

1702 - 53F returns to the nest unseen by me. She is facing S and must have come without any hesitation. She's sitting up a little as usual, bill closed. It is sunny, *hew* 78°.

1708 - 53F probes for 5 seconds.

1712 - She has her bill open.

1715 - M54 is singing skids, the first time I've heard him in a long while. M53 is in the trees above me. He's been N of the nest for some minutes.

*u*  
*48 (2.0)*  
*6*  
*1/2*  
*5*  
1718 - 53F leaves the nest directly and comes E. M53 sings a song which he abbreviates at the very end, then 2 much fainter chatters, then quits at 1719 after 48 songs all told.

1725 - One chatter.

1728-1/2 - 53F flies to the blackberry from somewhere W of the nest, possibly from the nest tree. She goes to the nest in 10 seconds, entering from the SE and facing NW. She sits low.

*14 sk (2.3)*  
1730 - M53 sings a skid, above and just S of me, then infrequent skids in the pine field. After 14 in 6 minutes he quits.

1736 - 53F probes, settles down deep after 3 seconds. Fifteen minutes later she's still deep in the nest. The male is silent. It's 74°, cloudy since 1730.

1751-1/2 - M53 skids weakly N of 1. At 1755 both males sing very faint insipid steps 2 or 3 times.

1757-1/2 - 53F leaves the nest directly.

1800 - Silence. There have been 2 or 3 very faint steps and 1 skid in the last few minutes, but I can't tell whether M53 is the singer. It's 75°.

1805 - M53 sings 4 faint insipids.

1808 - 53F returns without hesitation and faces S.

1812 - M53 begins faint insipid songs, 14 to 1820. At that time he changes to loud skids and moves into the trees at the E edge of the territory.

1836-1/2 - After a total of 45 songs M53 takes food to the nest, where 53F is sitting. He offers it to the nest, simply sticking it out at nothing. The female does not respond. Suddenly a chat flies up to the nest, and M53 flies away almost surely with the food. 53F turns toward the chat, which came from the NW, and spreads at least 1 wing. I can see her thrust her head out; but the chat stays only about 3 seconds, so it's hard to see the action. When the intruder leaves, or is chased away, she follows. I don't get the impression she is pursuing; only that she is continuing her resistance. They pass out of sight in about 1 foot's flight. This all happened extremely rapidly.

AFB

10-1837-44



The male is silent after his visit to the nest. 53F sat low all of her last time on. It is 74°.

1843-1/2 - 53F returns very quickly from the NW, looks in, enters from the W and faces S.

near NW  
FS

1850 - There are 1 or 2 very faint steps, possibly M53's.

It is clouding up in the W and has begun to thunder a good deal. It is 74°. 53F is sitting so far down I can see only her tail.

1858 - M53 begins to skid near 1. He sings only 3 times.

1900 - Silence. It is 72°. It is going to storm.

1910 - M54 begins faint insipid steps, much abbreviated.

He stops after 4 in a minute, then in 1 minute goes on.

1917-1/2 - 53F leaves the nest. M54 is singing his little short steps to the SW somewhere; they are so faint it is hard to trace them. I check the nest; the eggs are unbroken.

0.1918-1.6  
65

1923 - M53 sings loud skids in the SE corner, the first songs from him in some time. He stops at 1925 after 6.

1926 - 53F comes to the nest tree from the S, climbs up to 2 inches above the nest on the W side, turns and enters facing S. She won't leave it again. It is unnaturally dark, with the storm threatening to break any minute.

near S  
FS

1930 - I leave T53.

T56 at 1940 - It is raining hard. The nest is empty, unfinished.

2000 - I leave. It has been 35% sunny today.

weather

13 1/2  
2 min

8

3 sk

10

4 min

1

10

6

6 min

5

storm

336  
5/29/56  
VN

May 29, 1956

A misty morning, nearly clear, after a heavy rain last night just as I left; slight S breeze; temperature 66° at 0500. Present from 0450 to 2010.

T53 at 0450 - 53F is on the nest as I arrive.

0453 - 53F leaves the nest.

M53 and M54 are singing insipid steps. It is hard to count M53's.

0500 - 53F returns to the nest.

By 0525, M53 has sung 70 times.

0529 - 53F leaves the nest. M53 falls silent in a few seconds, after 21 songs since 0525. I check the nest; the eggs are unhatched.

0537 - 53F goes to the nest tree from the N but leaves it instantly and goes a little S of it. M53 begins to sing insipid steps.

0538 - 53F goes straight to the nest, enters from the W, faces S.

0545 - M53 is singing on. His song is faint and sounds short, but I may not be hearing it all. I can't tell where he is. M54 hasn't sung within earshot since 0525. At 0551 M54 seems to be back, but I hear only 1 or 2 songs and could be mistaken. I forgot to note that M53 was giving some fight

calls near the W part of 1 at 0520 while M54 sang near 2 and 3; I don't know that there was a connection.

73 in 1  
101 sn 0600  
0600 - M53 is still singing insipid steps. I've counted about 73, but some of these could be M54 perhaps. There is 1 skid just at 0600, then steps again. M54 is singing the same near 2. I start a new count.

It is clouding over in the W; the temperature is 66°.

(A female Indigo mounts to the top of the Virginia pine and sings about 10 songs, then goes N and continues. The song has 5 notes, sometimes 4, and has the pattern of the audible part of an Olive-back's song, getting higher. There is something of the abrupt quality of the Dickcissel's rattling choppy song--no melody, just buzzes.)

9  
IB  
sing

0605 - Some male is singing type-8's; but I think it's M55; there are only 3 or 4.

0606 - 53F leaves the nest.

LV

0615 - 53F goes alone to the nest and without more than a second's pause enters from the W and faces S. Her approach is nearly always to hop up from nest level to a very small branch 2 or 3 inches above it. From here she glances down, then jumps into the nest and settles.

Rev

0620 - I go to watch M53 for a few minutes. He and M54 are singing insipid steps between 1 and 2, M54 in 2. M53 is low, singing from 8 feet and under. I suspect that this



338  
5/29/56  
VN

61 <sup>ins</sup>  
10 sk  
song is seldom given from a high perch. At 0622 M54  
switches to a skid and at 0627 M53 does too. M53 has sung  
about 61 times since 0600 to 0627. His skid is first sung  
from the tops of l. He then goes N to the edge of the woods  
and continues, then evidently goes out to the pine field.  
The song is loud and frequent, and at 0635 both males are  
giving it repeatedly. Note that the insipid step is sung in  
the early morning and before dark. How connect this with  
its use in fights? NB

36 sk  
0640 - 53F leaves the nest and flies low to the NE. LV  
M53 quits singing after 46 loud skids.

0642 - 53F returns directly, enters from the E (I think) AL  
facing S.

M54 is singing skids.

0646 - M53 skids once.

0647-1/2 - 53F leaves the nest again. LV

0650 - She appears in an elm 10 yards W of the nest.

0651 - She goes straight to the nest, proffers a small AL  
object to it for 30 seconds, settles facing S. I think the  
object was food, and since it's gone and she didn't eat it  
I take it an egg has hatched. Watch

8  
6  
0654 - The male skids once SE of the nest, then gives 5  
more songs to 0657.

0658 - 53F picks suddenly at something outside the nest.

0659 - She begins to probe the contents of the nest and

push at them gently. She continues to poke around for 5 minutes, during which she eats 2 halves of egg shell. Instead of crumbling them up she takes the whole half and begins to try to swallow it, gulping and taking a new grip on it as more goes down. It breaks of course, but there is no nibbling off of small pieces; it's taken whole with a good deal of effort, consumed in 10 or 20 seconds. This young bird must have hatched at about 0645.

0700 - I'll count the male's songs by the hour or half-hour only, so I can watch the nest more.

0706 - 53F probes again for 30 seconds.

0708-1/2 - She probes for 5 seconds.

0710 - She eats an insect on a leaf beside the nest, probes for 30 seconds, settles when a Pileated flies over and screams. There is egg shell on her bill.

0714 - She probes for 15 seconds.

0716 - She probes for 1-1/2 minutes, then takes an egg shell and eats it in 40 seconds, having some difficulty getting it into manageable position. I'd guess she helps the young out of the egg. At 0720 she settles back on the nest. She didn't get out to eat the egg shells, just reaching down under her many times before taking one up. Her head motions surely indicate she helps the young bird get clear of its shell.

*hatched*

*Feed B on nest  
Nest to Pileated*

*hatched*

340  
5/29/56  
VN

0723 - 53F takes an insect from a leaf within reach,  
probes for 10 seconds. *fed*

0725 - She probes for 3 seconds.

0728-1/2 - She probes for 5 seconds.

*28 min*  
0730 - M53 has sung about 28 songs since 0700, all in-  
sipids, no series. It's 68°, cloudy, likely to rain.

0732 - 53F probes for 3 seconds.

0733-1/2 - After poking around for 30 seconds 53F *LV*  
leaves. There are 3 young; the fourth egg is unhatched.  
Possibly the 2 quick trips at about 0645 were to carry shell,  
since I've seen her eat only two. Alternatively 1 egg hatched  
in the few minutes I was away watching M53. There has been 1  
feeding so far, no fecal sacs. All young gaped when I examined  
the nest. *g B*

0739 - 53F returns, pokes into the nest twice but I see  
no food. She settles facing S in 10 seconds.

0743 - 53F probes for 10 seconds.

0749 - She probes for 10 seconds.

0750 - M54 has sung some 75 high skids since 0731. M53  
is singing hardly at all.

0753 - 53F leaves the nest. M53 is singing in the top  
of a pine 15 yards away. *LV*

0759 - 53F returns with at least 2 very small pieces of *Rx*  
food. After giving them, she watches the young for 20 seconds,  
2 or 3 times reaching into the nest (possibly to stimulate

341  
5/29/56  
VN

the young to defecate?). No sacs. She broods facing S.  
She was on the rim for 35 seconds.

3 JP  
20  
30k  
9  
29k

0800 - M53 has sung only 8 times that I can be sure of, 3 type-8's at 0730, 3 skids at 0750, and 2 skids at 0759.

0805 - 53F probes for 4 seconds.

235k  
7m  
165k

It is 69°, sunny, with a SW breeze, fairly steady but not strong. Both males are singing skids. The female sits well down in the nest but her head is up and entirely visible.

0811 - 53F probes for 15 seconds. Now she's sitting a little higher but covering the nest completely. *more - pushing*

0814 - 53F probes for 8 seconds.

0816 - She probes for 25 seconds.

0821-1/2 - 53F leaves the nest quickly and without preliminaries, comes E low toward me. *h*

0828-1/2 - She returns with 2 or 3 pieces of food which she disposes of in 10 seconds. She then looks into the nest and gives several small pecks at it. After one she eats something, but it is not a fecal sac. She watches the nest to 0830, goes out to the blackberry beside it, eats, goes away. *h*

0830 - M53 has sung 46 times, 23 skids in a series at the beginning, 7 insipid steps about 0815, then 16 skids to now. He is continuing these.

342  
5/29/56  
VN

0832 - 53F returns with only 1 object, I think. After feeding it she possibly gets a fecal sac, the first, and eats it. She probes for 10 seconds, enters facing N.

0838 - She leaves the nest. The male sings within 15 yards; his skids become fainter after she leaves but continue 3 or 4 more times before stopping after 22 skids since 0830.

0843 - M53 begins to skid N of the nest a very few yards.

0844 - 53F returns, feeds only one that I can be sure of, probes for 5 seconds, enters facing S after about 15-20 seconds since her arrival. The male comes E and sings his skids, rather mild and weak.

0847 - 53F sits with her bill open. The sun is on her, but it's only 72°. She is high, well back on the nest and not covering it. By 0850 she's sitting normally, bill closed.

0851 - 53F leaves quickly.

0900 - M53 has sung 38 times since 0838, 30 skids and now 8 chatters. The chatters continue after 0900 and by 0907 there are 19 more. I'll start a new count from 0907.

0905 - 53F returns with very small objects and feeds at least 2, probably no more. She looks in for 5 seconds, doesn't probe, enters facing N. The operation lasted 12 seconds. She now sits with open bill, breast back. It is not quite 74°. She does this for 1 minute.



343  
5/29/56  
VN

0912 - M53 begins to skid. He may have done so earlier, but M54 has been skidding and complicating things.

0917 - 53F leaves and flies NE low. L

0926 - She returns with 3 pieces of food which I'd guess R are eaten by 2 nestlings. She feeds for 10 seconds, probes once for a second, settles facing S after a total of perhaps 20 seconds. No sacs.

ok  
63 (4.5) M53 is singing skids near 2 to 0928, when after 63 of these since 0912 he comes E to the woods and begins loud chatters. 1463

702 0929 - 53F hops out beside the nest and takes an insect, L I think. She then goes down the tree and in 30 seconds flies E low.

0930 - M53 falls silent after 7 chatters, the last one faint.

(2) It is cloudy, 76°, breezy from the SW.

3ch 0932 - M53 sings a faint, abbreviated chatter, then 2 faint ones.

8 1/2 0939-1/2 - 53F brings 2 small objects, feeds for 8 R seconds, probes once, settles in 10 seconds facing S.

The wind is getting stronger from the SW; it's pretty cloudy, with only a few patches of blue sky showing.

0942-1/2 - M53 sings chatters in the pine field N of the nest. (The pattern of the succession of steps, skids, chatters, type-8's, etc., ought to be studied to see if it is constant from day to day.)

344  
5/29/56  
VN

0945 - 53F has her bill open for a few seconds, but she is covering the nest.

0946 - The male's chatters are short, a little fainter than usual.

0950 - 53F quickly leaves the nest and comes E. M53 is singing about 15 yards N of the nest, but he doesn't quit. However, he sings only 3 more, to 0951, 25 chatters in all.

1000 - Silence.

1000-1/2 - 53F returns with at least 3 pieces of food, probably more. One is a half-inch green caterpillar. It takes 53F 30 seconds to get the food distributed, and she immediately enters from the S, broods facing N.

M53 begins to sing chatters 15 seconds after 53F returns, at about 1001. At 1004 his songs become faint.

Note that all of M53's behavior just now suggested he saw or accompanied the female when she was off the nest. He also is near it frequently. Yet so far he has brought no food, though she is gathering it. It occurs to me that males regularly take food to the nest during incubation and that true feeding starts when there are young present on one of these trial trips.

1006 - M53 quits after 9 chatters. I then hear 3 thin skids. These continue and I count them.

It is 76°.

345  
5/29/56  
VN

1009 - 53F leaves the nest. The male is near 1; I L  
don't see her direction.

37 sk  
40h  
1019 - Since 1006 M53 has sung 37 skids, quitting at  
1016. Now he sings 4 chatters and quits.

3  
1  
1020 - The female brings a small amount of food. She R  
seems to feed 2 times, to probe about 5 seconds, to eat a  
very small dark object. Then she enters and faces S after  
20 seconds. She sits low.

1021 - M53 begins to chatter S of me in the field. M54  
skids near 2, due W of this nest.

(The female Indigo has sung 5 or 6 times in the last 10  
minutes. She sang 20 times when I heard her earlier. The  
song is a vibrant "whee whee", etc., 5 times.) 913  
3-71

250h (3.0)  
1025 - M53 sings on, either in the SW corner of the pine  
field or the trees at the edge of the woods.

9  
1029 - 53F probes and pushes in the nest for 45 seconds.

3  
1030 - M53 has sung 25 chatters, is continuing. I don't  
interrupt the count, but at 1032 he quits after 34. He is  
singing insipid steps between 1 and 2.

23 ins (2)  
1035 - 53F probes for 15 seconds. She is keeping her  
bill closed, sitting medium low considering that there are  
young.

1041 - She probes for 5 seconds.

1042 - M53 stops after about 23 insipid steps.

1044 - 53F probes for 10 seconds. She is sitting back  
from the nest wall a little, but she quits in about 1 minute.



346  
5/29/56  
VN

Very faint steps are continuing, after a little lapse.

1048 - 53F pokes gently at the young for 5 seconds,  
settles well over them.

1051 - She leaves the nest. M53 is silent after about 10 steps.

1055 - M53 sings type-8 steps.

1055 - 53F comes to the nest, bobs her tail nervously at nest level for 20 seconds. She then goes to it with so little food that I can see nothing. She pokes around in the nest for 30 seconds, about 7 times. Then she settles facing S.

The male is singing just S of me in the field.

1100 - He has sung 19 type-8's and is continuing; no new count.

1102-1/2 - 53F leaves and goes S. The male sings a very faint type-8, then a normal one, a faint one. None have been loud and ringing. Faint, faint, faint, normal (1105), normal, faint, normal, normal, etc.

1106 - 53F comes without any delay, carrying only 1 object, I think, a fairly large one; (I can't tell what it is; it looks round). She offers it 3 times, taking it back and billing it in between. She then probes rather vigorously for 30 seconds and seems to eat something. Certainly no white fecal sacs are being produced, but I can't guess what she's

347  
5/29/56  
VN

eating unless it's feces. She broods facing S after 70 seconds.

M53 is singing normal type-8's with frequency and regularity. He continued all during the female's foraging, when he was to the SE. Now he's within 10 yards of the nest, then goes N. His song is unusually frequent.

1112 - 53F begins to probe in the nest, moving her head a good deal, but within a restricted area. In 1-1/2 minutes she eats something and in another half-minute she raises her bill with the large half of an egg in it. She swallows this in 20 seconds (counted out) at the most. She then probes till 1117. After this she sits high on the nest and looks in once or twice; I can't tell if she's completely covering the top of the cavity, but I think not. At 1122 she sits down low, facing S. It is 78°, partly cloudy.

81 4's  
(3.2)  
1119 - M53 quits after 81 type-8's.

1127 - A male begins skids near 2; almost surely it's M54.

1128 - 53F leaves the nest.

1130 - Only M54 sings.

1136 - 53F comes to the top of the Virginia pine, where she sits bobbing her tail and occasionally calling "tsu" for 1 minute. She has a lot of food, including a green caterpillar of medium size.

1137 - She goes to the nest and feeds the young; I'd guess she feeds 2 or 3. Then she takes a small, hard, black-looking object and bills it many times, finally eating it. It surely did not look like a fecal sac; I think it was more likely an adult insect too hard for the nestlings to eat. *R. supposed*

1138 - 53F settles facing S but in a minute is standing in the nest with her bill open.

1138-1/2 - M53 begins to chatter in the big trees just N of me. He stops at 1142 after 12. *12th*

1143 - The female leaves the nest. *beg feed*

1143-1/2 - M53 takes food to the nest; maybe 53F saw him coming. He feeds, hops a few inches away, returns and looks in for 5 seconds hops into the nest tree, returns on another side and looks in. He goes to the ground 10 yards away, catches something and takes it to the nest. He repeats this by 1145. *L* *of food*

1147 - 53F with food. After giving it (no sac), she stands on the S rim of the nest with open bill, looking in. *5ch*

1148 - M53 sings chatters above me 5 times. *3th*

1149 - He takes food to the nest, gives the female part, himself feeds part for 20 seconds. 53F feeds the rest when the male leaves. *5th*

1151 - After 3 songs M53 is back with more. Both adults sit on the rim. He feeds for 30 seconds, comes E and sings chatters. *5th*

349  
5/29/56  
VN

1152 - 53F leaves the rim.

L

1152-1/2 - 53F returns, feeds while sitting on the N rim, then perches there with open bill, putting her head in every once in a while and watching constantly. R

1154-1/2 - She drops to the field just below the nest. L

1155 - She's back. I see no food. She puts her head in the nest once, though, then sits on the rim looking in, bill open. It's 83°<sup>0</sup>, partly cloudy; there's a strong SW wind. R

1157 - 53F enters the nest and broods facing S, almost immediately drawing back to look in.

14ch  
1159 - M53 after 14 chatter songs since the last time takes food to the nest. 53F won't get off it. He sits there with the food. I think he gives her part, for she seems to feed. He then goes to the N side of the nest from the W side and keeps extending food to the female. She always withdraws her head as though to avoid him. Finally he gives her something and leaves quickly at 1200. I'm almost certain 53F ate the food herself.

27

Behaviors

1201 - She leaves.

L

13ch  
27th  
1206-1/2 - M53 has sung 13 chatters above me. He now switches to loud type-8's.

1211-1/2 - After 27 type-8's the male goes to the nest from above me. He stays 10 seconds, putting his head in 3 times, goes to the top of the nest tree, sits 5 seconds, goes. 0 →

1213 - 53F comes with food, feeds it for 20 seconds and then sits on the N rim with her bill open, looking in. R

1216 - She enters the nest but stands over it with much space under her.

1218 - She sits on the nest and covers it. The male has been silent since he left.

1220 - M53 brings food. At least part he gives to the female. She feeds. He goes quickly after 10 seconds. He follows no path at all, perches anywhere. J

Loud thunder to the SE. It's very sunny here, but a strong wind will interfere with weighing.

Since the male's coming, the female sits half over the nest, looking in and probing occasionally.

1231 - The male sings 1 chatter in 1. The female sits at the nest as before, nearly on it. One skid. At 1232 she's sitting high on the nest. 1st

1235 - M53 sings skids at 1. Some of these descend at the end instead of rising. 1st

1242 - 53F gets out, sits on the W rim. After 16 skids M53 comes to the nest and 53F leaves. He feeds the young and sits for 30 seconds on the rim, goes S. L 0

I get 2 young and weigh, measure, and mark them. One is 1 gram 310 mg, its gape 6.7, tarsus 6.7, culmen 3.4, wing 6.4 and length 28.4 mm. Number 2 is 1 gram 100 mg.



(presumably the bird from the fourth egg), its gape 6.7, tarsus 6.3, culmen 4.1, wing 5.5, and length 29 mm..

1251 - The female brings food, then sits beside the nest with open bill till 1304. I take the young up and find her in the tree 1 foot below the nest; she gives a mild distraction display and calls "tsu." I withdraw for 5 minutes and then return the young. 53F calls "tsu", so she heard me. R  
has done

A male has sung skids about 25 times since I went and got the young, but I think it's been M54. At 1315 he's been silent 10 minutes.

1315 - The female goes straight to the nest, silently and without alarm. She sits on the side of the nest with her bill open.

Regarding the young: They were silent, couldn't be induced to gape. They can flex their feet but don't when the toes are touched. They can move their wings, will try to right themselves but usually cannot. Nothing will make them utter a noise. One defecated and the matter was not in a sac and was about 3 mm. long, brown and white. They are so small I guess I've been unrealistic in looking for a fecal sac. gg  
feces

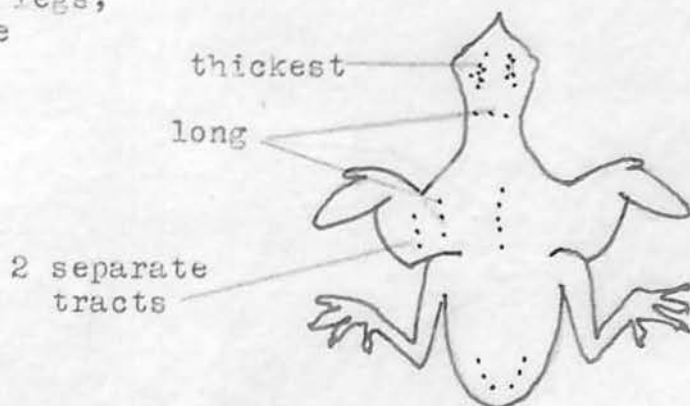
1317 - 53F gets on the nest and sits facing N, bill open, breast well back off the wall of the nest.





No down on ventral side or on legs, either side

352  
5/29/56  
D VN



My weights are probably pretty good, but the birds are too small to measure without great risk of injury to them. I think I'll do no more interfering at this nest.

21 + 8  
1324 - M53 begins to sing type-8 steps after a long silence. He's S and his song is faint, or he's pretty far away in 1.

1330 - He's sung 21 times and is continuing. I don't stop the count. 53F is still on the nest facing N. It is 80°, sunny, with a brisk SW wind.

7 + 8  
1332 - After a total of 28 type-8's, M53 goes to the nest, W side. 53F raises her head and opens her bill and in 1 second he gives her 1 piece of food. He watches for 10 seconds as she, without withdrawing from the nest, gives the food to a nestling which evidently has its head up between the side of her body and the nest wall. M53 leaves in 10 seconds, begins type-8's again to the E, which is the direction he took. 53F keeps the position she had. Note how short the male's stays are.

Behaviors

353  
5/29/56  
VN

6 78  
2 ins  
1335 - 53F leaves and M53 quits singing after 6 type-8's. He may then sing 2 insipid steps near 1, where he'd gone from the E edge of the territory.

552  
1338 - M53 begins loud skids near 1. M54 is singing his higher-pitched skid. M53 sings 5 songs.

1341 - 53F flies straight to the nest from the S with a lot of food, or at least with bulky food. I see a thick 3/4-inch brown caterpillar, probably a Noctuid. She has no trouble disposing of it. She probes for 1 minute, then sits high on the nest looking N. Note that paths and approaches seem to have been dropped. — path / approach

1344 - After perching 30 seconds on the N rim facing N, 53F leaves the nest. L

2 ins  
1347 - The male sings insipid steps twice.

1354-1/2 - 53F brings food, goes to the W side of the tree from the NW, I think. She leans down from the W, feeds and probes for 15 seconds, enters and broods facing S. Within a minute she's sitting up with her bill open, her breast off the rim. hint

1400 - Silence; 53F is as before, bill wide open. (The egg tooth was scarcely noticeable on the 2 young I examined; it certainly was not a sharp protuberance or an effective-looking organ.) 78

1 48  
1422 - M53 sings half a type-8, and 53F immediately flies

354  
5/29/56  
VN

low to the S.

3+  
M53 is near me. He then sings 3 more times between me and the nest.

1423 - M53 goes to the nest tree, enters from the W and feeds for 8 seconds. He then climbs to the top of the tree, sits 10 seconds, flies S. At 1424 he begins type-8's.

24+8(4)  
1430 - After 24 songs M53 goes to the nest, lands on the S rim, feeds, looks about him for 10 seconds, comes E, begins type-8's in the SE corner of the field.

15+8  
1435 - After 15 songs M53 goes to the nest, approaches from the W, leans in and feeds for 5 seconds, looks out for 3 or 4, flies E to the trees, and immediately begins the same song.

19+8  
1445 - M53 is singing still; he seems to have worked his way well S into 1, possibly beyond. 53F is still gone. I hear no more of M53 after 19 songs.

13+8  
1445-1/2 - 53F returns from the S with a lot of food, possibly 3 or 4 pieces. She offers it and probes for 45 seconds, settles facing N. She went directly to the S rim of the nest and stood there. Within a minute she is sitting up on the nest, bill open and breast back. It is 80°, sunny, windy.

1446 - M53 begins loud frequent type-8's, but after 13 to 1448-1/2 he quits. M54 sings skids to the W. (I've heard M55 a few times today.)

355  
5/29/56  
VN

1450 - A few seconds after the minute, M53 begins loud type-8's. He's staying S of the nest mostly, often in the edge of 1 or the E woods.

3 5+8(4.4) 1458 - M53 after 35 songs (the last 10 or so from directly overhead) flies to the nest. 53F leaves as he gets there. L He perches on the E rim, feeds for 10 seconds or so, turns and comes E. At 1459-1/2 he begins the same song in the high trees above me.

3 18 1500 - M53 goes to the W rim, feeds for about 10 seconds, comes E. He'd sung 3 type-8's.

I've seen no fecal sacs yet.

1502 - M53 begins the same song overhead, singing more slowly.

2 1 18 1509 - After 21 songs M53 flies from the trees above me to the nest. He perches on its N rim and for 1 minute offers a green larva, thin and about 3/4 inch long. He softens it several times.

1510 - 53F flies into a tree 4 feet from the nest, 2 feet up. M53 leaves in 5 seconds. In 20 53F goes to the S rim of the nest with food, very little. After feeding for 15 seconds, she looks in for 10 more and at 1512 sits back high on the nest facing N, bill open. I missed seeing whether she sat down deep first.

It is just over 80°. M53 is not singing at 1515. The female simply sits quietly, looking around, head bent slight-

ly forward so that she seems to be leaning down a little.  
Her bill is wide open.

At 1539 the situation is exactly as before. The female now sits forward a very little on the nest, so that she nearly covers it, but till this time she's been drawn back.

1540 - A male sings 2 or 3 insipid steps. It may be M53, but it's W of the nest where both males sing. The song is barely audible.

1542 - 53F leaves the nest. L

1549-1/2 - M53 sings loud skids in the trees over me and to the S.

1550-1/2 - 53F brings food to the nest, approaches from the W, feeds for 10 seconds, sits facing S. R

11 sk 1551 - After 11 songs M53 flies out to the nest. Just as he's within 2 or 3 feet, 53F leaves. He lands on the E side about 6 inches from the nest, turns to watch her go. L He then seems to eat the food himself. In any event he sits for 30 seconds turning from the nest to the field, and then he flies back and lands 12 feet up immediately above me. He clearly gave no food; the question is whether he had some when he went, and I'm sure he did. He begins to skid at 1552 over me.

6 sk 1555-1/2 - After 6 skids M53 goes out to the S rim, feeds in 10 seconds, then sits motionless 3 inches above the nest looking E till 1557. He goes to the top of the nest tree and sits



looking around until 1559. I think he goes S.

1600 - M53 skids between me and the nest.

(Note the female's attentive intervals during brooding are much affected by the fact that she so often leaves when the male approaches.)

M53 goes on singing low in the field about 25 yards from the nest. The eighth song is abbreviated, and in a minute I hear an abortive one that suggests a fight; nothing else.

1604-1/2 - 53F comes to the N rim, feeds for 1 minute, taking an object back and softening it 3 or 4 times. She eats something taken from the nest. She then stands on the N rim and at 1607 jumps down and sits fairly low facing S. In a few seconds she draws back and sits as usual, bill open.

1604-1/2 - M53 falls silent after 8 songs. See above.

1614 - M53 sings type-8's in the trees at the edge of the woods N of me.

1615-1/2 - After 9 songs M53 goes to the nest with 53F on it. He goes in from the N. She turns her head, receives food from him, and without rising puts it down under her belly. He looks down for 15 seconds, flies low to the E, and sings type-8's in the edge. After she took the food she never looked back up at him.

1620 - After 16 songs M53 takes food to the SE part of



the nest tree, perches 2 inches from the nest there. 53F behaves exactly as last time. M53 watches quietly for 10 seconds while she's tucking the food under her, comes E low and falls silent.

It's been pretty windy, from the S, for the last 2 hours, and it's especially so now. Temperature 80°, sun shining 85% of the time this afternoon.

*Willow*

1625 - 53F is still sitting back but in large part over the nest, facing S and looking quietly around, sometimes probing. Her bill is closed. In this position the feet must be on the bottom of the nest or against the front wall, getting support from the under tail covert region at the rear.

1632 - 53F takes something from the nest and eats it.

1634 - 53F leaves the nest.

*L*

1652-1/2 - 53F comes back, perches on the S rim, feeds for only 15 seconds. She then enters, faces N, and sits so low she is barely visible. Can this initial brooding be a sort of taking of the nestlings' temperature?

*R*

*NB*

1656 - M53 skids N of the nest, possibly in the big trees. 53F continues to sit low.

*3 AM*

1657 - After 3 songs M53 goes to the nest, the W side. Without rising 53F takes the food and holds it. In 10 seconds she rises a little and feeds and probes for 25 seconds.

*→*

*Get 3 -  
mud's going*

359  
5/29/56  
VN

M53 turns his back after giving the food, leaves in 10 seconds and in 30 begins to skid to the S. 53F doesn't sit deep again but does cover the nest.

1659-1/2 - 53F eats fecal matter.

1701 - M53 quits after 4 irregular skids.

1703 - He skids to the S near 1.

1707 - He comes to the nest from S after 12 skids, flies to the N side and leans down to give the female the food. He watches her for 5 seconds, flies low to the NE and sings a skid at 1708. She feeds and probes without getting off the nest and at 1709 sits down quite low and faces NW.

1711 - 53F hops out to the blackberry beside the nest tree and forages for 30 seconds, then goes down to a berry 2 feet away. She sits there 30 seconds, goes to a yellow pine 5 yards away but out of my sight.

The male sings skids in the NE corner of the field.

1714-1/2 - After 14 songs M53 goes to the N rim, feeds for 5 seconds, looks around him for 35, flies low to the trees just S of me and in 10 seconds skids.

1717 - 53F goes to the S rim, feeds and pokes for 35 seconds, enters and sits almost out of sight facing NE.

1723-1/2 - 53F after sitting low, leaves the nest. It is 79° and sunny. M53 is skidding at the E woods edge, high I think.

1724-1/2 - The male quits singing after 18 skids.

Note that his break in singing coincides with the female's leaving the nest.

18 sk  
12 ch  
1737 - M53 sings chatters, 12 to 1742. He's on the E edge toward the S.

1743-1/2 - 53F comes to the nest tree, approaches from the W in it, feeds 2 birds for 15 seconds, immediately enters and sits low facing S. She then slowly rises up a little but covers the nest. She leaves her bill open part of the time. R

1743-1/2 - M53 resumes his chatters and I start a new count.

1751 - 53F jumps to the E rim and sits looking E away from the nest.

27 ch  
1752 - She leaves just as M53 after 27 chatters gets within 5 feet of the nest. He lands below, hops up and feeds for 10 seconds, then pokes in the nest 4 or 5 times (rare for him). L

2 ch  
1753 - M53 leaves the nest, comes E, sings 2 chatters,

1754 - M53 returns to the nest and feeds for 10 seconds, comes E and immediately begins chatters in the NE corner; some songs are faint. W

14 ch  
1759 - After 14 chatters M53 goes to the nest, perches 15 seconds on the W rim and feeds, flies E and begins to chatter right over my head about 25 feet up. I'd say that

today he has invariably brought smaller amounts of food than the female. I get the impression he brings 1 item at a time. He stays much less long at the nest, probes very little. N13 — food

1802 - 53F comes to the W rim with several pieces of food, feeds for 20 seconds, eats a fecal sac, settles deep facing S. R

M53 falls silent at this time after 5 songs.

1807 - 53F probes for 10 seconds and again settles way down on the young.

1808-1/2 - She leaves the nest. L

1817 - M53 sings 4 skids SW of the nest. 4 skid

1818 - He goes, feeds once from the W side, hops to the E side and sits for 10 seconds, flies E and forages 2 feet from the ground in front of me. He begins to sing skids there. 107

1820 - 53F comes, feeds for 30 seconds from the W rim, enters facing S and sitting low. R

1821-1/2 - After 4 skids M53 takes food to the W side. The female sits very low. He gives the food to her, watches while she backs off a very little and delivers it. He leaves and she sits way down. This takes 20 or 25 seconds. 57

It is 77°, sunny, with a mild SW breeze.

Note that M53's feeding periods seem to be associated with song and that he is usually silent when not bringing food. N13

1830 - M53 begins faint, infrequent chatters in the pine field to the SE, scarcely above a whisper and short. See p. 364.

1834 - 53F leaves the nest. L

1840 - She returns with several items, feeds from the W (probably 2 or 3 young), and then looks carefully into the cavity. In about 25 seconds she settles deep facing S. R

M53 is still singing his chatter, now a little less faint but very mild and weak.

It is 76° by my thermometer, which may be a little high with the sun getting at it.

1844-1/2 - M53 sings within 20 yards of the nest to the SW, louder and more often.

1845 - He comes, gives food to the female from the W. As she withdraws to pass it, he jumps right over her to the E side, flies to the edge after 8 seconds. He'd sung 33 times. 334

1845-1/2 - 53F leaves. L

1846-1/2 - M53 chatters again, 8 faint songs to 1849. 84

1857-1/2 - 53F comes directly to the nest tree from the N with several items. She approaches from the W side of the nest, feeds 2 or 3 young, eats a fecal sac, settles well down facing S. R

1900 - It is clear, the temperature unchanged. M53 is silent.

1907 - 53F leaves the nest and flies low to the NE. L



1915 - 53F goes to the nest tree, enters from the W, R  
feeds for 25 seconds, settles deep and faces S. She probed  
in the nest several times, fed 2 or 3, I'd say.

1916 - M53 begins loud skids within 20 yards of the  
nest to the S.

1919 - 53F leaves the nest, comes E, I think. The L  
male sings on.

20 sk  
1920 - M53 after 20 skids goes to the W rim, puts his G  
head in and feeds once for a second or so, looks around  
1 sk for 5 seconds, flies E to the edge and in 15 seconds skids once.

1925 - 53F goes to the S rim, feeds for 20 seconds, R  
starts to settle facing E. She has some difficulty getting  
the young in position evidently, for she ruffles her feathers, Whaver  
shakes, kicks them pretty hard before she is able to sit low.  
This takes 15 seconds.

1930 - 53F leaves the nest. L

1 sk  
1934-1/2 - M53 skids weakly 1 time. It's 74°.

1938 - 53F approaches the nest from the W. For 15 seconds R  
she feeds and probes; then for 25 she looks steadily at the  
nest. She then settles facing SW.

1 sk  
1939 - M53 sings one high step.

16 sk  
1941 - M53 skids to the S. Some of the songs are weak,  
and none are full in volume or length. Two fall at the end 2 sk  
instead of rising. At 1946 he quits after 16 songs.



364  
5/29/56  
VN

1 sh  
1 sh  
1947-1/2 - He skids to the S a few yards.

1948 - 53F leaves the nest and goes S. The male sings L  
once.

3 sh  
1948-1/2 - M53 brings food, pokes twice, leaves in 6  
seconds. He is on the W side. He sings skids at 1949,  
stops after 3 at 1950-1/2.

1951-1/2 - 53F brings food to the E side of the nest, R  
feeds twice, bobs her tail nervously for 30 seconds and  
goes NE.

1 sh  
1952 - The male skids once. It is 73°.

1953-1/2 - He sings an insipid step.

1956-1/2 - 53F approaches from the W, feeds for 21  
seconds, settles deep facing S.

1 sh  
1955  
It is pretty dusky. I can see the nest with my glasses,  
but no longer very clearly. It's roughly comparable to 0500  
light. There is a little overcast.

I'd say the day turned out to be 70% sunny and was favor-  
able to the feeding of young; i.e., there have been no unusual  
conditions to be taken into account.

2007 - I can just make out the female on the nest. She  
won't leave it now.

2010 - I leave. The male is silent.

Note: Omitted at 1830 was a note that 53F rose  
to look at a hummingbird on a blackberry below her,  
then settled deep.

W. L. M.  
fence a  
hummingbird

May 30, 1956

A cloudy early morning with evidence of a light rain at night; little wind; temperature 72° at 0730. At 1030 it clears nearly completely (after a light shower at 0930); there is a gusty SW wind. Present from 0900 to 1300 and from 1700 to 1800.

T56 - The nest is still incomplete and unused. In 30 minutes I hear nothing and a fair search of the E fringe reveals no nest.

III - The male with the chatter [M58] sings here.

T57 - The nest is nearly complete, in fact appears to be. M57 sings faint skids and seems to be moving a good deal on the W edge of the territory. I count 24 songs, some quite short, between 0953 and 1023. At 1018 57F brings grass to the nest, which I've watched since 0953. She sits 1 minute in it. It is very poorly concealed. The male's songs are erratic, and he does fly from 1 high perch to another near the nest.

T53 - The young are present.

T55 - M55 sings frequent type-8's from high trees in the SW corner. I stand around for 15 minutes and see no female. He sings the whole time.

T54 at 1050 - 54F is on the nest and I wait to see if the eggs are hatched. At 1100 M54 brings food but his position screens the nest. When he leaves in 15 seconds 54F is

eating something. At 1130 M54 brings food again, and I think 54F puts it into the nest. Before both visits the male sang several songs.

1158 - To my surprise, 54F hasn't left yet. She is sitting low, probing only occasionally. It is extremely hot, so her sitting so low and so long is hard to explain.

1202 - 54F preens her breast without leaving the nest cavity or even rising much.

1211 - She leaves. All young have hatched.

*hatched x*

T56 - I walk within sight and earshot of this territory for 45 minutes and detect no sign of a PW.

1300 - I leave.

1700 - I return.

T56 - For an hour I search the territory without seeing the 56's.

1800 - I leave.

May 31, 1956

After a violent windstorm (which blew down a good many branches and even trees) and a downpour of rain, a warm, changeable day with showers. No significant wind; temperature in the 70's. Present from 1600 to 1800, during which time there is 1 shower.

T56 - Not a sign of the birds at any time.

T54 - The young are alive, the male singing.

T53 - 53F is at the nest and M53 singing occasionally.

T55 - No song in 10 minutes.

T57 - There is an egg, a very unusual occurrence in view of the fact that the female was building yesterday. M57 is singing.

III - No sound from this male, hereafter M58.

1800 - I leave.

N  
NB

June 1, 1956

A dark, cloudy dawn with a NW wind bringing in low heavy clouds, temperature  $56^{\circ}$  at 0500. Present from 0500 to 1130.

T56 - Silence for 10 minutes.

T57 at 0515 - M57 is singing loud songs that are half chatter, half skid. His songs are regular, the intervals ranging between 8 and 15 seconds, but falling mostly at about 10 or 12. *down song*

I sit to watch 57F lay.

0523 - 57F comes silently to the nest from the N, low. The male is to the S; when I see him later he is sitting 40 feet up on the dead limb of an elm, and I imagine from his songs that he is singing from high perches. 57F faces SE, in a minute does a half turn to face NW. *laying*

0547 - She leaves quickly. The male has hardly quit singing; there have been 2 pauses of about a minute. I'll wait so that I can time him for an hour. Occasionally a song will be a little more of a chatter or a skid than the others.

0605 - I measure the eggs.

1 - 15 x 12.3 mm.

2 - 15.1 x 12.4 mm.

These eggs are rather moderately spotted but the spots *egg done*

are large on the wreath end, some nearly black, most the usual chocolate brown. There are spots on the big end itself and a few occur on the small end, one or two of them large.

M57 sang 198 times in an hour, but during the last 10 minutes he nearly quit. His average till then, including his brief pauses, was about 4 songs a minute. He flew W to the trees across the cut-over fair-way area at 0615.

0620 - I leave the territory. It is still 56°.

T54 - 54F is on the nest. The male sings well to the E.

T55 - Silence for 10 minutes. Connecticut Warbler.

T53 at 0655 - M53 is singing skids in the pine field to the S. The female is brooding low, facing NW. The weather is unchanged, though the clouds seem not very thick.

0701 - M53 stops after 10 songs since 0655. He was within 10 yards of the nest but never went to it.

0702 - M53 begins again.

0704 - After what seems a little restlessness for 30 seconds, looking around, 53F slips off the nest and goes S.

0705 - M53 comes to the nest after 5 skids, perches on the S rim, feeds probably 2 times, stays 12 seconds, goes S.

It is 56°. The wind is tossing the tree tops; it seems to be in the S.

0707 - M53 skids to the S.

0708 - 53F returns, approaches W, feeds one, pokes 2 or



3 times, in 10 seconds broods facing S covering the nest but sitting higher than before. At 0715 she seems to doze a little; I'm pretty sure her eyes are closing for a few seconds at a time. At 0719 an insect flies near the nest and 53F raises her head to look at it. The male is singing occasional skids. She is sitting quite low at 0722 and M53 has stepped up his rate of singing to perhaps 20 seconds.

0722-1/2 - 53F leaves the nest.

22 sk (1.5) 0724 - After 22 songs M53 goes to the S rim, feeds 1 insect (sure), and sits 6 seconds until 53F comes to the W rim. He then leaves immediately. She feeds 1 insect (sure), seems to eat something, pokes 3 times, leaves in 15 seconds.

0726 - M53 begins skids in the E edge, goes S.

0726-1/2 - 53F brings probably 1 piece of food, eats a large sac, pokes 2 or 3 times, broods facing N in 15 seconds. A male begins insipid steps; it's probably M54 though M53's skids have stopped after 4.

At 0730 53F clearly sleeps a little. Her head seems to rest on the rim she faces. Every 3 or 4 seconds she moves a little. Thus she resembles someone trying to stay awake and having trouble. She seems to have become so used to me that she even closes her eyes while I'm moving.

0738 - M53 skids to the SW near the edge of 1. He may have sung 8 steps since 0726-1/2; I can't be sure of the singer.

The female is still dozing.

0741-1/2 - 53F leaves the nest.

It is 55<sup>0</sup>, completely overcast now without distinct clouds as was the case earlier. The wind has almost stopped.

0752 - 53F returns from the N, perches on the W side. R

The young stick their heads up. She feeds one, then quickly pokes her bill at 2 more; but I see no food pass, and it's almost too rapid for there to be feeding. In 12 seconds 53F broods facing S.

25h  
7  
M53 has sung irregularly 26 times since 0738; he stops at 0753 (if pause means anything in such irregular songs).

0811 - 53F is dozing. The male is still silent. sleep

13  
0813 - M53 begins frequent faint insipid steps.

0815 - 53F leaves the nest. It has just become a little lighter. L

21 and 13h  
7  
0819-1/2 - 53F returns with 1 very fat green caterpillar, R 1 inch long. She feeds it to a young bird, reaching down to soften it while it is still in the nestling's mouth. She eats a fecal sac, and after 1 poke she enters and broods. She was at the nest 37 seconds before entering; she faces S.

0821 - After 21 steps M53 skids once near the nest. He may go on with steps once or twice, but at 0823 he skids. I suppose it was M54 giving the steps just mentioned and possibly some of the earlier ones.

0824-1/2 - 53F leaves again.

0826-1/2 - She is back with 1 food object, takes a fecal sac in 10 seconds and goes SE with it, I can't tell how far.

0829 - 53F returns with 1 green caterpillar and proba- R  
bly something else. She eats a fecal sac, possibly 2. In  
20 seconds she broods facing S. Her approach was from the  
W and she stood on the W rim.

0837 - 53F is dozing. M53 sings skids S of the nest within 20 yards. They are irregular, some weak or slightly shortened. 53F sits low and shows no signs of alertness or interest when the male sings.

0842-1/2 - 53F leaves the nest. She looked around and seemed to be more alert just before going.

0854 - M53, which has been singing in the SE corner, comes to the nest after 53 skids all told. Meanwhile 53F has been foraging to the W; I've seen her in the pines. She is in a pine 10 yards W of the nest when the male comes. He feeds 1 item, stands on the S rim. 53F comes too about 5 seconds after him, feeds 3 birds with a bill full of small dark objects. M53 watches her; she's on the W rim. She takes a sac and flies SE. He sits on the rim, pokes twice, in 10 seconds flies SE. The whole thing lasts 30 seconds.

0857 - M53 begins skids to the SE.

3  
F  
1  
2  
F  
2  
0858-1/2 - After 3 songs he comes to the S rim, feeds once, pokes once, turns, looks E 2 seconds, flies to the edge and at 0859-1/2 skids above me.

0902 - The adults arrive almost simultaneously, I think the female first. She's on the W rim, he the SE (he's sung 5 times). I think she feeds once and he about twice, but I can't be sure. I also get the impression that she tries to take an insect from him; if so, she's unsuccessful. In 25 seconds he goes SE, having apparently eaten a sac. She broods facing S..

M53 sings skids in the pine field at 0904. His skids today are usually loud, but they are sometimes slow and they seem to me to lack vigor.

496  
0908 - 53F is dozing for a second or two at a time, her eyelids slowly closing. She usually has her head drawn back in the typical brooding position, so I may have been wrong about her resting it on the rim. doze

M53 quit skidding at 0907 after 4 songs.

2  
It is 57°, a little lighter but still overcast completely. The wind is up again a little, from the N.

0909 - M53 begins skidding in the SE, goes NE of the nest, now at 0912 is near it in the field.

0914-1/2 - 53F leaves the nest. M53 sings quite near, about 15 yards. L

Why do some birds  
sing - are displaying  
when nesting? (see S)

21 sk  
F  
L  
0916 - After 21 songs M53 takes a 1-inch green caterpillar to the nest. In 10 seconds he takes a fecal sac, eats it, goes SE, sings skids again by 0917 in the edge trees. He then goes to the NE corner.

0920-1/2 - The female brings food from the SE, perches on that rim. She feeds a 1-inch green larva and maybe something else. She then sits on the rim and pecks at something in the nest 3 times, enters facing NW after 20 seconds.

M53 sings above me. All songs are skids.

17 sk  
F  
12 sk  
0923 - After 17 songs M53 comes from the N to the N rim. 53F draws back a very little and M53 feeds a green caterpillar. Both adults look in for 5 or 6 seconds, he flies E, and she then sits forward again. At 0925 M53 skids near me.

It is 58° and there is a little blue in the sky.

0930 - 53F leaves the nest. M53 is singing in the woods to the SE, probably in the tops and 10 yards in.

10 sk  
F  
0935-1/2 - 53F comes to the N rim and feeds twice.

0935-1/2 - In 10 seconds M53 comes to the E rim, gives the female 1 item and himself feeds 1. He turns and leaves in 10 seconds. In 10 more 53F comes E to the trees over me and calls "chick" loud 3 times. M53 had sung 22 times. I think he always or frequently sings just before flying to the nest, but this may be simply because he is nearly always gradually drawing nearer as he forages. Thus, the given song



375  
6/1/56  
VN

may be the last of a series at the point where he takes off to fly.

At 0940 53F calls "chick" 2 or 3 times in the field.

0940 - 53F goes to the nest. I miss the number fed. R

She eats a sac, enters from the W and broods facing S.

4 1/2  
15h  
10  
M54 sings a skid to the W.

0950 - M53 sings skids to the SE. The songs are high.

The sun comes out for a minute.

0950-1/2 - 53F leaves the nest. L

0958 - She comes to the S rim and feeds two. I think R  
she called "check" 2 or 3 times before coming. She eats a sac.

225h  
F  
2  
0958 - In 15 seconds M53 comes, after 22 skids. He has 1  
2 large objects, one a green caterpillar. He gives 53F one  
and feeds one himself. In 10 seconds 53F takes a sac and L  
flies NE. M53 leaves 2 seconds later.

1000 - M53 begins to skid.

1003-1/2 - 53F comes to the W rim, feeds two. R

105h  
R  
1003-1/2 - M53 comes in 10 seconds to the E. rim and feeds 1  
two. He takes a sac, holds it for 2 seconds, eats it. M53 and  
53F stand facing each other for 5 seconds. He flies SE, sings  
in 25 seconds. Just after he leaves she faces S, and broods  
and dozes. She poked in the nest once before entering. Long

It is 58°, sunny, for a few minutes (5%) at a time, still W. 50m  
breezy.

1015 - 53F is falling asleep again. doze

1019 - M53 begins to skid to the SE, comes N toward  
me and sings loudly.

1019-1/2 - 53F leaves the nest. (Check data to see how  
often the female leaves just after the male begins a song  
period.) L  
NB

1026-1/2 - After 26 songs M53 goes to the nest with 1  
green larva. He feeds it (taking it back once), in 5 seconds  
eats a sac, quickly flies E past me into the woods. At 1028  
he sings 7 songs in 4 minutes.

1029 - 53F comes from the W, seems to feed only 1, looks  
into the nest for 10 seconds and pokes twice, broods facing  
S. She perched on the W rim. R

1038 - 53F leaves the nest, flies low about 20 yards E. L

1040 - M53 begins to sing W of the nest, skids as usual.

1042-1/2 - M53 after 10 skids comes to the W rim, feeds  
once, looks in for 5 seconds, goes SE and sings once. R

1043 - 53F comes to the N rim, feeds probably twice (once  
a black adult insect), eats a sac, looks in for 15 seconds and  
pokes once, broods facing S. R

1045-1/2 - M53 sings 2 faint skids.

1050 - It is cloudy with only momentary glimpses of sun-  
light. The wind is in the W. It is 58°, a pretty bleak day.  
The female is dozing on the nest again.

1056-1/2 - After nearly a minute's restlessness, half  
rising, looking around, 53F leaves the nest and flies low to L

15  
2  
194  
the NE. I check the nest; there are 4 young.

1102 - M53 begins to chatter weakly near 1, comes N.

1107 - After 19 songs M53 goes to the W rim, seems to feed 3 young (at least 2), flies E to the edge and sings above me.

1107-1/2 - 53F flies to the W rim, feeds 3, in 3 seconds takes a sac and flies SE with it.

1110 - I leave the territory.

T55 - I've heard no songs coming from T55 today.

T56 - Silence.

1130 - I leave.

June 2, 1956

A completely still, cloudless dawn with a heavy dew; temperature 35° at 0500. Present from 0500 to 0730 and from 1900 to 2015.

T56 - Silence.

T57 at 0510 - M57 is singing as he was yesterday and doing something I forgot to note yesterday: For some 10 minutes he intersperses his songs with rather regular and frequent calls, about one a second. It thus sounds almost like the fight note. I've heard this in several males in the early morning.

57F's 2 eggs are quite cold.

0523 - 57F comes to the nest.

0530 - A yellow-throat is about 5 feet from the nest, and immediately M57 appears. He sits quietly about 3 feet high on a blackberry stem, stays about 1-1/2 minutes, goes back and begins singing.

0545 - The sun is visible through the trees.

0553 - 57F leaves the nest and goes SE. M57 is perched at least 40 feet up in a dead elm, singing loudly. I can see him watch the female as she flies by. His next 2 songs are faint. The tree is 50 yards from the nest.

The male's song is the slow half-chatter, half-skid of yesterday, sung with more pauses today. I'll take an hour's count and measure the eggs before I go.

down  
sing

laying

or guard  
nest?

At 0605 M57 crosses W and goes to the trees beyond the cut-over strip. It is 36°.

Just ~~AS~~ yesterday, M57 quits singing after he's been W for a minute or so (he went at about 0600 then too). He sang 209 times in the last hour, to 0610.

*Singing?*

The third egg is 15.3 x 12.6 mm.

At 0625 M57 is still silent.

T56 - A male sings loudly and regularly in the tree tops near the old nest. I think it is M56. The song goes on as long as I'm within earshot.

T53 - The nest is safe; 53F is on it and M53 sings.

Y

T55 - I stand here for 15 minutes and hear nothing, although I do see a bird that might possibly be a PW.

T54 - 54F is on the nest. M54 sings near 3.

Y

0730 - I leave.

1900 - I return.

T56 - Silence.

T58 - The male sings 3 songs in 20 minutes.

T57 at 1909 - 57F is on the nest, to my surprise. I'll have to wait to see whether (1) she retired early, (2) she began incubating before finally retiring, or (3) she is only going to have 3 eggs.

Y



M57 sings insipid steps and after 20 of them, 3 skids and a chatter. He quits at 1923.

At 1830 it was 62° and at 1930 it's 56°. The day has been a little cool, 90% or more sunny.

1941 - M57 begins to chatter to the SE. He's sitting in the dead elm 60 yards away, 45 feet high.

1943 - The female leaves the nest and goes N, the direction she faced this morning while on the nest. The fact that she left eliminates my first possibility, that she retired early. Either it's a 3-egg clutch or she began incubating early. She was sitting very low in the nest as though truly incubating. I inspect the nest: 3 eggs.

M57 has left the tree but is still singing well to the SE, then to the S. His song has changed to a skid.

There was no dew on the eggs this morning despite a drenching dew on all vegetation. This suggests that 57F was on the nest last night and has laid her last egg.

*too much  
moisture*

1953 - M57 sings 1 chatter. He'd sung 21 to 1949 and quit.

1954-1/2 - 57F returns quietly, alone, and very promptly enters and faces S. However, while I write this note she turns and faces N as before. It's 52°.

2000 - I leave. All action here is over. It's still rather light but will not be for more than a few minutes. There are light clouds in the N.

381  
6/2/56  
VN

2015 - I leave the area.

June 3, 1956

Clear windless dawn, temperature 39° at 0430. Present from 0430 to 0730 and from 1515 to 2015; Joe Board present from 0430 to 1700.

*dawn singing*

T57 at 0430 - Silence till 0453-1/2, when M57 begins to chatter to the SE. Again today he mixes his songs with a hard, flat call note, beginning this at 0458 and continuing to 0515. He calls from 0 to 16 times between songs, usually some 9 times.

*1st song  
song  
NB  
chatter*

0522-1/2 - 57F leaves the nest. She seems to forage in the blackberries within 20 yards of it, though I don't have her constantly in view. M57 goes right on singing to the SE, usually from the dead elm or near it.

*O-0523-33  
+2 S*

0532-1/2 - 57F returns quietly and at leisure, having fed in the surrounding blackberries for at least the preceding 3 minutes. She faces S. The male never quit singing or went near her.

I went to the nest; 3 eggs.

It is 40°.

0540 - 57F has been sleeping.

*long  
before*

0545 - She's risen a little, her head and breast high, as though she had young, but her tail low. She moves in what seems a rhythmic way, thrusting her head upward and forward a little. She remains with her tail region low,

*begin*

*234  
charges  
on (4.2)*

*158*

her breast back from the rim for 3 minutes. At 0548 she looks into the nest, probes for 2 or 3 seconds, settles well down.

176 0548 - M57 quits singing after 234 chatters without any pause.

12 0600 - 57F is sleeping on the nest.

2 min  
21 sk  
(4.1) 0602 - M57 begins to skid E of the nest. At 0607 after 21 songs he flies far SW to the big trees in the row E of III, about where the stile used to be or S of it.

0611 - 57F leaves the nest. It is 43°. The nest has 4 eggs, so she did begin to incubate early yesterday. Presumably the motions I described above at 0545 were connected with egg-laying.

19 0626 - M57 begins to skid in the big elm.

16 sk  
0627 - 57F calls "check" near us, 15 yards to the E.

0628 - She goes to the nest, sits 3 seconds beside it, enters and faces S. It is 44°. She is dozing at 0630, and the male is singing. Her eyes are closed for at least a minute. at a time.

29 min 32  
(3.7) 0635 - The male goes W across the cut and after a few songs quits. He sang 45 times to 0638, when he stopped.

16  
16 0649 - 57F leaves. The male is silent and has been.

0650 - I leave the territory. See Board's notes.

III at 0700 - M58 sings here. I can hear type-8's to the E, so M57 may be singing that type. Board's song counts

may not be reliable.

T56 - M56 is singing skids. I see a female at 0710 and she preens for 3 minutes in the open woods just N of the sassafras grove beside 56F's nest. She then flies quickly to the SW. I think her presence and manner suggest a nest nearby.

0730 - I leave.

1515 - I return.

T56 - Silence.

T53 - When 53F leaves the nest I get and band the young, now reduced to 3. The brood mark is silver on left, green on top on right.

21-62038 - red;  
21-62055 - yellow;  
21-62057 - blue.

While I have one of them the male goes to the nest. When the female comes up with food the male opens his bill at her. She removes feces dropped when I took the young. There is violent tugging, possibly at the nestlings' bands.

♂ ♀  
nestlings  
in bands

T54 - I band all 3 young here but have to wait with the first because 54F broods for 30 minutes after I've taken it. M54 sings insipids and then later type-3's, the latter at the clearing. 54F finally leaves the nest when M54 brings food.

♂ + ♀

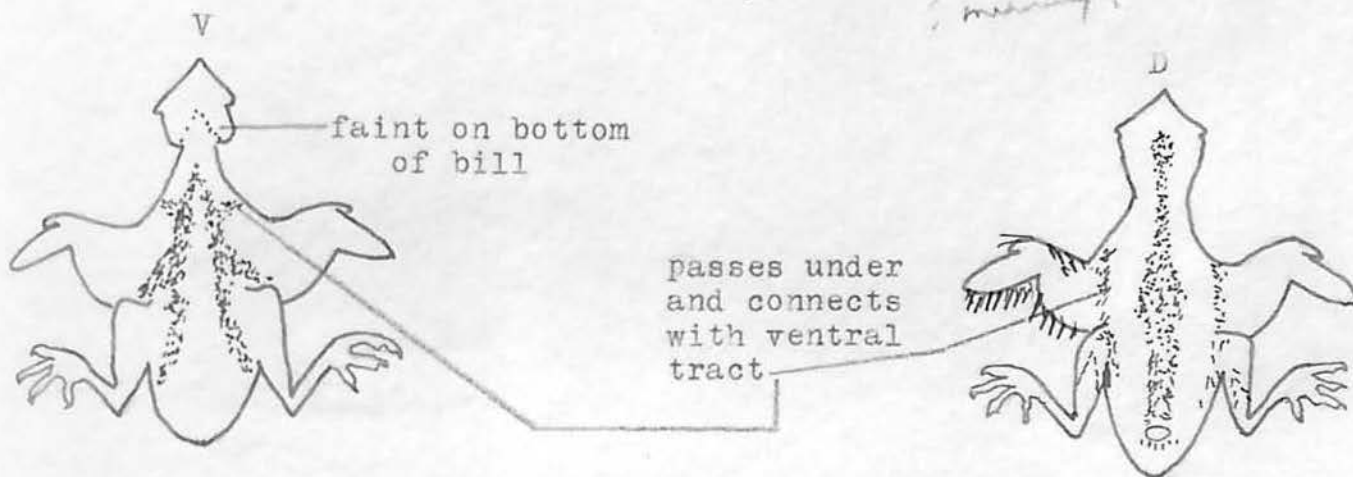


He shows no alarm when I climb up a ladder to reach into the nest; he's singing nearby and surely sees me.

The brood mark is silver on right, yellow below on left.

21-62058 - silver;  
21-62059 - green or blue;  
21-62060 - yellow.

I diagram part of 1 bird's feather tracts. It is nearly impossible to make it stay on its back; it rights at least its head, resting it on its inverted belly.



T57 at 1650 - I relieve Board at this nest.

1655 - M57 comes to within 2 feet of the nest, spends about 1-1/2 minutes in a range of 10 feet, feeds silently in the berry bushes. The female doesn't react so far as I see. He began to sing at 1653 before going and skidded regularly after he left.

1705 - M57 is singing skids and I see him in the blackberries 20 feet N of the nest. He has a green caterpillar. He comes to the nest slowly, advancing indirectly and keeping within 2 feet or so of the ground (but note there are no trees

AFB

near him). He sings 3 or 4 very faint skids and in 90 seconds is at the nest but 3 or 4 inches below it. He then hops to nest level, and 3 times pushes the larva toward it. The female is slightly backed off and has been since 2 minutes before he arrived. She makes no response to his thrusts and they really don't seem to be directed toward her but toward the nest in general. He hops to the ground or grass below the nest, stays 40 seconds. He then jumps up to the nest again and thrusts the larva out. The female takes and eats it. He immediately flies 10 feet or more away. (Note the implications: Being relieved of food by the female is not a sufficient stimulus; the male must see young to bring more food.) At 1710 he goes E to the osage oranges and resumes singing. In the vicinity of the nest on both the 2 occasions I've witnessed, his song has been faint.

1714 - 57F, which has been standing back from the nest cavity, leaves. She was facing N, jumped down to the E about 6 inches, and now moves on a foot or so and then disappears. The male has sung 51 skids to now since 1653. He falls silent.

1722 - M57 begins occasional very faint skids, I think in the blackberries NE of the nest and perhaps 25 feet from it. After 3 to 1725 he quits.

1731 - 57F returns alone, silently, to the nest, perches a second on the N rim and turns the eggs, enters facing S.

sh  
34(2.4)  
6  
3sh  
5

— M13

214  
2151  
90

She returned low and evidently with no long flight. I think she came through the berry patch.

2  
1732 - M57 starts chatters to the SE, the first 2 rather faint.

1734 - 57F turns to face NW, the opposite of her original direction. Could she turn to avoid me? She's staring me right in the face only 25 feet or less away when she faces SE.

67-4(4.5)  
1747 - M57 quits after 67 chatters, none of them loud or ringing. I get the impression that they're weak, not faint.

13  
1759 - 57F leaves the nest. I miss seeing her go, but the time is accurate. It's sunny with a mild S breeze, 68°.

11  
1806 - 57F returns from the W low after calling "check" 3 times there in the preceding minute. She goes to the rim and enters with nothing but a bare glance into the nest. She faces SE.

1806 - She turns to face the opposite direction.

56-2(5.6)  
1811 - M57 begins to chatter to the S.

9  
1820 - 57F probes for 5 seconds. The male is still singing, regularly and often, still rather unemphatically. At 1821 he stops after 56 songs.

1822 - 57F probes for 5 seconds.

1824 - She repeats.

1826 - She rises and in 3 seconds flies 4 feet W, where

she pecks once at a dead blackberry stem. She then goes on 10 feet, then 10 or 15 more to the W, staying low, and I lose her.

1840-1/2 - She comes to the nest. I've had her in view for 1 minute (15 feet along the ground) as she moves along in the bushes to the nest, feeding and pursuing an indirect course. She is alone and silent. She hops to within 6 inches of the nest, pauses a second, hops above it onto a diagonal berry stem lying across it, enters from the NW and faces SE. In 1 or 2 minutes she turns in the opposite direction.

It is 64°.

1841-1/2 - M57 begins to chatter in the dead elm. He pauses after 13 songs to 1844, and after half a minute begins again. I don't break the count.

1847 - After 32 chatters M57 switches to skids. He is 50 feet up on the dead branch of the SE elm. He then flies N and sings from a tall elm there, 100 yards from the other. He seems to have song posts. Is this a matter of having high trees from which to sing? (cf. M53 and M54) At 1850 he quits after 8 skids.

1848 - 57F probes a second, seems to preen her breast for 2 seconds, probes for 4 more, settles.

1854-1/2 - M57 begins to sing high, shrill, rather faint skids 35 feet up in a walnut. He is feeding and his songs

11 1/2  
13 1/2

1/2 (6.0)  
19 1/2  
25 1/2

6  
32.5  
33 0

Song posts

13

4 1/2

14 1/2

are far apart. After 5 skids he moves N and continues faintly.

1900 - It's 64°.

1901 - 57F probes for 3 seconds.

1902 - After 18 skids M57 switches to chatters, and I start over.

1902 - 57F flies directly away from the nest to the SE, low. M57 is singing there. One minute after the female leaves the nest the male quits; 9 chatters.

1908-1/2 - 57F flies to a berry bush 15 feet from the nest, then immediately straight to the S rim. She looks in for 1 second, enters facing NW. I think she was calling "check" near the osages 2 minutes before she came.

1909-1/2 - M57 sings a skid 20 feet N of the nest. He forages in the berries for 30 seconds, crosses W to the tree row and goes on singing. At 1914 after he's sung 13 times I don't hear him any longer.

1918 - 57F is dozing. She closes her eyes, or nearly closes them, for 10 or 20 seconds at a time.

At 1920 it is 61°, perfectly clear and windless.

1926 - M57 skids W of the cut.

1933 - M57 quits after 15 songs. Since at no time did I hear the song E of the cut, it is possible I was mistaken about the singer. On the other hand, I heard no other male from T57 when M57 was singing.

B

foyle

last song

45m  
9h

6 1/2

13 5h

12  
8 5h  
7 5h



390  
6/3/56  
VN  
JB

1935-1/2 - 57F leaves the nest. It is  $57^{\circ}$ . The sun is a few degrees above my horizon, but it's getting fairly dim.

1942 - 57F goes low straight to the SE rim of the nest and enters facing NW. She closes her eyes from time to time thereafter. She turns her head alertly though when there is a noise or disturbance near the nest. *B on nest*

1959 - 57F rises, preens the wing for a second, probes for 2, settles.

2001 - 57F leaves the nest. It is  $53^{\circ}$ .

2005 - She returns from the W straight to the W rim, flying about 8 feet on her last move. She faces SE. Her eyes are closing.

2015 - I leave. It is  $50^{\circ}$ , still quite light enough to see.

The day has been 50% sunny, clear early and late, and dark and cloudy in the middle hours.

T57 at 0650 - I [Board] begin to note the activity here and Nolan leaves.

0715 - M57 quits singing after 76 songs.

0722 - He begins again.

0740 - It's  $52^{\circ}$ .

0740 - M57 quits after 42 songs.

0750 - 57F returns to the nest from the NE, turns around several times and faces S.

60  
7  
11  
—  
31

14

0754 - 57F faces N; M57 begins to sing.

16

0800 - It's 56°.

18

0810 - M57 quits after 32 songs.

E

0818 - M57 begins to sing, and at almost the same time

57F leaves the nest.

0826 - 57F returns from the NE.

25

0830 - 57F is facing S. It is 58°.

7

0832 - 57F is facing N.

0833 - M57 quits after 32 songs.

0837 - 57F rises on the nest, settles again facing N.

5

0838 - M57 begins singing from SE of the nest.

8

0841 - He stops after 8 songs.

0848 - 57F leaves the nest and goes NE.

12

0853 - M57 begins to sing to the NE.

20

0855-1/2 - 57F returns to the nest from the NE, faces S.

8

0903 - M57 quits after 28 songs.

0859-0905 - (Board describes activity by what he thought were 2 males. It seems most likely that he saw M57 come to the walnut tree 10-15 yards from the nest, and that he was misled by the ventriloqual quality of the song into thinking another male was singing too.)

5

0908 - M57 begins to sing to the E; 5 songs in 3 minutes.

5

0909 - 57F leaves the nest, goes S.

19

0922-1/2 - 57F returns from the S, faces N.

0923 - It's 58°.

- 0931 - M57 is singing faintly or at a distance.
- 0937 - He is more audible; the song is a skid.
- 0940 - M57 is 8 feet from the nest. He comes to just above the nest and skids [?]
- 0945 - The male seems agitated. [Male's whereabouts?]
- 0946 - M57 quits after 40 songs.
- 0947 - 57F leaves and goes N.
- 0953-1/2 - 57F returns from the NE, circles to approach from the SE, faces S. At 0957 she is facing N. M57 may give 3 songs at this time.
- 1011 - M57 begins to sing, stopping after 3 in 4 minutes.
- 1015 - It's 63°.
- 1031 - M57, which has sung once since 1015, begins.
- 1034 - 57F leaves the nest. M57 quits after 6 songs.
- 1040 - It's 65°, and the sky is clouding over.
- 1040 - 57F returns, faces S. In 4 or 5 minutes she turns to the N.
- 1054 - It's 63°, but the sun is coming out.
- 1100 - It's 66°.
- 1102 - The male begins to sing.
- 1108 - He quits after 22 songs.
- 1111 - 57F leaves the nest.
- 1125 - 57F returns from the N, faces S, then turns and settles looking N.

40

7

3

6

11

2

15

1

6

26

2

22

22  
3  
1133 - M57 begins to sing.

1136 - It's cloudy with little sun and considerable wind.

7  
8  
5  
1140 - 57F leaves and goes S. The male quits at about the same time; 7 songs.

1148 - M57 sings 5 times in 2 minutes.

10  
1153 - 57F and M57 fly up together. The female goes to the nest, and the male forages within a 5-to-20-foot radius of the nest. He feeds on something on blackberry flowers, skids 5 times while here. [No showing how long he remained.]

8  
24  
16  
1200 - It's 70°. It's partly cloudy.

1208 - M57 begins to sing. He stops at 1215 after 24 songs.

1220 - 57F leaves the nest and goes S.

1221 - M57 begins to sing.

7  
5  
1225 - One of the 57's is 10 feet E of the nest. M57 quits at this time after 7 songs.

1230 - 57F returns. M57 begins to sing.

1231 - 57F rises, perches on the S rim and for 20 seconds seems to be arranging something. She settles facing N.

13  
3  
15  
1235 - M57 stops singing after 13 songs from the SE.

1238 - He begins again to the SE.

1240 - 57F probes in the nest, faces N.

1241 - M57 stops after 15 songs. It's cloudy, gusty, 66°.

1244 - M57 begins to sing. He quits at 1300 after 43.

1302 - 57F gets to the S rim of the nest and faces S, for 4 minutes perches there while moving her head as though gleaning from the surrounding leaves. She then hops to a branch by the side of the nest and after 30 seconds leaves.

1312 - M57 begins to sing; 13 in the next 4 minutes.

1324 - 57F returns from the W and enters facing S.

1325 - It's cloudy, 66°.

1330 - 57F is facing N.

1354 - 57F leaves the nest and goes N.

1414 - 57F returns from the NE, faces S. It is cloudy, calm, 65°.

1421 - 57F has turned to face N.

1435 - 57F leaves the nest.

1445 - She returns from the W, faces S. It is 72°.

1446 - M57 begins to sing, stops at 1454, after 22.

1505 - 57F leaves toward the S.

1518 - She returns from the SE.

1545 - 57F leaves toward the N. In a minute M57 sings once. It is 65°.

1554 - 57F returns. In a minute the male begins to sing, stops after 9 in 3 minutes.

1600 - [It begins to clear after looking as though it might rain only 15 minutes ago. The temperature rises.]



1607 - It's 72°.

1609 - M57 begins to sing. He stops at 1615 after 14.

1624 - 57F leaves the nest. She doesn't fly away directly, but hops slowly along through the grass and bushes until she is 20 feet to the NW; then she flies NW.

1636 - M57 begins to sing, stops in 4 minutes after 12.

1646 - 57F returns to the nest.

1650 - Nolan arrives and I leave.

June 4, 1956

A cloudless morning and a 99% sunny day; a little W wind in the afternoon; temperature 75° in mid-afternoon. Present from 1330 to 1800, with Alan Garrett.

T56 - Silence for 10 minutes and again twice late in the day when we pass.

T54 from 1400 to 1730 - We put up our net near the nest and caught M54 twice; 54F hit twice at bad spots and bounced off. Both were bringing food.

M54's tail we painted red. He was banded green on the right leg, silver 21-62063 on the left. He weighed 7 grams 500 mg.

Five minutes after he was released he sang, and we caught him again about an hour later.

M54 once took a fecal sac and carried it high to the E. I'd guess he was 50 feet up when he dropped it. I paced the distance at 65 yards, and he kept on flying E after dropping the sac. (I also measured the distance to the foxes' den from the nest as 100 yards.

fecal  
Sac bag

At 1548 the female was carrying 3 green caterpillars. At 1550 she brooded low. She stood beside the nest for periods of many minutes nearly every time she went.

T53 - The nest is undisturbed.

T57 - The female is incubating.

1800 - We leave.

4

397  
6/5/56  
VN

June 5, 1956

*feeding's  
counted*

A calm, cloudless morning, temperature about 70°  
at 0800. Present with Board from 0730 to 1230, and  
with Garrett from 1430 to 1730.

T56 - M56 is singing.

T53 at 0758 - Silence. No adult is at the nest. A  
nestling's head is visible.

N

0802-1/2 - M53 sings 2 type-8's in the field.

0804 - 53F shows up 10 feet from the nest with 2 food  
items but seems nervous because of me.

*is nervous  
because of me*

0808 - M53 begins type-8's.

0813 - 53F goes from the W and feeds 2. M53 after 12  
songs goes 10 seconds later and feeds 1. They both look  
in together for 10 seconds. Then the female flies low toward  
me, rising to land 15 feet up in the E trees. The male takes  
off immediately behind her, follows 5 feet back, passes her  
over my head and goes higher into the woods. In 30 seconds  
at 0814, he sings weak type-8's. One of the two gave two  
little "tsips" as they passed close together over me.

R

or

17

L

It will be possible to count the feedings with a good  
deal of assurance today since the young raise their heads  
high.

0817-1/2 - After 4 type-8's, M53 chatters; no new count.

4 ch  
F  
1  
-  
0818 -1/2 - M53 lands below the nest on the E. He feeds the nestling with its head highest, 1 object. In 5 seconds he goes S. All told, 8 songs to this time; I start over.

0820 - Chatters in the pine field.

0820-1/2 - The female to the N side, feeds 1 object to the highest bird; in 5 seconds, toward me.

26 ch (2.6)  
0830 - 53F comes to the Virginia pine with 2 larvae. She is alarmed at me, calls "tsu" 9 times per 30 seconds for 2 or 3 minutes, then just sits.

3 ch  
5 1/2  
0831 - M53 quits after 29 chatters.

0836-1/2 - M53 begins to chatter in the field.

0837-1/2 - 53F goes to the nest, feeds 1 young twice, comes E after 8 seconds.

0839 - M54 begins to sing near 2.

7 ch  
F  
1  
5  
0840-1/2 - After 7 songs M53 goes and feeds 1. He stands on the SE rim, stays 15 seconds, flies 3 feet to a blackberry where he eats an insect, comes SE and begins to sing chatters at 0841-1/2. At 0843 he quits after 5 songs.

All 3 young are alive. Two have their heads out and at least one its bill wide open and its eyes closed.

11  
1  
6  
-  
0854 - M53 chatters loud in the edge S of me. The female calls "check" 15 yards from him, N of me.

0859 - 53F goes to the nest, N rim. She feeds the highest bird once, looks in for 5 seconds, takes a fecal sac SE flying low.

1  
1  
F  
0901 - M53 flies to the Virginia pine and sings. He takes 1 green caterpillar to the nest, feeds, stays 10 seconds, goes.

2  
30  
0902 - The female flies to the pine with 1 green caterpillar. In 2 minutes she goes S with it. The male sings there in the field. I'm afraid I'm causing trouble, but I don't know why I should be.

0905 - The female is back in the pine with 2 pieces of food. The male quits after 30 songs.

0920 - The female is still sitting with the food, silent and without any tail bobbing. She simply looks around her. At 0921-1/2 she drops to the N.

15 1/2  
0921-1/2 - M53 begins to chatter.

20ch  
(2.5)  
0922 - 53F comes over to me and sits 10 yards away calling "chick" loudly. She has a green caterpillar and an adult insect or spider.

0924 - She goes to the nest, feeds 1 bird, looks in silently for 10 seconds, comes E to above me; I hear nothing. If her alarm continues I'll have to quit.

0931 - 53F flies to the pine, calls "tsu," sits quietly after a minute. The male sings.

0937 - 53F goes to the nest, feeds 2 or possibly 3. She pokes into all their mouths a total of 6 times. She may have a lot of small pieces. The young gape till she quits poking, then sit back while she perches on the rim for 5



400  
6/5/56  
VN

seconds. She then flies E and S of me into the edge. The male sings in the field, all chatters. He's about 20 yards from the nest, or 30, from 0935 to 0945.

0946 - 53F goes to the nest, and feeds most food to 1; possibly a second nestling gets a little. The female takes a sac, flies NE and turns N after 25 yards. I'd guess she dropped the sac at the turn. M53 is singing while foraging 10 feet high 10 yards from me in the edge trees. His behavior is not influenced by me, and last time 53F delayed only 30 seconds in going to the nest. The male sings loud chatters. The young have their bills open when their heads are visible; at least they do half the time.

0952 - 53F goes to the nest, feeds the first bird most (dropping a larva and giving it again after picking it from the nest). She puts her bill in both other mouths, clearly passing something to one of these two and probably to both. Again her time before going was not influenced by me. She stays 10 seconds, comes E.

M53 broke his song for 1-1/2 minutes at 0950, but I continue to count to 0955, when he quits after 84 chatters.

0957 - 53F goes, feeds 1, takes a sac after 5 seconds and flies high with it to the trees in the NE edge. She may have dropped it just before landing. The distance is 35 yards.

0958 - M53 begins to chatter.

L

R

L

R

L

R

L

64 h  
3

39/84  
68  
180

401  
6/5/56  
VN

50h  
F  
0959-1/2 - After 5 songs M53 goes, feeds 1, stays 10 seconds, flies S and sings at 1001. The young gape all the time he's there, but they lower their heads 5 seconds after he arrives and feeds.

2  
2  
2  
1004-1/2 - 53F goes to the W rim (there is little pattern in this matter), feeds 1, sits for 10 seconds. She then takes something from the nest and gives it to a second bird, so I suppose the first dropped a piece. If so, there were 2 pieces (not more), because 53F had a green larva in her bill and the second object was black. R L

1007 - M53 has sung 4 times since leaving, all weak chatters. He's near 1 now for the first time, I think, since I came.

80h  
53F calls "check" while she forages in the pine field; this is her only reaction to me now.

F  
30h  
90h  
1009 - M53 goes to the nest after 8 songs. He feeds 1 green caterpillar from the SE rim. 53F arrives 2 seconds after him, pokes twice but in the same gape I think. M53 leaves in 10 seconds to the SE, she 1 second later to the NE. He sings chatters in the edge in 30 seconds, N of me. At 1011 after 3 chatters he begins to skid.

The young have their eyes closed when not being fed. I don't know what they do when being fed.

At 1015 M53 quits singing; he's sung 3 chatters, 9 skids. At 1017 he flies without food to the tip of the pine by the

nest and sits nervously for 1 minute. I think he calls "tsu," and I get the impression that the birds here may be aroused by something. The calling stops after 2 minutes.

1022-1/2 - The male chatters faintly to the SW. The songs are so infrequent that they are hardly a series for the first 3. He comes to the edge near me and sings a series. At 1030 I see him fly NW into the center of the field.

1034 - 53F takes a round whitish object about 1/4 inch in diameter to the nest without any preliminaries. She feeds the highest bird, looks in for 8 seconds, goes NE. She landed below the nest 1 foot and hopped to the S rim.

1036 - 53F goes to the W rim, feeds 3 items to 2 young, looks in for 10 seconds, goes low to the NE.

M53 sings in the E edge and the pine field, all chatters. I'd guess he spends 50% or more of his time in the field, so he can't be high.

1045-1/2 - After 57 songs M53 goes to the W rim, feeds 1 small object to the highest, stays 15 seconds. The young gape the whole time but lift their heads high only when he arrives. He goes SE, sings at 1047.

1049 - 53F comes, feeds 1, in 6 seconds takes a fecal sac, flies low to the NE. I'd say she carried it 35 yards again, at the most. I didn't see her drop it, and she didn't turn as she flew.

7 1/2

3

15 ch

39 ch

(2.4)

K

L

502

R

L

R

L

22/54  
44  
170

01

R

L

M53 quits singing at this time after 5 chatters.

1055 - M53 chatters in the NE corner, the first song weak.

1056 - 53F brings food but I miss seeing the delivery. She takes a sac and goes 45 yards S into 1, rising to 20 or 25 feet as she enters the locusts.

Two young have their heads out, eyes closed. At least one keeps its bill well open.

1102-1/2 - 53F comes and feeds 1, the highest. She then takes a sac after 3 seconds, flies to precisely the spot she went to last time, rising and in every way duplicating the other flight.

1105-1/2 - M53 goes to the nest after 24 songs, stays 4 seconds. I miss the feeding. He goes SE, sings 1 chatter in 30 seconds.

1108 - The female goes to the W rim with 1 green caterpillar, probably 2 other smaller items. She gives all to 1 young (2 are equally high). In 10 seconds she goes NE.

1109 - M53 chatters to the S.

1110 - 53F goes with a good deal of food, probably 2 pieces. All goes to the highest young on the side nearest the NW rim, where she perches. In 7 seconds she goes low to the NE.

The male feeds and sings 1 and 2 feet high in the field cover 10 feet from me.

1114 - 53F takes food to the NW rim, feeds 1 young,  
looks in for 5 seconds, flies E into the woods behind me.  
I think M53 flies after her. I caught a glimpse of a  
bird moving toward her, and he has left the area beside  
me where he was feeding. There are 2 songs from deep in  
the woods, his I think. At 1117 he sings in the field.

R  
L

1117 - 53F takes food. I miss the feeding. In 5  
seconds she flies NE.

R  
L

1117-1/4 - M53 takes food, and I miss that too. He  
stays 5 seconds, goes SE. He'd sung 17 times, starts again  
at 1118.

The nestlings gape, eyes closed.

1123-1/2 - The adults arrive simultaneously, the male  
from the S, the female I think from the N. She feeds once,  
and I think he does too. After looking in for 8 seconds  
they leave together and fly SE about 3 feet apart (parallel)  
during the half-second I have them in sight. He had sung  
8 times.

R  
L  
line  
to g

1128 - M53 chatters to the S.

1129 - He comes after 3 songs, feeds 1, looks out and sees  
a caterpillar on a leaf 6 inches or less from the nest, catches  
it and carries it away.

61

1130 - 53F takes a brown caterpillar, thin and at least  
1-1/2 inches long, to the nest, feeds 1 and goes NE after 6  
seconds.

R



20  
(2.4)  
1130 - M53 begins to sing to the S, comes to the trees above me.

At 1134 I hear a burst of whining calls near M53, possibly his.

F  
1138 - He takes 2 objects to the nest, arrives so quickly that the young don't reach up. He feeds all to 1 bird, looks in for 5 seconds, goes S and sings once in 15 seconds. He'd sung 20 times. I think the adults don't stimulate the young to defecate; they simply wait long enough to see if the young will.

1140 - 53F comes to the pine with a fat green caterpillar. She sits silently for 45 seconds, takes it to the nest and feeds the highest young. In 5 seconds she gets a sac, goes NE but I can't see where.

Clouds are coming up in the W, but it's warm, sunny, slightly breezy from the W.

1146 - 53F comes to the pine with at least 2 and more likely 3 green caterpillars. In 20 seconds she takes them to the nest, W rim, and feeds 2 young. She poked at a gape immediately on arriving but I saw no food pass; she may have fed 3 young. She takes a sac SE in 6 seconds; I can't see her course.

I'm getting the impression that the nestlings don't respond so hungrily at the adults' arrival. They clearly aren't reaching as high, and landing on a nearby branch

produces little reaction. It's not till the parent actually gets to the rim that heads go up. On the other hand, they still rest with bills open on the rim. I'd thought this a hunger sign today; maybe it's heat.

14  
1152 - M53 skids near the nest in the field to the N.

352  
1153 - 53F goes to the nest, M53 arriving 2 seconds later. Both sit on twigs, to the W. I think they feed 1 each (I'm pretty sure). In 9 seconds 53F flies E and M53 leaves and flies beside her; he lands in the trees above me and I get the idea he was fluttering a little. He'd sung 3 times.

1154 - M53 begins to skid in the edge.

22  
1155 - 53F takes food, but I miss the feeding. She then perches quietly on the N rim for 3 minutes. For 2 of these she picks very gently at the backs or sides of the birds. They sit quietly with open bills, not responding. At 1158 she goes SE.

1200 - M53 is still above me. He's sung 22 loud skids to now and is continuing when I leave the territory.

1230 - I get Board, and we leave.

T57 at 0800 - I [Board] sit to watch the nest. 57F is incubating facing N.

0810 - She seems to rearrange the eggs. At 0817 she repeats.

407  
6/5/56  
JB  
VN

0825 - 57F leaves the nest going NW out of sight across the cut-over fairway.

0828 - M57 skids above me; he leaves in 6 minutes.

0840 - 57F appears near the nest, perches at 10 feet, moves into the bushes and through them for 2 minutes.

0842 - 57F enters the nest.

0906 - She seems to turn the eggs.

0908 - 57F leaves the nest.

0919 - She returns and incubates. I watch to see if she will probe and turn eggs and see these movements at 0936, 38, 45, 54, and 0958.

0959 - 57F leaves to the N.

1021 - She returns from the S.

1130 - 57F rearranges the eggs.

1131-1/2 - She leaves and goes N.

1142 - 57F returns.

1200 - I leave the territory.

1430 - I return with Alan Garrett, It's sunny, 78°.

T54 from 1430 to 1630 - We try without success to get 54F in the net. She stands beside and over the nest (and even broods) for long periods, so the traffic is light. Once she hits and extricates herself after hanging there for 10 seconds.

M54 feeds a good deal, sings very little. Most of his songs are the Golden-wing type, from 5 to 7 notes. I time

G W song  
down

some of these with a stop-watch as 7, 7, 9, 8, 8, 9, 6; each figure represents duration in tenths of seconds.

T53 from 1630 to 1730 - After many troubles we catch, band, and paint both adults, the male first. I paint his tail blue, the female's red.

M53 - 21-62062

53F - 21-62064

His silver band is on his left with a green band above it. She has only the silver, on her right. He weighs 7 g., 450 mg. I don't weigh her because I don't want to keep her too long; she was in the net unseen for some time.

Both were feeding actively. Once from 1807 to 1810 M53 sat in the top of the Virginia pine and sang weak chatters. Chatters were the song he sang the entire time, and we got a good many of them measured on the stop-watch. The number of songs of each duration follows: .8 seconds-2; 1.0-4; 1.1-2; 1.2-2; 1.3-2; 1.4-7; 1.5-7; 1.6-1; 1.7-6; 1.8-10; 1.9-2; 2.0-6. *Several com. of songs*

T56 - Silence.

1730 - We leave.

409  
6/6/56  
VN

June 6, 1956

*Jump up 22, 425  
for a definition*

A calm, cloudless morning; temperature 56° at 0500.  
Present from 0500 to 2045.

*down  
songs*

T54 - M54 is singing insipid steps and calling the  
anger call between songs; he's in 2.

*calls before* T53 at 0510 - M53 is calling as though in anger. 53F  
is not on the nest.

*sings before* 0518 - 53 comes to the pine with a small piece of  
food but shows nervousness. M53 begins insipid steps.

0520 - 53F to the W rim, feeds one; away in 5 seconds.

(No sound of M55, which also was silent during the 7  
hours I was within earshot yesterday.)

0523 - 53F to the W rim; I miss the feeding. In 7  
minutes she goes SE.

A Connecticut Warbler sang in 1 last night and is doing  
so this morning.

*19 ins*

M53 is silent after 19 insipids.

0524 - 53F to the pine.

0525-1/2 - She goes to the N rim carrying a small ob-  
ject, feeds the highest young, stays only 2 seconds in all.  
Then she goes N into the field some 15 yards. She's calling  
"check" about 4 or 5 times per 10 seconds, presumably at me.

0527-1/2 - 53F to the W rim, feeds 1, goes in 2 seconds.

0531 - She goes to the W side, perches 5 seconds on a  
twig, feeds 1, comes into the edge tree tops. She's calling



"check" as before.

0535 - 53F repeats the last feeding.

0536-1/2 - She goes to the rim, feeds 2 green caterpillars to 1 bird, in 5 seconds takes a fecal sac 30 or 35 yards SE to the woods edge.

I'm not sure I've heard M53 yet.

0540 - 53F to the E rim, feeds 1, goes in 3 seconds.

0541-1/2 - 53F to the S rim, feeds 1 for 2 seconds.

0543 - 53F to the S rim, feeds 1 for 4 seconds.

0543-1/2 - M53 to the S rim, feeds 1 for 5 seconds. 6

0544 - M53 skids near 1.

0545 - M53 gets into a fight in the NE corner, singing 2 abortive songs and calling.

0545 - 53F to the E rim, feeds 1 for 3 seconds. Most loads of food seem small.

0548 - 53F to the W rim, feeds 1 with a small object; SE in 5 seconds. She's no longer calling "check" regularly.

0549 - She goes to the W rim, feeds 1, comes into the trees above me in 3 seconds. Note how few sacs there are. Are many small feedings more useful in the early morning? other

M53 is silent. He sang 7 times irregularly, including the fight.

0551-1/2 - 53F to the W rim, feeds a green caterpillar to the nearest but not the highest young; comes to the edge in 5 seconds. She calls "check" when near me.

0553 - 53F feeds 1 from the W rim.

7 1/2  
12  
0553-1/2 - M53 sings 1 skid, in 10 seconds feeds 1.

A male sings type-8's to the NE. It must be M55.

12  
0555 - M53 feeds 1 on the W rim, in 10 seconds takes  
a sac 30 yards E to the tree row. The singing male is  
almost surely M55.

0556-1/2 - 53F feeds 1 and possibly 2, comes E from  
the W rim in 8 seconds. She stuck her bill down twice.

12  
0559-1/2 - M53 feeds 1 at the E rim, comes E to the  
edge in 8 seconds.

6 1/2  
0604-1/2 - 53F feeds a small object to the highest,  
in 10 seconds comes E and calls a note over me. It is al-  
most a squeak. It is quite regular, once in 2 seconds. She  
forages within 15 feet of me.

10  
0607-1/2 - 53F feeds 1 from the W rim, comes E and calls  
as before. Some of the notes are "check" now.

12  
0610 - 53F feeds 1, in 4 seconds goes SE. M53 arrives  
in 2 seconds, feeds 1, watches them for 10 seconds, goes SE. 53F  
called 2 louder squeaks when she saw him, just before she  
went to the nest.

5  
Note that M53 waits at the nest and thus has carried the  
sacs so far today.

M55 sings type-8's.

12  
0616 - M53 feeds 1 green larva from the E rim, leaves in  
4 seconds.

It is 57°.

0621 - 53F goes to the N rim, feeds 1 (I think only 1),  
takes a sac and flies to the E edge 35 yards away, rising

412  
6/6/56  
VN

into the tops when she gets near the trees.

0623 - 53F feeds 1 from the W edge.

0624-1/2 - M53 feeds 1, comes to the trees 25 feet above me, skids once.

0626 - M53 feeds 1 after 2 skids. He comes E in 7 seconds, from the W rim.

0627-1/2 - M53 feeds 1, comes E and forages 1 foot high after 5 seconds. He's 15 feet from me, silent and placid.

0629-1/2 - 53F feeds 1, in 5 seconds takes a sac to the NE edge.

0631 - M53 skids. At 0636 he goes to the field just S of the nest and skids. M54 skids to the W.

0637 - M53 goes to the nest, feeds 1, goes N from the E rim in 8 seconds.

53F arrives in 3 seconds, feeds 1 from the W rim, comes E toward me. He'd sung 8 times before feeding.

0646 - 53F takes a green caterpillar to the nest, feeds the highest. She may feed a second young. In 7 seconds she comes E to the edge.

0645 - M53 begins insipid steps.

So far today, the nestlings have raised their heads over the rim only when being fed, but at 0650 I can see one's head resting on the rim.

0650-1/2 - 53F goes to the N rim, feeds 1, leaves in 5 seconds.

17 in 8  
F  
9  
M53 arrives in the tree while the female is there, feeds 1 from the W, picks at a band on his leg, leaves in 5 seconds. He'd sung 17 insipid steps, if he was the singer at all. It could have been M54.

0658 - 53F goes to the W rim, feeds 1, waits 8 seconds and gets a sac. This she carries straight E past me high, into the woods at least 20 yards. Thus of the various times I've seen sacs carried here all may have been taken into the woods or into 1. Note again how the carrier seems to rise and go high into a tree. 3000

0700 - It is 60°.

0703-1/2 - 53F feeds the highest from the W rim, in 10 seconds comes E and forages low within 20 feet of me.

0705 - M53 goes without food to the Virginia pine and sits for 5 seconds in the top.

13  
0711 - 53F goes to the N rim, feeds the highest (which is farthest away), stays 10 seconds, comes E to the trees.

0713 - M53 skids in the pine field.

0713-1/2 - 53F takes food to the N rim, feeds 1.

2.54  
F  
0713-1/2 - In 10 seconds after 2 songs M53 feeds 1 from the W rim, looks in for 12 seconds, goes SE.

0715-1/2 - 53F feeds 2 from the N rim, carries a sac high

414  
6/6/56  
VN

into the SE corner after 8 seconds.

1 1/2  
1 1/2  
F  
1  
1 1/2  
6  
F  
0715-1/2 - M53 skids.

0716-1/2 - After 1 song he goes to the W rim, feeds 1 item, waits 8 seconds, goes SE. 5-7

0718 - He skids once.

0718-1/2 - 53F feeds 1 from the N rim, in 10 seconds carries a sac high, at least 20 yards into the E woods (30 feet high or more). This would be at least 50 yards E.

F  
0724 - M53 feeds 1 object from the E rim, stays 4 seconds, goes into the pine field to the S. 6-5

6  
F  
0729 - 53F has 2 objects, 1 black and 1 a green caterpillar.

She goes to the nest just as M53 arrives. Each feeds 1 young. In 9 seconds they fly SE within 2 or 3 feet of each other. 6-5

1 1/2  
0730 - M53 sings 1 type-8.

10  
0734-1/2 - 53F feeds 1 from the W rim, gets a sac in 8 seconds and carries it 35 feet high into the trees over my head or beyond me. I couldn't see her after she reached the woods.

It is 62°.

11 1/2  
0740 - M53 sings a weak type-8, goes on.

0740-1/2 - 53F brings food, in 10 seconds goes SE. I miss the feeding; I think she fed 1. She touches a young once with her bill.



I think a nestling preens itself.

0744 - 53F feeds 1 from the NW, goes to the E trees in 8 seconds.

0746 - M53 goes to the W side after 11 songs, feeds 1, in 5 seconds goes S.

0748 - He sings type-8's.

0751 - 53F goes to the W side with a lot of food, gives it to 2, sits 8 seconds, goes NE. I think the number of young fed may depend on the capacity of the first one to which food is offered. There seems to be no distributing merely because there's a lot; distribution occurs if the first does not accept all.

0755 - 53F takes 1 object to the N rim, stays 8 seconds, comes E.

0756 - M53 after 12 songs goes to the W rim, feeds 1, stays 10 seconds. He goes SE. At 0757 he sings a type-8, switches to chatters.

0800 - After a minute's delay because of me, 53F goes and feeds 1. In 10 seconds she takes a sac 30 feet high to the E tree tops, not into the woods (30 yards).

0800-1/2 - M53 goes after 5 songs, feeds 1 from the E, in 5 seconds goes SE. In 30 seconds he sings 1 chatter.

0803 - M53 goes from the S, sits on the S rim and feeds 1. In 8 seconds he goes S.

0806 - M53 sings 2 chatters half a minute apart.

0808 - 53F feeds 2 from the W rim, comes E to the edge

72

67

NB  
feeding 8  
80

67

67

67

12 48  
(1.5)

R  
1  
149  
402

102

R  
102  
2  
12  
3  
202

top after 10 seconds.

It is 63°.

11  
K  
0810 - I'm pretty sure a nestling preens. One has its head on the rim, bill open and eyes closed. Another is the opposite. Within 30 seconds both have pulled their heads down.

0818 - M53 comes and feeds 1.

5  
In 1 second 53F arrives and feeds 1. They sit together for 6 seconds; then he goes SE and in 5 more she does too. He was on the SE rim, she the W.

1 sk  
0823 - M53 skids.

3  
A chipmunk just went past me 15 feet out in the field. Board saw a fox squirrel cross the cut W of T57 and walk through the brushy part of T57 not 20 feet from the nest yesterday.

5 sk  
0826 - M53 chatters S of the nest.

K  
0827-1/2 - After 5 songs M53 comes to the W rim, feeds 1, goes SE in 12 seconds. The young seem to doze. In a minute one will open and close its eyes 3 or 4 times each. I suppose when their heads are in (90% of the time today) they are asleep. They gape the whole time a parent is present, sometimes vigorously. They are beginning to put their heads out and move around a little more than they did earlier, I think.

2  
5 1/2  
0835-1/2 - M53 chatters.

7ch  
P  
0838 - He goes to the W rim after 7 songs, carrying 1 green caterpillar.

1ch  
53F arrives on the N rim 2 seconds later. He feeds 1; she feeds 3 (she almost seems to regurgitate, her bill is so full). He goes SE after 10 seconds, sings a chatter in 30 more. She goes SE 3 seconds after he does. She had a piece of food which she had to get forward from the back of her bill, which involved brandishing it. M53 seemed to try to take it as she swung her head near his. None of these movements was quite so prominent as a description must suggest.

8  
At least 1 nestling has its eyes and bill open; then the eyes close.

1ch  
P  
0847 - M53 chatters once, comes in 10 seconds and feeds 1 young. In 6 more he gets a sac and takes it SE. I don't see him rise with it.

2 1/2  
1ch  
3  
0850 - M53 sings 1 chatter.

3ch  
3  
0852-1/2 - 53F comes to the W rim, feeds 1, goes SE in 5 seconds.

3ch  
0853 - M53 skids 3 times.

2  
0855 - 53F goes to the W rim, feeds 1, comes E in 5 seconds. Not much food in the last 2 trips, I'd say 1 larva each time.

88ch  
P  
0856 - M53 skids S of the nest.

P  
0859-1/2 - After 8 skids M53 goes to the S rim, feeds the nearest (which is possibly also the highest), goes S in 15

seconds.

1 1/2  
I saw the chipmunk 15 feet from me toward the nest 2 minutes ago. faded

1 8/12  
0901-1/2 - M53 skids once.

0901-1/2 - 53F goes to the W rim, feeds l.

F  
In 10 seconds he comes to the tree and she leaves to the N. He goes to the W rim, feeds l, goes S in 6 seconds. I think the young are audible from my spot, 30 yards E of them. It is 67°. G  
left out

0905 - 53F comes to the W rim, feeds l, gets a sac in 5 seconds and takes it at least 30 yards into the E woods, 30 feet high or more.

13  
0910 - 53F goes to the W rim, feeds l. In 5 seconds she gets a sac and takes it to the SE, climbing when she gets to the edge trees. I don't see her after that.

2004 (2.5)  
0915 - M53 skids.

F  
1 8/12  
2  
0923 - After 20 songs M53 goes to the W rim, feeds l, stays 10 seconds, goes N, and in 30 seconds skids. One nestling continues to beg with its head high and flapping its wings, the first time I've noticed this. G  
y

3 1/2  
0925-1/2 - 53F feeds l from the N rim, goes E above me in 8 seconds.

4  
0926 - M53 is silent after 3 songs.

0932-1/2 - 53F feeds l from the W, sits 6 seconds and comes E. A nestling had its head on the rim, eyes and bill closed.

0936 - 53F feeds l from the N rim, comes E to the edge above me after 5 seconds. During the period after feeding Behrman

and before leaving, the adult always watches the young intently.

7 1/2  
18k  
F  
0937-1/2 - M53 sings 1 skid, goes to the W rim and feeds 1, comes E in 5 seconds.

0940 - M53 feeds 1 from the W rim, in 5 seconds gets a sac. He takes it S 45 yards and enters 1 with it at 35 or 40 feet in height.

5  
18k  
F  
0945 - M53 comes to a tree 10 feet from the nest, sings 1 skid there. He goes to the W rim, feeds a great, fat, green caterpillar. Two young beg and flutter for more (probably the 2 not fed). M53 takes a sac S in 5 seconds, but I don't see him after he leaves the nest.

4 1/2  
F  
0947-1/2 - 53F brings a big green larva to the W rim, feeds 1, waits 10 seconds, flies into the tree 25 feet above me. I see her eat there.

0949-1/2 - M53 goes to the W rim with 1 big green caterpillar.

2 1/2  
28k  
53F lands there 1 second later. She carries a dark adult insect. Each feeds once, sits on the W rim for 5 seconds. The two fly E together, but I miss seeing which one leaves first. M53 turns in the air and goes to 1; 53F calls her squeak, a sort of "tsit" above me, then forages near the ground 15 feet W of me. "Tsit" is a good representation. The note is not as light and weak as a "tsu."

0952-1/2 - The male skids twice in the field.

vt

vt

yg

vt

forage

describes call



7  
1000 - The female still searches the weeds and bushes near me. She's eating what she finds, calling every 2 seconds but possibly not because of me.

2  
At 1000 it's 71° in the shade. The only nestling I can see has its bill open.

At 1002 53F flies a good distance NW from a pine top 10 yards from me.

252  
7  
152  
1002 - M53 skids twice from the field near me.

1009 - He skids once.

1009-1/2 - 53F comes to the W rim, feeds l. The young beg audibly. She leaves after 5 seconds, when M53 arrives below the nest.

89  
6. hours

F  
M53 hops to the W rim, feeds l, and in 5 seconds takes a sac SE. I don't see him rise or go far, so it's possible he disposes of the sac nearby.

1013 - A nestling stretches forward and raises both wings to the side and over the head. It then preens a wing.

88  
p.m.

5  
1013-1/2 - 53F feeds the highest from the W rim, eats something on the rim, comes E above me in 10 seconds.

K  
1014-1/2 - M53 sings 1 skid and in 10 seconds arrives on the W rim. He feeds l, goes SE in 10 seconds.

u

1016 - 53F calls and forages near me and goes to the nest at this time. She feeds l, gets a sac in 5 seconds (on the W rim), and carries it 40 feet high and 35 yards or more into

the woods past me.

5  
F Note the correlation between the need of the young to be brooded and the female's eating the sac instead of carrying it from the nest. How about the male's behavior?

12  
F 1020 - M53 feeds 1 on the S rim, goes S after 12 seconds. I think the young called before the adult arrived. I'll check on this. O→

3  
F 1023 - 53F feeds 1 on the W rim. There was no calling before she came.

F M53 arrives in 3 seconds, waits 2 seconds, goes to the S rim and feeds a different nestling. After 5 more seconds 53F flies E to the edge tree tops and M53 follows 4 feet behind but turns S. O→

Two nestlings have their heads up, bills open, eyes closed.

7  
F 1026 - 53F feeds 1 from the W rim, flies E to the edge after 5 seconds.

1029 - 53F feeds 1 from the NW rim, flies to the trees above me after 5 seconds.

3  
F 1032-1/2 - 53F goes to a bush 3 to 5 feet from the nest and calls. The young don't respond. She goes to the NW rim and feeds.1. Gg-

F In 3 seconds the male arrives with food just as a nestling excretes. Both adults reach for the sac, but M53 gets it and flies away without delivering his food. In 1 second the female O→

leaves to the E.

1037 - 53F brings a large 1-inch long cylindrical object, whitish; I don't think it's a caterpillar. She gives it 3 times to a young bird, which finally drops it from the nest. 53F retrieves it 1 foot below on a leaf, takes it back. *behavior*  
Again she has to offer it 3 or 4 times. After 40 seconds she goes NE.

1041 - 53F is back on the W rim with another of the strange things described above. I now see they're flattish. A nestling has to have it given to him about 10 times, dropping it, nearly gagging, finally getting it down with great effort. In 45 seconds 53F goes to a weed 5 feet from the nest and seems to be foraging low there. I lose her after 45 seconds.

1045 - The male begins to skid in the field. The young do not respond.

1046 - After 4 songs M53 comes to the W rim and feeds 1. *UT*  
In 10 seconds he goes SE.

I'd say that 90% of the time only 1 object is being brought. Whenever the notes simply say "feeds 1," it means too that only 1 food item is seen. *NB*

1056 - A male is singing very faint insipid steps. The songs come from the S and sound like M53's song of this type. I hear 4.

1059 - M53 skids once and in 30 seconds brings 1 green caterpillar to the W rim. In 8 seconds he goes S and in 30 seconds sings 1 skid. *→*

1100 - 53F comes to the N rim and feeds 1. She waits 17 seconds, picks at something on the nest rim and then puts her bill in the nest. I'd guess she caught and fed an insect. She comes E after 20 seconds.

1100 - It is 73°, sunny, virtually windless. *Wester*

1112 - One nestling preens, two sleep with open bills. *38*  
Now one closes its bill.

1118 - A male sings 3 very faint, 4-note fragments of a type-8 in the trees a few yards N of me. *18*  
*3 ind*  
*1-18*

1119 - 53F comes to the pine with a black insect in the tip of her bill and a green caterpillar farther back.

1121-1/2 - She goes to the W rim, delivers twice, but I think to the same bird. *2 1/2*  
*Whisper*

In 3 seconds M53 arrives beside her and feeds 1. 53F goes E in 6 seconds and M53 leaves immediately behind her, but stops in the field when she reaches the edge. *K*

1123 - M53 sings 1 loud type-8. *1*  
*148*

It's hardly worth describing the young at any moment. They open and close their mouths for from 1 to 15 seconds.

1125 - 53F feeds 1 from the N rim, hops down below the nest, then to a weed just W of it, then goes N. She was on the rim 6 seconds, nearby for 6 more. *4*

1127 - The male sings 1 type-8. In 10 seconds he goes to the E rim and feeds 1. *148*  
*F*

424  
6/6/56  
VN

*begin*  
*118*  
*1 1/2*  
*218*  
*1118*  
*8.2*  
*4 1/2*  
*1 1/2*  
*R*  
*7 1/2*  
In 5 more seconds 53F comes to the W rim. M53 reaches over and grabs at the food in 53F's bill. She feeds l. He leaves after looking into the nest and in 1 second she follows. Both come E. M53 was at the nest 15 seconds. At 1128 he sings a type-8 and in 1-1/2 minutes another and continues. He's foraging 6-8 feet high S of me in the edge. *B*

*get moving*  
*8 min*  
*before*  
*starting*  
*distance*  
*at*  
1134 - M53 has sung 13 times. The female is calling 10 feet from me with 1 small green caterpillar. By 1138 she has collected at least 3 items, possibly 4. I see her drop a small object in reaching for another.

1138-1/2 - M53 sings 4 faint type-8's.

1140 - He goes to the nest and feeds l.

She arrives 2 seconds later and gives all her food to another nestling. In 2 seconds M53 takes a sac and goes SE as he often does; again I don't see where. 53F waits 4 more seconds and comes E near me.

1142 - 53F feeds l on the W rim, in 5 seconds gets a sac and carries it high to (and probably beyond) the edge trees S of me.

1147-1/2 - M53 sings short type-8's just S of me, some of them very faint.

*1118*  
*R*  
1151-1/2 - After 11 songs he goes to the W rim and feeds l.

In 1 second 53F arrives and feeds a different l. In 5 seconds she goes NE. M53 stays at the rim for 15 seconds, then



425  
6/6/56  
VN

hops out to a branch 1 foot from it and calls "tsu" 3 times per 5 seconds till 1159. I have the feeling he's alarmed. He stands still. A Cowbird chattered nearby at 1153, but I don't know that there's a connection.

*T. Stern*

The young disregarded M53, although surely he was visible to a bird with its eyes open, until he hopped around to fly away. Then they stretched their necks up for food.

*gs*

1200 - It's 74°. The female with her odd call is foraging 15 feet up in a hickory near me.

1201 - M53 sings a type-8 in the field and in 2 minutes another in the edge N of me.

1204 - 53F feeds 1 on the W rim. In 2 seconds it excretes a sac, and she flies up to 30 feet high and goes at least 40 yards beyond me into the woods with it.

1205 - M53 skids once. In 1 minute he sings an insipid step.

1207 - He goes to the W rim and feeds 1. In 13 seconds he goes NE low.

When an adult is said to be at the rim it may in fact be perched just above or beside the rim on a twig.

*u*

*NB*

1209-1/2 - 53F feeds 1 from the W, comes E into the field in 8 seconds.

1211-1/2 - 53F feeds 1 from the W, in 5 seconds flies 6 feet away to a weed, then 4 more to a blackberry. At 1213

8'12  
1  
1 40  
2  
1 48  
2  
1 44  
1 45  
2  
F

she comes E to the trees.

1213-1/2 - 53F feeds 1 from the W.

In 5 seconds M53 arrives and 53F comes E. M53 feeds a big green caterpillar, in 8 seconds goes SE.

1215 - M53 is giving bursts of 4 or 5 mild fight calls.

At 1216 he chatters to the NE once. At 1218-1/2 he calls again and sings 5 chatters to 1220-1/2.

1218-1/2 - 53F feeds 1 from the W, flies E after 5 seconds. She calls in the field between me and the nest. In fact, she's always calling so far as I can tell, irregularly or at differing rates. This may be only because she's near me.

1222 - He chatters above me, goes SW and continues.

1227 - After 7 songs he comes to the S rim, feeds 1, and in 7 seconds flies a short distance E out of my sight. In 45 seconds he chatters there, comes E to the edge.

There are white clouds in the W but it's still sunny, 74°.

1231 - After 6 songs he feeds 1 from the S, goes S in 4 seconds.

1235 - The young keep their eyes closed and bills open most of the time. Once something causes them all to jerk their heads down.

1238-1/2 - 53F feeds 1 from the W, stays 2 seconds, comes E.

1238-1/2 - M53 chatters once. Five seconds after the female leaves he goes to the SW rim and feeds one. He leaves

1 ch  
in 6 seconds and chatters 30 seconds later. One young gave  
a high upward stretch of its whole body while the male was  
there. I couldn't see its wings. 28

1241 - 53F feeds 1 from the S rim, goes N in 5 seconds.  
The male is singing chatters in the edge trees S of me.

1242-1/2 - 53F feeds 1, flies E in 3 seconds from the  
SE rim. She's calling.

22 ch  
1251 - 53F feeds 2 from the W, goes E with a sac, after  
5 seconds. I think she fed 2 only because there was some  
confusion when a piece was dropped.

M53 seems to have quit at 1251 after 22 chatters.

4  
I may have overstated it in my guess that only 1 piece  
of food is brought 90% of the time. NB.

7 ch  
1255 - M53 chatters within 20 yards of the nest.

F  
1257 - After 7 songs he goes to the NW rim, feeds 1, in  
5 seconds takes a sac to the S. He starts low and I always  
lose sight of him. The young begged for more, jumping up and  
down in the nest. He sings 1 minute after he leaves, a faint  
abortive song. 28

1301 - 53F feeds 1 from the W. After they have begged  
and quivered for 12 seconds she flies E.

10  
E.  
1305-1/2 - 53F feeds 1 from the W. In 5 seconds she flies

5 ch  
1310 - The male chatters to the S.

1310-1/2 - 53F feeds 1 from the W, goes S after 9 seconds.

428  
6/6/56  
VN

They beg all the time she's present. The note is a vibrant one. I can't hear it well, but it sounds like that given by a fledgling. *gg*

1313 - 53F goes to the W rim, feeds l.

*F*  
*1/2*  
*1 ch*  
M53 lands beside her (after 5 songs since 1310) and feeds l. They sit side by side for 5 seconds. 53F flies E and he follows 10 feet behind. He sings a chatter in 45 seconds. *beh*

It is occasionally clouded over for a minute, or so. There is a N breeze; it's 75°.

1315-1/2 - 53F feeds l from the W.

*3*  
*F*  
In 3 seconds M53 lands in the tree and 53F goes SE. He feeds l from the W (a different nestling) and in 5 seconds goes SE. *beh*

1319 - 53F feeds l from the W with a green larva, comes E after 5 seconds.

*6*  
1321-1/2 - M53 begins to chatter in the field.

*2 ch*  
1322 - 53F goes and feeds l from the W.

*F*  
In 3 seconds M53 lands and 53F goes. M53 feeds l. He gets a sac in 4 seconds, brings it E. He doesn't pass me, and I think he disposes of it close by. He sang twice before going. *beh*

*5*  
*1 ch*  
*F*  
1326-1/2 - M53 chatters and he and 53F arrive simultaneously. Each feeds l, he from the S, she the W. They peck at a young bird's gape; it may be having trouble swallowing. He goes SE in 5 seconds, she E in 10 more. He chatters in 20 more. *beh*

3  
6 1/2  
1.4  
1  
F  
1 1/2  
1.5h  
3  
F  
1 1/2  
1.5h  
3  
F  
1 1/2  
2.5 sk

1336-1/2 - 53F feeds 1 from the N rim, leaves in 10 seconds just after M53 chatters within 25 yards.

1338 - A nestling gives a full upward body stretch, wings out or down at sides. It then stretches its wings half-way over its back.

1338 - The male feeds 1 from the S rim, goes S in 3 seconds. In 1-1/2 minutes he skids once.

1341 - M53 feeds 1 from the S, goes S in 5 seconds.

1342-1/2 - M53 skids to the S.

1345 - He feeds 1 from the S, goes in 4 seconds as 53F arrives.

53F feeds 1 from the W, looks in for 5 seconds, comes E to the trees over me.

1346-1/2 - M53 skids loud just W of me, goes on.

1348-1/2 - 53F feeds 1 a green caterpillar from the W, comes E after 4 seconds. The male is skidding in the field 25 yards from the nest.

1352 - 53F takes a large brown caterpillar and another insect to the nest, feeds 2 from the W, gets a sac in 5 seconds, and carries it high and far to the SE.

1355 - 53F feeds 2 young with caterpillars, sitting on the N rim. After 5 seconds she comes E and forages in the weeds near me, calling. She's eating all she catches.

1400 - It's sunny at the moment, but the W is clouded and



430  
6/6/56  
VN

the sun has been hidden for 15 minutes. It's 76°, was 78°  
when the sun was brighter.

L M53 is foraging low in the field, I think in the weeds.

F 1401 - M53 feeds 1 from the SE, goes SE after 5 seconds.  
2 sk He'd sung 25 skids before going, sings 1 skid 20 seconds after  
leaving and another thereafter.

S 1403 - 53F feeds 1 from the W, takes a sac in 4 seconds  
high into the E woods about 30 yards, 35 feet high.

1405 - 53F feeds 1 from the W, leaves after 12 seconds  
and comes E into the field.

6 ch 1407 - M53 begins to chatter to the SW of the nest.

F 1409 - After 6 songs M53 feeds 2 (I think) from the W,  
flies E after 15 seconds.

L 1410-1/2 - He chatters in the edge trees.

11 ch 1417 - 53F feeds 1 on the W rim.

F In 5 seconds M53 arrives on the E rim and feeds 1. At  
that moment 53F takes a sac and flies E. I watch M53. He  
stays 5 seconds, flies E. He'd sung 11 chatters before going  
to the nest, chatters again twice after 1 minute.

8 1/2 1423 - 53F feeds 2 from the W, flies E into the field  
after 9 seconds.

1 ch 1426-1/2 - 53F feeds 1 from the W.

F M53 chatters, arrives 6 seconds after 53F has been there.  
4 ch She leaves. M53 goes to the W rim and feeds 1, waits 8 seconds,  
goes SE and beginning in 20 seconds chatters 4 times.

431  
6/6/56  
VN

2

The young have their heads up less now and have been this way for 15 minutes or more.

One I can see has its bill closed. It is 74°.

1434 - 53F feeds 2 from the W rim, comes E in 6 seconds.

I think when an adult has 2 or more small insects as 53F did this time there is a good chance that it will feed more than one just because of the mechanical problem of delivering all at once. Usually the second feeding is of something almost too small to see, much less food than that given in the first delivery. NB

16 1/2

It's cloudy with no sunshine but a good deal of bright light.

1445 - The female is feeding silently 10 feet up in a red-bud 15 yards from me.

3 sk

1446-1/2 - M53 begins to skid W of the nest.

1447 - 53F feeds 1 (I think) from the W, in 5 seconds comes E.

F

1447-1/2 - M53 feeds 1 from the W after 3 skids, in 8 seconds comes SE. The young, including the bird just fed, gape after the feeding. At 1450 they stick their heads up a good deal, have their bills open 50% of the time. JS

4

1452 - 53F feeds 1 from the S rim. After 5 seconds the male skids. 53F grabs a sac and goes NE and M53 arrives 5 seconds behind his song. JS

15h

F

11 sk  
3  
M53 feeds 2 green caterpillars to 1 young, waits 5 seconds and goes S. He begins to skid in 20 seconds, sings 11 times to 1457.

1454 - 53F feeds 1 from the W rim, in 5 seconds takes a sac SE.

1500 - The female is calling "check" in the field cover 15 yards from me. It's 76°, sunny.

10  
1501-1/2 - 53F feeds a green caterpillar from the W rim, in 5 seconds flies 10 yards E into the field. She forages eastward toward me, gets a green caterpillar and carries it.

1510 - The male skids in the pine field.

1511 - 53F comes to the W rim, feeds 2.

25 sk  
F  
In 2 seconds and after 2 songs, M53 lands on the E rim and feeds 1. They face each other for 2 seconds, and she leaves 7 seconds after her arrival. M53 leaves 3 seconds later. Both go NE. The young sit with heads up, eyes closed, bills open. In 4 minutes the heads are down.

5  
4 sk  
1516 - M53 skids. All skids this afternoon have been loud.

F  
1  
25 sk  
1517-1/2 - After 4 songs M53 feeds 2 from the W rim. One then stretches its body up high; this may be a means of getting the others off its back. In 7 seconds the male goes NE and at 1519 sings skids.

1519-1/2 - M53 feeds 1 from the W side. Again one stretches. The impression is as of a man coming out of a hole by using

433  
6/6/56  
VN

his arms to push himself up. After rising to full height upright with wings closed, the bird slowly leans forward as though toppling over. Its entire back and folded wing surface is then visible before it settles down.

1  
In 6 seconds the male goes NE. At 1521 he begins to skid in the field.

75h  
3 1/2  
2d  
1523 - Preening by a nestling. 28

1525 - M53 quits after 7 skids.

1528-1/2 - He chatters loud above me.

1530 - 53F feeds 1 from the W. In 2 seconds she takes a fecal sac 35 yards E to the top (30 feet) of an edge tree, goes no farther.

It's less cloudy now, though the sun occasionally goes under; the breeze is from the E. It's 76°.

M53's chatter consists of short abrupt notes. I think the average number is 15 with 11 and 17 or 18 the extremes. This is <sup>2</sup>slow form. 23 ch  
2d  
5  
ins

1535 - 53F feeds 2 from the W edge, flies E in 3 seconds. 28

1537 - A nestling pushes up in the way described. Again at 1538. 28

1544 - After 23 chatters M53 feeds 1 from the W, leaves and goes NE in 9 seconds. He sings 2 chatters at 1544-1/2. 28

1547 - 53F feeds 2 from the W side, goes NE in 9 seconds.

1550 - M53 sings a faint insipid step.

434  
6/6/56  
VN

6  
2 ins  
1556 - The young have not been visible for 3 minutes. I can just barely see an open bill.

1556 - The male sings 2 insipid steps.

4  
1559-1/2 - 53F feeds 1 from the S, in 4 seconds takes a fecal sac high to the NE corner. She may go into the woods, but I don't see her do it.

12  
15k  
F  
1605 - 53F feeds 1 from the W, comes E after 10 seconds. I think I can say for sure that the young have their eyes open when fed.

1612 - M53 skids W of the nest. In 30 seconds he comes to the W rim and feeds 1.

In 2 seconds 53F lands on the NW rim and feeds 1. In 4 seconds she flies SE, and M53 follows a few feet after.

5  
1616 - 53F feeds 1 on the W rim, goes E in 5 seconds. She stops in the field.

1617 - The male skids in the edge of the woods S of me, goes out near the nest and continues.

1618 - 53F feeds 1 on the W rim, in 4 seconds takes a sac high to or into the SE woods.

29 sk (2.1)  
1630 - The young have their bills open part of the time. M53 is still skidding near the nest. The songs are loud and regular and sound as if he's perched somewhere.

30k  
F  
1632 - After 32 songs M53 goes to the W rim and feeds 1.

In 3 seconds 53F arrives and feeds 1 bird (different) 2 or more objects. M53 leaves 10 seconds after he arrived and



435  
6/6/56  
VN

53F follows him in 2 seconds. Both come E.

4  
1635 - 53F feeds 1 from the W, comes into the trees 20 feet above me in 10 seconds.

1636 - M53 skids rather weakly and continues to do so.

1639 - 53F feeds 1 and possibly 2 from the W, comes E after 15 seconds.

10 sk  
1642-1/2 - After 10 skids M53 feeds 1 from the S rim, goes N, in 8 seconds and sings in 15 more; one more song.

1646-1/2 - 53F goes to the W rim, feeds 1, takes a sac high to the SE, turns toward the S as she gets to the woods. She goes 50 yards or so, I'd say. She was at the nest 5 seconds.

4  
1647 - M53 skids once.

15 sk  
1653-1/2 - 53F feeds 1 on the W rim, in 7 seconds flies 30 feet high into the trees above me.

8  
2 sk  
1655 - M53 skids N of the nest. In 30 seconds after 2 songs he goes to the E rim and feeds 1. He takes a sac after 6 seconds and carries it low to the N; I can never follow him.

1656 - 53F feeds 1 from the W rim, in 5 seconds flies E into the field.

The young behave as usual, their heads up half the time.

4 1/2  
1659 - 53F feeds 1 from the W rim, stays 4 seconds and goes E.

1700 - It's sunny, 76°, with a mild NE breeze.

436  
6/6/56  
VN

1716 - M53 sings 2 skids and in 20 seconds comes to the nest without food. He stays 10 seconds on the W rim, goes S and sings skids. One young pushed up when the male was there. In a minute one seems to preen.

1720-1/2 - After 5 songs M53 lands on the E rim just as 53F comes to the W.

Each adult feeds 1. In 6 seconds 53F goes N and M53 follows almost immediately.

1723 - M53 skids and in 10 seconds goes to the W rim and feeds 1 green caterpillar. In 5 seconds he takes a sac low and out of sight to the S.

1726 - 53F comes to the W rim, feeds 1, watches for 7 seconds, goes SE.

1727-1/2 - 53F feeds 1 on the W rim, in 4 seconds goes 10 feet NE to a weed.

1729 - He skids to the S near 1.

1729-1/2 - A nestling pushes up.

1730-1/2 - After 4 skids M53 comes and feeds 2 on the W rim, sits for 20 seconds, goes N and skids in 15 seconds. He sings 9 times to 1737 or so, then quits.

1750 - The nestlings are invisible and have been for at least 10 minutes. I think this is the quietest part of the day for them.

1751 - The male skids near the nest.

1756 - The female calls between me and the nest. In 15 seconds she goes to the W rim, feeds l, gets a sac in 4 seconds, and flies to the NE corner, climbing in height the whole way till she's about 30 feet up.

1757 - M53 quits after 12 skids. In 2 minutes he skids S of the nest.

1800 - It's cloudless, 75°, with a breeze as before.

1804-1/2 - After 3 minutes of nervousness at the pine tree 53F takes a green caterpillar and a dark insect to the W rim, feeds l, in 4 seconds gets a sac and flies almost straight N rather than NE. She goes higher as long as I can see her.

1808 - M53 after 20 skids takes a green larva. The young beg and one flaps a wing (or both wings). In 10 seconds the male goes N a few yards and skids twice.

1809-1/2 - 53F feeds l on the S rim, goes N in 4 seconds. The young are violent in begging.

1810 - The male skids.

1812 - 53F feeds l on the W rim, goes NE in 4 seconds.

1813 - M53 quits after 6 skids.

1815 - 53F feeds l from the W rim, waits 12 seconds, goes 4 feet to a weed, then out of sight.

1818 - M53 skids twice, in 25 seconds goes to the W rim and feeds l.

In 4 seconds the female goes to the N rim and feeds l.

In 3 seconds she grabs a sac the male is reaching for, takes it SE. He follows almost immediately.

1835<sup>3</sup> - M53 skids once, loud and close to the nest, N of it in the field. In a few seconds the female calls "check" between me and the nest.

1834-1/2 - 53F feeds 1 from the N rim, flies to the trees over me in 4 seconds.

M53 sings once again at 1835.

1842 - 53F begins to call "check" near me and the male sings a skid.

1844 - 53F feeds one from the W side, takes a sac NE in 5 seconds.

1844 - M53 begins chatters in the field.

1846 - 53F feeds 1 from the W rim, goes NE in 10 seconds.

1850 - 53F feeds 1 from the W rim, jumps to the N rim and looks in for 5 seconds, comes E to the edge where the male is chattering.

1851 - M53 quits after 15 songs.

1852 - 53F feeds 1 from the W rim, comes E after looking at nestlings for 7 seconds.

1853-1/2 - M53 chatters.

1859 - 53F feeds 1 from the W rim.

In 3 seconds M53 comes to the nest but immediately leaves and goes to the pine. 53F watches the young for 5 seconds, then goes E.

439  
6/6/56  
VN

10h  
F  
1900-1/2 - M53 after 11 chatters goes to the nest, feeds 1, stays 15 seconds and comes E.

It's cloudless, calm, 73°.

1906 - 53F feeds 2 from the W rim. She gets a sac in 4 seconds, starts E with it and is pursued by a strange male, heavily marked and unbanded. 53F stops between me and the nest, and the two are flipping their tails 10 feet apart in the low cover. 53F doesn't attack or in any way show aggression. The male is silent.

NTS  
5  
pursues

9/12  
1910 - M53 chatters in the pine field between me and the nest. I don't know where the strange male is. (Note all males in the V and XI areas are banded.) So far as I know M53 hasn't met the new male.

1915 - 53F feeds 1 large green caterpillar from the N rim, comes E above me in 5 seconds.

1402 (2.2)  
1916 - M53 quits singing after 14 chatters.

8  
10h  
F  
1924 - M53 chatters once. 53F feeds 1 at the W rim.

M53 arrives at the E rim in 5 seconds, and 53F goes SE immediately. M53 feeds 1, waits 10 seconds, goes N.

4  
1925 - The sun has been behind the trees for 15 minutes. It's 69°.

20h  
1928 - M53 chatters to the S near 1. 53F calls "check" W of me.

1930-1/2 - 53F feeds 1 from the W, in 4 seconds takes a sac in her usual way into the SE corner.



The young are quiet, nearly invisible between feedings, and have been for at least 30 minutes. gg

1934 - 53F feeds 1 from the W. They beg but subside during the 6 seconds before she goes NE.

9ch 1938 - M53 is singing chatters irregularly and infrequently. Since 1928 he's sung 11 times.

2ch 1941-1/2 - The adults arrive simultaneously and each feeds 1. In 5 seconds 53F leaves the W rim and goes NE, and 65  
F M53 follows her from the E rim. He'd sung 2 chatters since 2/12  
1938. He starts again at 1944.

1950 - A Whip-poor-will starts to sing although it's fairly light still. M53 is singing regular loud chatters.

1951 - A nestling pushes up, then settles. In a minute one preens or possibly scratches; it vibrates in that way. gg

19ch (2.1) 1953 - M53 falls silent after 19 songs.

1955 - 53F feeds 1 from the N, in 5 seconds takes a sac SE.

2 1/2 sh 1955-1/2 - M53 skids once NW of the nest a few yards.

1956 - 53F feeds 1 from the W, takes something (presumably a sac, but it's a little dim) SW.

4 1/2 2000 - It's 66°, getting hard to see what's going on at the nest since the leaves shadow it.

2000-1/2 - 53F goes to the W rim, I think feeds 1. The young gape. She watches them for 10 seconds, comes E above me.

441  
6/6/56  
VN

3  
1 +8  
2003 - M53 sings 1 type-8, comes to the pine with 2 or 3 green caterpillars.

2003-1/2 - 53F goes to the W rim, feeds 1.

1-  
M53 arrives at the N rim in 3 seconds, gives all food to 1 nestling. After they sit for 4 seconds, 53F goes SE and he follows.

2005 - 53F feeds 1 from the W rim, in 7 seconds goes 8 feet SE to a berry stem.

7 +8  
M53 has just sung 3 or 4 type-8's. M54 sings insipid steps. Both males sing faintly. M53 stops after 7 songs at 2007.

6  
2008-1/2 - 53F feeds 1 from the W rim, comes E to the trees above me after 3 seconds.

1 m. 5  
2013 - An insipid step sounds like M53.

1  
15 h  
2014 - M53 gives a loud skid in the pine field S of the nest. At 2015 he repeats.

1  
15 h  
2015-1/2 - 53F brings food to the S rim, feeds 1, goes S in 3 seconds. She had a green caterpillar, more likely 2.

I can hardly see the nest. The sky and air are perfectly clear. It's 65°.

2018-1/2 - 53F takes food to the W rim, feeds 1, in 3 seconds goes 3 feet N to a weed, then beyond. Whip-poor-wills are singing now in earnest. A Kentucky Warbler just gave a flight song.

442  
6/6/56  
VN

2030 - I can just see to write. The only songs are  
the whips. It seems clear that the female will not brood,  
which is a great surprise.

*no brood*

2035 - I go. It is silent, nearly dark; all song birds  
have quit singing.

T54 - 54F is on the nest, sitting high. I have to use  
a flashlight to see anything.

*fresh*

2045 - I leave. The day has been at least 90% sunny.

*well on*

443  
6/7/56  
VN

443  
445  
446  
T58

June 7, 1956

A clear windless morning, temperature the same as yesterday. Present with Board from 0715 to 1230 and alone from 1930 to 2045. Board goes to T57; see his notes below.

T53 at 0720 - At least 2 [all 3] young are still in the nest. 53F feeds them as I come up. M53 sings skids. I'll count his songs by the half hour from 0730.

0730 - The female feeds 1. All 3 are still in the nest.

0732 - M53 skids and I start to count.

The young are inactive and have been since I arrived. I can't see them in the nest.

Both adjoining males have sung since I got here.

0740 - There's a little more activity by the young. One preens its breast. 53F is getting used to me all over again. She's been in the pine for 5 minutes at 0745.

0746 - 53F feeds 1. They beg, flap, call loudly (much more so than yesterday) and continue to call when she leaves.

0747 - 53F feeds; vigorous flapping.

0748 - Again. Calling goes on after 53F leaves.

0751 - 53F feeds. So far I'd say only 1 nestling has been fed each time.

0753-1/2 - 53F feeds 1. They all lean toward her, call; one flaps. 53F takes a sac high into the SE woods.

M53 is singing irregularly, hasn't been near the nest.

At 0756 the young are quiet, heads on rim, bills closed, eyes down out of sight.

444  
6/7/56  
VN

0  
36  
0800 - M53 has sung 36 times. It's quiet now, about 70°. Temperatures can be projected from yesterday's data. The young are perfectly still, only their bills in sight; often they are so low I can see nothing.

0803 - One young sticks its head and open bill up. One preens. In a minute one pushes up. gg

0805 - The male begins to skid.

0805 - 53F "checks" near the nest and the young immediately call and turn toward that direction. She feeds 1. ←

0807 - 53F has fed twice more. The young call in the nest while she's gone. gg

0807-1/2 - Feeding. M53 skids weakly in the edge.

0808 - Calling subsides. gg

0809 - Feeding with continuous calling for 30 seconds afterward. gg

0810 - Feeding with calling beginning 15 seconds before. (All feeding is by the female so far.)

0812 - One sits high in the nest, bill open and eyes closed most of the time. The female calls "check" very infrequently near me, overhead I think. Nestling calls quit 10 seconds after the last feeding.

0815 - The female goes to the pine, calls. The young respond to a "check" call and not to a "tsu" I think (respond by calling). gg

0815-1/2 - The female feeds 1.



445  
6/7/56  
VN

F The female arrives and feeds 1. The male takes a sac and goes SE low.

0817 - 53F feeds 1, the nestling calling in advance of the female's arrival but not after she leaves.

A Field Sparrow calls near the nest without evoking any response from the young. *Fsp 28*

F 0824 - 53F calls "tsu" in the pine without any reaction by the young. "Check" produces much calling. Both adults feed; 53F takes a sac SE. *off*

0827 - 53F feeds. Again begging when they hear "check."

29sk 0830 - M53 has sung skids 29 times. I think a strange male may be singing in the woods, an impression I've had for 10 days or more. I'll try to check up. *answer on page*

The young are quiet, low. One has its bill open.

0832 - 53F calls (this will mean "check" unless otherwise noted) producing excitement. In 5 seconds she comes and feeds 1. *NB*

0836 - Nestlings stick heads out, bills and eyes open. The eyes then shut slowly. *yg*

0838 - 53F calls; the young respond. She arrives and feeds 1 in 5 seconds.

0840 - Repeat the above. 53F leaves before 1 young deposits a sac on the rim.

0841 - 53F feeds as before, takes a sac. All young push up.

446  
6/7/56  
VN

0842-1/2 - 53F feeds. All heads follow her as she goes.

0846 - 53F feeds 1 (as always today) with no response to her preliminary calls. The male is singing skids along the E and N line of the territory. These get no response from the young.

0848-1/2 - 53F feeds 1. All beg when she arrives and as long as she's there, but not violently or noisily. The male sings nearby. One young sits very high, head over rim, bill open. His head now falls way over as though he just fell asleep.

0857 - M53 feeds. They are much less active and vigorous than before. He'd sung 47 times.

0858-1/2 - 53F feeds. They are silent, gape at her but not very high out of the nest.

0900 - M53 just sang another skid, so he's sung 48 in the half hour. The young have their heads up, eyes closed, bills open.

0902 - 53F feeds 2. No response to preliminary calls of either sort. They call in the nest while she's there, but only as loud as they did yesterday.

0903 - Feeding (female) as before.

0907-1/2 - Feeding. No response to "tsu" or "check."  
(All feeding is by the female unless indicated.)

0909 - Feeding, the young very quiet and calm about it. Does their activity go in cycles, possibly correlated with

447  
6/7/56  
VN

their hunger, which in turn is dependent on attention by the parents?

There's a sac on the rim.

0914 - 53F feeds and takes the sac. No response to pre-arrival "checks." They were sleeping. Now they are stretching and I think calling for a few seconds after she goes. *note*

*F* 0917 - M53 feeds, takes a sac. They are still calling 30 seconds later, I think. They had their heads high before M53 arrived. At 0920 they're quiet and low. At 0923 heads are out of sight. *o-s*

0927 - A Broad-wing flies right over the female where she's in the top of a pine. The hawk is at 70 feet or less. No response of any sort by 53F unless it comes later. She goes out of sight 30 seconds afterward, conceivably because she sees the hawk late. She's got food in her bill. *Go Bird Hawk*

*14 sm  
6-8* 0930 - M53 has sung 20; the last 6 were faint type-8's begun at 0928 after a long silence.

0931 - 53F feeds 2. They beg and flutter. She picks at her band. The young stretch and push up, which seems today to involve support from outstretched wings. *37*

For 1-1/2 minutes 53F picks either at a young or at her band. She's come down to the rim to stand quite close to them. At the end of the period they begin to beg. The male

448  
6/7/56  
VN

sings rapid frequent type-8's, 18 to 0935-1/2 (since 0930); then silence.

At 0935 the young are sitting up with bills open half the time. One (at least) stretches upwards twice in 2 minutes. Suddenly all 3 duck and I see nothing of them; cause unknown. In 1-1/2 minutes they're up to normal height again.

0944-1/2 - Both adults feed, the female leaving as the male arrives. The young call but not noisily, gape eagerly. One stretches up while the male is there; I see no use of the wing. One preens for 30 seconds, among other things preening under the wing,

0948 - 53F feeds. They are moving and one flaps a lot.

0950 - The female feeds, takes a sac. They rise very high for the food. For at least a minute one preens, going through every adult motion.

0953-1/2 - M53 feeds after 8 weak type-8's, takes a sac S. The same nestling preens again, at the end raises its 2 wings for a second over its back. At 0954 it's sitting high, leaning forward, bill open and eyes closed.

0957-1/2 - After 3 skids M53 feeds.

53F arrives and feeds too. They leave nearly together, both to the NE.

0959 - 53F feeds. All call and all push up about simultaneously, using their wings. They're preening and tend to

449  
6/7/56  
VN

8/8. sit horizontally on the nest rather than tail down. 7/8

1000 - M53 has sung 8 type-3's, is continuing. I start a new count.

1002 - 53F feeds. I'd say the youngs' burst of energy of the last 10 minutes seems abated a little; they're quieter, lower, call and beg less.

1010-1/2 - 53F feeds. One pushes up and uses its wings; it is the bird that preened, and now it sits with open eyes. Begging was active but not violent that time.

1014 - 53F feeds. No response to her pre-arrival "checks," except probably there was head turning. One bird flutters its wings over the nest for a second. This seems to be a matter of getting loose, fluttering 4 or 5 times so that the wings are stretched over the other young, then stopping and folding the wings in. 8/8

At 1020 all stretch up. Are the wings used to push, or are they just extended?

1020 - 53F feeds. They flutter and beg, turn to watch her as she flies away. At 1024 one sits quite high, stretches up twice.

1025 - 53F feeds. While in the pine she called, with response to "check" or "chick," none to "tsu," and I think none to another "check." 8/8

F M53 feeds too at this time, He takes a sac. 7



450  
6/7/56  
VN

1026 - 53F feeds. Much calling while she's there. There's a N breeze, fairly hard at times.

Two young preen. All sit with bills open half the time.

2918  
1030 - M53 has sung 29 type-8's in half an hour.

1033 - All are preening; then two push or stretch up (the same thing, I now think) with wings extended downward and outward toward the sides. yz

1035 - 53F feeds. They rise high, are vigorous but not noisy. One pushes up. Again. I think one scratches, but I can't see the details.

1038-1/2 - 53F feeds; small response. At 1041 they are quite inactive; bills are open, eyes shut, heads on rim.

1045-1/2 - 53F feeds and takes a sac. They turned when she landed and called on a berry bush nearby, begged vigorously while she was there, were silent before and after that. yz

1052 - 53F feeds 2, the second a very small amount.

F  
1052 - M53 arrives a few seconds later and feeds 1. The young aren't especially vigorous. ~

1054 - 53F feeds 1. All flutter; one pushes up, then leans far out of the nest.

1055 - There's a burst of activity. Two preen. One of these scratches. The other stretches up, for a second gets to the N rim, falls back in. It preened its right wing while on the rim.

451  
6/7/56  
VN

1057 - The same bird gets to the N rim and totters there for 2 minutes preening fully, especially the right wing. Then it falls back into the nest, i.e., tips back so that its weight is no longer on its feet. *rim*

1100 - Using its wings to flutter, the nestling regains its perch on the rim, totters, preens fully. At 1101 it tips back into the nest. *11*

1100 - M53 has sung 59 type-8's. *59 1/2*

1102 - All nestlings are fairly low, 2 preening.

1103 - They are low, quiet or asleep. At 1108 the nestlings are asleep, look as though they'll never leave. Two are out of sight.

1110 - The female calls nearby and two nestlings call and beg.

1111-1/2 - 53F feeds. No special response. Afterward they all lie in repose, half asleep.

1120 - 53F feeds. One flaps a good deal. They call but not noisily.

1121 - They are awake, more active. One preens; another stretches.

1122 - 53F feeds. Preening and stretching. They call. A Robin flies over at 8 feet, and I see the young are all deep in the nest suddenly. I can't be sure there's a connection. Thereafter they are quite quiet. *yg & Robin*

1127 - 53F is calling "check" 15 or more yards from the

452  
6/7/56  
VN

nest. They gape and call.

1128 - Both adults feed.

1128-1/2 - 53F feeds. They call before and after she is present.

1129 - 53F feeds, goes to a weed 10 feet away. One young puts a sac on the rim.

1129-1/2 - 53F feeds, takes the sac.

1130 - 53F feeds.

1130 - M53 has sung 34 songs, all type-8's except for 2 skids in a series just begun.

1131 - 53F is calling near me. Probably the nestlings and 53F excite each other.

1131-1/2 - She feeds, takes a sac 30 yards or more into the woods, high. At 1133 the young are quiet, low but visible. I can hear a lot of excitement in the woods N of V, with several species chattering and calling.

1140 - 53F feeds, takes a sac 35 yards E beyond the woods line, going at least 40 feet high. They called before she arrived.

1144 - 53F feeds, gets an active noisy response. One pushes up.

1146-1/2 - The young call and look around before 53F arrives. I heard no sound from her.

1147-1/2 - 53F feeds. They are noisy, reach way up for food, push up. At 1150 they're preening, all moving. Clearly

32-48  
25k

call means check  
gg

453  
6/7/56  
VN  
JB

they stimulate each other since periods of activity coincide  
so well for all. 88

1151 - 53F goes to the nest, possibly without feeding.  
The response is weak.

1152 - 53F feeds. Loud response. She's gathering food  
near the young possibly within their sight.

1153 - 53F feeds. When she leaves one rises and flutters.

1155 - 53F brings food. At first only one gapes, then  
a second. They must be getting full from her great activity.

1156 - One scratches.

31 sk  
1200 - M53 has sung 31 skids. Just at 1200 he begins to  
chatter, but I'll not count the number. I see him flycatch,  
come and perch in the top of the Virginia pine. The young  
are nearly out of sight; they give no response at all to his  
song 20 feet away. He stays on the pine tip for 1-1/2 minutes. 89c

It's my guess that the young will stay in the nest 1 more  
day.

1210 - I leave the territory.

T56 - Silence.

1230 - We leave.

T57 at 0730 - I [Board] arrive. 57F is on the nest..

0746 - 57F leaves the nest and goes N. N

0753 - She returns.

0819 - 57F leaves the nest and goes NE toward the trees. NE

454  
6/7/56  
JB

0827 - She returns from the NE. NE

0905 - 57F leaves the nest.

0917 - She returns.

0955 - 57F leaves the nest.

1008 - She comes to about 10 feet S of the nest, feeds  
at the blackberry blossoms.

1009 - 57F enters the nest.

1013 - M57 [VN: Hasn't he sung?] appears near the nest  
with food.

1015 - M57 goes to the nest with the food, for 2 minutes  
tenders it to 57F, which rejects it several times. Then she  
takes it. The food item is the size and color of a small  
peanut, though not smooth on the surface. AFB

1028-1031 - 57F preens her wings and back. B

1034 - 57F again rises and picks at herself for 1-1/2  
minutes. B

1043 - 57F leaves the nest and goes SE.

1054 - She returns.

1213 - 57F leaves the nest.

1217 - She returns.

The general pattern today has been for 57F to enter the  
nest and face S for a few moments, then to turn and face N  
till she leaves. B

1230 - I leave T57.



1930 - I return. It is over 70°, cloudless but with a very slight haze high up.

T56 - Silence.

T54 - The young are in the nest.

T53 - The territory is extremely quiet, the young birds low and motionless.

1952 - The female feeds, but I can't see how many are in the nest.

1954 - 53F feeds 1. All are in the nest. They are noisy while she's there.

1956 - M53, and in 10 seconds 53F, feeds them.

1956-1/2 - 53F feeds.

1957 - 53F feeds. She's staying at the nest about 2 seconds at the most.

1959 - M53 sings insipid steps for 1 minute.

2007 - 53F feeds. She would have done so 2 minutes ago, I think, but for her nervousness at seeing me. She forages and calls "check" thereafter without evoking any sort of response from the young. The "check" call could also be rendered as "chep."

2014 - 53F feeds. They barely react to her arrival. She then comes near me and calls for 30 seconds while she forages. It is pretty dark, too much so to see the PW's markings at the nest, even with glasses.

456  
6/7/56  
VN

2018 - Whip-poor-wills just began. Singing are chat, Field Sparrow, Wood Thrush, Cardinal. At 2030 the thrushes have just stopped within 2 minutes, and 1 or 2 chats are singing. A thrush calls.

2032 - I leave the territory. 53F won't brood. Only Whips are stirring. As I leave an Indigo Bunting and an Acadian Flycatcher each sing once. *no brood*

T54 at 2040 - 54F is not on the nest. It's very dark, so much so that I can see only with a flashlight. She clearly will not brood. *no brood*

2045 - I leave.

457  
6/8/56  
VN

June 8, 1956

A calm overcast morning promising rain; temperature 70° at 0530. Present from 0530 to 1200 and at 1300 for a few minutes.

T56 - Silence.

T53 at 0535 - Both M53 and M54 singing insipid steps.

All 3 young are still in the nest.

0541 - 53F feeds, stays 1 second.

0542 - Repeat. The nestlings stretch, then subside out of sight. M53 begins to skid.

0548 - The female feeds. The young are noisy, call after she's gone.

0549 - 53F feeds; they're quiet.

0550 - 53F feeds. One gets on the S rim, reenters in 10 seconds. 53F's gathering within 10 feet of the nest, staying 1 second.

0551 - 53F feeds. They're low and quiet. Two sacs at once. She takes one and the other she leaves on the rim.

0555 - 53F feeds. They are very quiet, low.

0556-1/2 - Repeat.

0603 - I've hardly seen a nestling move since 0550.

0604 - 53F feeds. They're quiet.

0605 - The male feeds. One pushes up, then stretches its wings overhead. It does so again at 0606. The wings aren't raised high, only upwards to a little above body level. They

10-40  
the 30 min  
interval

rim

6-5

2/1

458  
6/8/56  
VN

all seem to be preening, then at 0607 settle low out of sight.

3512  
0610 - M53 has sung 35 times since he began, all weak skids. Some might have been M54's.

0610 - 53F feeds. Some excitement and preening; two push up.

0614 - 53F feeds. They are quiet.

0617 - 53F feeds. They actually retract their heads as she comes into the tree, are silent and don't lift their gapes above the rim.

0619 - 53F feeds.

0620 - The young preen.

0620 - M53 has sung weak skids the last 10 minutes and a second male is doing the same, M54 I think.

0627 - The young have been out of sight for 5 minutes. In a minute one rests its head on the rim.

0629 - The female feeds. Gaping subsides before she leaves. One stretches up. (Neither yesterday nor today have I been able to mention every preening, and I've probably missed some stretching.)

0631 - The male sings skids after an 8-minute break.

F  
0637 - The female, and in 5 seconds the male, feeds. Pre-arrival "checks" produce no response at all.

0638-1/2 - The female feeds. They receive the food quietly.

0639-1/2 - 53F feeds twice within 20 seconds.

403h  
0640 - M53 has sung 40 weak skids in the half hour.

0640-1/2 - 53F feeds. One pushes up twice within 1 minute, preens.

0643 - 53F feeds. Two push up. They are becoming more active.

0643-1/2 - She feeds. Two push up.

0644 - She feeds. The wings in the push-up maneuver I now see are extended backward.

0644-1/2 - One gets to the N rim, in 30 seconds turns around to face the cavity and re-enters. They are quiet.

0645 - A S breeze rises for the first time, very slight.

0650 - 53F feeds. They are quiet. Only two gape.

0651 - 53F feeds. One stretches up. It and another preen.

0654 - 53F feeds, takes a sac.

0656 - 53F feeds. They're quiet.

0657 - 53F feeds. One stretches up first. They preen, are becoming active.

0700 - M53 feeds. A young drops a sac over the side. M53 descends 2 feet to get it and carry it away. His behavior hasn't changed in 2 days, i.e., he waits quietly for 6 seconds or so but the female now leaves immediately.

0701 - 53F feeds. They are silent but active now, stretching. No flapping.

0702 - One gets to the S rim and preens for 30 seconds,



drops back in.

0704 - Both adults feed simultaneously. M53 takes a sac. Two stretch up. They are high, active, looking around them.

0705-1/2 - 53F feeds.

0706 - Two young get to the N rim. One goes right back into the nest; the other (hereafter called "A" ) preens completely with all adult motions. E.g., it preens under its wing and then does its flight feathers with a movement that consists of raising its head and moving it forward.

0708 - A has been standing. Now it sits on the rim. At 0709-1/2 it closes its eyes.

0710 - M53 has sung 34 skids, 1 insipid step.

0711 - 53F feeds, A I think.

0712 - A preens its wings, stretches up and forward, wings at sides. At 0713 it stretches its right wing outward and backward typically.

0715 - A dozes and in 2 minutes goes to sleep. It sleeps through the noise a chat makes nearby.

M53 is singing loud chatters.

0719-1/2 - 53F feeds A.

0720 - A nestling goes to the S rim for 20 seconds. A stretches.

I think I hear a male PW (not M54) singing.

M53 softens his chatter song.

0721-1/2 - A nestling hops to a twig just beyond the S rim, turns in 10 seconds to face the nest and hops back in.

0722 - Repeat. A then hops 4 inches to a twig at nest level.

0722-1/2 - A nestling hops to the S rim.

0723 - The one on the rim goes to a twig and the one in the cavity does too. All use their wings to assist their movements, flapping them. A flaps. The other two get back into the nest.

0725 - A flutters a little to keep its balance; this is frequent. It preens and almost looks as though it flips its tail; this may be a matter of balance.

0725-1/2 - A nestling gets to the N rim, faces into the cavity, re-enters.

0727 - Both adults feed the birds in the nest. The male waits 10 seconds. A preens.

0729 - 53F feeds a nestling in the nest.

0730 - Repeats. One gets out onto the S rim, re-enters.

0731-1/2 - 53F feeds A, which has trouble with balance.

0732-1/2 - 53F feeds A.

0734 - Two young are deep in the nest.

0734-1/2 - The female feeds a nest bird.

0736 - She feeds A, which seems to get her attention by fluttering. All young are silent.

0737-1/2 - A stretches up, preens. I can't see the others.

0738-1/2 - 53F feeds A.

0739 - A moves 2 inches to the W side of the nest.

0739-1/2 - 53F feeds A. The male feeds a nest bird.

0740 - 53F feeds a nest bird. A turns to face N, the opposite direction.

0740-1/2 - 53F feeds a nest bird.

0741 - A nestling, B, goes to the twig that A first got to. C gets to the rim but re-enters in 10 seconds.

0741-1/2 - A and B preen.

0742 - C hops or flutters and climbs to the E rim.

0742-1/2 - A flies a distance of 3 inches in the nest tree. B flies about 6 feet northward and slightly downward.

0743-1/2 - A flies 6 feet to the S, perches nest high.

0744 - A flies 6 feet or so W. C is on the rim facing E. I can hear young calling, but C is silent, preening very actively.

0745 - M53 has sung 60 chatters.

0746-1/2 - A is on a berry stem 3 feet high, 8 yards W of the nest. It flutters to keep its balance, preens. C is preening nearly all the time. M53 is and has been for some time singing insipid steps to the S.

0749-1/2 - A dozes. The young are silent, remain so for 4 or 5 minutes.

45 A

15 ch  
20 min  
40 ch

0750 - M53 chatters, is near the nest.

0752 - A is asleep, its head pulled in and pointed upward at a  $45^{\circ}$  angle. Its body is at the same angle, so it looks like a tiny bittern.

0756 - An adult feeds A, which is noisy and moves toward the adult on the berry stem. It's now out of sight.

0757 - C stretches up. In 30 seconds it gives a typical out-and backward stretch of its right wing.

0757 - C is calling about once in 2 seconds. It preens.

0759 - C is asleep on the rim.

0800 - I doubt if M53 has fed any of the young since they left the nest.

0805 - 53F is foraging in the weeds near me, eating. M53 chatters above me. The young call, both a vibrant single note and a double-noted "pa-tunk." C sits quietly on the rim, probably asleep.

0810 - M53 has sung 60 times, the first 20 or so insipid, the rest chatters. The young call; M53 sings in the edge.

0812 - C stretches the right wing; I think it stretches both wings over its back. At 0814, right wing.

0814 - All young call. C may just have picked at an insect. It seemed to, and a fly flew away.

0816-1/2 - 53F feeds C. It turns and moves 2 inches W.

0817 - C flies 5 feet S to a berry stem.

0820 - M53 has chattered 30 times. I quit counting. For 20 minutes or more all his chatters have been faint and rather

464  
6/8/56  
VN

short.

I'll go to T54, return later to check on the dispersal of the young. When I stand and move, 53F calls what sounds like a typical "tsu" note. The young, which have been very noisy, instantly fall perfectly silent.

There is 1 fecal sac in the nest. I'll look later to see if it's removed.

0825 - I leave the territory.

T54 at 0830 - The female is in the weeds in the clearing. I cause some alarm. There are no young visible in the nest. The male skids. 54F has an unusual amount of white in the tail; a rectrix is gone or is out of place.

0838 - At least 1 young is in the nest. I'm sure I hear another out of it. At 0841 54F feeds a nestling, and at 0846 she feeds a bird 5 feet away in a Virginia pine, nest high, to the N. With the female giving alarm notes here I'll get no accurate information on time of fledging, so I'll put up my net to catch her. From the sound of things I'd say only 1 bird is out of the nest.

I notice the female switches from a loud "check" and "chick" while I sit to a "tsu" when I stand and begin to move around.

I leave my net up for 4 hours without luck. I'd guess the PW's bounced off it at first and by the time I got it adjusted had learned to avoid it. It works after the adjust-



465  
6/8/56  
VN

ment, because I get 2 chats and a bunting.

Both adults are feeding young.

T57 - I check the nest; the female is incubating. ✓

T55 - In half an hour while I work on notes I hear nothing. The time is 1030 to 1100.

T56 - M56 sings at 1000 in the NW part of the trees.

T53 - I return here several times. The fecal sac is never removed. I don't try to get close to the young, since I think I already witnessed most of their motor patterns and both parents show alarm when I come up. See

At 1100 one fledgling is about 15 yards W of the nest, probably 5 feet up in a thick 12-foot cherry. The other two seem to be about 25 yards N of the nest between it and 2. position 24.

1200 - I leave.

1300 - I return to get my net, hearing and seeing no birds but the 54's. It is cloudy and even rains almost imperceptibly. By 1400 it has cleared and the rest of the day is sunny. I'd say it is 40% sunny today, with some sun through the clouds from 0930 to 1200. weather

466  
6/9/56  
VN

June 9, 1956

Check notes  
p 479

A calm, perfectly clear morning; temperature 56° at 0430.  
Present from 0430 to 1015 and from 1430 to 2015; Board present from 1015 to 1730.

dawn

T56 at 0440 - Silence, but it's too early for song.

T57 at 0445 - Silence; it's still too dark to see the nest.

0451-1/2 - M57 begins to sing well to the S. All songs but possibly his first are chatters.

NB

0500 - I can tell now that M57 is calling the harsh fight-like note between songs. It's irregular, often given once per second.

0507 - The female stirs on the nest.

0525 - Repeat.

0551-1/2 - M57 has sung 149 times in the half hour since he began. No pauses have been more than a few seconds beyond his usual interval. He's still giving the call note though perhaps not as often. About 10 minutes ago he came to the elm area where he sings so much.

0529 - 57F, which has been facing NW, leaves the nest, flying a few (3 feet) feet above the ground to the NW and then circling S to almost the S boundary of the territory. The male quits singing for about 1 minute. When he begins again the call notes have stopped. (Note that until 0500 he was too far away for me to be sure he was giving them.)

0-0629-32  
165

4  
1149  
(5.0)

149  
2  
35  
156 cm

467  
6/9/56  
VN

0533-1/2 - 57F returns to the nest, passing right by me and calling a soft "check" 2 or 3 times. M57 is at the very top of his elm singing loudly, 5 times per minute. I note intervals of 15-11-13-8-13 seconds in a minute. ←

The female is facing NW as before.

0543 - M57's song changes to one that is nearer a skid, i.e., higher, more run together. I suppose it is nearly a typical skid. He quits it at 0545 and is silent, after 57 so far in this half-hour.

0551-1/2 - The male is still silent at the end of the second half-hour. I'll count any songs to 0600 and begin over then.

0559 - M57 starts a high skid series, 2 to 0600.

0600 - It is calm, 56°. The sun rose about 0540.

0603 - After 13 skids M57 begins to chatter; I don't start a new count.

0609 - M57 crosses the cut to the trees by the old meadow. At 0614 or thereabouts, after some 50 chatters, he begins to skid there.

0618-1/2 - 57F leaves the nest and flies across the cut straight to where the male is singing. He immediately quits after 88 songs. 57F flew low.

0628 - 57F returns silently and without any pause, faces NW. She seemed to fly to the nest from the tree Board and I sit under.

0-0619-28

05 -  
just on  
Hany

468  
6/9/56  
VN

10'12  
3 sk  
0629 - A few seconds before this minute M57 begins to skid across the cut.

It is 60° at 0630.

13 sk  
0634 - M57 stops after 16 songs, all skids.

16  
2 sk  
0650 - M57 begins to skid a good distance E of the nest but stops after 2.

9  
2 sk  
0659 - M57 sings skids, comes W and is somewhere nearby at 0700.

0700 - He's sung twice. It's 64°.

0703 - M57 skids to the NE by the valley.

0706 - 57F after about 15 seconds of looking around her with more than her usual activity leaves the nest and goes low to the N. M57 has sung 9 skids. There is about a 1-minute pause and he skids once.

9 sk  
1  
1 sk  
10'12  
0717-1/2 - M57 begins to skid to the N.

0719-1/2 - 57F returns to the nest, having stopped to catch an insect 10 yards NE of it. She faces SE for about 1 minute, reverses direction.

12 sk  
12 sk  
At 0720 M57 comes to the walnut tree I'm under, 15 yards from the nest, and sings. He goes S in a minute and switches to chatters. At 0724 he quits after 24 songs.

6  
I think a Connecticut Warbler is singing by the ravine. I've thought I've heard one on V every day for about 4 days.

0730 - It's 68°; both adults are quiet.

0-0706-19  
1+6 S

Connecticut Warbler

469  
6/9/56  
VN

7  
43 { 85h  
25h  
105h

0737 - M57 begins to skid SE of the nest in the little strip of trees. The songs are weak. At 0740 he moves NE and switches to chatters, not very loud.

0745 - The female seems to be dozing on the nest. She moves her head, but I think her eyes close occasionally. *doze*

0749 - M57 switches back to skids.

0755-1/2 - 57F leaves the nest. M57 became silent at about 0752 after 43 songs. *0-0755-0809*  
*05*

0800 - It is 72°, still cloudless and virtually windless.

*4/17*  
I'll watch 57F continuously during her next time on, to see how often she turns the eggs.

0806-1/2 - 57F flies into the tree above me, from the N. She calls 1 very faint "tsu" in flight, another in the tree. Neither is because of me. At 0808 I see her 10 yards to the E. She goes slowly to the nest, advancing about 2 or 3 feet per flight and foraging on weeds and berries.

0809 - 57F enters and faces NW.

0816 - She probes for 10 seconds.

0823 - She probes for 5 seconds.

0828 - She probes for 10 seconds.

0830 - She probes for 8 seconds.

It's 74°. The male hasn't sung since 0752.

0834 - 57F leaves and flies low across the cut to the tree row. *0-0834-47*  
*323*

*30*  
I measure and mark egg 4. It is 15.6 x 12.8 mm.



470  
6/9/56  
VN

9

0839 - M57 begins to skid in the tree above me.

0847 - With the male singing overhead 57F returns quickly from the NW and enters with about a 1-second pause to arrange the eggs. The male may possibly be singing not quite so loudly a few seconds after she comes back.

39(4.0)

0848-1/2 - M57 quits after 39 skids.

12

0850 - 57F has turned around to face the NW. She faced SE when she came in.

0907 - 57F seems to probe for a few seconds, then leaves the nest. She flies W about a quarter of the way across the cut, then turns S and probably lands in the grain crop growing there. It is 74°.

0-0907-  
22  
05

30

0922 - 57F comes silently from the SE, advances in a leisurely way through the field cover to within 12 feet of the nest, flies to it and settles facing NW.

0930 - Silence. It's still 74°.

0933 - The sun gets through the foliage a little to 57F's back, and she seems to be standing up in the cavity. She covers it completely, but her back is higher than the rim. Earlier she has been so low that only the head and the tail region have been visible. At 0936 she sits down low again but very quickly rises up as just described. This position continues at 0942 and seems likely to be maintained indefinitely. I can now see that her breast is away from the front rim; she's

shades

standing in the cavity, tail coverts on the rear rim. It's just a matter of shading, then. At 0945 she sits down deep. It's 74° in the shade, 88° in the direct sun.

16  
0946 - M57 skids to the N. The female is low. She rises and probes twice during the next 4 minutes; this would let heat escape. At 0952 I see that the sun no longer touches her. She's rising to probe with great frequency though, about once a minute.

0953-1/2 - 57F jumps off the nest to a twig 6 inches away, picks at something. She then moves on a foot or so. After 1 minute she's still only 10 yards from the nest, but she then flies low to the N. M57 falls silent after she leaves; he's sung 21 skids.

B  
0-0954-08  
1+2+2  
gives on  
leaving

21 sk (28)  
6  
2  
2 sk  
5  
1002 - M57 skids twice.

1007 - M57 begins to skid. A few seconds later (5) I see 57F approaching the nest slowly from about 15 yards N. She stops, sidetracks, always forages and occasionally catches insects.

75h  
1008-1/2 - 57F comes, enters facing SE, in 30 seconds turns to face NW. M57 quits singing after 7 skids.

1015 - Board relieves me and I leave.

13'12  
1015 - I [Board] relieve Nolan. 57F is facing N.

14 sk  
5  
1022 - M57 begins skids, sings 14 in 3 minutes.

1036 - 1040 - 57F is higher than usual on the nest.

1047 - M57 begins to chatter, stops in 3 minutes after

1053 - M57 chatters 8 times in the next 2 minutes, to  
the NE.

1100 - It's 73°, sunny with a few clouds, a light breeze.

1109 - 57F leaves the nest to the N; she sat high on it  
for the preceding minute. O-1109-17  
OS

1117 - 57F returns to the nest vicinity, forages around  
blackberry flowers for about a minute, enters facing S, immediately  
turns N.

1124 - 57F begins to sit high on the nest. The sun is on  
her back. At 1137 she settles facing N; this seems to coincide  
with the sun's going behind a cloud at this time. B

1142 - The sun again hits 57F's back and she rises higher  
on the nest. She sits lower in 3 minutes though the sun is  
still on her. At 1148 she sits high again.

1200 - 57F is high. It's 78° and the sun is behind clouds;  
there's a light breeze at times.

1202 - 57F rises and perches on the S rim facing N; in  
a minute she settles on the nest.

1205 - M57 comes to a tree 35 yards to the NE of the nest  
and begins to skid. He stops after 9 to 1209.

1220 - 57F leaves the nest and goes N. O-1220-6  
OS

1226 - 57F returns, for 3 minutes perches on the N rim

facing N, settles facing N. Occasionally she waggles her tail. B

21  
1302  
1230 - M57 begins to chatter, in 5 minutes stops after

13.

1235 - 57F sits high, stays so for 5 minutes. B

1245 - M57 begins to skid in a tree 35 yards NE.

392h  
1300 - M57 stops singing after 39 songs.

It's 78°, the sun coming out stronger, the breeze light and sporadic.

1302 - 57F rises to sit higher. She's turned to face E of N. The sun hits her back. B

30  
1312 - She settles down but in a few moments rises higher again.

1337 - M57 begins to chatter. 57F is deeper, turned back more to the N.

180h  
1343 - Again 57F is high and facing NE.

1346 - The male stops after 18 songs.

14  
1350 - The sun is behind a cloud, and the female is deep, facing N.

1353 - 57F leaves the nest.

1356 - 57F returns, faces S, turns N, then NE.

20  
1400 - It's 79°, sunny; breeze as before.

26h  
1420 - M57 begins to chatter.

1426 - 57F leaves the nest.

1430 - 57F returns from the S, faces N.

0-1353-57  
05

0-1426-30  
05

24  
1431 - She probes in the nest. M57 stops after 28 songs.

1436 - 57F seems to be dozing.

9  
1440 - M57 sings 5 chatters.

50  
1450 - 57F probes, settles again to the NE. It's very sunny, 80°, a little breezy.

1455 - 57F rearranges the nest (contents).

18  
1500 - She rises, perches on the N rim while evidently catching insects on surrounding foliage. She leaves the nest, forages 1 foot away, moves another foot, returns to the nest and faces S. She was very active, her bill constantly open.

B  
Interesting  
hunger soon  
leaving?

01500-02  
1505-06

1505 - She repeats the foregoing behavior, stays off the nest 30 seconds, settles facing N.

OS

1509 - 57F rearranges the nest.

1509-1/2 - She leaves the nest, returns almost immediately, perches on the S rim facing S, seems to glean from surrounding leaves, turns, probes in the nest, settles facing N.

1509-10

30  
1514 - 57F leaves the nest, for 1-1/2 minutes hops through the nearby bushes foraging, then disappears.

01514-20

1522 - 57F returns from the SE, faces S, turns toward the N.

37  
1530 - The male begins chatters, quits after 37 songs at 1543.

17  
1545 - It's 80°, sunny, breeze possibly a little stronger than it has been.



475  
6/9/56  
JB  
VN

1550 - 57F rises, looks around, settles facing NE.

1605 - M57 begins to chatter, 21 to 1615.

57F leaves the nest a few feet and returns, sits facing N, gets up, faces S while perched on the N rim, looks about with her bill open, probes deep in the nest 5 or 6 times, at 1614 finally settles facing S. At 1618 she is facing NE and looking in all directions, her bill open.

1619 - M57 begins to chatter; 6 times.

1622 - 57F leaves the nest.

1628 - 57F returns, faces NE. At about the same time M57 begins to skid from a tree 35 yards NE.

1641 - M57 quits after 48 songs since 1628 [?].

1647 - 57F is facing NE, bill open. She turns her head to the E often.

1700 - It is 81°. 57F is facing NE, still turning her head to the E.

1705 - M57 is within 15 feet of the nest, moving slowly toward it.

1707 - 57F leaves the nest and goes NE. M57 leaves the vicinity.

1725-1/2 - 57F returns, faces S, then N.

1730 - Nolan relieves me and I leave.

1430 - I return with Palmer Skaar but don't get down to business till he leaves at 1545. It is clear, hot, sunny.

T54 - At least 1 nestling is in the S end of the Virginia pine planting. It is calling, and the male is nervous at my presence. I haven't time to stay here.

*position  
29*

T53 at 1600 - I find a fledgling being fed by the male 55 yards SW of the nest at the W end of 1. It is 2 feet high, sitting in deep shade 1 foot out from a dogwood's trunk. The male sings very occasional faint insipid steps, and I think from the calls I hear that a second young is from 15 to 25 yards W of me. I sit to watch the fledgling.

*occasional  
steps*

1620 - The male has fed it 3 times, but because I'm causing some alarm it seems valueless to me to count these feedings. [In 65 minutes there are perhaps 15.]

*fledgling  
note  
100.  
good*

The fledgling (called "Y" hereafter in today's notes) moves up to 4 feet in height in its tree after being fed, calling "check" while doing so. While being fed, it called the usual single vibrant note.

1625 - Y moves 10 yards and perches 7 feet high. It flutters slightly when being fed, calls faintly, reaches out to receive the food.

To 1633 the male feeds 3 more times, foraging in the tree where Y is and calling "check" while doing so. At 1633 Y moves a few feet, and does so again 1 minute later. So far it has simply sat crouched, its tarsi flexed.

1635 - A Field Sparrow flies to within 2 feet of Y and Y moves on about 10 yards N. M53 follows it in the air, the

*reaction*

*to  
RS*

two about a foot apart, with calling by one or both. The male gives a slight distraction display after landing, fluttering its wings a little. (Note the great tendency to lower the head and move head-first down a tree or weed in this display.)

1638 - Y has its bill open for 10 seconds.

1641 - It's sitting 1 foot high on a bare sumac. It's moved 3 times, no move caused by me unless I'm making the male unwilling to feed and this is causing the young to pursue the male. At 1641 there's a feeding.

1645 - Y moves again and M53 accompanies it at a distance of 1 foot. At 1646 Y goes on to a perch 12 yards beyond, 7 feet high in a dogwood.

Y dozes between feedings, at feedings calls faintly, the vibrant call. The male "check<sup>s</sup>." Y doesn't teeter today, and its movements are much surer.

1650 - It preens its right wing, gives the shake to settle its feathers, preens its right wing.

1652 - Dozing.

1655 - Y scratches both sides of the head with a typical foot-over-wing motion.

1657 - Y scratches its right side as above. Before doing so, it opens its bill; and it seems to stretch its foot backward a little before putting it over the wing. It dozes most

of the time the male is not in sight. M53 either is silent when he gets 10 yards away or is out of earshot; within 10 yards of 4 he calls faint "checks." I can't tell how much these may be caused by me.

52073  
1 hour  
1702 - M53 twice sings insipid steps, only about the fifth song in an hour. 53F is not in sight and hasn't been. Note that I never recall seeing adults switch off young in feeding them after they're out of the nest.

1705 - Y gives a left scratch, preens its back, raises its wings half over its back, stretches up immediately. The last 2 movements were the only genuine combination. It gives a typical foot-out-and-back left stretch. Immediately it raises its wings half over its back.

1710 - Y's eyes are closed tight. It doesn't react to the calls or insipids of M53, which calls as before, often remaining silent for over a minute. He quit attending Y about 10 minutes ago.

10 1/2  
1711 - M53 skids once. Y is sleeping, tarsi always flexed.

1715 - Y stretches up to its full height, wings folded. Note the wing-raising stretch is different, doesn't involve a leg motion. Y gives a left scratch, having slight trouble getting its leg around its wing.

1717 - Y quickly goes through the following: preens its wings and breast, stretches left, stretches up, raises its wings.

1720 - I must leave to relieve Board.

479  
6/9/56  
VN

T57 at 1730 - I take over to watch the nest.

3405  
1731 - M57 quits after 15 songs. All I've heard have been insipid steps.

1736 - 57F is facing E, bill at least 1/4 inch open. B

29  
1740 - She's settled facing N but rises high at times.

1746-1/2 - 57F leaves and goes E.

1804 - M57 has begun a series of chatters N of the ravine. O-1946-1207 95

4  
They're almost too faint to hear.

1807 - 57F returns from the SE, fast and low. She stops about 1 foot short of the nest for a second, advances and immediately enters facing NE. (Board would call it N; our directions should be adjusted to correspond.) She's sitting low. NB

11m  
40ph  
At 1815 57F opens her bill. It's 80°. The male still sings to the N but for the last 20 (of 31 so far) songs they've been loud skids at about the ravine or S of it. At 1822 M57 goes to the osages from the N. He must have been perched high. He sang 51 songs, nearly all skids. I now begin to count over. NB

1822-1/2 - M57 skids in the osage oranges, high I feel sure.

8ph  
1824 - After 8 songs M57 flies from the trees over me down to a berry bush 6 feet from the nest. He has a big green caterpillar. In 10 seconds he takes this to the SE rim. Since the female is facing NW, the back of her head is to him. He AFB



480  
6/9/56  
VN

thrusts the larva down and forward 13 times, never at her at all and in any event in the direction of her nape. For as long as I can see her, her head is turned away from him. Finally he disposes of the caterpillar; if I had to guess I'd say he simply drops it. He doesn't eat it. He then comes S and feeds in the weeds while he covers some 10 feet, then goes SE. He was at the nest 1 minute. At 1828-1/2 he sings a faint skid in the grass 10 feet from the nest; he sings 13 times to 1835, quits.

4 1/2  
3 sk  
10 sk  
1829 - 57F leaves the nest and goes SE. M57 sings there-  
after, not loud.

10  
His feeding motion at the nest looks almost like a stiff bow with the head not really moved much. There is little oriented thrust, although the feeding of fledged young suggests that there would be a thrust if there were a response or target seen as the bow progresses.

1845 - The male begins skids to the SE, either faint or distant. In 2 minutes they get louder.

54 sk  
(3.5)  
1848 - I see the female feeding actively near a tree 15 yards N of the nest. She is staying within 2 feet of the ground. The male sings to the SE, chatters now.

1850-1/2 - 57F finally enters the nest after a long leisurely approach, feeding the whole way. She faces SE low.

1853 - 57F changes to face NW.

1900 - It's 78°. M57 is singing frequent slow, loud chatters

0-1549-50  
1217

13

481  
6/9/56  
VN

7 ch  
to the SE. So far he's sung 54; I'll begin a new count. In a minute he goes N of the nest about 30 yards or so. At 1902 he quits there after 7 more songs.

1918 - A rabbit jumps by within 2 feet of the nest. 57F sits tight.

27  
25h  
4th  
1929 - M57 skids at the ravine.

1930 - It's clear, windless, 72°.

1930 - 57F leaves the nest. M57 sings after she leaves; I don't know which direction she took.

1932 - M57 quits after 6 songs.

6 1/2  
45h  
1938-1/2 - M57 skids near the ravine. He sings only 4 times.

2  
1.2h  
1941 - 57F flies straight back from the NW, settles facing SE.

4  
1942 - M57 skids once to the N. At the same time 57F turns to face the opposite direction.

17.5h  
2  
1946 - There are very faint skids across the cut; probably they are M57's.

1952 - M57 quits after 17 songs, all barely audible but due W and therefore unlikely to be either M56 or M58.

26h  
1  
1954 - Now M57 begins the same song to the SE of me. He switches to 2 or 3 chatters, then a skid, then back to chatters.

1959 - He stops after 26 songs.

2000 - It's 66°.

B  
no  
Nest to  
1930

1930-41  
6th

482  
6/9/56  
VN

1  
12.5k  
to  
2004  
2001 - M57 skids in the walnut above me, 11 times to  
2004. Then he goes SE and sings once more.

2007 - 57F leaves the nest. Whip-poor-wills have just  
begun to sing.

2011 - 57F flies to the bush where the nest is, perches  
a foot away for 1 second, enters the nest facing NW.

2015 - I leave. It is 64°.

It was cloudy at noon, but the day has been 90% sunny.

leav  
sog  
O.1007-11  
OS

June 10, 1956

A clear, nearly windless day, very hot; at 0900 it must be 80°. Present from 0845 to 1100 and from 1730 to 1800.

T56 - A male is singing skids 40 feet high in the middle of the strip of N-S habitat. I count 39 songs from 0850 to a few seconds before 0900. Then suddenly he takes off and flies high to the SE, across the cut to T57. I hear 2 or 3 skids there, then silence. I'll have to check to be sure of the situation, here; M57 may possibly have 2 females.

T57 - The nest is unoccupied at 0905. At 0913-1/2 the female flies 15 or 20 yards from the N, straight to the nest rim, entering almost immediately. Silence all the time I've been here.

See above under T56.

T53 at 0925 - I see a fledgling at 0925, five feet up in a little maple in the W fringe of 1, 65 yards from the nest. The male is nearby, singing an occasional skid. I can hear another young farther S in 1. I sit to watch the fledgling, which is the bird I watched yesterday.

0930 - The fledgling reaches up and picks at something above it on a leaf or twig, then very clearly eats it.

0931 - It is sitting with bent tarsi. It (hereafter Y) gives a left wing stretch.

posit  
87  
good  
feeding

484  
6/10/56  
VN

0933-1/2 - Y stretches up with wings folded, stretches its right wing, stretches up. These are almost part of 1 motion. It preens fully, scratches its left side.

M53 chatters, which causes the young to give a begging call. (I'd say fledglings have 3 calls at least, a "check," a vibrant call, and a "pa-tunk." The last seems a more intense form of the second.)

*fledgling  
calls*

Y scratches its left side, preens its right.

0935 - It flies into 1, standing like an adult for 10 seconds first and bobbing it's tail, I'm sure.

I go to see where the female is.

0940 - 53F is in the N edge of 1. She is foraging at from 2 to 6 feet and eating. She calls "tsu" lightly but seems unconcerned about me. An unbanded PW flies W in 1; its sex is uncertain because its markings are intermediate.

53F collects food, including an immature spittle bug. All young are evidently in or around 1, for she takes the food only a few yards in and disposes of it. In the half-hour I'm here I'm sure the female has little or no contact with the male.

M53 sings 29 loud, irregular chatters in 30 minutes.

1000 - I leave the territory.

T58 - The male is carrying food here, showing a good deal of restlessness in flying back and forth to high perches. If



485  
6/10/56  
VN

it weren't for his food carrying, I'd say there is a female building a nest. His song varies from a type-8 and a chatter to a very peculiar form that starts as 3 or 4 vibrant fight notes and ends as an insipid step. I'll check here again. *only*

1100 - I leave.

1730 - I return to T58. M58 is carrying food and within a few minutes I find the nest. It is about 18 inches high in a 3-foot elm, perhaps 15 yards from the road cut. Note the tolerance to human disturbance when so many good sites are available, at a much greater distance. In the nest are 2 young about 2 or 3 days old, probably 3, and 1 egg. *Position 3 nest*

1800 - I leave.

486  
6/11/56  
VN

June 11, 1956

A clear windless morning with a sort of light haze, just barely perceptible; temperature 70° at 0700. Present with Board from 0730 to 1230, and from 1545 to 1800. Board watches at T57.

T58 - The egg is unhatched, the adults not present. The young gape both when I squeak and when I jar the nest.

T57 - Board sits to watch. At 0750 the male brings food to the empty nest, makes 2 slight bows, turns away in 15 seconds but stays 30 more seconds on the rim. The female comes 15 seconds after he has left the rim. He returns, thrusts the food (a green caterpillar) at her. She does nothing, and in 15 seconds he eats it, leaves the nest and flies low 10 yards. Half a minute later he sings. AFB

T54 at 0830 - M53 is singing light, short skids in 1 (W edge), then seems to go N a few yards. I take notes till 0840, when I start to look. I've heard no young.

0840 - A well-marked, unbanded male spends 1 minute just N of 1, flies into 2. He is silent, moves rapidly.

0845 - M54 is singing faint skids S of 2. I go and find M53 there too. They flit about 5 feet apart, perching once for 10 seconds. M54 sings 1 almost inaudible insipid step; otherwise there is no sound. M54 flies in the usual bouncing, tail-exhibiting way, then goes W to the field S of 3. This lasts 30 seconds, is quite close to the place where the 101

487  
6/11/56  
VN

strange male went. The 2 males were 2 feet high.

0845-0945 - I find 54F S of 2 and follow her. She shows no alarm and for 10 minutes simply forages in the weeds and up to 10 feet. M54 sings faint skids in the tops of the locusts of 2 and 3. Twice I think 54F may have nest-shaped. Then she carries food, and I find 54Y (yellow) perched 5 feet high just S of 2, 140 yards from the nest.

54Y is in sight for 4 minutes. During this time it is quiet except for 1 time when it clearly pecks at something on a leaf and seems to eat it. At the end it stretches up (which I now see has a leaning-forward element at the end, so that the tail is higher than the head). Then 54Y bobs its tail just like an adult, while standing with legs extended. After 3 seconds of this it flies.

I continue to watch the 54's. M54 and M53 get into another backing and filling action in the S end of 2, about 6 feet high. Both make slight advances, fly with the usual loose, bobbing motion. Once I hear the throbbing vibrant fight call. It is enough like a fledgling's note to be mistaken for it. Another time M54 flies toward the E, but at a line running S from the center of 2 he turns in mid-air and bobs back.

Next I turn to the question of the location of the other young 54's. Since both parents are staying here near 2, they must be near or be starving. Finally I see M54 feed one in

nest shape

perched high

Bob  
fledge

imp

of 2

fight  
call

position  
20

the E edge of 3, about 20 yards from 54Y. I now think that fledglings are always within a fairly restricted area until they become independent. NB

M54 may have sung 40 times or more in an hour, most of the songs faint skids and a few insipids. I'd say he perches high much of the time he sings, is not a very diligent feeder of the young.

At 1005 I see 54F (which has her left rectrices disarranged to show a lot of white) 15 or more yards E of the N end of 2.

1012 - There is a strange unbanded female in 1. She responds to a squeak, perches 10 feet from me.

(I forgot to note that 54F collected 2 spittle bugs once and took them to 54Y.) spittle

I search E V carefully without finding any sign of the young 53's.

T55 - In 10 minutes no PW's.

T53 - See above under T54.

At 1050 I find a young 53, the same one I've seen every day, in the N end of 2 toward the W side, some 70 yards from its location of yesterday. This spot is well W of M54's line, although he uses the N end of 2 very little. M53 feeds the bird, sings loud skids without challenge here. (I don't think I've ever seen a territorial fight this far N in 2) position yg ←

489  
6/11/56  
VN  
JB

There is little to report about the young bird. It preens, stretches its wings. Its tail is about 1/2 inch long now, and it seems to stand (rather than sit on its tarsi) more. I can't be too sure of this because it is on a diagonal (2-1/2 foot high) limb, so one leg is naturally somewhat extended.

No sign of the rest of the family, but their absence from the rest of V suggests they are near 2. Note that both males seem to stay in 2 much of the time, fighting only at the S end.

1120 - I leave V.

T56 - Silence as I pass.

T57 - Board suggests this female spends a longer time at the nest when she's not sitting close against the eggs. This would tie in with Odum's theory, but there are a lot of possible explanations. NB

T58 at 1215 - The egg is unhatched and undoubtedly will not hatch.

1230 - We leave.

T57 at 0735 - I [Board] arrive. 57F is on her nest, facing N.

0743 - 57F leaves, goes SE.

15 0749 - M57 comes with a green caterpillar, goes to the nest rim for 15 seconds, then turns his back to the cavity AFB



and stays 30 more seconds.

1 Aug  
10  
0750 - 57F comes and enters the nest. M57 hops back to the rim, offers food, finally eats it. He leaves after being at the nest 75 seconds all told, sings 30 seconds later.

57F is facing NE.

0812 - 57F leaves the nest, goes 100 yards NW to the middle of the oat field, stops 30 seconds there, flies on 50 more yards to the trees at the E edge of II.

30  
0828 - 57F returns, faces N. In 7 minutes she turns a little to the E of N.

0846 - 57F draws back and may get to the S rim; she probes, turns, faces S.

12  
9th  
5  
0848 - M57 begins to chatter to the S, stops after 9.

0850 - 57F rises high on the nest frequently, moves her head from 1 side to the other with her bill open, still faces S. B

5  
17th  
0855 - 57F leaves the nest.

0905 - M57 begins to chatter, does so 17 times to 0912.

0915 - 57F returns and faces S.

0920 - She is sitting very high, moving her head about with her bill open. In 5 minutes she settles lower, still facing S. B

0926 - She repeats the above behavior, sitting so high that she may be perched on the N rim. Some sun hits her head. She settles occasionally but rises quickly, e.g., once after 30 seconds. B

18  
1200h  
17  
0938 - M57 begins to chatter, stops after 20 in 5 minutes.

0945 - 0950 - The female is settled facing S, turning her head frequently as though to look at me.

0950-0955 - She is very high, behaves as described above. This continues.

1001 - 57F leaves the nest, goes S a few feet and forages among blackberries, goes on to the trees SE of the nest.

1008 - 57F returns from the S, faces N, then NE. She is high, the sun on her back.

29  
310h  
1029 - 57F leaves and goes N. M57 begins to skid at about this time, maybe an instant before.

1035 - 57F returns from the N, faces S, then N, then NE. She is rather high.

1045 - The sun is on 57F's back. She still settles for half a minute or so, then rises; this goes on most of the time. She turns her head often to the E.

520h  
1050 - M57 stops after 55 songs since 1029.

10  
1100h  
1055 - A small bird (described more or less like a mottled Indigo) appears near the nest. 57F immediately settles deep; when the other bird leaves in 20 seconds, 57F rises higher.

21  
1200h  
1221 - M57 begins to skid, sings 15 in 5 minutes.

1244 - M57 begins to sing, stops at 1203 after 15.

4  
1207-1/2 - 57F leaves the nest.

1100h 3  
1200h 3  
1209 - She returns, faces N, seated high. Possibly Nolan and I frightened her into returning.

We leave the territory.

492  
6/11/56  
VN

1545 - I return to catch the 58's. It is sultry, still, with a few clouds. The temperature is in the 80's, I'd guess.

1615 - I catch 58F. I band her silver over brown, left leg, number 21-62061, and paint her tail black on the margin, red next. She weighs 7 grams 280 mgs. I fail to catch the male, though he is feeding young.

1800 - I leave.

493  
6/12/56  
VN

June 12, 1956

Another calm sunny morning, with the temperature in the 80's by mid-morning. Present from 0945 to 1245.

T56 - A male sings skids here at the rate of 4 per minute and I settle down to see if it is M57 which may have extended his territory. For a little over an hour I wait in the strip between T56 and T57, hearing the male the entire time and never hearing M57. On the other hand, the male never once leaves the strip of habitat on old II. I'll have to leave with the situation still obscure.

T57 - 57F is at the nest.

T53 and T54 - For 1-1/2 hours I try to untangle the situation here and ultimately find that things have changed little since yesterday. I.e., the young 54's are in or near the S end of 2 with one possibly in the W end of 1. The young 53's are in or near the N end of 2. All young are silent until about 1230 when there is some typical calling, probably by 1 bird, in the S part of 2. Evidently all fledglings are low too, staying in the kind of surroundings where I've found them, from 1 to 7 feet high in small (and therefore leafy) trees or in bushes.

The males sing about as much as when the nestlings were in their last days in the nests, or at least M54 does. His song is a skid, weak at first but later without any peculiar features. M53 chatters, sometimes a little weakly and perhaps

posit  
gg

1  
sing  
mod  
page

song note

494  
6/12/56  
VN

less often. I never see a male carry food today, and I'm beginning to think that they do so at about the same rate or proportion as in nest life. Possibly they feed more when the young are big enough to pursue the parents.

On the other hand, there are 2 fights or encounters between the males. M54 most often sings from the tree tops in 3 and in the S part of 2. Once I find M53 here singing in a low tree S of 2 and in a minute hear 1 or 2 high rapid "tsu" fight notes and see M54 fly toward the W. He definitely spreads his tail in this flight. Another time 54F goes E to 1, as she's done once earlier in the morning. M54 goes out SE toward 1 and M53 flies at him, and they give a few of the fight notes described above. M54 flies a few yards W and then down at 54F which is in a little tree, perched 18 inches high. The male lands 6 inches above her and they both crouch, wings slightly extended, bills pointed at each other and so far as I can see closed. The female doesn't give ground and in 2 seconds the male moves on. (I wonder if this attack isn't like those seen before nesting, where it seems to me the female becomes the target just because the male happens to see her when he's angry and excited.) In the fights M53 doesn't sing, and M54 sings 1 or 2 insipid steps.

Both females are feeding young; I see no signs yet of an inclination to nest again. Note that 54F goes E to 1. Although M54 was doing this before nesting began, it's beyond



495  
6/12/56  
VN

his territory limits now.

All the adults forage with their bills open at times.  
I never see the young themselves, only the places to which  
food is carried.

*bill open*

T58 - 58F is at the nest. M58 sings near the hackberry.

*✓*

1245 - I leave.

496  
6/13/56  
VN

See 499

June 13, 1956

A cloudless morning with a slight S breeze; temperature 64° at 0500. Present from 0500 to 1100 and from 1500 to 1730; Board present from 1045 to 2020.

T56 - As I pass M56 sings insipid steps interspersed with anger notes. This is interesting in itself, and it also proves M56 is still here. *downy*

T57 at 0505 - M57 is singing chatters with anger notes between them, S of the nest, 57F is on the nest.

0508 - 57F leaves the nest.

0514-1/2 - 57F returns quietly and faces NW.

*1350h*  
0530 - M57 is chattering in the dead top of the elm he uses. He quit calling between songs at 0527. He's singing 5 songs per minute; I began to count at 0512 although his rate has stepped up slightly since then. *←*

*330h*  
*20h*  
0537 - M57 flies into the tall elm N of the nest and skids twice, then goes N into the big trees beyond the ravine. He quits after 105 songs since 0512, all chatters. but the last 2.

*10*  
0546 - 57F probes for 3 seconds. *B*

*570h*  
0547 - M57 begins to chatter N of the nest, in a minute sings at the top of his favorite elm.

0551 - 57F probes for 5 seconds. *B*

0552-1/2 - 57F leaves the nest and goes W, about half-way across the cut, landing there near the stream. M57 is singing

to the SE, and he continues to do so. I check the nest and find the situation unchanged.

0600 - It is 65°; the sun is up. M57 has sung 57 times since 0547 and is continuing.

17 ok 0601 - M57 crosses the cut and sings in the trees to the W till 0603. Then he quits after 74.

0602 - 57F returns without preliminaries, dropping to the nest from the tree above me and facing SE.

25 0609 - 57F reverses the direction she's facing, turning to the NW.

0628 - M57 begins to skid N of the nest. The sun is not very bright yet; there's a slight haze in the E.

8 ok  
late  
2/15 ok 0630-1/2 - 57F leaves the nest and goes NW. M57 is sitting in the elm to the N and sees her go. He sings once, goes W to a 50-foot walnut; I can see the two feeding in its top within 10 feet of each other for 1 minute, but then I lose the male. 57F feeds rapidly and with considerable activity. M57 quit after 9 songs when he flew to this tree at 0630-1/2, but he begins to sing skids again at 0632-1/2. (I start to count over again.) It sounds as though he's still in the walnut. On  
together

0637 - I see M57 NE of the nest.

0638 - 57F returns quickly and straight, from the NW. She faces SE.

0639 - M57 after 15 songs flies to the berry bushes near the nest, carrying an adult insect. He flies to the nest in

some 3 hops, sitting just below it to the E for 5 seconds. AFB  
Then he hops to the SE rim, with the female facing in that direction. Twice he offers the food to the nest at about the middle of her back and to the side a little, making fairly definite thrusts. Four times he seems to push the food toward the female's head, but she doesn't look up or react in any way. He then eats it after having been present on the rim 30 seconds. Next he hops to the field cover E of the nest and forages within 10 yards till 0642, beginning to sing again at 0641. Finally after 2 minutes in the low cover he goes E. His songs are irregular and rather weak.

8-4  
0646 - 57F has turned, and she seems to me now to be facing W.

0650 - 57F faces NW as usual.

11  
M57 quit singing 1 minute ago after 8 songs.

0700 - M57 is silent. It is 70° with the sun still slightly filtered by a haze.

0706 - 57F after what seems a little restless looking around flies W to about where the stream runs through the cut.

0717 - 57F flies very fast from the S, goes 1 foot past the nest, sits there 2 seconds, goes to the rim and glances in, enters facing SE. Within 2 minutes she's dozing much of the time. B

I removed a leaf or two today to get ready to watch feeding. Since the leaves were on the S side and provided some very slight

499  
6/13/56  
VN

shelter, it's possible that 57F's attentive rhythm could be affected a little by this environmental change. Actually I merely restored the nest to the condition it was in before the leaf growth obscured vision a little.

30  
0723 - 57F turns to face SW.

0747 - 57F preens her back and both sides near the neck without getting up off the eggs. She also preens her upper breast. B

20  
0756-1/2 - 57F leaves the nest.

2  
108h  
0800 - It is 74°, with an occasional S breeze. It's getting bright and sultry. The male has been silent the entire hour.

24  
0802 - M57 begins to skid in the big walnut tree by the ravine, then goes SE to the area at the N end of the osages. He quits after 10 songs, at 0806.

0811-1/2 - 57F returns straight to the nest, glances in, faces NE. I miss her till she's right up to the nest.

0835 - 57F probes for 2 seconds. I'm sure I've missed many probings, but the fact is that she's doing this very infrequently. Now she preens her throat. N B

30  
0839 - 57F after looking in all directions and sticking her head out to look below her leaves the nest.

0856 - 57F returns quickly from the E, looks in while standing on the rim for 1 second, settles facing SE.

0900 - The day is as before with the temperature up to 77°.



0905 - I watch 57F carefully to see if she will doze; *doze*  
she does. I would not be surprised if she closes her eyes  
at all hours of the day at this stage.

So far she hasn't sat high or perched on the rim of  
the nest.

0908 - The female faces the opposite direction.

*10 1/2*  
0910-1/2 - M57 begins to skid near me.

*4 ph*  
0911-1/2 - 57F leaves the nest and the male falls silent  
after 4 songs.

*2 1/2*  
0914 - M57 begins to skid again, this time near the  
*4 ph* osages or E of them. Again there are only 4 songs.

*9 1/2*  
0924-1/2 - M57 skids to the SE.

*14 ph*  
0926-1/2 - 57F drops to the nest from the tree above me,  
looks in for 1 second, enters and faces NW. As usual she  
returned silently.

*2 1/2*  
0927-1/2 - M57 quits after 14 songs.

0930 - 57F first sits high, then seems to stand in the  
nest. She continues this less than 2 minutes, repeats at  
0933. At 0935 she's high on the nest, bill wide open. At  
0937 her wings seem spread a little to shelter the cavity.  
Small patches of sunlight are getting through to her back.  
At 0940 she settles deep, but is up again in 1 minute. She  
dozes in the high, sheltering position. Her feet are surely  
in the bottom of the nest, and she's standing with her breast  
back from the rim. She settles deep at 0943, rises somewhat

*shelter*

higher in 1 minute. I won't continue to note each change; this is typical, with at least 80% of the time spent high and probably not in much contact with the eggs. Her bill is open no more than 25% of the time, I'd guess less. NB

At 0952 a leaf falls into the blackberry foliage above 57F and she turns her head 2 or 3 times to look up. TB

0956 - 57F rises in the nest and for 45 seconds preens the underside of her right wing. Then she settles down. She preens again in 1 minute, for a short time sits or stands high looking around her and out over the front to the ground, settles at 0959. R

1000 - It's 78°, cloudless but very faintly hazy. 57F is sitting high, bill closed. 30

1005 - 57F leaves the nest. 15

1013 - She returns straight to the nest from the SE, looks in for 1 second, settles facing NW as before.

1015 - M57 begins to skid W of the cut and toward the S, where the stile was.

57F is standing in the nest, bill open. Her wings are a little bit out at the sides. Sunlight touches her somewhat. She rises back and preens her belly, at 1020 settles deep for half a minute. B

1023 - She hops down beside and 2 inches below the bottom edge of the nest, picks at something, sits for 30 seconds, TB

jumps up and faces SE.

260k  
1024-1/2 - After 26 skids M57 brings a large green caterpillar to the nest, landing on the S rim. He thrusts it at least 3 times at the female's bill, actually turning his head on its side so that he's in better position to offer it. He may have offered it to the nest before that. After about 15 or 20 seconds 57F takes the food and M57 hops 6 feet away. She eats it and he goes SE. AFB

40k  
3  
1026 - M57 skids to the SE 4 times in 1 minute. 57F is sitting with her bill open most of the time. It's 82° in the shade. Her breast doesn't touch the SE rim of the nest at all. B

9  
10k  
1039 - I think the male skids once.

1040 - Board arrives and relieves me.

21  
1100 - I leave.

1157 at 1040 - I [Board] arrive and relieve Nolan. 57F is facing S.

20  
1116 - 57F is seated high on the nest, now facing NE.

30  
1155 - 57F leaves the nest. At 1156 she returns, faces S, then N, then S. [Presumably she only hopped away to a nearby bush.]

30  
1202 - 57F leaves the nest, is gone 1-1/2 minutes, returns to face S.

1204 - It is 82°; the sun is out and there is a light breeze.

1208 - 57F is sitting high facing S. She turns her head to look at about 180° of the surroundings. The sun is on her head and her bill is open occasionally. B

1213 - 57F leaves the nest, stays in the vicinity, apparently foraging, for 1-3/4 minutes. She then returns to the nest faces NE, gradually rises high from an initial deep position.

1215 - 57F turns to face S.

1224 - 57F leaves and goes S.

1227 - She returns, settles facing S, rises high after 2 minutes. Her bill is wide open most of the time. B

1238 - She faces NE.

1255 - 57F leaves the nest for 10 seconds, returns and settles facing S, then rises high. B

1300 - 57F is facing W.

It's 89°, sunny.

1327 - M57 begins to chatter.

1335 - 57F leaves the nest toward the NE, the direction she's been facing. At 1336 she's back, facing NE. 22 ch

1342 - M57 has sung 28 chatters, is now skidding closer to the nest.

1346 - 57F leaves the nest and goes NE.

1348-1/2 - She returns and faces NE. 29 ch

1350 - M58 stops after 29 skids. 10

30

1430 - 57F leaves the nest and goes NE.

1436 - She returns, faces NE.

30

1500 - It's 86°, sunny.

12

8.5h

15

1512 - M57 begins to skid in the elm NE of the nest, quits  
and leaves after 8 songs in 3 minutes.

1531 - 57F leaves the nest.

30

1535 - She returns and faces NE.

1608 - 57F faces SE, sitting high. It's 85°, sunny but  
not extremely bright.

1610 - 57F leaves the nest, goes S.

30

1616 - She returns and faces NE.

1649 - 57F leaves and goes N.

30

1650 - All 4 eggs are present and unhatched.

1705 - 57F returns and faces NE.

1/2

10.5h

1726 - 57F leaves the nest. M57 starts to skid.

1735 - 57F returns and faces NE.

2.0h

1738 - 57F leaves the nest. M57 stops singing after 30

8

skids.

8ch

16.5h

1746 - M57 begins to chatter, changes to skids after 8

5

songs.

1755 - M57 stops after 16 skids.

1

9.5h

1801 - He begins to skid, stopping after 9.

1801-1/2 - 57F returns, faces S, turns to face NE.

1804 - It's 84°.



26  
1815 - 57F is rather deep in the nest, facing NE.

1837 - 57F leaves and goes NE.

30  
1900 - It's 78°.

1  
70h  
1901 - M57 begins to skid, stops after 7 songs.

1907 - 57F returns to the nest, settles facing NE.

M57 comes with her until the two are within 10 feet of the nest. He hops from bush to bush for 3 minutes and then leaves the vicinity. 57F settles low and faces N.

26  
1930 - 57F leaves the nest.

1944 - She returns and settles facing N.

30  
1952 - 57F is now turned toward the NE.

14  
2001 - The male begins to skid. He sings 14 times in 9 minutes, stops.

stop 2010  
2015 - It's 68°.

2015 - M57 comes to the nest, 6 times moves his head to offer food. 57F doesn't respond at all, finally rises and either stands high or perches on the rim. M57 leaves and 57F settles facing N. (What happened to the food? How long did this last?)

2020 - I leave.

1500 - I return. It is cloudless with very little breeze, temperature in the high 80's at least.

T56 - Silence.

T53 and T54 - The young are silent and continue to be except in the case of a few calls from 2 and 3 on one occasion

is when  
PR Log

AFB

advised  
7/14

506  
6/13/56  
VN

each. Almost immediately on arriving I find 53F in the NW corner of the pine field and in the adjacent part of 2. She calls "tsu" and shows some slight alarm at first but in a few seconds is content with calling faintly. This she does as long as I'm here, for 30 minutes at this spot, and she never leaves the immediate vicinity. Most of the time she preens, possibly 50% of it; twice she carries food and disposes of it quickly. The rest she herself feeds, always staying under 10 feet and usually under 6. She catches at least 2 spittle bugs.

*feeding*

I find an unfinished nest, well concealed among the leaves of a dogwood and 9 feet high, but I think from what I can see of it that it's an Indigo's.

The most interesting development centers around the presence on T53 of an unbanded male, heavily marked, especially in the streaks on the sides. Presumably he is the bird seen here before. I first find him silently watching 53F, bobbing his tail and feeding in typical fashion. He is within 20 feet of 53F, near the same level. Though she must see him, she gives no evidence of it. Shortly after she carries food I see the male do so too, and to a spot where there is surely a fledgling; I can't say he fed it, though, or did more than take a caterpillar to a more convenient place to eat it.

*Two-way*  
*helping*

At 1600 I see M53 chase this bird, dropping on it silently from a high woods tree. Thereafter there are songs, most of

*off*

them insipid steps. Again, I can't know if the strange male sang. I see at least 3 more pursuits, all of them sudden and over in a second or so. I suppose the new male was the target. M53 chatters loudly a good deal of the time, and sometimes skids. Some skids come from a few yards N in the woods tree tops, and these may not all be M53's. Once I see M53 sitting 30 feet up in a tree at the woods edge; suddenly he gives a twittering, squeaking call very much like a gnat-catcher and flies W 25 yards to a similar perch, repeating the sound in mid-air. About 10 minutes later I see him sitting stiffly, somewhat crouched and with his wings slightly away from his sides. All this would indicate that the stranger is intruding persistently, and it's clear that resistance comes from M53 alone.

The young seem to be in the dogwood area and in N2, where I hear calls. The adults never leave this restricted corner of the territory.

On T54, I first find the male singing insipid steps in 1. When I squeak he flies out with a green caterpillar, goes all the way to 2 with it. Thereafter he sings only in 2, 3, and W4. Although he sings some skids, most of his songs are insipid steps, some quite loud.

I see the female only once, high in 3. About 30 minutes spent in the 2-3 clearing and S of 2 and 3 reveal no sign of nest building.

508  
6/13/56  
VN

The young, I'd say, are in 3 and S of 2, possibly one in 1. M53's tolerance of M54's singing in 1 could be due to the more immediate intrusion of the stranger, near his family. I'm beginning to think that the young move away from the nest soon after leaving it and then remain pretty much in 1 place. At least the last half of the proposition seems true.

1645 - I leave V.

T58 - 58F is at the nest but leaves at my arrival. The young are alive. M58 sings to the W.

1730 - I leave. It has been 100% sunny today, very hot and humid.

June 14, 1956

A warm cloudless dawn with no wind, temperature 64° at 0500. Present from 0450 to 1230 and from 1400 to 1730; *down song*  
Board present from 1045 to 2035.

T56 - Silence.

40 T57 at 0500 - The male is singing chatters interspersed with a loud, flat, hard "check." In the 12 seconds (average) between the songs when he is singing without pause there are from 11 to 20 "checks," usually about 15.

57F is on the nest facing NW. It is still dark enough to require a flashlight to see her. *NW*

40 0510 - 57F leaves the nest and passes me to go S, where M57 has sung so far. He quits after 40 chatters, sings another at 0511. I check the nest, which still contains only eggs. *1st*

3 0514 - 57F returns quickly and silently, looks into the nest for a second, incubates facing NW, M57 begins to sing again.

84 0523 - M57 is at the top of his elm, on the dead branch, singing loud and regularly but now with only 5 or 6 calls between songs most of the time, occasionally 10 or 12. At 0526 he pauses for 40 seconds, and again at 0528. *song pair*

(4.8) 0532 - 57F probes for 6 seconds, the first time she's done so, I think. The male still sings and calls. *T3*



510  
6/14/56  
VN

27ch  
1  
0536-1/2 - 57F probes for 2 seconds. Half a minute later the male goes N or E, sings once, stops at 0537 after 111 songs since 0514.

14  
0538 - M57 sings again, now in the dead elm. He is pausing for about 30 seconds occasionally now, sometimes singing only 5 seconds apart.

22 ch  
0542-1/2 - After 10 seconds of restlessness 57F leaves and flies S. M57 quits and sings no more after 57F goes. He was in the dead elm, had sung 22 times and was still calling.

17 1/2  
0549 - 57F flies to a weed 3 feet from the nest, goes to the rim in 2 seconds, glances in, settles facing NW.

0556 - 57F probes for 3 seconds.

0600 - It is 65°, with clouds in the E and an overcast coming in from the W; completely calm. M57 is still silent.

0602 - 57F probes for 2 seconds.

0610 - She is really sound asleep, her head turned to one side but I think not so far as to permit her to tuck her bill under her wing.

30  
0614 - 57F probes for 2 seconds, preens her belly for 2 more, stretches up, settles. The only way I could see she stretched was by the gradual raising and lowering of her tail.

0626 - 57F leaves the nest.

0633-1/2 - 57F flies to a berry stem 5 feet from the nest and in 2 seconds goes to the rim from the W. She looks

in, enters facing SE, quickly picks an insect from a leaf within reach, settles down low. B

0645 - She probes for 3 seconds.

0655 - Repeat. 57F is still facing SE.

20 0700 - It is 70°, cloudy in the E but no longer so to the W. M57 is still silent.

0700 - 57F probes gently, looking at the eggs and evidently rearranging them for 10 seconds.

0703 - 57F leaves and comes S low past me. I missed 1 departure, but in all the others she has done this today. The eggs are intact.

0715 - 57F enters and faces NW 10 seconds after flying to a stem 5 yards N of the nest, then going to within 2 yards E of it. As usual then she is silent, glances in first.

30 0721 - She probes for 1 second. I may be missing an occasional poke at the nest when she does it for so brief a period. B

0733 - 57F probes for 4 seconds. In a minute she preens her right side without rising in the nest.

0737 - She probes for 3 seconds, cocks her head and looks at the eggs for 3 seconds.

0742 - 57F looks beneath the nest, leaves it and goes W into the cut. She seems to me to stop near the stream, which could be attributable to the water or to the weedy vegetation there.

30  
0800 - It is sunny with only a haze left in the E,  
windless, 74°. No songs from M57.

0803 - 57F returns from the tree above me to the rim,  
settles facing NW after a second's pause.

6 1/2  
11.5k  
0806-1/2 - M57 skids N of the nest in the big walnut  
by the ravine. He sings 11 times in just over 2 minutes,  
leaves the perch and falls silent.

0818 - 57F probes for 3 seconds.

1.2  
0821 - M57 begins to skid to the S.

4.5k  
1 1/2  
12.9k  
0822 - 57F jumps out to a perch 4 inches E of the nest,  
quickly flies SE. M57 has sung 4 weak skids and now stops  
for 1-1/2 minutes. Weak skids then begin again. At 0827 he  
quits after a total of 12 songs.

3  
0833 - M57 sings 2 faint skids, to the N I think.

3  
2.5k  
0834 - 57F flies in low, passes the nest by about 18  
inches, turns in the air and returns to the rim. She enters  
instantly and faces NW. I've seen this overshooting the nest  
before, if it is that; it might well be caused by a momentary  
lapse as to the precise location.

At 0839 she is facing N or NE, a direction I've never  
seen her use before. [?]

0841 - 57F probes for 8 seconds. I have the feeling  
that most of her probings today are really that and not just  
visual inspections; she seems to be moving or touching the eggs.

0845 - She probes very vigorously for 45 seconds, either  
pushing or pulling at something in the cavity.

0847-1/2 - 57F repeats this, standing back from the rim and looking in for part of the time too. She leaves her bill open for 15 seconds. It is 80°, sunny through a light haze. In 30 seconds she looks into the nest for 10, settles deep.

0851-1/2 - She sits high, then stands for 30 seconds in the nest, finally probes for 5, then settles.

0854-1/2 - 57F probes for 5 seconds. In 30 seconds she rises to look in for a moment.

0859 - 57F stands in the nest and looks carefully around her for 45 seconds, seeming to concentrate her attention outside the nest.

26  
0900 - It is 80°, getting darker and less sunny.

0902-1/2 - 57F hops to the E rim, then 6 inches beyond. She flies E 6 feet and I can see the plants move above her as she stays low. She then moves back toward the nest; the plants are being disturbed by something on or near the ground, and she seems to be following above it. At 0904 a male Indigo flies up from just below the nest to a little 2-foot honey locust beside it about 18 inches away. 57F flies to the locust and lands just above the Indigo, facing him and opening her bill at him for 2 seconds. She then moves a few feet away and seems to disregard him, and at 0905 he leaves. I lose sight of her to 0916, when I see her moving around low 6 yards

- gone?  
B  
Inc  
IB

514  
6/14/56  
VN

E of the nest, evidently feeding in a leisurely way.

0919-1/2 - 57F flies to the rim and enters facing NW.

By 0925 she's facing NE, nearly E.

At 0910 dark clouds began to come in from the SE and a cool breeze out of that quarter sprang up. It is 78° and threatens to rain.

0928 - 57F is dozing. Sometimes her eyes will close tight for 30 seconds and then she'll jerk her head up and look out, presumably at some disturbance nearby.

0931 - 57F turns to face N. She has sat deep and very quietly since her return. It is 75°.

0941 - 57F is looking attentively at something below her, craning her head out of the nest.

0943 - 57F probes for 5 seconds.

It is 74.5° and completely overcast. The wind that accompanied the front died down as suddenly as it rose, after about 5 minutes.

0952 - 57F probes for 3 seconds. She has sat well down except for the interval at about 0845.

0955 - 57F leaves the nest and flies S past me. On these flights she seems to go at least 40 yards.

1000 - It's slightly lighter, 77°. Silence.

1003-1/2 - 57F returns from the SE, approaching to within 6 yards, then 2, then to the rim to look in, then entering. This takes 5 seconds in all.

1008-1/2 - 57F probes for 4 seconds.



1015 - She probes for 8 seconds.

1020 - She probes for 13 seconds, preens her left side for a moment, settles.

1024 - 57F picks an insect from a leaf just above her head, then probes or tugs for 25 seconds at something in the nest before settling back down. *feed*

*26'12*  
1026-1/2 - M57 begins to skid N of the nest near the ravine.

*17sk (5.0)*  
1029 - 57F, which has been stretching her neck to see something on the ground beneath her, probes for 3 seconds.

1030 - She leaves the nest, but I miss her direction.

*65k*  
*2*  
*45k*  
*22sk (6.0)*  
The male sings on till 1031, then stops after 23 skids. At 1033 he begins again, singing only 3 or 4 songs, however, to 1035, when he comes to the tree above me and skids frequently. By 1038-1/2 he's sung 22 times in all; he then goes N and falls silent.

1045 - 57F enters and faces SE after 30 seconds of foraging within 5 yards of the nest.

It is 81°.

Board relieves me, and I go to V.

T54 - M54 is singing type-8's and insipid steps. I find a young bird, 54S, at the S end of 2, being fed by the male. It is 2/3 full-size, has a 3/4 inch tail. It moves alertly and fast, begs noisily when the male feeds it. The call is vibrant and loud. It is 2 feet high in a dogwood. *point to the nest*

516  
6/14/56  
VN  
JB

54F is feeding young too, also at the S end of 2. The young she's tending seems to be about 3 feet high, and all the PWs are staying at 6 feet and under. The fledglings seem to be within about 15 yards of each other. The female's bird is alert-looking, sitting on a slanting branch so I can't tell if it has its tarsi flexed like a young bird. I think it may call "tsu!" M54 is foraging silently, 54F calling "check"; she is near me, but I don't know if this has anything to do with it. A fledgling seems to move along through the low growth at the edge of 2 when 54F goes into the tree tops and forages; it seems to be following her calls.

*tending  
h2 9  
27*

Once I see 54F fly to 4 and at about the same time hear M54 sing there. I think it's likely she is building or exploring here, since she was in the same place yesterday.

T53 - 53F appears as soon as I walk into the NW corner of the pine field and calls "tsu" regularly. She preens, then gathers an insect and takes it to a young bird about 6 feet up in a tree at the edge of 2 here. M53 sings once or twice. I see nothing of the strange male, but I don't spend much time.

*tending  
h2 9  
27*

1230 - I leave. It is sunny and has been for about an hour.

T57 at 1045 - I [Board] arrive and relieve Nolan.

1123 - 57F leaves the nest.

1134 - 57F returns, faces E sitting low.

21 1/2 101100

30

9  
215h  
15  
1139 - M57 begins to skid.

1145 - M57 stops after 21 songs.

1200 - 57F leaves the nest. It is 86°, overcast, slightly breezy.

1214 - 57F returns and settles facing N.

1215 - She sits higher and faces NE.

1220 - 57F leaves the nest for 45 seconds, returns, probes in the nest for a few seconds, settles facing S. She then turns to face NE, sits rather high.

1235 - 57F leaves the nest for about 30 seconds and returns. She sits high, faces S, bill open.

It's beginning to clear a bit and occasional rays of sun appear.

12  
33ch  
5  
120h  
20  
1240 - M57 begins to chatter, sings 33 times in the next 15 minutes.

1303 - M57 sings chatters, stops at 1310 after 12.

1335 - It's 80° with the sun out and only a few clouds.

57F is high, her wings spread a bit; she faces NE.

1353 - 57F leaves the nest toward the N.

1355 - 57F returns, faces S sitting high, bill open.

1357 - She turns to face NE.

1359 - M57 begins to chatter, stopping at 1410 after 31.

29  
20h  
29ch  
20  
1433 - 57F starts to probe about in the nest while perched on the S rim, the sun on her back. She continues to 1440, once lifting up a dull-white, egg-sized object that appears rather

29h  
1440h

flexible, and then dropping it. Then she probes from the NE rim, finally standing without probing. The latter activity begins again at 1445.

1446 - 57F sits high and faces NE.

1451 - She probes a minute, settles facing NE, rises higher, turns to the S, and rises higher.

1457 - She perches on the NE rim facing S, probing.

1503 - She is seated high, facing NE.

1505 - She has turned to look S, is probing.

1510 - 57F is seated high facing NE.

1517 - She is high, facing S.

1520 - She is facing E. At 1528 she's turned to the NE.

1529 - She is high, facing E.

1535 - 57F is still constantly shifting her direction, occasionally probing in the nest. She has been bobbing her tail rather frequently. Her wings are spread wide as if to shelter the nest.

1555 - The female is seated high, facing NE. In 3 minutes she turns toward the S.

1605 - 57F is almost perched on the rim, as if to fly. She is facing S, seems agitated. She continues to shift about.

1626 - 57F leaves the nest. Egg 3 has hatched, and there is no shell; so the hatching and shell-disposal must have been at 1433.

30  
1628 - 57F returns to the nest without food.

1632 - She is sitting high on the NE rim facing S. It's 80°.

1639 - 57F leaves the nest; she carries nothing.

1640 - 57F returns with food. She offers it to the young (presumably) but then eats it (or something else) herself.

1642 - 57F leaves the nest, goes a foot away, returns at 1643. I can't see if she has food. She then goes 15 yards E of the nest and at 1646 returns without food.

30  
1655 - 57F is seated high facing NE.

1700 - 57F leaves the nest carrying nothing.

1701 - She returns with food but appears to have eaten it herself.

Σ  
6.54  
1705 - 57F eats an egg shell for 1-1/2 minutes, then sits high facing NE. *hatch*

M57 begins to skid and does so 6 times.

(In eating the shell the female seemed to quarter it.)

1714 - 57F leaves the nest, goes a few feet away, in 30 seconds returns with an insect. Either she drops this or a nestling accepts it.

10  
1717 - The male begins to chatter.

1719 - 57F leaves the nest. It contains another nestling, but I can't inspect the remaining eggs to tell which one hatched.

1721 - 57F returns with food. She offers it 6 to 8 times, seems to eat it herself.



27 ✓

1723 - M57 stops singing after 27 songs.

1725 - 57F leaves the nest for 2 minutes. She offers food on her return; I can't see if she eats it herself.

7

1729 - 57F leaves the nest.

3

1733 - She returns with food; disposition is unseen.

M57 begins to skid.

57k

1735 - 57F leaves the nest, flies in short moves to within 5 feet of me, goes on a few feet W.

F

1736 - M57 brings a large green caterpillar to the nest while the male is present and he seems to try to give the food to her. She seems to reject it at first, then accepts it and makes several unsuccessful attempts to feed it to the nestlings. Finally 57F eats the caterpillar. M57 leaves the nest at 1738.

↓ eat food

4

F

1740 - M57 returns with food and gives it to 57F, which is at the nest. She passes it to young. She is perched on the SE rim.

11

1743 - 57F sits on the nest, covering it and facing NE.

57k

1751 - M57 begins to skid.

1753 - 57F leaves the nest.

F

At the same time M57 brings a large green larva, offers it once, then eats it himself. He leaves the nest in a minute or so, continues to skid.

7

The sun is low; it's 80°.

F

1800 - M57 brings a large green caterpillar, pushes it

into the nest once, then stands on the rim holding it till 1805. At this time 57F comes to the nest, and the male gives the food to her and leaves. 57F eats the caterpillar herself.

M57 remains in the vicinity of the nest singing skids.

19 sk

At 1810 he quits after 19. 57F is now perched on the NE rim, facing S. She is beginning to probe.

1820 - The female is as before except that her activity has subsided somewhat.

20

1832 - 57F settles into the nest and faces S.

1840 - 57F leaves the nest. Still only 2 young.

It's 78°, and the sun is not strong now.

30

1850 - 57F returns with food. She offers it 6 times before it's accepted suitably. She then settles facing N.

1900 - As the sun goes down clouds are beginning to form in the S. It's 77°.

1913 - 57F leaves toward the SE.

15

It's cooling rapidly (76°), the wind is rising, and dark clouds are spreading.

F

1915 - M57 comes with food. It's rejected on 2 thrusts and he sits on the rim with it, offering it several more times.

At 1917 57F returns with food, passes it to the young, takes the object M57 is holding. M57 immediately leaves, and 57F delivers his food to the nestlings. She then settles facing NE.

1925 - It's 75°. There's a strong S wind.

15 1930 - 57F rises on the nest, probes for an estimated 20 seconds, settles facing NE.

1935 - 57F begins to probe.

12 1940 - She begins to eat an egg shell, takes 1 minute to finish it, then settles facing N. *shell eaten*

1942 - M57 begins to skid.

4 sk  
F 1944 - M57 comes to the nest, gives food to 57F, and she passes it to the young. M57 leaves after this, having been present 1 minute. He moves on and continues his skids, and 57F settles low, facing N.

1947 - It's 73°, cloudy and windy.

1948 - 57F leaves the nest.

F An instant later M57 arrives with food. He thrusts this out 10 times toward the young, then either drops it or succeeds in delivering it. He is present 2-1/2 minutes, leaves and 17 sk keeps on skidding. (He stops finally after 17.)

1953 - 57F returns without food, perches on the rim and looks in for 5 seconds, settles facing N. There are 3 young.

F 1955 - M57 brings food, gives it to 57F, which delivers it. In 15 seconds she has resumed her previous position on the nest.

3 2000 - It's 71°.

12 2010 - M57 begins to skid and does so 4 times.

4 sk 57F leaves the nest.

F M57 arrives with food, tenders it 15 times without luck.

3 57F returns at 2012. M57 gives her his food and she feeds

523  
6/14/56  
JB  
VN

it (possibly eats it--it's getting dark). M57 flies away.

2014 - 57F is settled low on the nest facing N. It's 70°, cloudy, thundering.

2035 - 57F is very low, facing N.

I leave. There are still only 3 young.

1400 - I return. It is now sunny and hot but with clouds on the horizon.

T57 - Board is beginning to get action, and I spend about 1-1/2 hours here. There is 1 new bird. See his notes.

T58 - I put a mounted female Cowbird in the top of a 3-foot tree, 4 feet from the nest. At 1712 58F brings food and M58 is in the immediate vicinity. The female drops the foods and begins to call "tsu" very rapidly and frequently. Both adults fly to the Cowbird and hover over it about a foot away for a second, retire a few feet, then repeat the hovering. Then one of them flies at the mount and hits it (too quickly to see how), withdraws. They then sit about 15 feet away, moving nervously, changing perches, and calling "tsu" at the same rapid rate. There is little if any waning in the reaction by 1720, when I remove the mount. As I do so I note a well-marked male only 20 yards from M58, watching and being ignored by M58. A Field Sparrow also was attracted by the disturbance.

1730 - I leave.

mounted  
C

attracted  
5 +  
105

524  
6/14/56  
VN

It becomes cloudy at 1900 and threatens to rain, finally  
showers at about 2100. I'd say the day has been about 50%  
sunny.



525  
6/15/56  
VN

June 15, 1956

A sunny, hot morning after a light rain at night; temperature in the 70's and 80's. Present with Board from 0730 to 1200.

T57 - Board and I go together and he begins to watch. See his notes.

T54 at 0753 - All the 54's are in the S end of 3, the male singing skids, the young calling loudly, the female foraging. M54 sits quietly 25 feet high, sings rather regularly but sometimes so softly that I can hear nothing and can only see his bill and throat move.

54F goes to 5 while M54 goes to the S part of 2, skids. M53 is singing insipid steps, and M54 begins these, then goes NW into 2.

0820 - 0838 - I see and hear nothing.

0840 - M54 skids in 3. The song is irregular, faint and weak.

0847 - I see a young 54 perched silently 7 feet high in a locust at the S end of 3. It dozes, sits like an adult much of the time. Its tail is 1 inch long.

0850 - M54 goes to the S pines, to 5, to the S end of 3. Very weak skids. The female is clearly about to rebuild; I'd say no site has been chosen.

position  
32

feeding  
+ 8  
14

319

Why

0900 - 54F is in the S end of 3. Her behavior is of a female feeding young, though I don't actually see her do this.

0904-0908 - M54 sings faint skids in the 10-to-12-foot trees between 1 and 2. He acts as though the female is here. I don't see her. Note that she seems to separate off from the family. ♂ ♀ ?

T53 at 0910 - 53F calls "tsu" in the NE corner of the territory. M53 then sings insipid steps at 1 and I find him there low. 53F appears, feeds at from 1 to 4 feet, gives no reaction to me. I go to the area E of 2, and she comes and calls "tsu." The young must be here still. hr feed

T55 at 0930 - M55 sings type-8's to 0950, then goes W into the woods at the SW corner and falls silent. He stays 20 and more feet high when in view.

T53 - 53F is carrying food at the E edge of 2. feeding

T58 - I try 2 experiments here with a mounted male PW. First I place it exactly where I put the female Cowbird yesterday. M58 appears with food, hovers over the mount, and during the 10 minutes it's there won't go to the nest. Except for the striking of the Cowbird, there is no difference in the treatment of the PW today. 58F is not at the nest while the mount is up. mounted PW

I then put the PW on a long stick and stretch the stick toward the nest. The young give no reaction except that possibly they cower. The situation may not be valid, however, for

527  
6/15/56  
VN  
JB

M58 flies up and hovers over the mount on the end of the stick.

T57 - I return here at about 1100. See Board's notes.

1200 - We leave.

T57 at 0730 - Nolan and I [Board] arrive. 57F is on the nest.

0733 - M57 begins to skid to the SE, does so 8 times.

0735 - M57 comes to the nest with food, gives it to the female. She feeds it, perches on the rim a minute, settles facing NE as before.

0736 - M57 begins to skid again. [Presumably he left after the female took his food.]

0746 - 57F leaves the nest. Nolan checks and finds the remaining egg has hatched.

0751 - 57F returns and feeds 1.

M57 stops after 32 skids, comes to the nest with food and passes it to the female. She feeds it, and M57 leaves the nest. She settles at 0753 and faces N.

0754 - M57 begins to skid.

0800 - M57 quits after 15 songs. Almost immediately he comes to the nest with food. 57F takes and delivers it. It takes her 1 minute to feed it, and M57 leaves before she finishes.

0801 - M57 begins to skid, stops in 4 minutes after 9 songs.

0817 - 57F leaves the nest toward the E. In 20 seconds she is back with food, which she delivers in 10 seconds. She settles facing S.

25  
5  
45h  
F  
2  
F  
0831 - 57F removes or bends back a long nest fiber which had evidently fallen into the cavity. Possibly she may eat a small white object at this time.

0835 - 57F leaves the nest. M57 begins to skid (stop-ping after 4).

0837 - The male comes with a larva, drops it in the nest, picks it up, eats it himself, leaves.

0839 - M57 is back with food, delivers it to the young, goes. [Did he really eat the first load himself?]

0841 - 57F returns, feeds 1, perches a total of 57 seconds on the rim before settling facing NE.

0844 - 57F leaves, is back in 30 seconds with food. She feeds 1, settles in 52 seconds.

0846 - 57F leaves, returns in 10 seconds, feeds 1, goes again after 15 seconds.

She returns 15 seconds later, feeds 1, in 20 seconds settles.

0854 - 57F leaves the nest.

0905 - 57F returns, feeds 1, settles facing NE.

0906 - M57 brings 2 green caterpillars, gives them one at a time to 57F. She feeds, settles facing NE.

0908 - M57 skids, stops after 4 in 2 minutes.

0925 - 57F leaves the nest.

15  
F  
2  
55h  
M57 arrives with a larva. He feeds 1, perches on the rim till 0927, leaves, skids in another minute. He sings 5 more times.

0930 - It's cloudy, fairly cool.

0933 - 57F returns with food, drops it several times in the cavity, finally feeds it. After a total of 2 minutes on the rim she settles facing S.

0946 - 57F leaves the nest. In 15 seconds she's back and she feeds 1 for 20 seconds. She settles facing N.

0955 - The sun starts to come out, and it's warming a little.

30  
57F is high on the nest facing NE. She preens her breast, the under sides of her wings.

0958 - 57F is settled down.

1000 - The sun is behind clouds.

1004 - 57F leaves the nest, stays nearby.

1008 - She returns, feeds 1 for 10 seconds, settles facing N.

13  
4  
F  
3  
1013 - 57F leaves the nest.

1015 - M57 has been singing, and he now comes to the nest with a large black larva. He tenders it to a nestling some 25 times.

1018 - 57F arrives at the nest while the male is there. He opens his bill at her. He flies away; I get the general impression that she chased him. Behav

2  
57F eats a very small fecal sac.

9 skid  
1020 - M57 begins to skid. 57F leaves the nest, is gone 20 seconds. She brings nothing back, perches for 15 seconds, settles facing S. M57 stops after 9 skids.



1027 - 57F leaves the nest, a twig from it in her bill. *behaves*

*7*  
She flies directly S, fairly far.

1038-1/2 - 57F returns without food, settles to the NE.

1043 - 57F leaves the nest for 30 seconds, returns,  
perches on the rim looking in for 1 minute, settles facing S.

*19*  
*3 sec*  
1049 - 57F seems to eat a small white object. M57 skids  
3 times.

1050 - 57F leaves the nest, returns without food in 15  
seconds, settles facing S.

*4*  
*6 sec*  
1054 - M57 begins to skid, does so 6 times.

1056 - 57F leaves the nest.

1058 - 57F returns with food, feeds l. She may eat a sac.

*4*  
1059 - She leaves the nest, stays nearby.

*F*  
M57 brings food, feeds l (5 thrusts), leaves after 1  
minute. He returns, thrusts twice into the nest, has a white  
lump on the upper mandible, 1/4 of the distance from the end.

*1*  
*F*  
1102 - 57F [conceivably another PW] comes to the nest and  
chases M57 away rather violently. She seems to land on his  
back. There is a short, sharp squawk. *N B*

*8*  
1107 - 57F returns without food, settles facing N.

*F*  
1109 - M57 brings a large black larva, gives it to 57F,  
leaves; 57F thrusts the food out 4 times in feeding it, settles  
facing NE. *5*

*21*  
1125 - The sun is coming out and is on 57F's back; 57F  
is now higher on the nest, facing NE, bill open.

1135 - M57 begins to skid.

21/2  
F  
1151-1/2 - M57 comes to the nest. As he alights, 57F leaves. The male has to offer a large white larva 10 times before a nestling accepts it.

1153 - M57 leaves.

9 1/2  
1154 - 57F returns, possibly with food.

She sits down on the nest instantly.

1200 - I leave.

532  
6/16/56  
VN

June 16, 1956

A cloudy morning with occasional sun and a SE breeze; temperature 70° at 0730. It rained very hard yesterday afternoon and probably rained last night. Present from 0730 to 1230 and from 1415 to 1800.

T56 - Silence.

T57 at 0746 - M57 is singing insipid steps and 57F is on the nest.

4 hrs  
F  
3  
1st  
23ch (4.0)

0747 - 57F leaves the nest and in 10 seconds the male goes to it from a point between the nest and me. Evidently she'd seen him come up. He offers the food he's carrying (one a green caterpillar, the other unknown) 5 times, between each offer jumping to the ground or to plants below the nest. There is no response from the nest and he never really pushes the food down deep. At 0750 he eats the food, reaches into the nest and eats a sac. He then hops away into the growth within 5 yards and at 0750-1/2 sings a skid, then breaks into chatters, that last to 0757, a total of 24 songs. (He'd sung 4 steps before he came.) He stood on all sides of the rim when he was there.

I inspect the nest and find the young alive and asleep.

0752-1/2 - The female returns with 1 piece of food, offers it for 15 seconds on the N rim, eats it herself, looks in for 10 seconds, enters and faces SE.

3  
0759 - 57F begins to probe and poke in the nest and does so intermittently until 0803 when she settles down again.

0808 - The sky is beginning to clear and the sun is out. 57F is picking around in the nest. At 0812 she repeats for 10 seconds and again at 0813 and at 0813-1/2. In a minute she picks or probes for 40 seconds, pulling at something in the nest.

0818 - 57F is dozing, low in the nest. At 0820-1/2 she rises and looks in for 5 seconds. From 0822 to 0823-1/2 she looks into the nest and preens her breast and belly.

30  
0823-1/2 - 57F leaves the nest and flies S past me, landing 25 yards away from the nest in the field cover.

0838 - 57F returns from the tree above me, stands for 15 seconds, on the S rim so that her back is to me and I can't see what she brings. Then she broods facing NW. I think she brought nothing with her. She sits low, looks about.

16 1/2  
0846-1/2 - M57 begins to skid above me.

160k  
0847 - The female rises and begins to probe.

F  
1 1/2  
20k  
0850-1/2 - After 16 skids the male drops to the weeds 5 yards from me, 10 from the nest, holding 1 big green caterpillar. He advances by short hops toward the nest. At 0851-1/2 the female leaves; the male is 3 yards away. In 15 seconds he goes to the E rim, feeds after 1 unsuccessful attempt. He eats a sac, looks in for 45 seconds, hops to the stem above the nest and slowly moves away. At 0853 he sings a skid, then another.

0854 - 57F brings 1 big green caterpillar, feeds it from the S rim, eats a sac. She then looks into the nest and probes occasionally till 0857, when she enters and faces NW, sitting low.

7  
0900 - It is nearly cloudless, sunny and fresh. The temperature is in the low 70's and there's a mild SE breeze. The female is drowsing, occasionally jerking her head up to look around. At 0901 she pokes and rearranges the nest for 1-1/2 minutes.

0915 - 57F has alternately sat low and risen to probe in the nest for 10-30 seconds at a time. She has done the latter 6 times since 0903, although it's hard to count distinct probings because of short interruptions during which she half settles down. This behavior continues, but the changes occur too frequently to try to note them; she's seldom quiet for half a minute.

30  
0923-1/2 - 57F gets to the W rim and flies low to the NW, I'd guess about 20 yards.

(A Vesper Sparrow sings to the W. He was there yesterday, but I'm not sure when he first began to sing.)

0940-1/2 - 57F returns from the NE with a green object, probably only 1. She lands 2 feet from the nest, goes immediately to the S rim. She offers the food once before it is accepted, eats a sac, sits for 40 seconds on the rim, broods facing NW. She soon rises and probes more or less continuously.



0948 - A little sunlight hits the nest, but I see no sure indication she is sheltering the young. She's probing from the S rim, so her position gives some shade.

20  
9:40 (4:00)  
0950 - M57 begins high skids to the N. (The sun just went under a cloud.) M57 quits after 8 songs to 0952.

6AK  
F  
1  
0953 - M57 comes straight to a weed 1 foot from the nest. In 5 seconds he goes and gives food to the female, which rises and delivers it. He stays 10 seconds, leaves in short hops. She eats a sac, stays back off the nest looking in. At 0954 he begins to skid high and not loud.

4  
0956 - After 6 skids M57 comes to within 10 feet of the nest, goes on to it. He gives part of his food to 57F, himself delivers part. They stand together on the S rim, so I can't tell if they get sacs. In 35 seconds he hops to the stem above the nest, in 10 goes N and immediately skids 3 times. She looks into the nest to 0958, broods facing N.

1000 - Light clouds form and pass, but in the main it's sunny, mild. 57F is settling and rising to probe as usual.

1010 - 57F has not settled on the nest for 10 minutes. She is half in and half out of the cavity, looking into it and poking around without pause.

1012 - She hops out of the nest to the N, sits for 30 seconds 2 inches from it, returns to the N rim. Here she perches till 1014, when she enters and faces SE. Almost immediately she sits high with her breast back from the rim. For

3 or 4 seconds she leaves her bill open, then probes, half settles, draws back, etc. She's in constant motion, turning her head to look in. At 1017 she opens her bill wide and leaves it that way for 10 seconds.

1018 - 57F leaves the nest and goes 1 foot S, nest level. In 10 seconds she returns without food, sits half in and faces NW while behaving as before. If she ate while off the nest, I missed it.

(I've noticed more hummingbirds this summer. Undoubtedly *NB* they nest on or adjacent to PW territories.)

1024 - 57F hops a few inches to the N and disappears below the nest. I lose sight of her immediately.

It is now fairly cloudy, with light gray clouds giving 75% or more cover.

A Red-tailed and a Broad-winged Hawk soar over. I've seen both before, the Broad-wing nearly daily.

1038 - A young Cooper's Hawk flies over at the ravine. *Cooper*

1040 - 57F drops to the nest from the tree above me, where I think she may have been for over a minute. As usual she is silent. She feeds 1, hops into the nest facing N in 6 seconds, draws back and probes and sits over the nest. She spreads her wings slightly, keeps her bill closed. At 1045 she settles low, stays that way for 1 minute. Then she rises, sits with wings a little spread and bill closed, facing N. The sun is shining now, and a little direct light touches her back. At

1051 she has her bill open. At 1054 the sun is directly on her, though it is coming through an overcast. Her bill is open, her wings held rigidly at her sides with the primaries parallel to the body. The wing is not extended at right angles to the body, however; the wrist is simply held out about 1/2 inch from its usual position.

21  
3:45  
1051 - M57 sings 3 faint steps to the N.

1058 - 57F settles facing N. The sun is in; her bill is closed.

7  
3:45  
1059 - The male begins to skid on a high note.

12:45  
1102 - M57 after 15 skids drops from the tree above me to the weeds 8 yards from the nest. He has a green caterpillar and a black insect. In 30 seconds he goes to the nest, moving to it so low that I can't see him. The female takes both objects, and in 5 seconds he goes. She feeds 2 young, eats 2 fecal sacs. The sacs are produced about 3 seconds after each feeding (delivering the caterpillar took some time). She then sits down in 10 seconds, rises and shelters the nest, bill open. M57 sings 2 skids at 1104.

204  
At 1109 the sun is still hitting 57F's back directly and has been for 15 minutes. I'll note when it ceases to do so.

12  
8:45  
1116 - M57 begins his skid to the N. At 1118-1/2 I see him approaching the nest from the N, hopping and flying short distances through the low cover. He skids with 2 insects in his bill, which may account for the faintness of the song.

F  
1119 - M57 goes to the nest, gives 1 item to the female and keeps 1. Each feeds and she eats 2 sacs. He stays 20 seconds, goes N low. She sits up from the nest till 1122-1/2.

6ah  
1120-1/2 - M57 begins to skid to the N. After 6 songs to 1123 he quits.

7  
1125 - 57F is sheltering with her wings, bill open. The sun still hits her, although it's in and out a good deal. Every 3 or 4 minutes she sits low on the nest for 10 seconds or so at a time. At 1135 the sun is behind clouds, and she is sitting with bill and wings closed.

6  
F  
1136 - M57 drops to the ground between the tree and the nest, carrying 1 big green caterpillar. 57F leaves the nest. In 5 seconds he goes, offers the food 3 or 4 times and passes it, eats a sac. He stays 1 minute at the nest, hops a few inches away, flies to the tree above me. Here he evidently fights and drives away a Field Sparrow - there are several calls and the sparrow goes. In 10 seconds M57 begins to skid in the tree.

1139 - 57F returns to the S rim, seems to feed 1, possibly eats a sac, settles, rises and shelters facing NW, bill open. The male goes N at about 1140, continues loud skids.

24ah  
F  
1144 - After 24 songs M57 flies as usual to the cover between me and the nest. In 10 seconds he takes 2 objects, gives both to the female. He takes a sac in 10 seconds, hops a few feet E with it, out of sight. 57F sits on the S rim, offering

539  
6/16/56  
VN

the second item, remains there after it's eaten. I see no second sac.

1145-1/2 - M57 skids once. The female is half in the nest, sitting with head and foreparts up. At 1148 she settles, soon rises and probes. The sun is much filtered through the overcast, hits her directly but no longer so fully. Perhaps 50% of the cavity would be in shade now if she were off the nest.

I'd guess 57F is spending so much time on the nest because of the sun on it. Is the male similarly affected in his rate by the weather--probably not. Weather thus presumably changes the proportion of male-female feedings. NB

1157 - 57F settles deep facing NW. The sun is behind clouds but still casts shadows. Her bill is closed. She watches a helicopter flying over low. At 1159 she rises, looks into the nest.

1200 - M57 begins to skid, sings 15 times.

1205-1/2 - He comes to the tree and after 1 song drops to the cover. 57F draws back and as the male approaches she leaves.

1206 - He takes 1 big green caterpillar, feeds it, eats a sac, in 30 seconds leaves the nest. When 1 foot away he skids, moves away low, singing 5 times.

1210 - 57F returns to the S rim, feeds 1. I can't see whether she gets a sac, but I'd guess not. In 15 seconds she broods facing NW, then rises to shelter the nest with wings



540  
6/16/56  
VN

open and body extended horizontally. Her wing joint is nearly at a right angle to the body. The sun at 1212 no longer hits the nest directly and probably will not at any time in the afternoon.

1215 - I leave the territory. It is about 77°.

T56 - Silence.

1230 - I leave.

1415 - I return. The weather is as it was this morning, the temperature 80°.

T58 - I catch M58, paint his tail blue, and band him silver over brown, right, number 25-66098. It's too windy to weigh him. He sings chatters most of the time, sings a fragment 10 minutes after I release him. 58F is here and the nest is intact. I'll return when they've calmed down.

T54 at 1545 - M54 is singing a few insipid steps, many skids, a few loud rasping Golden-winged songs, and many type-8's. He sings from 3, 2, and the field SE of 2. I find 54F carrying nest material and soon locate the nest, about 9 feet up on the outer branch of a 16-foot dogwood. It is fully formed and compact looking, though she's still adding bulky fibers for the outer shell. She makes 4 or 5 trips in no more than 10 minutes. Probably the nest was begun yesterday. M54 sings at full volume, shows no great excitement, seems to stay pretty close by the nest, most of the time in the S part of 2. I don't see or hear the young. M54 seems not to be feeding,

on 6/16/56  
246d

541  
6/16/56  
VN

but I'll work on this tomorrow.

T53 - M53 sings much less often than M54 (which seldom stops) and spends most time in the center of the pine field and in 1. I follow 53F for 15 minutes, during much of which she preens. I see no building behavior and little of her usual nervousness. After about half an hour, during which I'm pretty sure the 2 males fight, I find both 53's feeding young in 1. 77

The young are nearly full grown, possibly 3/4. Their tails are 1 inch long. They move with quickness and assurance, stay about 6 feet or less from the ground, and at times go toward a parent carrying food. Most of the feedings are of the usual sort with the adult bringing food to the young, which quivers its wings and calls either a vibrant note or a series of short "tsips." Once I see a juvenile wipe its bill, and once I think I see one flutter before a plant as adults do when picking off an insect. 78

T58 at 1715 - I remove the egg and 2 nestlings from the nest and leave the territory immediately. The young call and one tries to leap from the nest. 58F, I think, calls "tsu," but I hurry away.

The egg I find fertilized, with an embryo possibly 5 days old. The young I band on the left leg with silver over blue, and on the right with yellow. The numbers are 25-66099 and 25-66096. While in the sack they call "check" and also a sort dead  
199  
call D  
sub-  
out P  
and

542  
6/16/56  
VN

of continuous chatter like a Barn Swallow's call. They also give the typical squawk of a scared nestling, especially when handled.

I release the young on T53. They are noisy and M53 comes quite close, flies along with them or to them as I throw them up to let them go. Both can do well enough on their wings to break the fall and even to get a little distance over the ground. It is quite certain they aren't 10 days old, but I think equally so that they are 9. 58F brooded them last night.

1800 - I leave.

543  
6/17/56  
VN

June 17, 1956

Sultry, sunny through a haze, nearly windless; temperature 74° at 0730. Present from 0730 to 1335 and from 1515 to 1800.

T56 - M56 is singing skids, foraging at 6 feet or so. I see no food-carrying in 5 minutes here.

T58 - I hear M58 as I pass to the N of the territory.

T57 at 0755 - 57F is low on the nest, facing NW. M57 is silent.

30  
0811-13 - 57F rises, pokes and tugs at something in the nest, seems to eat small objects, settles facing as before. At 0814 she resumes her poking, continues to 0820 with only an occasional few seconds of settling. At 0820 she sits down but stays high on the nest.

0829-1/2 - 57F leaves the nest. She flies low out to the W over the cut, at the stream begins to turn NE, and makes a big semi-circle which leads her around to the trees at the ravine 60 yards away. I check the nest. There are only 3 young in it. I can induce no sound and can get only one to gape; I have to prod it to do so.

NB  
The songster  
has only  
3.

11/2  
0831-1/2 - M57 begins to skid loudly at the ravine.

It is 81°, wholly cloudy.

(3.1)  
190h  
0835 - M57 comes to the walnut and above me and continues to skid, then goes on S. At 0837-1/2 he quits after 19 songs.

1  
170h  
0844-1/2 - M57 begins to skid.

0850 - After 17 songs he drops from the walnut to the ground 7 yards from the nest, goes there in 15 seconds through

F the field cover. He feeds 1 item, takes a large sac, hops 2 feet, 2 more, leaves. He was present 15 seconds. At 0851 he begins to sing skids; 7 to 0852-1/2. The heads of the nestlings can be seen today as they gape.

2 1/2  
4 pk  
0855 - M57 begins to skid, does so 4 times in 2 minutes.

3  
0859-1/2 - 57F drops to the nest from the walnut. Only 1 bird gapes and then evidently after she's been on the S rim for 2 seconds. She feeds it, looks in for 10 seconds, broods facing NW. She sits low and dozes.

2 1/2  
0900 - The weather is unchanged. The clouds are high, complete; and it is very still and humid.

10 sk  
0902-1/2 - M57 begins to skid at the ravine. The song seems high-pitched and weak. At 0905 he comes to the walnut and sings 2 loud and 1 soft skid. 57F turns to look up at him.

F  
6 sk  
0906 - He drops to the weeds as usual. She rises as he does so. At 0906-1/2 he goes to the nest, gives her a large brown caterpillar. She bills it for 15 seconds, gives it to the 1 young that gapes. He hops to the blackberry stem above the nest, moves within 6 feet of the nest for 30 seconds, begins to skid. She looks in, prods a little to 0909, settles facing NW. He quits singing at 0911 after 6 songs.

0914 - The female rises and preens the underside of her right wing for 45 seconds, sits high on the nest. In 2 minutes she begins to poke into the nest, several times clearly eats



545  
6/17/56  
VN

19 something. Then at 0919 she sits half in and half out, breast well back from the rim. At 0930 she's still in this position, having sat quietly for a time, picked at the nest and eaten several objects, and preened herself. At 0932 she sits down and covers the nest, sitting probably as low as she can in view of the size of the young.

0930 - It is 84°, otherwise unchanged; an extremely oppressive day.

6 1/2 0936-1/2 - A male is singing across the cut, semi-skids. Presumably it's M57, but I've not seen him go there in the last few days. At 0939-1/2 after about a 1-minute pause he begins to skid in his big elm (and after 6 songs from across the cut). He has no food. He leaves at 0940-1/2 after 7 songs, 13 in all.

4 0943 - 57F is sitting as before but a little higher and probably drawn back from the N rim. She has probed a few times.

13 sk 0944-1/2 - M57 skids at the ravine or across the cut. By 0947 he's clearly at the latter spot. At 0949-1/2 he quits after 13 songs.

8 1/2 0953 - M57 sings 8 times in 2 minutes above me, all loud skids. Then he quits.

5 0955 - 57F begins to sit low in the nest. Until now she has behaved as described above.

1000 - The weather is unchanged since 0930. Note that 57F is not shading the nest, but that she is as attentive as she has been on sunny days. My idea that her long attentive

NB

546  
6/17/56  
VN

periods have been due to the sun is evidently wrong.

1004 - 57F rises up after 9 minutes of sitting low.

5 1/2  
25h  
1005-1/2 - M57, I think, skids across the cut, stops  
after 2.

5  
1010 - 57F looks around in all directions for a few  
seconds (about 10), opens and closes her bill twice rapidly,  
leaves and flies S low.

1011 - M57 skids to the N.

23 (4.7)  
F  
L  
11h  
1016 - M57 after 23 songs comes to the nest from the N,  
landing in the weeds 5 feet away. He has a huge green cater-  
pillar. All young gape. The one that gets the food takes 30  
seconds to get it all down, the male pinching at what remains  
protruding from the mouth. He then gets a sac, makes 2 hops  
of 3 or 4 feet each, flies 30 yards E to the osages. He de-  
posits the sac on a branch 25-30 feet high, wipes his bill  
vigorously, immediately sings loud skids. He then goes N and  
continues to sing. He was at the nest 45 seconds. Fecal  
sacs are full size today, nearly twice as large as those of  
yesterday.

Sac  
small

3 1/2  
1021 - I hear no more songs; there were 11 after he left  
the nest.

1024-1/2 - M57 begins to skid above me.

9h  
1028 - A Cooper's Hawk soars over the ravine.

Cooper's

1028 - M57 drops to the ground 12 yards from the nest.  
F  
He takes a minute to go to it, very low. He feeds 2 young

9-1

547  
6/17/56  
VN

with green caterpillars, quickly gets 2 sacs. One he eats. He immediately takes the second, flies 4 feet away, then comes S past me and lands 25 feet from the nest. He then carries the sac low about 70 yards to the SW along the cut and disappears while 4 feet high. It is 1030. He sings skids within 10 seconds, comes back to the tree above me and sings loud. At 1033 he quits after 9 songs.

9 sk  
4  
2 sk  
12  
1032 - It begins to shower.

1036 - M57 skids twice a little to the NW.

1036-1/2 - 57F returns and feeds 1.

M57 arrives in 10 seconds, as usual moving through the weeds below the top of the cover. He lands on the stem of a berry above 57F, gives her a small object which she feeds. He has a black object left, and he offers it to her twice. She takes it and feeds. He jumps to the rim and the two sit together 10 seconds. He then goes 10 feet S and perches about 3 inches from the ground, moves away to the E. At 1037 he begins to skid and does so 6 times in 75 seconds, then quits. 57F perches on the rim and pokes around, watches the young. At 1038 she sits half in the nest, her breast high and well back from and above the rim. Note that this distinguishes the position from that of incubation and brooding, where the breast is low and the tail high (just the opposite of this.)

1040 - The light shower has stopped. It is 89°, still cloudy but with the clouds high. At the moment there is enough glare to cast a slight shadow.

Pinnion  
79  
Juno

548  
6/17/56  
VN

1050 - 57F sits half in, bill open, wings perhaps barely extended.

1055 - The glare becomes more pronounced, for a moment turns to sunshine. 57F's bill has remained closed during the last 4 minutes, is closed now. She shows no change during the first short (30 seconds) period of sun, but when it becomes a little more intense for 1 minute at 1058 she opens her bill, spreads her wings a little.

9'12  
60h  
1058-1/2 - M57 skids above me. 57F eats an insect from the berry stem supporting the nest.

10  
1100 - After 6 songs M57 drops to the ground 10 feet from the nest. 57F leaves. In 7 seconds M57 goes to the S rim, delivers a very large green caterpillar 3 times. He then eats 2 small objects about 3/16 inch long, 3 seconds after the young ate the larva. He looks in for 20 seconds, hops 6 inches away, then to the nest bush. At 1101-1/2 he sings a skid there, then another. He hops around within 6 feet of the nest till 1102-1/2, goes N, sings a third time. He was on the rim, 1 minute, in the vicinity 1 minute afterwards. I think it was feces he ate, but it was not white, not an ordinary sac.

1/2  
3sh  
It is 88° with filtered sunshine for a few seconds at a time.

19'12  
1112 - I see 2 young gape for 2 seconds.

1122 - M57 sings a skid, then begins to sing from above me.

9  
feds  
from  
nest

5  
with  
something

549  
6/17/56  
VN

1122 - 57<sup>F</sup> comes to a stem 8 yards from the nest. She goes to it with a very tiny white food object, delivers it, probes for 10 seconds, settles facing NW. In 10 seconds she is up at the half-and-half position.

14 sk  
F  
70m  
1125 - After 14 songs M57 drops as usual to approach the nest from a very low level. He does not use "paths" however. In 10 seconds he goes, lands on a stem above (as he seems always to do when the female is there). He delivers a large item nearly 1/4 inch square to 57<sup>F</sup> and she feeds it. In 5 seconds she takes a sac and eats it. He immediately goes a few feet E and hops around for 45 seconds in the low growth. He begins to skid there at 1125-1/2, goes on till 1127-1/2. The last 2 of his 7 songs are probably uttered from across the cut.

2 1/2  
I'd say that in terms of mass M57 has fed the young at least 10 times more than 57<sup>F</sup> has today.

1130 - It is 84°. For 20 minutes the glare has been reduced and there has been no sunshine. The cloud cover seems to be breaking up, however, to the SW and W.



57<sup>F</sup> is actually standing over the cavity, but I can't see her feet. They aren't on the S rim, and she's not that high above it. Either they're in the cavity and she's straddling the young (which I think is the case) or her feet are thrust forward holding each rim while the tarsus is parallel to the ground (a sort of kneeling position). Her wings are very slightly extended, bill closed.

Position  
89



550  
6/17/56  
VN

1138-1/2 - 57F leaves the nest, hopping to the N rim and to the ground just below.

1139 - She returns to the N rim and stands there facing SW directly at me. I can thus see that my second alternative above is the correct one for the position of her feet. They are spread nearly 2 inches apart, grasping the rim [query]. Her legs are flexed so that from the side they would look thus: , from the front .

*Position  
of feet*

1142 - It gets sunny for 2 minutes. 57F sits looking about her and into the nest, occasionally poking. She stays on the N rim despite the growing sunshine.

1144 - 57F enters the nest and broods facing N, in 30 seconds rises to sit half out with bill open.

1148 - The sun comes out and will probably stay out for a long time. There are no clouds in the W. The female sits on the nest high, at 1150 rises and goes into a full-scale spread. She quickly sits down though, facing NW. Her bill is open. At 1152 she rises and spreads her wings. From time to time she probes. The cavity is half in direct sun. She continues to alternate spreading her wings and sitting high every 2 minutes or so.

36  
1158 - 57F is evidently standing in the cavity. She has just begun to bob her tail 2 or 3 times in a quick series, then to stop, then to bob again. I count 32 such movements in a minute, 25 in 50 seconds.

1200 - It is sunny with a S breeze, 83°. 57F has her

bill open.

7  
16 sh  
15  
6 sh  
1207 - M57 skids to the W across the cut. After 2 he comes to the walnut and goes on singing. After 16 more songs he drops as usual at 1211-1/2. 57F is half in and she quivers at least her left wing (I can't see her right) very slightly as he approaches. Her head is turned to watch. He goes to the rim in 15 seconds, gives her a green larva. He may keep something and feed it himself. One of the parents eats a fecal sac; I almost think 57F passes it to M57, but I can't be sure. He leaves in 20 seconds and in 25 more begins to skid (at 1212-1/2) as he hops away through the weeds and berries. He sings 6 times to 1215, stops. She seems to stand in the cavity flipping her tail, wings spread.

behaving

I think the maximum spread is to an angle which permits the primaries to stay parallel to the body and the wrist to be far enough forward to give shade. I.e., the wrist could be more extended but at the cost of moving it farther along a lateral line toward the tail.

position

1222 - 57F hops to the ground under or beside the nest to the NW. In 20 seconds she returns and looks in for 45 seconds. She has no food.

1224 - She hops to the ground or to a plant a few inches E of the nest, returns with a 1-1/4 inch brown larva (possibly a milliped). Although she bills it for 25 seconds it is wriggling violently when she feeds it to a nestling. She continues to take the disengaged end in her bill as it's being swallowed.

food

She then looks at the young from the N rim till 1226, goes to the S rim and spreads her wings. ←

12 It is clouding over again.

25h 1227 - M57 skids twice at the ravine.

3 1233 - M57 skids across the cut (I think), then at the ravine. He sings 11 times to 1238.

3 115h 1240 - M57 goes to the nest from the W, gives an adult insect to the female. She delivers it but the male grabs it and gives it to a different nestling. Both look into the nest. The male eats a small object, not a regular sac. The female turns and opens her bill at him. Immediately afterwards he leaves and comes 10 feet S low. He then goes N, sings at 1241-1/2. He was at the nest 20 seconds. He sings 2 more skids, 3 in all.

10 1245 - 57F is standing with wings spread, bill open, occasionally flipping her tail.

30h 1252 - M57 begins to skid above me. After 3 he drops as usual. 57F definitely quivers her wings as she waits. In 15 seconds he goes to the nest, gives her a green larva and a black adult. He perches 2 inches above while she feeds but reaches down to take the larva and deliver it himself. She eats something of noticeable size but not like a white sac. He leaves at 1253-1/2, skids once near me. Two young were fed.

10h 21h 25h 1256 - M57 skids twice above me, takes a green caterpillar in the usual way and gives it to the female. One young gapes.

553  
6/17/56  
VN

1  
10h  
2/10  
He stays 30 seconds, hops away short distances, sings at 1257-1/2, 1 skid. She continues at the nest, standing on the SW rim, wings spread.

1300 - It's 86°, sunny. Some care must be taken regarding what periods are used to measure attentiveness today because of the fact that I came and am likely to leave during the middle of periods on. Probably a straight 8 to 12 basis would be satisfactory for percent on and off, and the periods could be all the complete ones within those 4 hours.

At 1300 57F is shading the nest. Possibly 1/3 of it would otherwise be in the full sun.

9  
40h  
F  
L  
70h  
50h  
1309 - M57 skids 4 times above me and in 45 seconds goes to the nest as usual. 57F does not flutter her wings. She takes 2 items from him and feeds, though he keeps sticking his bill in and interfering. She eats a small object (are these pieces of insect dropped by the young?). He takes a sac and she opens her bill at him. He either drops or eats the sac, for he doesn't have it when he hops from the nest. I saw no eating. At 1310-1/4 he begins to skid, does so 7 times to 1313. She continues to sit half in the nest and shelter it.

1313-1/2 - M57 begins to skid to the N.

F  
1315-1/2 - After 5 songs he approaches the nest from the W. 57F waits quietly, takes a large object and feeds it. He takes it from the nestling, gives it to her, and she delivers it again. Both look in for 30 seconds. He leaves low, begins

554  
6/17/56  
VN

1  
to sing at 1316-1/2. She stays on the rim or half in the nest. While M57 was waiting at the nest he grabbed and ate a small object from a sheltering leaf.

40h  
M57 sings 4 times in all, quits after 70 seconds.

1320 - 57F's wings are nearly fully out at the wrist; she bobs her tail, and as usual it's hard to see where her feet are. *feel*

1325 - 57F has been at the nest for over 2 hours, and I must go. Compare this stay with those Board's been getting on hot days.

1332 - There's a feeding of the sort described above (1 young, 1 object) after 19 songs by the male, all skids, as always today. He eats a sac at the nest, leaves after 20 seconds. 57F stays and I finally leave. Note the very much increased rate of the male at mid-day when the female is sheltering. *NB*

1335 - I go.

1515 - I return. It is about 86°, sunny, but with storm clouds to the SE and a good deal of thunder.

T58 from 1515 to 1615 - I'm anxious to find signs of re-nesting here. For 30 minutes I hear and see nothing. Then M58 begins to chatter near the hackberry, in a minute goes W to the neighborhood of the recent nest. Here he sings loud type-8's for 15 minutes, then goes back to the hackberry and continues. The songs are regular and frequent, sung from perches



20 feet or more high most of the time. Then he drops into the thicket E of the hackberry and sings loudly but less frequently.

At no time do I see the female.

T54 - M54 sings irregularly but often, most of the time insipid steps with a few skids. He perches 25-30 feet up and moves about a good deal. While 2S is the center of his attention, he sings often and without challenge from 1W and goes as far W as 4. I think the young are near 3. I never see the female. The nest looks complete, with a mirror revealing the cavity. It is rather flimsy (e.g., it would not hold water), has a snake skin around the top.

T53 - M53 and 53F are both feeding young in 1E. I see the female for well over 1/2 hour without detecting any signs of building behavior. The only young seen is 53R, which is 25 feet up in a locust. It looks 3/4 or more grown, has a 1-1/4-inch tail. It calls loudly when fed, but it still seems to wait for food to be brought to it most of the time. Note its height and the fact that the young are still not consorting together.

Every few minutes M53 flies out into the pine field, or to 2 N, or to the tops of 1, and skids loudly 3 or 4 times.

T56 - M56 sings loud skids in the tree strip E of the W fairway. In 10 minutes he carries no food.

1800 - I leave.

position  
33

position  
33

looking  
down

looking  
up  
1/2 way  
92nd 60

556  
6/18/56  
VN

June 18, 1956

A calm pleasant dawn with clouds in the N and a dew (possibly it showered last night); temperature 68°. Present from 0500 to 1145 and from 1515 to 1800; Board present from 0945 to 2030.

T56 - Silence.

(1110) T57 at 0500 - M57 is singing chatters with his usual call notes between songs. 57F is on the nest, sitting low and facing SE. The male is in the big elm at 0518 and I begin to count his songs at that time.

0523 - 57F rises in the nest and looks in.

0523-1/2 - She flies low to the S; I can't see how far. The male goes on singing. His calls have petered out in the last 5 minutes, and he's giving no more. ←

300h  
F  
40h  
3  
0525-1/2 - After 30 songs since 0518, M57 flies to a bush 7 yards S of the nest, then low to the nest. He feeds l, looks in for 10 seconds, hops a few feet away, flies S, and at 0526 begins to chatter. He sings only 4 times though.

0531-1/2 - 57F feeds l, takes a sac and flies W completely across the cut, staying low. She rises to 20 feet and lands in a tree about 100 yards away. She was present 8 seconds.

3'12  
0533-1/2 - The male begins a weak chatter.

0535 - 57F returns without food.

40h  
F  
As she looks in from the S rim M57 flies in low with a green larva. She takes it and feeds it. In 6 seconds M57 gets

557  
6/18/56  
VN

11  
a sac and flies in the same way as 57F across the cut, to a place not 10 yards from the one she went to. He too rises into the trees but goes a little higher, maybe 10 feet. She settles facing NW. He'd sung 4 times.

20h  
F  
10h  
2  
0546 - M57 skids twice. 57F looks around. M57 lands in 30 seconds between me and the nest, and she leaves it. He feeds for 8 seconds from the S rim, takes a sac across the cut. About 5 seconds after he lands there he sings once. At 0548-1/2 he's 15 yards from the nest. He skids once, goes N sings weakly.

40h  
17h  
F  
8  
20h  
6  
0553 - 57F approaches the nest without food. When she's 10 feet away M57 arrives with a big load, feeds 1 from the S rim. 57F goes on E out of sight. In 15 seconds the male hops a few feet away, leaves from the nest bush. 57F arrives with a small object--2 seconds later, feeds from the S. At 0554 she enters and broods facing N. M57 had sung a total of 4 times since his visit at 0546, sings 2 weak songs at about 0554.

0600 - It's 69° with a very faint S breeze and the N third of the sky lightly clouded.

0605 - 57F rises and pokes lightly at the young for 10 seconds, settles deep.

25h  
F  
0606 - M57 sings a skid above me. The female leaves immediately. He sings again, goes to the nest in 15 seconds. He feeds 1, in 9 seconds gets what must be a sac but is blackish, and flies to within 6 feet of me. Either he eats or drops the

558  
6/18/56  
VN

1  
10/2  
object there in the weeds, forages--low and out of sight behind me. He skids once at 0607-1/2. The food was a green caterpillar.

M57's approach to the nest from the walnut today and yesterday is to fly at nearly ground level down the path Board and I have worn to the nest. He's going more directly today, landing about 3 feet away and then straight to the rim.

16 1/2  
0618-1/2 - 57F flies in low directly to the S rim. She feeds 1, looks in for 5 seconds, broods facing NW. In a minute she rises slightly to look in, then settles very deep. In a few seconds she repeats this, then dozes.

5 sk  
F  
1  
10/2  
0623 - M57 skids above me. After 5 songs to 0624 he goes in the usual way toward the nest, but in 3 flights. As he arrives the female leaves. He feeds 1 at 0624-1/2, looks in for 10 seconds, leaves a few feet and skids once. The food was a white insect or spider.

5  
6/12  
3 sk  
0628-1/2 - 57F flies in from the S, coming high toward the walnut; however, she suddenly veers in flight and drops into the cover near the nest. At the nest she feeds 1, eats something from a leaf, picks up and eats 5 or 6 things from the nest or young, and at 0630 settles facing NW. *done?*

0636-1/2 - M57 is singing very weakly.

F  
0637 - After 3 skids he drops from above me. The female rises and takes 2 items, gives both to 1 young. Both parents wait and in 6 seconds reach for a sac. 57F gets it and M57

559  
6/18/56  
VN

2  
3 sk  
6  
3 sk  
1  
1 sk  
immediately flies a few yards W and begins to forage. I miss her eating the sac but she must do so since she remains at the nest. At 0639 she broods, and the male sings 3 very short weak songs, possibly across the cut.

0646 - He sings 3 weak songs and in 30 seconds comes to the nest low from the W. The female leaves as he comes into sight. He feeds 1 large green caterpillar, looks in for 10 seconds, goes up the stem of the nest bush, hops 5 feet E, and at 0648 skids once.

12  
10 1/2  
2 sk  
F  
1 sk  
0700 - It's 72°. The sun began to shine through the clouds at 0650 and is getting stronger now.

0710-1/2 - M57 begins to skid above me.

0711 - He drops as usual and goes to the nest. He delivers 1 large green caterpillar, waits 10 seconds, eats a sac, hops a few feet away and forages. At 0712 he skids.

9  
1 sk  
0712 - 57F comes to the cover 10 feet E of the nest where M57 is. He sings again, and she goes without food to the nest. She looks in from the S rim, at 0712-1/2 enters and broods facing N. The male sings no more. At 0720 57F is low in the nest and is evidently dozing a little.

1 sk  
0721 - M57 skids once across the cut.

0728 - 57F rises and probes.

8  
4 sk  
0729 - M57 begins to skid above me very slowly, half volume.

57F clearly looks up toward him in the tree.



48h  
F  
4  
0731 - After 8 songs M57 drops to the path. 57F leaves.  
In 5 seconds he goes and feeds 1 large green caterpillar. In  
3 seconds he gets a sac, flies low to the SW about 35 yards  
and lands just where the cut begins. I can't see where he  
disposes of the sac because he's so low.

3pk  
1  
5pk  
0735 - M57 begins the slow skid to the SE near the elm,  
stopping after 3. He resumes at 0738-1/2, stops after 5 in  
2 minutes.

9 1/2  
0746 - 57F flies straight to the S rim, coming in high  
from the S and evidently from some distance. She feeds 1,  
pokes at the nest, broods after 50 seconds. She faces NW.  
At 0752 she is asleep for a few seconds.

2  
0800 - It is 74°. There is no wind and the sun, which  
was much filtered through clouds until 5 minutes ago, is now  
almost unobscured.

11ah  
0801 - 57F begins to probe and tug after sitting low.

0802 - M57 starts to skid to the SE.

1pk  
0804 - After 11 songs (the last 2 above me, with 57F  
looking up to see the male), M57 drops to the path. 57F  
leaves. In 5 seconds he takes a big brown caterpillar, waits  
10 seconds on the S rim. He leaves as usual, hopping to a  
diagonal stem running just above the nest, then to surrounding  
plants. At 0805 he skids 1 time, moves gradually away. Pro-  
bably when he's moved 10 or 15 yards he flies on out of the  
immediate vicinity.

21  
80k  
F  
2  
0826 - M57 begins to skid above me.

0828 - After 8 songs he drops to the path 12 yards from the nest, takes 10 seconds to get there. He feeds 2, 1 with a green caterpillar. In 10 seconds he gets a sac, makes his usual 3-or-4-hop departure to 10 yards or so from the nest, carries the sac across the cut, and rises to 25 feet in a tree there.

13  
210k  
F  
2  
0843 - M57 begins to skid above me.

0847 - After 21 songs he drops, takes 15 seconds to get to the nest. He feeds 1 brown caterpillar and, I'm pretty sure, something to a second bird. In 10 seconds, he leaves in his regular manner.

2  
40k  
10  
0849 - M57 begins to skid, stops after 4 songs in 1 minute.

0900 - It is 80°, sunny, breezy from the N. There are scattered clouds.

25k  
F  
0900-1/2 - M57 comes to the walnut from the N, skids faintly twice. At 0901 he drops, approaches for 15 seconds. At the nest he offers a very active large green caterpillar. A nestling takes it and he eats a sac. He then pulls at the free end of the caterpillar till he gets it back, offers it again 2 or 3 times, at last successfully. At 0903 he hops a few feet away and moves off slowly.

Sac  
1st  
2nd

0904 - 57F comes, feeds 1, looks in for 30 seconds, broods facing NW.

562  
6/18/56  
VN

3/12  
157  
0904-1/2 - M57 skids once.

0905 - 57F hops to the N rim facing away from the nest.

In 10 seconds she turns and eats half a dozen objects from the nest rim and the cavity, 1 from a supporting stem. She continues to poke into the nest vigorously to 0910, when she sits half in, facing S. At 0915 she tugs at something, her tail end vibrating with the effort.

I have noticed several times at this nest that the female will rapidly open wide and close her bill, as in a quick yawn.

12 1/2  
142  
0917 - M57 skids faintly.

0920 - 57F gets to the S rim and looks below her. In 10 seconds she jumps down, returning in 5 more. Her back is to me so I can't see if she brings food. After 30 seconds of probing she sits half in, facing N.

13  
4  
0934 - M57 skids above me. The second to fourth songs are faint.

38 skids  
(4.3)  
0936 - 57F hops off the nest to the ground, stays 30 seconds, returns and sits on the N rim, then sits half in.

0943 - M57 quits after 38 skids, never going to the nest.

2  
2 sk  
0945-1/2 - The male flies to the bush below the nest and female hops down so that both are out of sight. In a minute she flies away. He sings 2 skids.

3  
F  
0948-1/2 - M57 hops to the nest from the ground below, feeds 2 (1 with a green caterpillar), eats a sac. He leaves as usual and at 0949 begins to skid. By 0950-1/2 he's sung

3; he quits.

Board relieves me here. His notes follow mine.

T53 - In an hour here I find what seems to be a complete PW nest and see all the 53's.

The nest is in a dogwood in the pine field, on an outer branch and about 7 feet high. It is lined with a grass of a light brown shade, straw-colored, and in this respect alone differs from a typical nest. Note that it is within the area taken in by M53's sorties from 1 to sing in the pines. I've thought his behavior suggested that the female was building; he's fed the young in 1, then suddenly flown out into the field or to 2 and sung loud songs, usually skids. 53F has shown nervousness in the immediate vicinity, but I've assumed it was because of her fledglings. She isn't near the nest today.

The fledglings are at the S end of 2 when I arrive. There is a distinct change in their behavior: They stay together (sometimes perching within 6 inches of each other), troop along calling nearly incessantly, range from 20 to 2 feet in height, and move quickly and frequently. Thus they range N through 2 and then E, at the edge of the woods. Their call is a constant "tsick" or "check" with a vibrant quality, the typical begging note. Their tails are nearly 2 inches long and the birds are little short of full size. All three are together.

The male feeds them most of the time but as I leave I see the female near them.

M53 sings only occasionally, most often an insipid step, but once in a while a skid. He tends the young nearly all of the time.

Twice I see a strange male. The first time he's in the N end of 2, 20 feet high and watching the young 53's. After 2 or 3 minutes during which he is silent I'm pretty sure M53 chases him; and a few minutes later I hear faint insipid steps that come from where I think he is. About 15 minutes after this I see an unbanded male in a little tree between 2 and 1, calling the anger note at about half the regular rate. He goes into 1 and I see him no more. Still later M53 and M54 are in this area and I see 1 or 2 rapid flights whose participants I can't identify.

T54 - M54 at first is quiet and seems to be in 3 and 4. There is no encounter with the 53's in 2. Later when the 53's go N from the vicinity of the 54's' new nest I see M54 in the S end of 2, in the field just to the E, and even in the W end of 1. Note the existence of a sort of joint zone here with the new nest in it and occasional mild fights occurring.

54F brings material to her nest from the field to the S, then seems to sit down quietly in it for 2 minutes or so.



565  
6/18/56  
VN  
JB

M54 sings loud skids in the S end of 2.

I don't see the young but may hear them in 3.

1145 - I leave. It rained hard about an hour ago, for 15 minutes.

1515 - I return. It hasn't rained again but is extremely threatening now with a dark sky and thunder. It is about 84°.

T56 - Silence here, as was the case this morning.

T58 - M58 sings type-8's with great regularity from the hackberry area and for a few minutes from the IIIS tree row. Later he sings loud chatters regularly from W of the road near the old nest. His interval is from 12 to 15 seconds, and he stays quite high. I'd guess he's without a mate; his loud song, high perch, and failure to stay around 1 spot suggest that no nest is under way. I stay around for an hour or so.

I saw nothing of the young 58's on V today.

T57 - I stop with Board, leave at 1800. Shortly after this it rains very hard for 30 minutes or more, then rains lightly till dark.

1800 - I leave.

I'd say the day was 25% sunny.

T57 at 0945 - I [Board] arrive. The female is off the nest.

566  
6/18/56  
JB

0948-1/2 - M57, having sung 3 times, comes and feeds 2,  
eats 1 sac.

0955 - 57F returns, feeds 1, sits on the nest facing NE.

0959 - M57 skids twice.

1008 - It begins to rain. At this time M57 comes with  
food, gives it to 57F, and she feeds 1. M57 then gets a sac  
and takes it, flying low, to trees about 100 yards SW of the  
nest.

1010 - 57F settles facing NE, then sits higher.

1026 - The rain is ending. M57 approaches with food,  
and 57F leaves. M57 comes and feeds 1, leaves. He had sung  
once before arriving and sings 4 times after leaving.

1030 - It's 74°.

1035 - M57 sings twice, brings a large green larva and  
feeds 1, leaves after 1 minute.

1041 - M57 arrives after having sung twice. He has a  
large, 1-inch, limber, spatula-shaped insect; he has diffi-  
culty feeding it and possibly finally eats it himself. He  
leaves in 2 minutes.

1056 - M57 sings 4 times, brings food and feeds 1, goes  
in 2-1/2 minutes.

1059 - 57F returns, feeds 1, eats a fecal sac the size  
of a small pea. She sits high on the nest facing NE.

1105 - M57 sings twice, comes and gives food to 57F  
which feeds the young. In 43 seconds M57 leaves. At 1107 he

108h starts to skid.

20 1130 - The sun is out occasionally now.

25 1155 - M57 brings food, feeds l, takes a sac SE. I lose sight of him when he gets to a wooded area 75 yards away.

F 1205 - 57F leaves the nest and goes N.

5 M57 after 2 songs comes and feeds l, leaves immediately.

4 1206 - 57F arrives, feeds l, sits high on the nest facing NE.

25k 1215 - It's 78°, occasionally sunny.

F 1230 - The male sings once, comes and passes food to 57F, which feeds l. M57 after 30 seconds at the nest takes a sac and flies 100 yards W at grass top level to trees, 57F is seated high, facing NE.

10 1240 - M57 skids 6 times beginning now.

60k 1241 - The female leaves the nest.

F 1242 - M57 comes, feeds l, stays 2 minutes. He skids soon after leaving.

10k 1246 - 57F returns, feeds l, perches on the NE rim and looks in.

17 1300 - 57F is on the NE rim facing SE. She probes for 2 minutes, eats a sac [?].

1310 - It's 83°, sunny.

26 1315 - 57F leaves the nest for 1 minute. I can see no food when she returns.

40k 1326 - M57 skids. 57F leaves the nest. After 4 songs

3  
the male arrives, feeds 1, perches on the bush above the nest, sings 2 skids there, leaves after 2 minutes (1-1/4 at the nest itself.)

17  
6 min  
F  
1  
8  
2 5/12  
F  
1333 - 57F returns and feeds 1.

1349 - After 6 skids M57 comes with 2 insects, gives 1 to 57F; each feeds 1, and M57 takes a sac S. He was present 1-1/2 minutes.

1358 - After 2 skids M57 comes with a large green larva, gives it to 57F, which feeds it. M57 takes a sac, goes to the ground on our path, 7-8 feet from the nest; appears near me without the sac. He was at the nest 1 minute.

12  
4 1/2 hr  
F  
10 min  
3  
20 min  
F  
5 1/2  
1403 - 57F is perched on the SW rim or is sitting far back on that side, facing NE.

1412 - M57 begins to skid, sings 4 times.

1413 - He comes to the nest, passes a green larva to 57F, which feeds 1. M57 leaves after 1 minute, skids once.

1415 - It's 80°, intermittently sunny.

1417 - M57 begins to chatter. Sings 20 times.

1424 - He comes to the nest, passes a green larva to the female, which feeds 1. He goes after 30 seconds.

1426 - 57F leaves the nest.

15  
F  
85k  
1431 - She returns, possibly feeds 1. She stands on the NE rim and looks in.

1445 - 57F leaves and immediately M57 arrives. He feeds 1, stays 1 minute, moves around near the nest and begins to sing skids.

10h  
F  
1455 - M57 comes after 1 skid, feeds a green larva, stays 1-1/4 minutes. He takes a sac low to the trees to the W.

4  
57F returns as the male leaves [food?], sits very high on the nest facing NE.

16  
1500 - It is dark in the E with occasional thunder; there are some clouds in the W. It's 82°.

18 sk  
1516 - M57 begins to skid and does so 18 times.

1518 - 57F leaves the nest.

F  
1519 - M57 arrives and feeds 1 a large green caterpillar. He stays 80 seconds.

6 sk  
1521 - M57 begins to skid, does so 6 times.

7  
1535 - M57 comes and feeds 1, stays only 15 seconds.

6  
1545 - It's 76°, cloudy with a rising wind.

F  
21  
1556 - M57 comes and feeds 1, leaves in 20 seconds, perches for 20 more on the bush above the nest, goes.

F  
4  
1558 - 57F returns, apparently without food. She perches on the S rim and probes from time to time.

8  
1600 - 57F is sitting high, but is almost settled, facing NE.

3 sk  
F  
1609 - After 3 skids M57 brings probably 3, at least 2, insects. He feeds 1 and passes 1 or 2 to 57F to feed, in 35 seconds takes a large sac; he carries the sac low to the SE clump of trees, goes out of sight 60 yards away.

8 sk  
1617 - M57 begins to skid.

1618-1/2 - 57F leaves the nest. M57 comes after 8 songs, feeds 1, leaves after 35 seconds.



2.5 hr

1.0

1.0 hr

5

6.0 hr

F

1619 - M57 sings twice.

1630 - He sings once.

1632 - 57F returns with 2 food items, feeds, settles facing NE in 30 seconds.

1633 - It's 71°.

1635 - M57 begins to sing.

1639 - After 6 songs M57 comes and gives food to the female, which feeds it. In 30 seconds she takes a sac W, out of my sight 50 yards away.

Weather

It's still very threatening, with loud claps of thunder, but the storm seems to be passing to the E. 57F is sitting low in the nest nearly all the time.

7.0 hr

1640 - The male sings a skid and in the next 5 minutes utters 5 or 6 more skids. He is W of the cut.

1653 - 57F rises and probes in the nest, settles in 15 seconds.

1705 - M57 begins to skid, 3 songs.

1708 - 57F leaves and M57 arrives. He feeds with 1 insect, in 35 seconds carries a sac E to the osage oranges.

1715 - It begins to sprinkle.

1718 - 57F returns to the nest. She sits high facing NE. I couldn't tell whether she brought food.

1725 - It has stopped raining, but the sky is growing very dark in the N and W and there is thunder in the distance. It's 69°.

1.5

5

3.0 hr

1.0

571  
6/18/56  
JB

21  
57F is low on the nest facing NE.

1735 - It's becoming very windy and dark clouds are moving in.

30  
1740 - It's raining hard.

1800 - It's 65°, raining less hard.

17  
F  
1817 - 57F leaves the nest, and M57 brings food. He feeds 1, stays 40 seconds. It's still raining lightly.

8  
F  
1825 - M57 returns, feeds 1, eats a fecal sac, leaves after 1-1/2 minutes.

4  
1827 - 57F returns, feeds 1, perches on the nest for 2 minutes, settles facing S.

7  
F  
1837 - M57 brings food, passes it to the female, which feeds 2. M57 leaves after 1 minute.

4  
F  
1842 - After 1 skid M57 comes and gives his food to 57F; she feeds 1. M57 carries a sac 120 yards W to the trees, flying low. He was present 1-1/4 minutes.

13  
25km  
F  
1857 - M57 after 2 skids comes and 57F leaves the nest. M57 feeds 2, in 50 seconds takes a sac low toward the N, then turns W into the cut.

3  
10km  
F  
1902 - 57F returns, apparently without food. After 1 minute on the rim she settles facing SE.

F  
1903 - M57 after 1 skid comes, gives food to 57F, which feeds 1. In 20 seconds M57 goes.

F  
1907 - M57 brings a large white larva. 57F takes it and passes it. In 25 seconds M57 leaves.

5  
20h  
F  
11  
10h  
F  
6  
3  
F  
27  
1913 - After 2 skids the male comes, passes food to the female, which feeds 1. He carries a sac low to the cut NE of the nest.

1924 - After 1 skid M57 comes to the nest and gives food to 57F. She feeds 2. M57 leaves the nest after 50 seconds.

1933 - 57F leaves the nest. M57 quickly comes and feeds 1, in 30 seconds takes a sac N a few feet. I see him perched 15 feet from the nest without the sac; he then flies off.

The rain has just stopped.

1940 - 57F returns, may feed 1. After 1/2 minute she settles facing NE.

2  
F  
1  
1955 - 57F leaves the nest.

2002 - M57 comes and feeds 1. I can't see whether he has a sac when he leaves. He's present 1 minute.

2003 - 57F returns, settles after 15 seconds, facing NE. I couldn't see if she brought food.

2004 - M57 comes to the nest, passes food to 57F, which feeds probably 1. After 15 seconds M57 leaves. 57F settles deep facing NE.

2020 - The sky is very dark, almost too dark to see the nest.

2030 - I leave.

573  
6/19/56  
VN

June 19, 1956

A hazy morning with much moisture in the air, some sun, a heavy rain at 1420, and clouds and thunder for the rest of the day. Present with Board from 0800 to 1420.

T57 - Board begins to watch.

T58 - For 75 minutes beginning at 0800 not a sign of a PW. Just as we leave at 1415 I hear M58 singing chatters NE of the hackberry, but a cloudburst at that time stops song.

T56 - No sign of a PW from 0930 to 1015.

T53 - The nest found yesterday is 53F's and contains an egg today. N

M53 sings perhaps 8 times between 1015 and 1115, always in 1. He is feeding 53B there, but I see and hear none of the rest of the family. The young bird is now only a shade under full size. It stays below 6 feet in height, calls very little. Is calling stimulated by association or competition with siblings? Although 53B looks fully competent to feed itself and seems to pick at things occasionally, it is fed very consistently by the male. I see some 10 feedings in as many minutes. feeding 3-4  
note

No sign of the young 58's.

T54 - The nest is still empty. I see and hear nothing. Most time is spent on T53, but I'm within earshot of T54 all the time.

T57 - I join Board to band the young. The female stays off the nest only 3-1/2 minutes after I remove the first 2, then stays on the nest over 2 hours. During this period, while I have the young, the male brings a good deal of food; both adults eat what the sole nestling can't take.

The young have a faint call note, especially frequent if they are gaping. They gape when I squeak, though the response isn't invariable. Both take spittle bugs, so I keep them reasonably well fed. The gape is pink with blood red at the sides and a yellowish V pointing forward on the lower mandible. They sleep all the time, can open their eyes to form an aperture about 1/8 inch in diameter. They are very restless, kicking and struggling with their wings if laid down on a flat surface; but they sleep quietly when held in the cupped hand. They are capable of beating the 2 wings in unison and do so from time to time.

yg  
color  
gape

The brood is banded silver on the left leg, numbers 25-66092, 4, and 5. Number 25-66093 is destroyed. Their weights are 5 grams, 5.6 grams, and 5.9 grams. The smallest is presumably the latest to hatch. It is quite active and gapes much more often than the other.

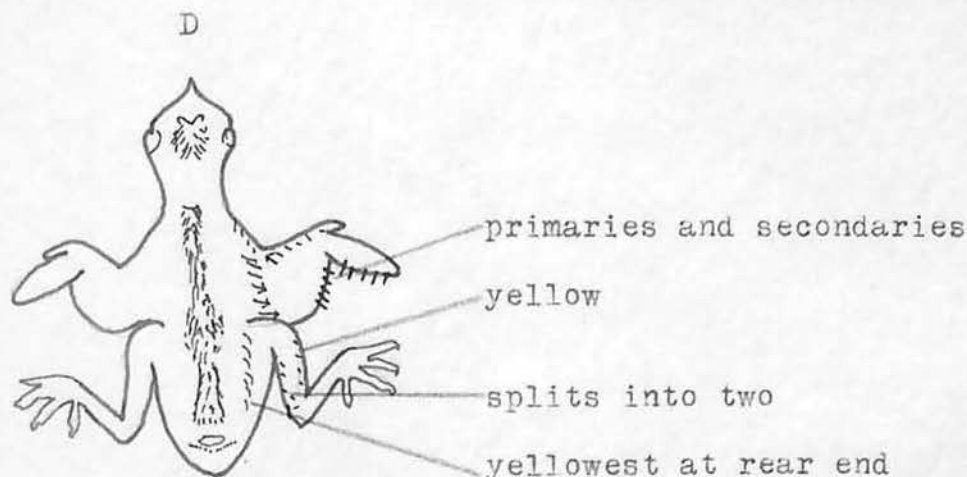
See Board's notes for times. His song counts can't be relied on for exact numbers.

I sketched the smallest bird's dorsal tracts as follows:

[See next page]



575  
6/19/56  
VN  
JB



1415 - We leave.

T57 at 0810 - I [Board] arrive. 57F is on the nest facing

0820 - After 2 skids M57 comes with a large white larva, passes it to 57F, which feeds. M57 leaves in 15 seconds, skids once. 57F perches on the rim and probes.

0824 - The female is seated high facing N.

0825 - It's 75°, the sun at times breaking through an early morning haze.

0840 - 57F leaves the nest.

0845 - After 2 skids M57 comes and feeds 2, leaves in 1-1/4 minutes, skids once.

0854 - After 5 skids the male brings a large green larva, in 25 seconds takes a sac low along our path, then 120 yards W to the trees. He climbs steeply when he gets to the trees.

0903 - After 5 skids M57 comes and feeds 1, in 20 seconds takes a sac W across the cut but goes a little farther N than

usual.

4pk  
F  
1  
3pk  
12  
19sk  
F  
1sk  
17  
1sk  
F  
1sk  
21  
2sk  
7  
2sk  
F  
1sk  
4  
5  
32pk  
F  
0906 - After 4 skids M57 comes with a large green larva, feeds, leaves in 30 seconds and perches at the top of the nest bush for 20 more. At 0908 he is gone, begins to skid, sings 3 more songs nearby.

0920 - M57 begins to skid at a distance, stops after 19.

0925 - M57 swoops down into our path, feeds 1 at the nest, stays 1/2 minute, perches at the top of the nest bush a few seconds. At 0926 he skids once.

0943 - After 1 skid M57 comes and feeds 2, in 35 seconds hops to the top of the nest bush, sings 1 skid, leaves.

0945 - 57F returns, perches on the rim, facing NE.

0950 - She is now sitting very high, facing NE.

1000 - It's 79°, rather hazy, sunny from time to time.

1007 - M57 skids twice.

1015 - M57 skids and 57F leaves the nest. He swoops down into the path, goes and feeds 1, stays 1/2 minute, perches above the nest and sings once, moves 20 feet away and sings again, flies W toward the cut.

1025 - M57 begins to skid, continues for a series of 32.

1033 - M57 comes and feeds 1, in 1/2 minute takes a sac and flies low across the cut. He rises as he reaches the trees.

1035 - 57F returns, sits high facing NE. [She surely

brings food after these rather long absences.]

3  
f  
172  
1036 - After a skid M57 brings 2 larvae, passes them to the female to be fed. He perches 6 inches above the nest, drops down to it and takes a fecal sac, which he eats. He is at or near the nest for 1-3/4 minutes.

4  
57F sits high facing NE.

1042 - M57 begins to skid.

19sk  
1045 - After 19 songs he brings food and passes it to 57F, which feeds. He leaves the nest in 30 seconds, is in the vicinity for 2 minutes during which he sings once.

1sk  
57F is high, facing NE, the sun on her back.

1100 - It's 82°, the sun in and out.

23  
1110 - M57 begins to skid.

14sk  
F  
1120 - After 14 songs he brings food, passes it to the female, perches 6 inches above the nest. She feeds 1. In 1 minute M57 gets a sac, flies low 135 yards W to the trees. 57F quivered her wings when she took the food from the male.

12  
1128 - After 3 skids M57 arrives, passes food to the female, which feeds 1. M57 leaves in 25 seconds. 57F sits high, facing NE and jerking her tail.

18sk  
1140 - M57 begins to skid.

F  
1144 - After 18 [?] songs he comes, passes food to 57F, which feeds. In 1 minute M57 goes 100 yards W with a sac.

1146 - The sun is on 57F's back as she sits high facing NE.

15  
35 h  
F  
1206-1/2 - 57F leaves the nest and M57 arrives after 35 songs. He feeds 1, takes a sac 120 yards W. Nolan gets 2 young to band.

13' h  
1210 - 57F returns, perches on the rim and looks into the nest for 5 minutes before entering and sitting high facing NE.

7  
30 h  
F  
1231-1/2 - M57 after 10 skids comes and passes to 57F, which feeds 1. He then takes a sac 120 yards W.

1  
20 h  
F  
1233 - M57 begins to skid.

30  
10 h  
F  
1233-1/2 - He comes to the nest. 57F's wings flutter as he approaches. She takes the food, feeds 1. His tail bobs as he watches; he leaves in 20 seconds, sings once, goes N across the ravine.

10  
60 h  
F  
1237 - M57 begins to sing, stops after 5 skids.

1  
26  
80 h  
F  
1251 - After 6 skids M57 goes, passes to the female, which feeds 1. He leaves in 1 minute.

5  
150 h  
F  
1319 - After 8 songs he comes and passes to the female, which feeds 2. He leaves in 1 minute, skids 3 times in the vicinity.

1325 - He begins to sing again.

70 h  
F  
1330 - He brings a very large red caterpillar which 57F takes and finally eats after unsuccessful attempts to feed. M57 stays only 10 seconds.

1334 - After 7 songs M57 brings a large white larva. 57F takes and feeds it. He stays 50 seconds.

579  
6/19/56  
JB

8  
4 ph  
F  
4  
3 ph  
23  
F  
2

1345 - After 4 songs in 2 minutes M57 brings another large red caterpillar. Again 57F eats it. (Note that with 2 young out of the nest since 1206 the remaining bird is undoubtedly getting more food than it can eat.) M57 stays 1-1/4 minutes.

1350 - M57 sings 3 times.

1413 - 57F leaves the nest and M57 arrives immediately. He feeds 1, takes a sac W. Nolan returns 2 young, gets and bands the third, returns it at 1415.

1417 - 57F returns.

1420 - We leave. It begins to rain hard.



June 20, 1956

A very dark, murky morning with a heavy mist, slight S breeze, and every prospect of rain; temperature 70° at 0700. Present from 0745 to 1330 and with Paul Davis from 1430 to 1730.

T56 - Silence.

T57 at 0759 - M57 is skidding loudly, and 57F is off the nest.

10  
17 1/2  
0802 - 57F comes to the N rim, gives 3 items to 1 young, stands and looks alertly into the nest and around her. At 0804 she broods facing NW. At 0803 M57 quit after 11 skids. 57F sits quietly half in the nest.

0820-1/2 - M57 skids. 57F looks down over the rim.

17a k  
F  
0823-1/2 - After 17 skids M57 flies from the walnut down into the path. The female leaves. He goes to the nest in 10 seconds, feeds 2. In 10 seconds he takes a fecal sac 130 yards W to the trees, rising to 25 feet. The nest contains all 3 young, asleep. At 0825 the male skids 4 times W of the cut. At 0835 he skids twice there.

4ok  
10  
2ok  
0841 - 57F comes to the walnut. At 0847-1/2 she goes to the nest, gives 2 items to the first to gape. She then takes a sac 80 yards W to the cut, lands and drops it at 0848.

15 1/2  
18ok  
0850-1/4 - M57 skids, comes to the weeds 20 yards W of the nest. He sings 18 times.

F 0856-1/2 - M57 goes to the nest, having moved about low, singing. He also called "tsu" 5 or 6 times. He gives 2 objects to 1, in 10 seconds gets a sac and makes a circle to the W to the ravine. He takes it to the big trees 50 yards or more away. At 0857-1/2 he skids twice. At the nest he fed the first to gape.

0900 - It's 74°, completely cloudy though with a little glare and with less of the darkness of an hour ago.

0903-1/2 - M57 skids in the elm 45 yards N of the nest, 40 feet up. After 3 songs he drops to the ground, falls silent.

0905-1/2 - M57 goes to the nest from the N. All gape. He feeds 1 green caterpillar, eats a small sac. After 8 seconds he hops a few yards away, departs in that fashion. At 0906 he skids near the nest, stops after 4 in 1-1/2 minutes.

The young have their eyes closed, occasionally gape when the parents are absent.

0915 - 57F comes high to the walnut from the north. In 45 seconds she goes to the nest, gives 1 green caterpillar to the highest nestling. In 2 seconds she carries a sac low to the S, at least 45 yards.

0920 - M57 skids to the S near the elm, faintly at first. He's 45 feet up in the elm top, without food, singing frequently. At 0921-3/4 he drops E, sings a total of 11 times to 0923.

582  
6/20/56  
VN

0925 - A light rain begins to fall.

0929-1/2 - 57F arrives and feeds 1, broods after 5 seconds. She may not have brought food; the rain just got harder and is now a steady fall. 57F sits low most of the time, sometimes up a little.

0941 - M57 begins to skid faintly.

0945 - After 10 songs M57 comes from the W with 3 items. He feeds a green caterpillar to the first to gape, transfers 2 objects to the female, which feeds a second young. M57 leaves in 10 more seconds, and 57F sits on the rim for 1 minute. Two young gape. At 0946-1/2 the male sings once.

0949 - 57F looks up to the walnut and M57 arrives there, skids twice. In 30 seconds he takes 2 objects to the nest, transfers 1 to the female and each feeds a young. The male takes a sac 135 yards W across the cut. 57F sits half in the nest to 0952, settles.

1008-1/2 - M57 skids once, goes to the nest from above me, transfers to the female, which feeds 1. She leaves with a sac. He waits 5 seconds, leaves. It's raining as hard as ever.

1011 - 57F returns without food, settles.

1023 - M57 skids once above me, goes to the path.

57F leaves. All young gape; he feeds 1 and in 10 seconds

goes.

1025 - Rain stops.

3  
10h  
F  
1026 - M57 skids once, goes to the walnut, skids once, to the nest. He feeds 1, takes a sac 135 yards W.

1027 - 57F returns, feeds 1, may eat a sac on the rim.

1028 - 57F settles. It's dripping a lot, but I think no rain is falling.

1040 - 57F faces N, half in the nest; she's been this way for 10 minutes.

16  
6h  
F  
1042 - M57 skids faintly and 57F begins to look around.

1043-1/2 - 57F leaves. In 10 seconds M57 comes and feeds 1. All continue to gape. He sang 6 times before coming, leaves in 10 seconds in short hops.

1048 - It begins to rain.

1050 - 57F returns without food, broods after 2 seconds.

13  
F  
34  
1056-1/2 - M57 comes with 1 item, feeds it himself, leaves after 25 seconds. 57F begins to brood.

10  
10h  
F  
1110 - M57 skids once, goes to the nest. He gives an item to the female and each feeds a young. She eats a sac; he opens his bill at her as she does so, goes in 15 seconds.

1113 - The rain stops. It has been steady, moderately hard, no downpour.

6 1/2  
10h  
F  
10h  
1116-1/2 - The male skids and 57F looks around. M57 sings twice and she leaves at 1117. He sings half a song as she goes, in 10 seconds drops and goes to the nest. All young gape; he feeds 1; all keep on gaping. He leaves and skids at 1118.

1120 - It's getting much lighter.

1124 - The sun comes out a little.

7  
2 AM  
10  
1  
10 AM  
1125 - M57 skids twice in the walnut, goes to the nest in the usual way. He feeds 2 (probably), takes a large double sac, loses half a few yards from the nest, carries the rest 135 yards W and rises as he gets to the trees. At 1126-1/2 he sings there.

1129 - 57F flies high to the walnut, goes straight to the nest, feeds 1. She gets a sac, takes it 40 yards W into the cut and drops low.

1130 - It is lighter, enough to cast a slight shadow. The temperature is about 76°.

1132 - The sun comes out again.

8  
2 AM  
10  
1 AM  
1134-1/2 - M57 skids twice in the walnut, getting no reaction from the young. He has 2 items, 1 a spider. In 10 seconds he goes to the nest, feeds 2, in 10 seconds leaves. At 1135-3/4 he skids once within 5 yards of the nest.

4 1/2  
1 AM  
10  
2  
1 AM  
1140 - M57 skids 14 times to 1142-1/2, to the N and faint. He comes to the walnut with a fly, after 1 song takes it to the nest. He leaves in 6 seconds, moving in short flights and hops and singing once at 1143-1/2.

1144 - 57F comes and feeds 1. At 1145 she enters and broods facing N. The sun has been out for 5 minutes, and the sky is now clearing quickly.

During the preliminaries to the male's last visit the young



were gaping while he sang, probably coincidentally. One preened, or used its bill to poke its body. I think they keep their eyes closed all the time, even when gaping.

1148 - 57F is half on the nest, bill open.

1149-1/2 - The male skids 5 times in the walnut.

1150-1/2 - He takes 1 fat caterpillar to the nest, gives it to the female, which quivered her wings before it was passed. She drops it; he picks it up and gives it back; she gives it to the young. M57 takes it from the nestling, gives it to the female; she feeds it. This takes 30 seconds and he leaves in 10 more; sings 2 skids at 1152 within 10 yards of the nest.

57F then sits on the S rim. The young have their bills open, but I can't tell if this is due to hunger or the sun.

1154 - 57F broods, in 30 seconds sits up with her bill open. The nest is not hit by any substantial amount of direct sun; there must be more vegetation around it each day.

1200 - It's clouding over again. At 1202 there is a little sun. The female broods. It's not hot, about 73°.

1205 - M57 skids and the female immediately leaves and goes low to the W. He continues in the top of the dead elm branch, holds food in his bill.

1208 - After 18 songs M57 comes to the walnut, sings 3, and in 30 seconds takes 1 big caterpillar to the nest. He gets a sac, goes S out of sight.

It's now cloudy, gray, cool.

3 1/2  
120h  
F  
1211-1/2 - M57 skids 10 times in the walnut to 1213,  
goes in his typical way to the nest, feeds l, in 5 seconds  
eats a sac. He then leaves in short movements.

1 1/2  
50h  
1214-1/2 - 57F brings a green caterpillar. In 5 seconds  
she takes a sac low to the S about 50 yards, does not go to  
any tree.

7 1/2  
120h  
F  
20h  
1214-1/2 - M57 skids 5 times.  
1223 - M57 skids in the walnut. At 1225-3/4 he drops  
after 12 songs. In 15 seconds he takes a green caterpillar  
and something else to the nest, feeds l. He then waits 10  
seconds, bobs his tail just before he leaves. At 1227 he  
begins to skid near the nest, quits after 2 songs.

1229 - 57F goes to the nest from the walnut, feeds l,  
eats a sac. She perches on the S rim and looks alertly around  
and into the nest.

1231-1/2 - 57F leaves and goes W into the cut. Note her  
radically different behavior on this relatively cool, cloudy  
day. There is none of the persistent nest-shading.

1233 - The sun is out among the clouds; it's about 80°  
at the moment. Will this bring the female back as rain seems  
to?

1238 - 57F returns with 1 piece of food. She immediately  
half enters the nest, then does enter. She had food, so her  
return could be attributable to that.

12  
10h  
F  
1239 - M57 skids once, takes 2 green caterpillars to the

1 p h  
nest in his usual approach. He gives 1 to the female, and they  
each feed a nestling. At 1239-1/2 he skids near the nest once.

1240 - 57<sup>F</sup> is sitting, bill open, half in the nest.

1240-1/2 - M57 skids 4 times in 1 minute.

1242 - The sun goes in, and it immediately gets cool.

1248 - 57<sup>F</sup> is half in, looking around.

9  
p h  
1252 - The male has food in his bill, begins to skid on  
the dead elm branch. He sings 8 times.

1253 - M57 comes to the walnut, skids twice. 57<sup>F</sup> leaves. 87

In 15 seconds he goes to the nest with a green caterpillar,  
in 5 seconds gets a sac and goes 135 yards W but may drop the  
sac 65 yards out over the cut.

The correlation of the female's attentiveness with the  
weather, specifically the sun, seems complete. NB

5  
1255 - It's sunny for 3 minutes.

6 p h  
1258 - M57 skids at the SE elm. After 6 songs he goes S  
at 1300. The sun comes out.

1300 - I leave the territory after 5 hours.

1430 - Paul Davis and I return. It is sultry and sunny,  
85° at 1430.

I - A male sings skids in the narrow remnant of habitat  
at the tree row. After 10 minutes he flies far N, I'd guess  
either to the little hillside E of the ravine or on across  
to old T3. He was unbanded.

When we are going out at 1700 or so a male sings a few yards N of the spot we found the one in earlier.

T56 - A male sings in the tree row between the fairways, then flies high to the E, probably across the cut. I don't know which male he was.

T58 from 1500 to 1545 - We walk over the territory carefully but see and hear nothing.


T57 - The female is at the nest rim.


T54 - The nest is still empty. M54 sings occasionally in 2 but 15 or 20 minutes of searching, especially on the E part of the territory, turn up no sign of the other 54's.

T53 - The nest has a second egg, but the first is gone. N

We set out to see if 53F is feeding her young. We find the young in 1 along the edges, ranging from the tops (just under the canopy) to the low bushes and trees 3 feet high. *feeding*  
They look full-grown and, significantly, for the first time *down* the inverted yellow V of the immature plumage is showing on the breast. The feathers are just beginning to burst their quills. Evidently their appearance is closely correlated with the attainment of full size and with the final development of the rectrices.

The young sit for a few minutes, then fly a few yards. I see all 3 and once they move along within a few feet of each other. The male feeds them very faithfully, but in an hour *stop*

we see nothing to help us even to locate 53F. She's clearly   
not attending the young while we are here.

Once M53 gives several little bursts of anger calls, but  
I can detect nothing at all with which to connect them. He  *one call*  
sings a few insipid steps, calls "check" occasionally as he  
forages for the young. They are rather silent, calling only  
when he approaches with food and then not calling very loud.  
They still receive food with fluttering wings, do very little  
catching of their own.

1730 - We leave.



590  
6/21/56  
VN

See notes p 671

June 21, 1956

A threatening dawn with thunder, lightning, low clouds, a light S wind; temperature 70° at 0500. Present from 0445 to 1200 and from 1400 to 1740 and from 1900 to 2025; Paul Davis present from 0445 to 0705; Board present from 1035 to 2025.

T56 - Silence.

T53 - See Davis' notes under T53 after I leave at 1200.

T57 at 0455 - 57<sup>F</sup> is on the nest. At 0503 M57 sings once. It is too dark to see the nest when I arrive, but I can see that the cavity is covered. At 0506 I can just see the outline of the female's head.

0508 - 57<sup>F</sup> rises in the nest, pokes at the young, and in 15 seconds leaves and flies W low to the cut. There I lose sight of her.

0518-1/2 - M57 begins to sing half-skid, half-chatters.

0518-1/2 - 57<sup>F</sup> returns to the N rim, feeds 2, takes a sac and goes W 40 yards into the oats in the cut. She is at the nest 7 seconds.

0520 - M57's songs are weak with bursts of call notes between them.

0531 - After 47 songs M57 flies low to the path, goes to the nest and feeds 1, leaves in 8 seconds. At 0532 he begins his weak song; I suppose it's more a skid than anything else.

0533 - After 3 songs M57 goes to the nest and feeds 1.

57F arrives and he turns and opens his bill wide to her as she sits above him. I don't know if it's threat or seeking to have the food passed to him. In 3 seconds she jumps down to the rim and he closes his bill. She feeds 1. He leaves 20 seconds after arriving, she 40 seconds after her arrival.

0534-1/2 - M57 begins to sing.

0536 - He goes and feeds 1, in 5 seconds takes a sac W.

At 0537 he begins to sing.

0540-1/2 - M57 after 6 songs feeds 1, gets a sac in 4

seconds and takes it 120 yards, going low and rising to 35 feet in a tree. He sings twice at 0541.

0547 - 57F goes to the nest from the tree above me, feeds 1, leaves in 15 seconds and goes W low. It is very dark, thundering constantly.

0549-1/2 - The male sings 2 times above me, goes and feeds

1 a green caterpillar, returns to the walnut in 10 seconds and begins to skid as usual, a long series.

0555 - It's getting very dark.

0557 - It begins to rain lightly. 57F returns to the nest

from the tree above me, coming in from the N high. I see no

food but can't be sure. She eats a small sac, which suggests

a feeding. At 0559 she enters and broods.

0559 - M57 quits after 42 songs.

*Run* 0600 - It begins to rain hard. *Run*

*F?* 0601 - M57 comes to the walnut and drops with food toward the nest. When 2 feet away he turns in flight and lights 10 feet away. There he flutters his wings and gives a mild distraction display for 30 seconds. In 45 seconds he takes the food away. I can see what I think is a bird's motion in the weeds below the nest. 57F sits quietly. *B*

*18* 0618 - The rain becomes only an occasional drop.

*2sk* 0619 - M57 sings 2 times above me, drops to the path. 57F leaves as he does so. At 0619-1/2 he goes and feeds 1, in 10 seconds leaves, and at 0620 sings. *1*

*1sk* 0627 - M57 begins to skid above me. He sings 9 times in 2 minutes, drops. He sits nervously bobbing his tail and hopping about within 5 yards of the nest for 2 minutes, sings once. At 0631 he goes and feeds 1, gets a sac and takes it half way across the cut, 60 yards. *1*  
*4sk*  
*2*  
*F*

*12 1/2* 0643-1/2 - M57 sings a skid above me. In 15 seconds I see 57F fly to a weed from the N, landing 7 yards from the nest. She goes to it and feeds 1. *3sk*

*1* M57 after 2 more songs lands above her at 0644, feeds 1 and gives her an object to feed another. He then hops away and moves through the low growth within 10 yards of the nest to 0647. At 0647 he begins to sing, skids 3 times. She perches quietly on the rim of the nest till 0648-1/2, then *2?*  
*3sk*

593  
6/21/56  
VN

enters and broods, sitting high and facing NE.

The W quarter of the sky is fairly clear, the rest dark.  
The clouds and storm move E. It is 69°.

6 1/2  
2 sk  
F  
0654-1/2 - M57 comes high from the N to the walnut. In 10 seconds he skids, repeats. He drops and the female leaves the nest. He goes to it at 0655, feeds a green caterpillar, to 1 young, in 6 seconds takes a sac 130 yards W across the cut.

0657 - 57F returns and feeds 1. She eats a sac which seems to have been deposited on the rim, looks in for 1 minute, broods facing N at 0658.

6 1/2  
1 sk  
F  
0701-1/2 - M57 sings once above me and drops. 57F leaves immediately. He goes and feeds 2, eats a small sac, leaves in 8 seconds, begins to skid at 0702-1/2.

7 sk  
F  
2  
2 sk  
0704-1/2 - After 7 songs M57 appears 5 yards W of the nest. He has a small caterpillar, 1 or 2 other things. He drops the caterpillar, collects something else, goes to the nest at 0705. He gives all to 1 bird, looks in and about for 45 seconds, comes a few yards S. At 0707 he sings, goes 20 yards S and sings once more.

0709-1/2 - 57F returns and feeds 1 from the S rim (as usual). In 20 seconds she flies S.

8  
2 sk  
F  
0715 - M57 skids twice above me, drops to the nest in 15 seconds, feeds 1, leaves in 5 seconds, The young all gape, and I think I can hear them.

4  
10h  
F  
1  
9sk  
0719 - M57 comes high from the N to the walnut, skids once, drops immediately. In 10 seconds he goes to the nest, feeds 1, leaves after waiting 7 seconds. O

0720-1/2 - M57 skids to the S, 9 times to 0724.

0722 - 57F takes a very fat, 2-inch caterpillar with a horn on the end (a tomato horn worm?) to the nest. The first young can't quite swallow it and she pulls it violently up from its throat. The second eats it. She leaves in 1-3/4 minutes..

1  
20h  
F  
9sk  
0725 - After 2 weak skids M57 goes to the N rim and feeds 1. He then moves in short hops and flights to the S, singing 9 times from 0725-1/2 to 0728. O

0726 - The sun shines through slightly.

2  
6  
0730 - The E quarter is clouded still, but the sun is getting through and will be strong shortly. There is no breeze of note. It's 70°.

0736 - M57 begins to skid above me.

0736 - 57F goes to the nest 10 seconds later. She has 3 items, feeds 2, perches on the rim.

16sk (5.0)  
F  
1  
6ph  
F  
0739 - After 16 songs the male drops. He has 4 items, 1 a moth and 1 a brown caterpillar. He takes a minute to go to the nest. The female rises and he gives her part. Each feeds 1. He leaves in 15 seconds, begins to sing at 0741-1/4. She broods. J  
giving  
her  
this  
am

0742-1/2 - The male after 6 songs drops to the nest and O



595  
6/21/56  
VN

1  
3 ok  
the female leaves. He feeds l, goes in 8 seconds. At 0743-1/2 he begins to skid, stops after 3 songs in 1 minute. It is now fully sunny, 74°.

The female nearly always goes straight to the rim, especially if from the walnut. The male stops at 2 or more intervening perches, always comes up to the nest from below. B

I've seen no activity by the young during the adults' absences. Evidently they're still sleeping all or most of the time. 4/3

0754 - 57<sup>F</sup> goes to a berry stem 5 feet from the nest, moves about looking down. There seems to be something causing alarm in both adults. In 45 seconds she takes 2 green caterpillars to the nest, feeds l. She then perches on the rim to 0757 when she half sits in the nest facing N. B

9/2  
15 ok  
0754-1/2 - M57 begins to skid above me, then moves E. He stops after 15 songs, at 0759.

2  
0800 - It's sunny with a S breeze.

4 ok  
0801 - M57 begins to sing.

1  
3  
0802 - After 4 songs he flies to a weed from the E. 57<sup>F</sup> leaves. The male goes and feeds l. In 5 seconds he takes a sac 40 yards out to the cut, stopping at a low perch. 0/

2 ok  
R  
0805 - M57 begins to skid in the walnut. In 20 seconds, after 2 songs, he goes and feeds l. It excretes a large sac, nearly 2 of them. M57 takes it, stops 10 feet away and evidently loses part. He then flies across the cut but drops all or part of what remains, about 60 yards out. He rises 0/

1.0 k  
into a tree at the end of the flight just as though he still  
had a sac. At 0806 he skids once.

0808-1/2 - 57F comes and feeds 1, leaves in 45 seconds  
and goes E.

2.4  
0826 - 57F comes directly to the rim, feeds 1, in 6  
seconds takes a sac and flies low across the cut. She rises  
to 15 feet in a tree 135 yards away and lands.

4.12  
7.0 k  
0834-1/2 - M57 begins to skid above me. At 0836 57F  
flies to the walnut from the N and he quits after 7 songs.

1.0 k  
F  
0836-1/2 - 57F takes a large green caterpillar, feeds 1.  
M57 skids once, drops. She leaves after 10 seconds.

0836-3/4 - M57 takes a large brown caterpillar, in 7  
seconds gets a sac. He starts low to the SW across the cut.  
A male Indigo flies at him and he lands in the cut 50 yards  
from the nest. JB

13  
0840 - The sun is out, but it's getting dark in the W,  
and a brisk S breeze blows from time to time.

4.0 k  
1.0  
0850 - M57 begins to skid. After 4 songs in 45 seconds  
he drops.

1  
4.0 k  
0851 - He goes to the rim, gives 2 large green caterpillars  
to 1, takes a caterpillar back and feeds a second, waits 10  
seconds and leaves as usual. At 0852 he skids, quits after 4  
songs in 1-1/2 minutes.

2.0 k  
6.0 k  
F  
0857 - M57 skids twice, comes to the walnut, skids 6 more  
times to 0859. He then drops. He has a brown caterpillar, 0.1

several small objects. In 25 seconds he goes to the nest, feeds all 3. I think this is a matter of difficulty of delivering a number of little items. He gets a sac, flies low 130 yards W and rises as usual, but drops the sac 60 yards out. At 0900-1/2 he skids twice.

2ok  
0900 - It is completely cloudy, dark, with a S breeze; temperature 78°. The clouds are low, and it's hazy.

3  
3ok  
0903 - M57 begins to skid, quits after 3.

6  
0905-1/2 - 57F brings a green caterpillar and 1 other object, sits 5 seconds a few inches from the nest, feeds 1. The nestling takes 10 seconds to extricate itself from the other 2 and turns a quarter around so that it can raise its body to defecate. The female takes the sac 40 yards W into the cut, stops low.

21ok (6.2)  
1-  
1  
1ok  
0910 - M57 begins to skid in the walnut. After 21 songs to 0914 he drops, goes to the nest in 10 seconds. He gives 2 objects to 1 bird, waits 10 seconds, goes. I'm pretty sure the nestlings turn their gapes as the male moves on the rim. He leaves in short hops, skids at 0916. Prior to his coming 1 young had its head inward toward the cavity and kept raising and lowering the whole front part of its body in a gesture like a bow. I think this was an effort to find the rim and an elevated spot for the head.

0921 - 57F returns, feeds 1, eats a sac in 6 seconds. She stands on the rim to 0922-1/2, hops out 6 inches away and at 0923 flies S.

It is now sunny, mostly clear, 80°.

0931-1/2 - M57 begins to skid above me. After 3 songs

he drops and at 0932-1/2 goes to the nest. He feeds the nearest and not the highest young, then feeds a second.

After 10 seconds he moves off in short hops, sings twice at 0933. At 0935 he begins again. At 0940 he stops after 21 songs.

0942 - M57 begins to skid, quits after 7 in 2-1/2 minutes.

0947 - M57 skids twice to the W, comes to the walnut, sings once.

0948 - He drops, goes to the nest with a brown caterpillar and a moth. The young drops these and he picks them up, delivers them to 2 I think. He eats a sac, moves away as usual, begins to skid at 0949, stops after 5 in 1-1/2 minutes.

1000 - It's nearly completely clear, breezy, 80°.

1003-1/2 - 57F returns and feeds 2. In 10 seconds M57 begins to sing in the walnut, after 4 songs crosses to the W of the cut and goes on singing 4 more times. 57F stands on the rim and the young gape. She looks at them, picks at them occasionally, and at 1012 jumps into the nest and half sits down. They renew their gaping, subside after 10 seconds.

1013-1/2 - M57 skids in the walnut, then calls "tsu" for a minute. 57F looks up at him. All songs are faint, and they are very irregular. By 1017 he seems to have quit after 7. 57F is sitting quietly, bill closed, half in the nest. The

sun touches her only a little.

1020 - The male begins to skid faintly again.

1025 - The young are gaping at the female. In 15 seconds she hops 6 inches away, moves off only 5 feet and forages.

At 1027 she's still within 10 feet.

1025 - When the female leaves the male falls silent after 26 songs. At 1027 he begins to sing W of the cut. I hear 12 songs to 1032-1/2, then silence.

1033 - A Sparrow Hawk perches in a dead tree at the ravine. I think I hear several species calling "tsu" notes.

1035 - Board arrives and relieves me on T57.

T58 from 1045 to 1130 - Silence. I walk over the whole territory and see nothing.

T56 from 1130 to 1200 - Silence.

1200 - I leave.

T53 - Paul Davis got the following for me this morning, arriving on territory at 0500:

0519 - 53F may leave the nest. [I doubt this. He had no glasses, saw only some movement near the nest, never a female on it.]

0525 - Egg 2 is cold.

0525 - 53F goes to the nest.

0554 - The male sings for the first time.

0558 - 53F leaves.

Next to  
by 12:00?

egg 10/7



0601 - It begins to rain, stopping at 0615.

0615 - Davis checks the nest, cracks egg 3 very slightly, leaves it in the nest.

0619 - The male sings again.

0631 - Repeat.

0705 - Davis leaves without further evidence of the female.

1400 - I return. It is over 80°, very sultry. As I arrive there is a 10-minute cloudburst. The rest of the afternoon is the same way; loud thunder, dark clouds in half the sky and bright sun in the rest.

T56 - Silence.

T57 - I check with Joe for a while.

T53 at 1500 - M53 is singing an occasional insipid step, about 15 per hour and never in a series. I find him feeding all 3 young at the S edge of 2. (Note how fledglings always stay in the edge of a thicket, woods, or clump of trees.) In exactly an hour I find him extremely active and attentive for periods of 20, 15, and 15 minutes, with about 4 or 5 minutes off between each.

The young move with complete assurance, are fully adult-sized, show no more yellow in their molt than they did yesterday. They catch food for themselves but still seem to receive 90% of their food from the male. They call in a vibrant way

*Feeding position*

*Done*

*Y. & Lark  
traces*

as he approaches them, almost squawk as he feeds. He in turn calls "check" constantly as he moves about catching food for them. I'd guess he makes 1 feeding per minute.

A male sings in the N part of 2 without evoking any response from M53, and note that M53 and his young are within about 10 yards of 54F's new nest. Territorial lines are clearly not as jealously guarded as they were earlier in the spring (or the nest cycle.).

The young range over all heights from 2 to 20 feet, move perhaps once every 5 minutes. They are quite tolerant of me, paying no attention though I'm among them for an hour. When I move they sit quietly till I'm within 5 or 6 feet of them.

I'd say all young are within 15 yards of each other at all times. Once two sit about 4 inches apart, and when 1 approaches the other still more closely the latter opens its bill in typical threat posture.

They behave like adults, going through all preening and stretching motions, perching like adults most of the time.

At 1555 I see one sun bathe twice for 45 and 30 seconds. It perches 5 feet high on a diagonal branch at a  $45^{\circ}$  angle. In the first such pose the bird lowers the left (E) side of the body, drops the right wing so that it hangs  $3/4$  fully extended at the side, spreads the tail so that its 2 inches wide at the tip and is drooped toward the left, turns the head with

bill open so that the right side of the throat gets the sun. In the second such pose the tail is depressed on the right side, the head rotated lengthwise so that the sun hits the crown more than the throat (though this is not a very emphasized position of the head). Compare this sunbathing with that of the adults.

I never see the female among the young but at 1605 find her on the nest. She was not there one hour ago. Possibly this is going to be a 3-egg set. I'll check back soon.

T54 - The nest is still empty. Was it built too far over toward, or on, T53?

T55 from 1607 to 1637 - Silence. Just as I'm leaving at 1638, M55 sings 2 type-8's and his peculiar step-skid. He seems to go into the woods at the SW corner.

T53 at 1643 - 53F is on her nest. I sit to see if she's really incubating. M53 skids loud 3 times between 1 and 2.

1647 - The female leaves the nest. I wait. This nest has a good many rotten leaves in the foundation, as was true of the other two built by 53F.

1726 - I hear "check" calls and at the same time M53 begins to sing (1 insipid, the rest loud skids).

1728 - 53F goes to the nest and incubates.

1730 - I leave the territory. The male has sung about 12 times in 45 minutes, 8 of them within the last 5 minutes.

1740 - I leave.

1900 - I return. It rained 45 minutes ago, with a great deal of thunder. It is threatening now.

T56 - M56 is singing in his usual area, the remnant of habitat on II.

T53 at 1925 - 53F is not on the nest at 1925. I remove the egg Davis broke and sit to wait. At 1941 53F calls "check" about 10 times near the nest and at 1942 enters and faces S. It is prematurely dark because of the rain clouds in the W, so I go.

T57 - I wait with Board till this pair retires.

2025 - We leave. I'd say the day was 15% sunny, with 3 thunderstorms and much thunder unaccompanied by rain.

T57 at 1035 - I [Board] arrive and relieve Nolan. 57F is off the nest.

1117 - 57F comes and all young gape; she feeds 1. The male is singing in the walnut. The female perches on the NE rim and faces the cavity.

1119 - The female leaves the nest.

1120 - She returns and feeds 1. All young seemed to gape even before she got to the cavity.

M57 is still singing.

1121 - 57F leaves the nest.

1123-1/2 - She returns and perhaps feeds 1; all stretch high and gape. She perches on the rim facing NE.

1126 - M57 stops singing (number?).

*begin*  
*sup page*  
*611*  
*meaning J*  
*Beards*  
*decreased*  
*of from*

*28*  
*36 on*

4  
1130 - 57F leaves and M57 comes, feeds 1, stays 1-1/2 minutes, perches 15 seconds above the nest, leaves, skids nearby.

5  
1131 - 57F comes, feeds 1, eats a fecal sac.

F  
1135 - M57 arrives, gives food to 57F, which flutters her wings before receiving it. She feeds 1. M57 leaves in 20 seconds, perches above me, skids, leaves and sings.

1/2  
57F is on the rim, facing NE. The sun is on her back. It's 80°.

6  
1141 - M57 arrives 5 seconds after the female begins to flutter her wings in anticipation. The young gape very actively. M57 passes a large white larva to 57F, and she feeds 1. He leaves in 20 seconds from the spot 6 inches above the nest from which he reaches down to transfer food.

1143 - 57F leaves the nest.

10  
1148 - 57F returns, feeds 1, perches for 1 minute on the rim facing SE. She then sits on the nest for 1 minute, leaves. At 1151 she's back without food, and in half a minute she goes. She returns in 15 seconds.

8:12  
M57 begins to skid nearby. 57F is seated very high, facing NE.

F  
1153 - 57F begins to flutter her wings and the young to gape 5-10 seconds before M57 arrives. He transfers food to 57F, which feeds. He leaves in 1 minute, after perching a few inches above the nest and flipping his tail occasionally.

1158 - 57F leaves, in 15 seconds returns and seems to feed 1, leaves.



7  
F  
2  
F  
1201 - M57 arrives and feeds 1, a large green larva. The young gape before I see him. He stays 1 minute.

1203 - M57 comes and feeds 1.

57F arrives; I can't see any feeding. M57 takes a sac NE. 57F stays 1 minute and goes.

It's beginning to cloud over more with occasional sun.

1210 - 57F comes, feeds 1, perches on the NE rim. The young gaped at the stir caused by her arrival.

11  
1213 - 57F leaves the nest.

4ok  
F  
1215 - About 1 minute after beginning to skid M57 comes and feeds 2, takes a sac low NE. When he's over the second ravine, he turns slowly 180° and flies toward the woods.

1221 - 57F returns; her back is to me, but she may feed 1. The sun is fairly strong on her back as she faces NE from the S rim.

11  
3ok  
12  
3  
1226 - M57 skids, and 57F leaves the nest. In 30 seconds she returns, sits high facing NE. A minute later she flutters her wings, and M57 arrives, gives her food; she feeds 1. As usual, M57 perches 6 inches above the nest during the feeding, flipping his tail. He leaves after the young have eaten.

1  
F  
1229 - 57F leaves. The sun is behind a cloud.

1231 - M57 comes and feeds 1, stays a minute.

From time to time the young stretch their heads high and move about a bit, sometimes laying their heads on the rim with their bills open.

9  
20h  
F  
1240 - M57 skids, drops to the path and goes to the nest.  
All young gape. He feeds 1, stays 20 seconds, takes a sac N.

9/12  
44 min  
F  
1242 - 57F returns, feeds 1 from the S rim, perches there facing NE. The sun is in and out; when out it hits the female's back.

1250-1/2 - M57 begins to skid, is still doing so at 1300.

1302 - M57 brings food, passes it to 57F, which feeds 1.  
He stays 6 inches above the nest, tail moving, then takes a sac. He goes N, turns sharply E at the second ravine and goes into the woods.

1306 - 57F leaves the nest.

1310 - She returns, feeds 1, eats a sac, and sits high facing NE; her wings are slightly outstretched.

10  
80h  
1312 - M57 skids for 2 or 3 minutes.

1315 - It's 83°, mostly sunny.

12  
50h  
F  
1327 - M57 begins to skid above me.

1329 - 57F flutters her wings, then leaves the nest. The young rise up. M57 comes immediately, feeds 2, perches for 10 seconds on the bush above the nest, goes. The sun is behind a cloud.

12  
1332 - 57F returns, feeds 1, sits high facing NE.

1342 - M57 flies down to the path. 57F flutters her wings, then leaves toward the SE. M57 feeds 1, leaves in 1 minute.  
The 3 young have their heads up, mouths open.

1347-1/2 - 57F returns, sits high facing NE. The sun is out.

10  
15  
1352 - M57 comes, passes food to the female, which feeds  
1. The male leaves after about 1 minute.

15  
1408 - 57F leaves. M57 comes quickly, feeds 1, eats a  
sac, leaves in 30 seconds. The sun is in and there is occa-  
sional thunder.

1409 - It begins to rain. 57F returns immediately, sits  
low.

12  
1420 - The rain ends. M57 comes and 57F leaves; he feeds  
1.

1430 - It's 80°, thundering occasionally.

1438 - M57 brings an extremely large reddish object, feeds  
1, takes a sac. He goes N to the ravine, turns E there and  
flies into the trees.

10  
1443 - 57F returns and feeds 1. It's sunny, thundering.

1448 - 57F leaves. M57 arrives, feeds 1, stays 45 seconds  
on the nest and just above it.

1454 - 57F returns, feeds 1. It thunders loudly.

1456 - M57 comes via the path and 57F leaves. The moment  
the male's feet touch the rim the young gape. He feeds 1 a  
large dark larva, leaves in 30 seconds.

6 1/2  
1459 - M57 comes, feeds 1 a large white larva, takes a  
fecal sac low to the trees 120 yards W.

1505-1/2 - M57 comes, feeds 1, stays 1 minute.

1507 - 57F feeds, returns, feeds 1, perches facing NE  
with the sun on her back.

1515 - There's a strong cool wind blowing, signs of a storm to the NW.

23 1/2  
F  
1529 - 57F leaves and immediately M57 comes. He feeds 1 a large green larva, in 1 minute takes a sac; he flies down the path, goes 120 yards W.

There is some sun on the nest.

1537 - 57F returns, feeds 1, perches facing NE with the sun on her back.

The storm seems to have passed NE of us.

13  
F  
1543 - M57 comes and gives food to 57F, which feeds 1.

1550 - It's 76°.

17  
6  
F  
1606 - M57 begins to skid and 57F seems to take notice.

5:40  
F  
1608 - 57F flutters her wings, and in 10 seconds M57 comes. He passes to 57F, which feeds 1. He leaves in 25 seconds with a sac, flies N and then at the ravine turns E into the woods.

2:2  
F  
57F sits very high, faces ENE, wings slightly spread.

4  
6:40  
F  
1631 - 57F leaves the nest.

1635 - She returns, feeds 1. M57 is skidding.

1636 - M57 comes, passes food to the female, which feeds 2. He leaves in 15-20 seconds.

10  
F  
1646 - M57 approaches via the path, passes to 57F, which feeds 1. He takes a sac after she seems to tap at the nestling. He carries the sac away.

15  
F 1701 - 57F leaves. M57 comes along the path, feeds 1,  
in 45 seconds leaves.

1710 - 57F returns, may feed 1, sits high facing E with  
the sun on her back.

16  
F 1717 - M57 approaches and 57F leaves. He feeds 1, in  
45 seconds takes a sac 120 yards W.

13  
1730 - It's 84°, intermittently sunny, thundering to  
the NW.

16  
164h 1736 - 57F returns. M57 skids.

1737 - 57F leaves and M57 goes on skidding.

F 1740 - M57 comes, feeds 1, leaves, begins to sing again.

1744 - 57F appears near the nest with food, goes from  
bush to bush with it till 1746-1/2, when she goes and feeds  
2. In 30 seconds she leaves.

1748 - It's getting darker and thundering.

16  
2nd F 1755 - 57F returns, feeds 1, leaves in 30 seconds.

1758 - After 2 skids M57 comes, feeds 1, in 30 seconds  
leaves.

1759 - 57F comes, feeds 1, in 30 seconds leaves. A nest-  
ling preens its breast.

12  
F 1800 - The sun is in. It's 83°.

1805 - A storm is approaching rapidly, with thunder and  
lightning.

1809 - M57 feeds 1, leaves in 20 seconds.

1813 - 57F returns (I can't see if she has food), leaves



in 35 seconds.

1815 - 57F returns, feeds, leaves in 1 minute.

1816 - M57 arrives on the heels of the female, feeds  
1, stays 15 seconds. There's a violent breeze.

1821 - 57F returns without food, sits high facing NE.  
It's 74°.

1823-1/2 - It begins to rain.

1831 - The rain stops. 57F was rather low while it  
rained. It's 69°.

1838 - It begins to shower, does so for 6 minutes. It's  
stormy in the E, clear in the W.

1845 - There's a light shower. At 1850 it stops. The  
sun is now in.

1852 - 57F leaves and M57 arrives. He feeds 1, in 15  
seconds carries a sac 120 yards W.

1856 - M57 comes via the path, feeds 1, takes a sac 120  
yards W.

1907 - M57 again comes along the path, feeds 1, takes a  
sac 120 yards W.

1927 - 57F comes, feeds 1, in 30 seconds leaves.

1930 - M57 feeds 1, leaves in 25 seconds.

1932 - 57F feeds 1, eats a sac, leaves in 30 seconds.

1934-1/2 - M57 feeds 1, leaves in 20 seconds. The young  
gaped when he landed in the bush below the nest.

1936 - 57F feeds 1, leaves after 1 minute.

3  
F  
6  
F  
1937-1/2 - M57 comes, feeds 1, in 10 seconds takes a sac and eats it, leaves in 30 more seconds. or

1944 - M57 feeds 1, in 25 seconds takes a sac S. [The figure designating seconds in Board's notes indicates the total time at the nest, unless the context clearly reveals otherwise in a particular case.] or  
NTB

6  
-  
F  
1945 - It's prematurely dark due to heavy clouds.

1950 - M57 comes down the path, feeds 1, leaves in 20 seconds. or

4  
2ok  
F  
1952 - 57F comes, feeds 1, leaves.

1954 - After 2 songs in the walnut, M57 feeds 1, in 6 seconds takes and eats a sac, goes SW into the cut. or

1956 - 57F comes, feeds 1, eats a sac, remains.

6  
-  
2ok  
1959 - 57F leaves.

2000 - M57 begins to skid, in 30 seconds goes and feeds 1, in 16 seconds leaves. or

3  
7ok?  
S.  
2004 - 57F comes, feeds 1, perches on the rim [?] facing

2005 - M57 sings his last song of the day.

2007 - 57F sits on the nest facing NE.

2015 - I leave.

June 22, 1956

A cloudy dawn with a S breeze, every likelihood of rain after storms and rain last night. Temperature 68° at 0500. Present from 0500 to 1135 and from 1500 to 1745; Board present from 0800 to 1115 and from 2005 to 2050.

T56 - Silence at 0500.

T53 at 0505 - Either M53 or M54 is calling the usual hard, angry-sounding note, and I think I hear insipid steps.

53F is on the nest. I sit to watch it all day.

0510 - 53F leaves the nest. The egg is cold.

0521 - She returns, going without preliminary and evidently unaware of me. She is restless and moves around to face in all directions, rises and probes, is seldom quiet for a minute.

0542-1/2 - 53F leaves the nest. To my surprise it still holds only 1 egg, now a little warmer. I feel quite confident it was cold when I first felt it.

0548 - M53 sings 2 very short, weak skids.

0559 - 53F returns, calls "check" near me for 30 seconds before entering. There is a diagonal branch 1 foot below and to the E of the nest, and she seems always to perch here before getting in.

0608-0615 - The male gives 9 more weak skids, all short.

0613 - 53F rises so that her cloaca is very low in the

nest, her yellow breast showing. She maintains this position for 2 minutes, during which she 3 times opens her bill about 3/16 inch and leaves it that way for 6 or 7 seconds. After 2 minutes she probes in the nest for 10 seconds, sits low with throat down, tail high as usual.

4  
10h  
2  
9:40 (21.0)  
3:40  
15 min  
0619 - M53 skids once, as before.

0621 - He skids, 9 times in 6-1/2 minutes. He then gives 3 insipid steps, begins to skid again. He continues this to 0641, singing about 16 more of the same colorless skids.

0640-1/2 - After constant restless motions on the nest, always shifting, rising, probing, etc., 53F leaves. I examine the nest and find 2 eggs; it is clear that the last one was laid at 0613. The male quits singing 30 seconds after she leaves.

0647-1/2 - 53F begins to call "check" near me, calls 19 times to 0648-1/2.

7  
0648-1/2 - She flies straight to the nest tree (12 yards from me) and enters quickly in the usual way. She faces S.

0648 - The male begins his weak skidding.

13h  
0650 - I go to check 54F's nest and en route hear the young 53's in the S edge of 2, where they were yesterday. point on

(54's nest is still empty and I wonder now if it will every be used.)

0655 - M53 is silent after 13 skids.

614  
6/22/56  
VN

0700 - It is quite breezy from the S and SW, cool, My thermometer is with Board, but I'd guess it's 65°.

9  
10h (1.8)  
7  
5pk  
0704 - M53 sings his skid, 4 times to 0707.

0714 - 53F leaves the nest. The male begins to skid at about this time, the same mild songs as before. 53F sat quietly during this last period, facing E after the first 2 minutes.

M53 quits after 5 songs.

10  
5+8  
1 1/2  
7/12  
0727 - 53F begins to call "tsu" near me. I've put up a chair, which may alarm her a little more. However, at 0728 she goes directly to the nest and enters facing S.

0727-1/2 - M53 begins to sing type-8's within 20 yards of the nest just before the female enters. He stops after 3 in 1 minute.

7/12  
20h  
14 48gms  
0737-1/2 - M53 skids twice. By 0750 he has sung 14 more songs, most of them weak type-8's from near 1.

8  
Regarding the territorial behavior of males with fledglings, it seems consistent with the facts to say that the male is very busy tending the young, may wander with them beyond his usual territory, will fight a male if he comes into direct visual contact with him, but probably won't chase down every song near or across his borders.

24h  
0752-1/2 - 53F leaves the nest.

0758 - M53 sings 2 type-8's.



4  
2 1/2  
0800 - The sun is coming through the clouds a little at the moment, but the sky is pretty thoroughly covered. The wind is as before, and the temperature is about 70°.

0802 - The male sings 2 type-8's. I'm going to count his songs by the half-hour or hour unless there is some development. He never sings a series.

5 1/2  
c/s 1/2  
0826 - 53F flies without preliminaries to the nest tree, in 10 seconds comes to the nest from the N and faces S. She did not use the branch below the nest this time but flew in at nest level.

0829 - She turns to face W.

0830 - The male has sung 11 songs in 30 minutes, 7 weak type-8's and 4 weak skids.

0834 - The female shifts to face N.

0842 - She shifts to face E.

The sun has been out for 10 minutes, although the sky is clear only to the E. In the N there is thunder. At 0848 it clouds over.

0849 - 53F leaves the nest.

11 1/2  
0900 - It's dark, very windy from the SW, thundering in nearly every quarter.

3 1/2  
M53 sang 11 weak type-8's in the last 30 minutes.

0929 - M53 begins weak skids, his first songs this period.

He's in 2. By 0930 he's sung 3; he goes on.

616  
6/22/56  
VN  
JB

0930 - It is dark, very windy with the nest being tossed around a good deal. No sign of the female.

0931 - The male quits singing after 3 more skids.

0949 - 53F has been off an hour and I'm beginning to wonder if she'll come back. She surely isn't deserting because of me; her behavior suggested she had become used to me and was disregarding me.

1000 - It is very threatening and windy. The male has sung no more.

1006 - It begins to rain lightly.

1015 - The rain gets quite hard and obviously will continue. I go to relieve Board. 53F has not reappeared.

T57 - See Board's notes. At 1120 we leave with the rain still heavy.

T53 at 1130 - 53F is not back. The nest is wet but no water is standing in it.

1135 - We leave.

T57 at 0800 - I[Board] arrive. 57F is off the nest.

0809 - 57F feeds for 30 seconds, leaves.

0827 - She feeds 1. A young rabbit is lying in the path we have worn to the nest, not moving much. 57F seems to take no notice.

0829-1/2 - 57F leaves the nest. M57 begins to skid.

0832 - The rabbit leaves.

12  
140  
F  
12  
11  
0833 - M57 approaches the nest via the path, feeds l, in 15 seconds takes a sac N over the ravine and then E into the trees. 51

0845 - It's 75°, cloudy, slightly breezy, sometimes thundering.

The young are low in the nest, not very active so far today.

0848 - After 14 skids M57 goes and feeds l, in 9 seconds takes a sac W and sings once. 51

0856 - One young stretches and another preens.

0859 - The female perches on a bush near the nest, holds food.

7  
0901-1/2 - She goes and feeds l, perches on the nest for 30 seconds, goes 1 foot away, gets an insect and returns and feeds. At 0902-1/2 she leaves.

10  
F  
0907 - M57 sings once, comes and feeds l, in 10 seconds goes. 51

0914 - 57F feeds l, leaves again in 27 seconds.

6  
50  
F  
0915 - One young flutters its wings.

0915-1/2 - After 5 skids M57 comes and feeds l, after 18 seconds takes a sac W. 51

0919 - 57F comes and feeds l, after 19 seconds takes a sac 120 yards W. The young are rising way up to take food.

13  
F  
0925 - It's 72°, cloudy, windy.

0929 - M57 feeds l, in 15 seconds goes. 51

0930-1/2 - 57F feeds l, in 20 seconds goes. The young fluttered its wings when fed.

4  
F  
0933 - M57 feeds 1, after 10 seconds takes a sac N,  
turns at the ravine and goes to the woods.

7  
F  
0937 - A rather violent wind shakes the nest considerably  
from time to time; thunder.

0940 - M57 feeds 1, in 15 seconds goes. It's beginning  
to rain.

4  
0942 - 57F comes without food, sits high facing N, leaves  
in 1 minute. The few drops of rain have stopped.

4  
F  
0945 - After 4 skids M57 comes and feeds 1, in 10 seconds  
leaves.

7  
F  
0947-1/2 - 57F comes and feeds 1, in 15 seconds takes a  
sac 120 yards W.

0952-1/2 - M57 feeds 1, in 15 seconds leaves.

0954 - One young gives an upward stretch, another a wing  
stretch.

7  
0955 - Rain begins lightly, and 57F returns without food,  
She sits as low as is now possible, faces NE.

hard rain 4  
F  
1004 - The rain is increasing. M57 arrives with food and  
57F leaves. He feeds 1, stays 15 seconds.

10  
1005 - 57F is back without food, settles facing NE.

2  
F  
1015 - M57 skids twice, comes and passes food to the  
female, which feeds 1. He goes in 15 seconds. It's still  
raining.

1  
F  
1029 - M57 sings an insipid step, goes and transfers his  
food to 57F, which feeds.

1  
F  
1034 - M57 sings an insipid step, goes to the nest. 57F

leaves. He takes a sac S, and a second sac lies on the rim.

1035 - 57F returns quickly. We can't see any food.

She eats the sac on the rim and broods.

1044 - The rain stops for a minute.

1046 - It rains very hard.

1047 - The male comes and feeds, and he and the female leave in 30 seconds, she with a sac. She takes the sac 40 yards S, immediately turns and comes back to the nest and broods. She's away 20-25 seconds.

1058 - M57 brings food, gives it to the female, leaves in 15 seconds.

1107 - M57 skids 3 times in the walnut, takes food to the nest, gives it to the female. In 15 seconds he goes.

1115 - It's still raining very hard.

1115 - We leave the territory.

1500 - I return. It is calm, about 70°. The rain lasted over 3 hours.

T56 - Silence.

T54 - The nest still has no egg.

T53 - I mark the last egg with the thought that this may be a 5-egg nest. If it is 53F's behavior takes on real significance. If it is not, the nest seems to have been deserted.

The new egg is differently marked than the others. It is more lightly colored and lacks the sharp spots; instead

draw  
egg



620  
6/22/56  
VN

there are more spots, run together and rather shapeless.

M53 is feeding young at the W end of 1. I watch for 15 minutes, see many feedings. 53B is the only young seen, but others are here.

I sit to see if 53F will return in the late afternoon, as she did yesterday. This nest has a piece of grape bark about 20 inches long attached to it, most of it hanging down below it. At 1555 the female hasn't come and I leave for awhile. I've watched the nest for 45 minutes. *nest down*

As I leave there is an unbanded, poorly marked male in the field N of 1 and then in 1. He is silent, responds quickly to squeaking. He ranges from 3 to 25 feet high, during a minute. As he starts to fly high to the N from 1, M53 flies after him and there is a pursuit out of sight into 2. Note what this implies for recognition, that M53 could tell at least that he wasn't seeing 53F. Note too that the stranger simply flew away when attacked. [This must have been the male later called M60.] *5/81*

T57 - I put up a net and catch M57. I paint his tail yellow, band him blue on the right, silver on the left, number 25-66097. He weighs 8 grams 100 mgs. 57F hits the net once, gets through a hole.

T53 at 1730 - The female is not at the nest.

T56 - Silence.

1745 - I leave.

T57 at 2005 - I [Board] arrive. 57F is not on the nest.

2014 - M57 is near the nest, skidding faintly at times.

2017 - M57 comes and feeds l; leaves with a fecal sac  
and goes 120 yards W. He was here 12 seconds.

2029 - 57F comes, feeds l, sits facing NE.

2030 - It's beginning to get dark.

2040 - 57F is settled low facing N.

2045 - She hasn't moved. It's getting too dark to see.

2050 - She's on the nest. I have to use a flashlight  
to see.

2050 - I leave.

*brooding*

622  
6/23/56  
VN

June 23, 1956

A partly sunny morning with a slight S breeze, temperature about 68° at 0530. Present from 0530 to 1300 and from 2000 to 2030; Board present from 0735 to 1300.

T56 - Silence.

T53 - The nest contains 1 warbler and 1 Cowbird egg at 0540. The female warbler doesn't come to the nest during the next 1-1/2 hours, and I conclude the nest has failed. Quite possibly the female has been killed; there was no reason yesterday to think from her behavior that she would desert.

At 0615 a poorly-marked unbanded male sings just E of the N corner of 2, a few yards from the nest. His song is first a weak type-8, then a weak skid. He moves around freely, goes to high perches, never draws a challenge from M53. M53 is at 1 feeding young; he sings occasionally. The songs from the stranger today could be the ones I heard yesterday and attributed to M53. At 0700 when I'm watching the 54's, M54 pursues a PW that might be this unbanded male.

See below under T53.

T54 - I go to check the nest, find it still empty. I then see M54 feeding all 3 young in the E edge of 3. For at least 40 minutes of active feeding with all young in sight there is no sign of the female.

I get several interesting points on the young, which

are at the same stage as the 53s. They are about 3-6 feet from the ground the whole time and on several occasions are within 3 feet of each other. One catches a green caterpillar, and they pick at things a good deal. Once one picks several times at a green pendant grass fruit about 3/4 inch long and shaped and colored like a caterpillar.

Its etc  
8/88

The relations of the young are interesting. When two are sitting about 4 inches apart, one turns to the other, opens its bill, flutters its wings a little as though begging. In a few seconds the other reaches over and touches with its own bill the now-closed bill of the one that fluttered. The two then open bills at each other for a second as in threat. Another time one flies to another and stretches down toward it, exactly as if transferring food. I can't see if anything passed, but if the active one had been an adult I'd have no doubts.

Imp

The young call "chick" or "check," but the call is unlike an adult's. This is just an attempt to render the usual note of young in the interims between feedings. M54 sings skids occasionally, doesn't call. He feeds many times.

dear 8  
off call

T53 - I neglected to note that as I came in I'm 99% sure I saw a fledgling fluttering and bathing in the dew in the 25-foot top of a locust.

egg  
feeding

I neglected too to mention that I watched a PW preening about 20 feet up in a tree at the woods edge (almost surely

624  
6/23/56  
VN

the new male) and saw a new bit of behavior. Between preenings and about every 10 seconds for 2 minutes he shook the rear part of his body with great vigor, especially moving his tail laterally and fanning it out and in 2 or 3 times per performance. He acted almost like a gnatcatcher.

*preening  
+ feathering*

On the territory at 0700 I find the young in the pine field for the first time, feeding and being fed in the low trees (2 feet) but in a much more open situation than the usual woods edge. M53 is very attentive for 20 minutes; there is no sign of the female. Once a young bird tries 2 or 3 times to pick off the flower of a flea-bane plant.

*Singing?*

Much of the behavior of the young described above is new and valuable, especially what seems to have been the feeding of another and the obvious trial and error methods of eating things.

T57 at 0730 - The young are in the nest. I wait a little while, and Board relieves me.

T58 - For 45 minutes I cover this territory and find nothing.

T56 - At the S end of the territory a male sings about 15 skids, then disappears. Half an hour later, at about 0945, I hear a few "tsu" calls at the N end and see the male. He seems alert and moves rather quickly about to perches 10 feet or less high. Then I see 53F about 15 yards away. She calls

*53F  
88F*



625  
6/23/56  
VN  
JB

"check" and moves quickly too, going to the ground on occasion and also seeming to explore for nest sites once or twice. Once she picks up plant down and carries it out of sight, but not as though to a nest. All told, I have her in sight from time to time for 15 minutes. The male never sings, never displays, but moves along about 10-15 yards from her watching her and looking rather tense. The location is at least 1/2 mile from the nest the female deserted yesterday.

toys  
w/ nest

T53 - No developments. I attribute the nest failure here, the absence of eggs in 54F's nest, and the disappearance of 58F to the rainy weather. A female with reduced drive, e.g., because she already had brought off young, might be especially likely to quit in bad weather.

Went to  
(doubtful)

T57 - We catch 57F by squeaking her into the net. I band her with 25-66091 on the left, blue on the right. Too windy to weigh her.

1300 - We leave.

T57 at 0732 - I [Board] arrive and relieve Nolan. 57F is not on the nest, and the young have not fledged.

29

0759 - M57, after a very circuitous approach and much tail bobbing, comes and feeds 1, leaves in 12 seconds.

12

0809 - M57 repeats his approach of last time (due perhaps to our having caught him yesterday), feeds 1, after 7 seconds takes a sac S and drops it on the ground 30 yards

10

12

from the nest.

10  
-  
10<sup>00</sup>?  
F  
0815 - 57F comes and feeds 1, sits high facing NE.

0819 - M57 begins to sing, and 57F leaves.

0821-1/2 - 57F comes, feeds 1, takes a sac as a nestling  
elevates and wiggles its tail. She carries the sac SE.

7 1/2  
-  
0822-1/2 - M57 feeds 1, in 3 seconds leaves. Young  
stretch, flutter, preen.

0823 - 57F returns, feeds 1, sits on the rim facing E  
and NE. The male begins to skid.

2  
-  
F  
3  
10<sup>00</sup>?  
7  
-  
F  
0830-1/2 - The female leaves.

0832 - M57 feeds 1, leaves in 12 seconds.

0834 - 57F returns, feeds 1, stays 20 seconds.

0835 - M57 begins to skid.

0837 - 57F feeds 1, in 5 seconds goes.

0837-1/2 - A young stretches up its body, then stretches  
both wings up high.

0847 - M57 comes cautiously, feeds 1, takes a sac SE to  
the trees.

0848 - 57F comes and feeds 1, perches on the rim bobbing  
her tail and facing ENE. The young are very active about  
this time. Among their stretching and preening they seem also  
to poke at the sides of the nest with their bills.

0900 - 57F sits lower, almost settled, facing N.

0901-1/2 - 57F leaves the nest. The young are active  
for about 2 minutes, then settle with their bills over the rim.

0907 - A nestling stretches a wing.

24  
5  
F  
0911 - M57 is about 10 yards from the nest with food.

0912 - 57F is near the nest with food too.

0916 - 57F comes and feeds 1.

In 5 seconds M57 comes, feeds 1, in 5 seconds leaves.

57F leaves 15 seconds after the male.

14  
F  
0928-1/2 - 57F feeds 1. The young flutter when fed and 5 seconds thereafter. The female stays 10 seconds. The young are very active, unlike their behavior after the last feeding.

0930 - M57 feeds the most active 1, stays 5 seconds.

The young fluttered before I saw him.

0932 - 57F feeds 1, takes a sac down the path and flies low 120 yards W.

0938 - 57F feeds 1, stays 15 seconds. The young are active, go through all the usual motions. One picks at another's head. They subside after 5 minutes.

25  
F  
2  
F  
3  
6  
F  
1005 - 57F feeds 1, stays 15 seconds.

1025 - M57 comes cautiously, feeds 1, eats a small sac, stays 15 seconds.

1027 - M57 feeds 1, stays 10 seconds.

1036 - 57F feeds 1, stays 14 seconds.

1036 - Immediately after the female, M57 comes, feeds 2, takes a sac SE.

1040 - It's cloudy as it has been most of the morning.  
A very little rain falls occasionally.

1046 - There is a 3-minute period of activity by the young.

1050-1/2 - M57 feeds 2, stays 6 seconds.

1057 - M57 feeds 1, stays 7 seconds, remains within 4 yards of the nest calling "tsip."

1059 - He takes food to the nest from the immediate vicinity, feeds 1, leaves in 5 seconds but again stays close by, calling "tsip."

1101 - 57F feeds 1 a large green larva, stays 7 seconds.

1106 - 57F feeds 1, stays 12 seconds.

1113 - 57F feeds 1, stays 10 seconds, takes a sac SE.

One young seems to shake its whole body, flutter, ruffle its feathers.

1118 - Two young are active, leaning out over the nest rim.

1127 - M57 feeds 1 a very large dark gray caterpillar, after a false start or two. He stays 10 seconds.

1130 - We devote our efforts to catching 57F.

1300 - We leave.

2000 to 2030 - I return and find 57F brooding in the dark.

629  
6/24/56  
VN  
JB

June 24, 1956

A fine warm sunny day after it cleared yesterday afternoon; temperature in the 70's and 80's. Present from 0700 to 1200 and from 1430 to 1530; Board present from 0700 to 1200.

T57 - See Board's notes.

T56 from 0715 to 0915 - Not a trace of a PW despite the most careful search.

T58 from 0915 to 1015 - No sign of a PW.

T54 - M54 sings occasional skids in 2 and 3. The nest is still empty.

T53 - M53 feeds the young in 1.

T55 - Board and I cover the territory carefully for 45 minutes and see nothing.

1200 - We leave, going slowly through II and III and finding nothing.

T57 at 0730 - I [Board] arrive. 57F is near the nest, the male possibly above me in the walnut. The nest is empty.

At 0750 I find 1 fledgling perched 8 inches from the ground on a berry stem beside the path and 12 feet from the nest. Both adults are nearby, the female calling "tsip." position?  
88

0815 - 57 goes to the nest, pokes about in it for 3 minutes, drops to the ground under it. I now see a second young perched on a berry branch just beside the nest. At 0826 the female again goes to the nest and pokes at and into it. She is very



630  
6/24/56  
JB  
VN

active. She repeats this. [Undoubtedly Board was too close to get any normal behavior here today.]

0900 - Neither young has moved yet. Both adults are nervous, carrying and themselves eating food gathered for the young. The young occasionally doze.

At 0925 and 0926-1/2 the female feeds the young beside the path. I'm at our usual post. At 0931-1/2 she feeds the young near the nest.

M57 never utters any sound but "tsip" the whole morning.

1030 - I leave this territory and accompany Nolan.

1430 - I return.

T58 - Silence.

T56 - Silence.

1530 - I leave.

There is an electrical storm from 1900 to 2300 but it never rains.

June 25, 1956

A sunny early morning with the rest of the day partly cloudy; temperature in the 80's. Present from 0800 to 1200; Board present from 0800 to 1200.

T57 - See Board's notes.

T54 - The nest is still empty.

T53 - M53 is feeding the 3 young in the N edge of 1. They are all within a few feet of each other, moving most of the time and staying within 10 feet of the ground, usually less. They are noisy, beg whenever the attentive male is in sight, flutter their wings violently when being fed. The yellow in the ventral feather tracts is now quite pronounced. It is more than a V and will cover the breast and belly in a day or two.

feeding,  
etc.  
489

T55 from 0815 to 0850 - An unbanded male, not well marked, is singing skids here as though on territory. His rate is 42 songs in 15 minutes, and he sings at least this frequently the whole time I'm here. At least 90% of the time he is in the tall sycamores at the N central end, but he often ranges S to the big dogwoods. Once he seems to pursue a gnatcatcher, and a male Canada Warbler and he are much interested in each other. There is a second unbanded PW at the N end. The male flies up to a perch a few feet from it and for a minute they hop along in a tree near each other; but I lose sight of the bird in a minute. It never reappears and the male doesn't act as though he is maintaining the contact. I'll follow up

once  
gnat  
etc  
Canadian  
Warbler

here tomorrow. The singer must be the male on V in recent days.

T56 - Silence for 30 minutes.

T58 - Silence.

N of the N road - I go to try to find more pairs. A male is feeding a bird a week out of the nest, so I leave.

IVS - A male sings skids here. I follow him and see a female come to him. He immediately falls silent, except for "chicks," which he utters sporadically for the rest of the time he's with the female, about once every 2 or 3 seconds, but sometimes with pauses of 30 seconds or so. She darts around with great energy, and her active feeding suggests she is off the nest during incubation. She goes 40 feet up into a cherry and the male follows. Thereafter for 12 minutes she stays high, covering 3 or 4 trees within a 30- to 40-yard area, always followed by the male. At each of her short moves he goes along within 3 or 4 feet, never letting more than 15 or 20 feet separate them. She is silent so far as I can tell. After about 10 minutes she moves E some 25 yards and the male follows. Together they go on another 25 yards after a minute. Then they fly about 70 yards and I see them land in a dogwood, the male immediately flying from the tree (as though she had turned on him), and landing 15 yards away. I run up and find the female obviously ready to go to a nest. She delays 2 or 3 minutes, hopping about

*Pr.  
during  
inc.*

633  
6/25/56  
VN  
JB

nervously and watching me. The male calls "tsu" and seems disturbed by me. When the female disappears I look and find her in a nest about 6 feet high. I'll get details later.

Call this pair the 59's.

1200 - We leave. T56 is silent as we pass.

T57 at 0815 - I [Board] arrive.

M57 stays within a 40-foot radius of the nest, calls "tsip," occasionally sings, I can't find the young. Both adults give distraction displays, and 57F goes through the motions of feeding <sup>at</sup> a bush near me. They seem most interested in the osage orange area 20 yards E of the nest. I finally find one 12 feet up in a tree 35 yards E of the nest; 57F feeds it. She shows no concern at the presence of a male and female Cardinal near the young, leaving the area while they are close to the fledgling. Once a young moves after a feeding, flies 10 feet, appearing to follow the female.

1200 - I leave.

634  
6/26/56  
VN

June 26, 1956

A cloudy morning with rain from 0730 to 0915 and a threat of rain throughout the rest of the day; strong winds from the W in the afternoon and tornado warnings; a heavy downpour at 1930; temperature in the 80's. Present from 1030 to 1200 and from 1430 to 1730; Board present from 1350 to 1730.

T56 - Silence at all times.

T54 - No egg in the nest. In 15 minutes I may have heard the male once. No sign of the young.

T53 - M53 is feeding the young in the S edge of 1. The young stay within 10 feet of each other, call continuously, keep in the low growth within 4 feet of the ground. The molt has progressed so far that their breasts and bellies are wholly yellow, with the side streaks showing. In fact only the heads are not in the immature plumage, and they are quite frowsy looking as compared to the rest of the bodies. *feeding*

T55 - The new male is singing again today. I watch him for 30 minutes. His rate is the same as it was yesterday except that he goes W in the woods at the SW corner on one occasion and falls silent for 10 minutes. *juv*

1200 - I leave.

Ted Torrey examined the last egg laid by 53F and found it fertilized and developing.



1430 - I return and meet Board on T57. It is sunny but getting very windy.

57F carries food to a young bird just E of the osages. She shows alarm at us, "checks" frequently. The fledgling was perched about 10 feet high and flew into the weeds about 15 yards distant when we came up on it. Board saw nothing of note.

T59 - 59F is on the nest. It contains 4 well incubated eggs.

We spend 2 hours looking for PW's N of the ravine on IVN, finding a complete recent nest, nothing else.

1730 - We leave.

636  
6/27/56  
VN

June 27, 1956

A fresh sunny morning after a very severe downpour last night at 1930; a light E breeze; temperature in the 70's.

Present from 0800 to 1730; Board present from 0800 to 1730.

T56 - Silence.

T57 from 0815 to 0945 - M57 sings the whole time we are here, about equal numbers of skids, chatters, insipid steps. His rate is about 3 per 1 minute. At our arrival he is ranging slowly over the territory from N to S and back, skidding from high trees. By 0900 he is staying near the center of the territory, E of the osages, where he feeds a young bird 9 feet up in an apple.

We first find the fledgling when 57F shows up near us and calls "check" with considerable alarm. We retire for 10 minutes, return, and never see 57F again in an hour's searching. Since the male is feeding the young we are watching (about 4 times in an hour, the rest of the time preening and singing in a leisurely, unalarmed way), it seems likely the female is tending the other young somewhere.

The fledgling we watch feeds silently, flutters its wings when the male approaches. It sits with tarsi extended perhaps 25% of the time. Before and after all hops and movements to a new twig it flips its tail like an adult. We see scratching, preening, stretching sideways, stretching up, picking at possible food objects. Board sees typical bill wiping. I note that in

stretching up the wings are lowered at the sides and extended downwards momentarily. Once the bird goes to sleep with its head turned and pulled in, its bill laid along the joint of the wing but not poked under the feathers; this lasts 30 seconds or more.

M57 is chased by a male Yellow-throat that is tending a brood of nearly-grown young. *one ythw*

I'd say that 57F is building no new nest yet.

T54 - The nest has no egg. M54 is in the NE corner of 2, feeding young. I see only 54S, but the others are evidently here too.

54S is 4 feet high. It's breast is nearly fully yellow. *hr 59*  
M54 skids once.

T53 - We pass through, hear nothing.

T55 - We wait for 30 minutes without hearing or seeing anything.

T59 - We go here to remove the eggs and cause the female to re-nest. At 1100 she is incubating and the male is silent. *sup 641*

1110 - 59F leaves the nest and I take the eggs.

1125 - She comes to the cherry behind which we are hiding, calls "check" mildly and looks us over, moves gradually toward the nest calling.

1127 - 59F goes to the nest, falls silent, immediately enters as though incubating.

1141 - She looks out.

1141-1/2 - She leaves the nest and slowly leaves the tree.  
This takes 5 seconds. She is completely silent.

1145-1/2 - A male begins to skid to the SE toward the  
ravine. He stops after 5 songs.

1152 - The male begins to skid loudly and irregularly  
coming near (30 yards) the nest.

1156 - After he's sung 12 times, she calls "check" near  
the nest. He falls silent, comes to an elm top 20 feet high,  
10 yards E, watches.

1157-1/2 - 59F goes to the nest, enters, continues to  
"check." He begins to sing. She calls about 8 times.

1159 - She leaves the nest. He quits after 7 songs. He  
may call "tsu." No attention to us.

1204 - She calls "check" near the nest.

1206 - She returns to the nest and enters it, remaining  
silent both before and after her return.

1211 - He skids to the E, probably rather far; 3 songs.

1223 - She leaves the nest quietly, comes to the cherry,  
shows no alarm at all. Then she goes SE toward the ravine.

1241 - She calls "check" twice near the nest, goes straight  
to it and enters.

1257 - She leaves quietly; no sign of M59.

1339-1/2 - 59F calls "check" twice near the nest.

1347 - 59F goes to the dogwood beside the nest, goes to  
the nest tree, leaves in 5 seconds.

There is still no alarm at me.

1348 - She goes to the nest and looks in for 5 seconds, leaves quietly and slowly.

1358 - M59 sings 4 times, possibly across the ravine. He then comes closer, finally within 30 yards of the nest. By 1408 he sings 26 more times.

1400 - I leave to check other areas. Board remains here and sees nothing by 1530. When I return we cover the hillside and also IV N, seeing and hearing nothing. It's safe to say there is no male on IV N. Probably M59 uses it some now.

T56 at 1425 - Silence.

T57 - I find 57F. She's feeding young 40 yards E of the apple tree (which is about 45 yards E of the nest) where M57 and the young bird were this morning. As I leave after 30 minutes, she's also feeding the apple tree bird. Meanwhile M57 skids the entire 35 minutes I'm here at a rate of about 4 times a minute. He seems to stay high, 20 feet up or more, most of the time. Compare his feeding of the young today with that during the nestling stage.

posit  
92

1730 - We leave.

The weather has been hot and sunny for the first time in days.

Board's notes contain no different data and are omitted.



640  
6/28/56  
VN

June 28, 1956

After a cloudy morning, a clear sunny day from 0800 on; slight gusts of SE wind; temperature in the 70's. Present from 0800 to 1230 and from 1445 to 1745; Board with me at all times.

T56 - Silence as we pass.

T59 from 0805 to 0930 - At 0820 M59 sings once near the old nest and we find him. He flutters slightly in flight to a 20-foot perch. 59F flies to a tree 10 yards away and we lose them both. At 0840 M59 sings 2 skids on the hillside. 89

Thereafter we see and hear nothing.

T56 - Silence.

T57 at 1000 - M57 sings loud skids near the osage oranges. We go to the area 40 yards E where the female was tending young yesterday. She comes up carrying a large brown caterpillar, which she eats a minute later. She shows considerable alarm, calling loud "checks" until we leave 10 minutes later. I'd guess she isn't building yet.

T54 - The nest is still empty and clearly will not be used. M54 sings loud skids in the NW part of 2 at the top and later in the tree tops N of the clearing by 5. He takes food into 5, so he's still caring for the young. The loud songs are a new development though; they are regular and are sung at a 4-per-minute rate. Tending

T53 - Silence.

T55 - No songs in 20 minutes.

T59 - No songs on the hillside and on IV N. I forgot to mention that I put a pellet of paper in the nest yesterday at 1500; it is still there, so presumably the female never returned after I saw her. N 13

The young in 59F's eggs were about 8 days old.

1230 - We leave.

1445 - We return. It is hot, sunny, with a little breeze.

T59 - After an hour on the center of the territory, the hillside, we go S to what is left of old T8. We immediately hear a male singing insipid steps here and find M59. He sings irregularly with pauses of several minutes between songs; 90% are insipid, the rest skids. An occasional song is sotto voce or abbreviated. He concentrates on 1 area, flying generally among the tree tops within a range about 40 yards long and 30 yards wide. 6 M59

After about 30 minutes, during which we see 59F once, we find the general location of the nest as she passes us carrying material. It takes us another 40 minutes to find the nest; 59F seems to make only 4 or 5 trips in this time.

The nest is about 7 feet high on the outer end of a long flexible dogwood branch at the edge of a little clump of trees. It is on the SE side of the tree, which in turn is on the SE

642  
6/28/56  
VN

side of the clump. A clearing is to the S, high trees at the edge of the woods 10 yards to the E.

The nest itself is sufficiently well enough along to suggest that it was begun this morning between 0900 and 1100, I'd guess about 1000. It lacks walls of full height and is rather loose and messy looking toward the top; but it has a good deal of bulk. She's clearly been building at a good normal clip up to this time, 1700.

*how'd  
begin*

*not  
finished*

We'll watch construction tomorrow.

T57 - For 20 minutes we cover this territory but learn nothing new. The male sings loud skids in the osage orange areas, but we don't see the female this time.

1800 - We leave.

It's been 90% sunny, an ideal day for 59F to build.

Board was with me and took no separate notes.

643  
6/29/56  
VN

June 29, 1956

A cool, calm, dewy, cloudless morning, temperature 53°  
at 0430. Present from 0445 to 1200 and from 1330 to 1715;  
Board present from 1100 to 2030.

T56 at 0445 - Silence.

T59 - Silence. I sit to watch nest building; I'm 20  
yards SE of the nest. *down*

0510 - M59 skids once.

0517 - M59 skids 4 times in 1 minute, the last 3 songs  
within 15 yards of the nest. It's 53°. *sky*

0521 - M59 begins to skid near the nest to the N. All  
songs so far have been loud. He quits after 5 in 1 minute,  
flies up close to me and low, calls once and goes W. At  
0522-1/2 he skids once.

0534 - 59F brings material, seems to place it without  
entering, leaves in 5 seconds. In a minute she flies into  
the little sumacs near me and forages silently within 10  
feet of me, 2 feet high. It is 53°.

0537-1/2 - M59 skids loudly twice.

0546-1/2 - 59F comes to the nest with material, shapes  
it for 30 seconds turning half around in it and using her bill  
on the rim. Since she seems to be looking at me, I move back  
8 yards.

0547 - M59 begins to skid nearby, the first 2 songs faint.  
He sings 10 times in 3 minutes, quits.

0556 - M59 begins again.

644  
6/29/56  
VN

80  
0557-1/2 - 59F comes low to within 6 yards of me, moves nervously around and on out of sight. M59 still sings nearby. I think she may call when she is below him. He quits after 8 songs.

0539 - She goes to the nest, shapes for 1 minute, sits motionless for 2, shapes for 1, goes W. From now on I'll use a stop-watch to time her visits.

It's 56°.

0615-1/2 - She comes, stays 58 seconds, shapes.

20' 1/2  
0619 - Faint insipid steps begin.

30 min  
(5.0)  
0620 - 59F to the nest; 59 seconds. She's going N to gather.

0623 - 59F for 41 seconds. The insipid steps continue.

0625 - M59 quits after 30 songs.

5  
0630 - All songs have been indicated. It's 58°.

1  
0631 - Two skids.

20  
5  
0633-1/2 - 59F to the nest. After 1 minute of shaping she sits quietly, goes in 3 minutes and 23 seconds.

30  
0636 - Insipid steps begin, faint; 3 times.

0640 - 59F to the nest, shapes for 1 minute 40 seconds, goes W.

0643 - To the nest; 50 seconds shaping actively. She lit 4 feet above it and dropped down, goes N on leaving.

0645 - For 25 seconds; N.

0647 - For 76 seconds; N.



0650 - For 16 seconds; N.

0652-1/2 - For 22 seconds; W. I can't see what she's bringing. She seems to put it in the nest cavity from outside, then enter and shape. I'd guess it's lining, probably plant down.

0700 - It's 59°. M59 sang only 5 times in the half hour.

0706 - For 10 seconds; N. She perched 5 seconds beside the nest before entering, perhaps because a male Cardinal was active a few feet away.

0706 - For 7 seconds; W.

0729 - M59 begins type-8's in the high trees E of the nest.

0730 - It's 61°.

0732 - M59 quits after 17 songs.

0732-1/2 - One skid.

0733 - 59F comes with outer shell material, calls "check" before and after going, seems slightly alarmed but not at me. She stays 5 seconds.

0736-1/2 - One skid.

0749 - She brings a large quantity of plant fiber, calls 2 "checks" before going, stays 12 seconds, goes W. She seems to be more aware of me than she was.

0751-1/2 - For 36 seconds; W.

0752 - M59 sings type-8's faintly to the E.

8 f 8  
0754 - For 30 seconds; S toward me.

0755 - M59 quits after 8 songs.

0756 - For 20 seconds; S past me. She's gathering grape  
bark 30 yards S of the nest.

0757-1/2 - For 23 seconds with her second load of grape;  
SW.

0759 - For 15 seconds; SW.

0800 - It's 62°.

6  
0801 - For 11 seconds; SW.

0801 - Insipid steps, faint.

0803 - For 10 seconds; NE.

0805 - For 7 seconds; NE.

0806-1/2 - For 8 seconds; SW.

0808-1/2 - For 29 seconds, evidently working on the rim  
and probably using webs; NW.

2044 i  
(2.9)  
0808 - M59 quits after 20 songs.

0810-1/2 - For 63 seconds; SW about 20 yards.

0813 - For 72 seconds; E.

0815-1/2 - For 19 seconds working on the rim, moving her  
head back and forth as though attaching webs; NE.

10  
0817 - For 12 seconds attaching as before; SE.

0818 - M59 begins faint steps.

0819 - For 11 seconds; SE.

0820 - For 9 seconds; SE.

0821-1/2 - For 13 seconds; E.

0822-1/2 - For 8 seconds working on the rim and attaching;

SW.

0824-1/2 - For 7 seconds; SW.

0826 - For 47 seconds; SW.

0830 - It's 65°. M59 quits singing at just this time

2 5 mins  
(2.0)

after 25 songs since 0818. The last 3 were slightly rasping  
steps, all the others faint and insipid.

0833-1/2 - For 11 seconds; SW.

0835 - For 8 seconds; S into the sassafras trees by me.

0838-1/2 - For 13 seconds; SW. She seems to be going

about 30 yards S, at least 25.

0841 - For 33 seconds; SW.

11  
4 mins

0841 - M59 sings 4 faint insipid steps.

0842-1/2 - For 7 seconds; SW.

0844 - To a branch 1 foot from the nest for 20 seconds.

To the nest for 7 seconds; SW.

0845-1/2 - For 29 seconds; SW about 30 yards.

0847 - For 19 seconds; W.

5  
4 mins

0848 - M59 sings 4 very faint steps.

0849 - For 25 seconds; S past me.

0850 - Three more very faint steps.

0853-1/2 - For 40 seconds; E.

0855 - For 11 seconds; E.

0855-1/2 - For 9 seconds; W.

648  
6/29/56  
VN

0857 - For 13 seconds; W.

0858-1/2 - For 14 seconds; NE.

0900 - It's 67° with a mild SE breeze that came up about  
an hour ago.

0901 - M59 sings 2 short, faint steps.

0902 - For 55 seconds; SW.

0904 - For 58 seconds; NE.

0906 - M59 begins his faint steps.

0906-1/2 - For 38 seconds; S to the ground 10 yards from  
the nest.

0907-1/2 - For 11 seconds, W.

0909 - For 8 seconds; SW.

0910 - For 39 seconds; S 15 yards.

0912 - For 5 seconds; S to within 5 yards of me. She  
feeds from 1/2 to 3 feet high, flycatching and hovering at  
times to take an insect from a plant. No notice of me at all.

0912 - I don't hear the male anymore; he sang 12 times in  
6 minutes.

0916-1/2 - For 23 seconds; S 15 yards.

0918 - M59 gives 1 faint step from low near me.

0919-1/2 - For 13 seconds; W.

0920-1/2 - M59 begins faint steps, sings 5.

0921 - For 8 seconds; NE.

0922-1/2 - For 44 seconds; SE.

0924 - For 85 seconds; S 35 yards or more.

7.  
feeding  
13

0924-1/2 - Two faint steps.

0928 - For 57 seconds; E.

7  
1421  
113  
201  
0930 - It's 69°. I'll count songs by half hour periods  
from now on.

0930-1/2 - For 11 seconds; E.

0932 - For 33 seconds, E. I think she's going no more  
than 20 yards, probably less.

0934 - For 35 seconds; NE.

0936-1/2 - For 7 seconds; NE.

0937-1/2 - For 9 seconds; NE.

0938-1/2 - For 43 seconds; NE. She shaped, turning fre-  
quently and using her bill 1 or 2 times on the rim.

0940 - For 65 seconds, repeating the previous behavior  
but using her bill more; N.

0949-1/2 - For 22 seconds; N.

0958-1/2 - M59 sings 2 loud skids and 59F goes to the  
nest for 27 seconds; E.

1000 - It's 72°. M59 sang 16 times in the period, 14  
steps in the first 10 minutes.

1001-1/2 - For 53 seconds; SE. One skid.

1004-1/2 - For 27 seconds; NE. She puts the material  
in with her bill then enters and kicks and turns her body to  
shape. She uses her bill on the rim from time to time as she  
shapes.

1006 - For 79 seconds; SW.



1008-1/2 - For 7 seconds; W.

1010 - For 5 seconds; N. She's bringing large masses of plant fiber on the last 2 or 3 trips.

1011-1/2 - For 10 seconds; N. She entered and shaped a little that time; the last 2 times she scarcely did.

1014-1/2 - For 20 seconds; SW.

1016-1/2 - For 8 seconds; SE.

1017-1/2 - For 81 seconds; W. The male is singing a series of steps with a rasping quality in the last 2 or 3 notes.

1020 - For 8 seconds; E.

1021 - For 23 seconds; W.

1025 - For 18 seconds; W.

8/20/56  
10 at 6:00  
1 ok  
1026-1/2 - For 8 seconds with outer shell fibers, I'm pretty sure; N.

1030 - It is 75°. M59 has sung 42 times, 1 skid, about 10 of the slightly rasping, faint steps, the rest insipids.

1034 - For 6 seconds; up to the dogwood above the nest, 10 1/2 direction not seen.

1041-1/2 - M59 skids loud in the tall trees to the SE of the nest; one song.

1042 - For 57 seconds; N. Presumably she brought material but I couldn't see.

19  
1049 - For 58 seconds; SW.

1051 - For 37 seconds; W.

651  
6/29/56  
VN

1053 - For 18 seconds; W. These last 2 departures were to a tree just W of the nest. She may have gone any direction from there.

1054-1/2 - For 95 seconds, working furiously; N.

1059-1/2 - For 22 seconds; W.

1100 - It's 76°. M59 has sung once.

1105-1/2 - For 11 seconds; NE.

1108 - For 6 seconds; NW.

1109 - For 14 seconds; W.

25 Board takes over the timing. I then go closer to the nest to try to see what 59F is bringing. It is very difficult; I see a large feather and what I think are bast fibers. She does a good deal of the outside-to-inside pulling of materials over the rim, and I'd guess from all indications that she hasn't begun the plant down lining stage or has only just begun it. I move up to the nest; it looks about finished on the outside.

M59 is pretty vocal from 1100 to 1200, compared to his activity of the last hour.

1200 - I leave.

1330 - I return. It is cloudless and very pleasant.

T58 - Silence.

T57 from 1345 to 1600 - I cover the whole territory many times and see only M57 and 1 fledgling. The fledgling has a 1/2 to 3/4-inch tail, perches like an adult, bobs its tail before and after flying. It is 6 feet up in a little apple

652  
6/29/56  
VN  
JB

S of the osage oranges, is silent on the 1 occasion when I wait to see the male feed it.

M57 sings irregularly but rather consistently the entire time. Probably no pause is longer than 10 minutes. The location is the area of the osage oranges and the trees 30 to 40 yards E, almost always 30 feet or more high. Several times he sings sotto voce E of the osages, but I never can see the female there. All songs are skids and chatters.

I'd guess a new nest is in progress.

T53 - Silence as I pass through

T54 - Silence as I pass.

T55 - Silence during 15 minutes.

1715 - I leave. The day has been 100% sunny.

T59 at 1100 - I [Board] arrive and relieve Nolan at timing the building of the nest.

1114 - For 9 seconds.

1114-1/2 - For 10 seconds.

1118 - For 66 seconds, turning and shaping in the cavity.

She preens for 10 seconds nearby after leaving.

1120 - For 63 seconds; W.

1129-1/2 - For 6 seconds with a feather; 30 yards S and into a tree 25 feet up.

1132 - For 6 seconds; NW.

1137 - For 82 seconds; N.

653  
6/29/56  
JB

1143 - For 70 seconds; W. She perches 10 feet up in a tree 25 feet from the nest.

1148 - For 50 seconds; W.

1151-1/2 - For 19 seconds; NW.

1158 - For 2 minutes 15 seconds.

29 1200 - M59 sang 29 times in the half-hour.

1203 - For 34 seconds.

1207 - For 1 minute 10 seconds.

1212 - For 8 seconds; NE.

1216 - For 35 seconds; E.

1221 - For 16 seconds; SE, then through the thicket I'm in at about 7 feet in height, stopping 20 feet S of me.

1225 - For 9 seconds; N.

1277 - For 11 seconds; N.

1230 - For 12 seconds; N.

It's 80°.

M59 has not sung in the period.

1232 - For 35 seconds; to the walnut N of the nest, where she perches 15 feet high and preens for 15 seconds, goes E.

1236 - For 88 seconds; NE.

1244-1/2 - For 13 seconds; W.

1246 - For 54 seconds; E, stopping in the opening 4 feet E of the nest and going to the ground.

1255 - M59 begins to skid nearby.

1256 - For 18 seconds; W.

654  
6/29/56  
JB

15  
1258-1/2 - For 40 seconds; N.

1300 - I counted 15 songs from the male; I may have missed some faint ones.

1302-1/2 - For 15 seconds; NW.

1306 - For 47 seconds; N.

1314 - From the E; for 11 seconds; W.

1316 - From the E; for 11 seconds; N.

38  
1330 - For 15 seconds; E. M59 has sung 38 times in the half hour.

It's 80°, sunny and clear.

1333 - For 5 seconds; SE, passing through the thicket near me (25 feet away), and hopping from 2 to 6 feet high.

1338-1/2 - For 10 seconds.

1340 - For 7 seconds.

1346-1/2 - For 10 seconds; E.

1350 - For 95 seconds; N.

1352-1/2 - For 5 seconds; N.

1400 - For 80 seconds.

16  
M59 sang 16 times in the period.

It's 83°.

1408-1/2 - For 78 seconds; N.

11  
1430 - M59 sang 11 times this period.

1431 - For 7 seconds; N.

1434 - For 14 seconds; W.

1451-1/2 - For 38 seconds; W.



9  
1500 - For 65 seconds.

M59 sang 9 times this period.

It's 77°.

1506-1/2 - For 40 seconds.

1509\* - For 27 seconds; N.

1513 - For 20 seconds; E.

1528 - For 8 seconds; N.

16  
1529 - For 107 seconds; S.

1530 - M59 sang 16 times.

1532 - For 9 seconds; S 15 or 20 feet, where she stays within 1 foot of the ground and apparently gathers from broomsedge.

1555 - From the E; for 22 seconds; W. (Apparently 59F was feeding after her 1532 trip.)

1557-1/2 - For 13 seconds; W.

1559-1/2 - For 97 seconds; SW. M59 skidded twice loudly, quite near, while she was at the nest.

24  
8  
1600 - M59 sang 22 times during the half-hour.

1630 - M59 sang 8 times, and 59F made no trips.

It's 75°.

18  
1654 - For 7 seconds; S.

1700 - M59 sang 18 times.

4  
1730 - M59 sang once, and 59F made no trips.

1737 - For 80 seconds, nest-shaping busily; E.

1744 - For 12 seconds; NE.

656  
6/29/56  
JB

1747 - For 55 seconds; W.

1756 - For 125 seconds, most of the time sitting quietly  
in the nest; NE.

1800 - M59 sang 7 times.

1814 - For 10 seconds; SE. M59 is skidding nearby.

1830 - M59 sang 6 times.

It's 73°.

1841 - For 12 seconds; W.

1847-1/2 - For 18 seconds; NE.

1853-1/2 - For 12 seconds; W.

1900 - M59 did not sing.

It's 70°.

1928 - For 55 seconds; NE.

1930 - M59 sang once.

It's 68°.

2000 - M59 did not sing, and 59F made no trips.

It's 67°.

There was no further activity by male or female. The  
female did not roost on the nest.

2030 - I leave.

657  
6/30/56  
VN

June 30, 1956

A calm morning with a few light clouds; temperature 61° at 0500. Present from 0500 to 1645; Board present from 1330 to 2030.

T59 at 0500 - Silence, although it should be noted that most of the original territory is probably out of earshot. *down*  
*sing*

0557-1/2 - 59F comes silently and directly to the nest, stays 138 seconds, goes N. I'm sure she brought material. She worked the rim a little at first, then sat quietly except for quarter turns in the cavity twice, about half a minute or so apart. No sign of the male so far.

0600 - It is lightly clouded at the horizons, windless, 62°.

0607 - There is 1 short skid, another in 3 minutes.

0611 - For 53 seconds; SW. She shapes and as she turns seems to grab at loose ends around the rim and tuck them in.

0615-1/2 - One skid nearby to the W. In 2 minutes another. It has now clouded over to produce about 75% cover.

0620-1/2 - For 16 seconds, behaving as before; W.

0625 - One skid.

0627-1/2 - M59 sings 3 skids about 15 yards from the nest, flies high to the N.

0630 - It is now almost wholly, though lightly, clouded over; 64°.

658  
6/30/56  
VN

2/2  
0636-1/2 - For 102 seconds, behaving exactly as before;  
N. M59 sings 2 skids 15 yards W of the nest while the female  
is in it. Just before she came a pewee flew toward a branch  
6 feet from the nest, and a small bird got into a short pur-  
suit with it. The pursuer was probably 59F. I think she  
brought plant down, but it's hard to tell because of the  
foliage. *07  
pewee*

0700 - It's 65° and the clouds are disappearing. The sun  
shone for a few minutes at 0656 and will soon do so continuously.

0703 - For 30 seconds, behaving as usual this morning; SW.

0704 - A light SE breeze comes up.

50  
0704-1/2 - M59 begins to sing weak skids W of the nest  
about 20 yards. He sings 5 in 1-1/2 minutes.

0706 - For 50 seconds; same behavior; SW.

40  
0712-1/2 - M59 sings 4 loud skids just W of the nest,  
stops after 1 minute. *0712*

0713-1/2 - For 25 seconds; usual behavior; N. Note that  
her visits are beginning to coincide with the male's songs.  
Is he following her around? *←*

Gnatcatchers are very active in the vicinity of the nest  
and even the nest tree; no reaction from the PW's, assuming  
they are around to see.

12  
0726 - M59 sings 1 skid near the nest.

0726 - In 5 seconds 59F brings grass, stays 18 seconds,  
goes NE.

659  
6/30/56  
VN

0730 - It's clouding over again; 68°. The breeze is from the SW.

0731 - For 20 seconds; NE. I think she kept a piece of grass in her bill after she got in the nest, inserted it then. ←

0733 - 59F flies into a big cherry 20 yards W of the nest, sits quietly about 40 feet high, leaves in 1 minute.

0743 - For 32 seconds; usual behavior; N. I have my glasses on the nest most of the time but can see what she brings only very occasionally.

0750 - M59 sings 2 skids, quite near the nest, possibly in the cherry tree just above it.

0753-1/2 - For 26 seconds; usual behavior; N.

0800 - It's still half cloudy with the sun shining only sporadically and about 25% of the time. The breeze is cool; 70° when the sun is out, 68° when it's not.

0809-1/2 - For 41 seconds; usual behavior; SW.

0815 - For 10 seconds; SW.

0817 - 59F is 10 feet N of the nest in a little walnut. She moves actively about 9 feet up, has no material. I soon lose her. In 2 minutes the male flies to the walnut tree, then to the nest tree 4 feet above the nest. He calls "tsu" once a second, flips his tail, seems nervous (and not because of me). He goes N in 10 seconds. ♂ to nest

0821 - 59F goes to the nest and M59 to the nest tree 3 feet from her. He leaves immediately. For 41 seconds, usual



660  
6/30/56  
VN

behavior; N.

0826 - For 6 seconds; SW.

0827 - M59 flies to within 2 feet of the nest, at nest level, sits for 5 seconds bobbing his tail, leaves. *to nest*

0828 - For 15 seconds with a piece of grass; usual behavior; SW. She flew past me on her way to the nest, called 2 or 3 times a note most like "tsu" but usually given I think when in the presence of the mate (or young or parent?).

0830 - Cloudy and threatening; quite breezy; 71°.

0831 - 59F is foraging in the 3-foot sumacs near me, 15 yards from the nest. She eats a brown caterpillar.

0833 - She reappears in the same place, gathers broom sedge down, goes N out of sight collecting it.

0835 - For 7 seconds; E.

0836-1/2 - For 6 seconds; NE.

0837 - It begins to rain lightly, pours at 0845. There are several loud claps of thunder and it gets moderately dark. At 0857 it quits raining. No trips by 59F.

0900 - It is cloudy, windless, 65°.

0910 - It's getting a little lighter. The storm is to the E.

0915 - It rains rather hard for 5 minutes.

0930 - It's 70°. The sun comes out occasionally but the sky is still largely cloudy and dark thunder clouds are coming in from the S.

661  
6/30/56  
VN

0937 - 59F hasn't built for the hour since the rain began. ←

1000 - It's still largely cloudy with a few gaps through which the sun occasionally shines; 71°.

1011 - 59 comes to the nest, stays 63 seconds behaving as she did before the rain; N.

1015-1/2 - For 39 seconds. She goes N to the little walnut 5 yards back of the nest. Here she wipes her bill 4 times, eats a caterpillar, sits quietly for 20 seconds, goes NE after a minute spent there.

1021 - For 39 seconds; SE. The leaves are drooping because of the water on them, so it's hard to see what she's doing in the nest.

20 1024 - M59 skids loudly SE of the nest, for his first song in a long time. I hear 6 or 7 of the little "tsu" - like notes supposedly given in the presence of the mate. He sings a half a skid.

1030 - It's wholly cloudy, threatens to rain again; 73°.

I saw a Fox Squirrel in a tree 25 yards SE of the nest a few minutes ago. pared

1032 - For 60 seconds, behaving as usual; SW.

210 1034 - M59 skids to the W, moves E of the nest and repeats. Both songs were loud.

1037 - For 65 seconds, behaving as usual; W. M59 perches on a walnut limb about 1 foot above the nest level and 10 or  
nearly  
to

or 15 feet away, all the time the female is in the nest. He moves his body nervously, his feet remaining stationary. Several times he has his wings drooping and about 1/4 extended for a few seconds at a time.

1041 - It begins to shower very lightly, stops in 30 seconds. There is thunder in the SW.

1043 - 59F flies without material to the cedar 3 feet S of the nest, hops about in it, moves slowly S and passes me at about a 5-foot distance. She is going from branch to branch, about 4 feet high. She displays no alarm while near me, is silent.

1050 - There are 2 gnatcatchers in the nest tree. The sun is out and the sky is 20% clear.

1059 - For 76 seconds; SW. She brought grass I'm pretty sure, behaved as usual, shaping with her body and working on the rim as she turned. M59 comes to the same perch as he did 20 minutes ago, then hops to the nest tree within 3 feet of the nest. He leaves in 5 seconds.

1100 - It's sunny, 20% clear sky, 78°. An almost imperceptible rain is falling and there is thunder to the S. There are gusts of light SE wind.

1107-1/2 - For 28 seconds; NE. M59 lands in the nest tree below and 5 feet from the nest, leaves in 2 seconds when the female does. What causes the male's behavior to change

♂ to nest

♂ to nest

663  
6/30/56  
VN

573  
NB?

on the third day of building? Is it that the female calls in the way I've heard twice today?

1127 - For 39 seconds; N.

1130 - The weather is as before except that it's 84°.

1137 - For 51 seconds; SW. M59 was in the walnut N of the nest for a second or two.

1139 - One of the pair, I think the male, is in the bushy growth in which the nest tree stands. At 1140 it catches an insect in the nest tree; at 1142 it's there again.

1142-1/4 - For 7 seconds; SE. The bird in the trees, described above, could hardly have been the female, and it looked like the male (which is poorly marked).

1144 - The two feed along through the 7-foot sumacs within 6 feet of me. They stay from 2 to 20 feet apart. I hear M59 give a new series of notes, a faint little high chatter, a sort of whine. I can't compare it to any other bird note except possibly a gnatcatcher's. 59F calls "check" twice. One gives the "tsu" note heard earlier this morning. 59F seems to be foraging, while M59 is the follower, though he eats too. Once she goes to the ground. I think they call most of the time; I hear little "tsu" notes but they're so light I can't tell where they come from.

or 1145  
down 8' a  
↑ call

1150 - For 13 seconds; S past me. As 59F reaches a point opposite me to the E and 10 yards away the male dives at her from somewhere. She is about 3 feet up, and she stops on a

079

664  
6/30/56  
VN

1/2 2-foot perch. He goes on about 5 feet and sings an extremely faint half-skid, half-step and in 2 seconds part of another. The first may have been uttered in flight, and both would be inaudible at more than 10 yards. Just as he flew to her I heard a snapping sound, the sort made when a PW catches an insect in the air. She then went to the ground in a little wooded spot; she must be gathering either grass or rootlets, because there would be no ordinary plant down there.

1155-1/2 - For 11 seconds; N.

1200 - The sky is as before, with the sun having been out or only partly obscured during most of the last half-hour; 82°.

1200-1/2 - For 9 seconds; N.

1223-1/2 - For 21 seconds; N. Note that my view of the nest and the area behind it is very narrow, so my failure to see the male on the female's visits doesn't mean he isn't with her.

1230 - It's 80% sunny, breezy, 83°.

1239 - For 52 seconds; N. While she was in the nest M59 was 10 feet away in the walnut. He perched with tarsi flexed so that he was crouched down. His body moved from side to side within a 50° arc, and his tail bobbed. He let his wings hang a little at his sides or held them slightly out, and several times he fluttered them very shallowly and rapidly

NB  
singing  
B  
B



665  
6/30/56  
VN

just about as a gnatcatcher does. I heard no sound.

1300 - It's clear, sunny, with a mild breeze from the SE;  
81°.

1330 - It's sunny, 84°. Board arrives and relieves me.

T57 from 1415 to 1600 - M57 sings exactly as he did yesterday, possibly with a few more chatters. I never see 57F. The location of M57's singing is farther to the E than before. He concentrates on an area of open woods with full shade but a grassy floor, about 70 yards E of the osages and at the S end of the territory, next to the bean field. I'm pretty sure I hear the young here, but I can't find them. M57 responds to squeaking and shows a good deal of interest and possibly alarm. I watch all the surrounding openings for the female, without success.

T54 - No sign of a PW in 10 minutes.

T53 - M53 is feeding the young in the W edge of 1, about 3 feet from the ground. 53Y is now in nearly full immature plumage; its head is becoming neater. It is vociferous, and the sound of the young's calling is what attracts me. *feeding*

As I'm watching the 53's an unbanded, poorly marked male flies up to within 6 feet of M53 and the young bird. M53 waits long enough so that I can look at the new male, then in about 2 seconds flies at it and the two disappear. This occurs in silence. In about half a minute M53 is back and begins to tend the young. *1st*

666  
6/30/56  
VN  
JB

T55 - Silence during 20 minutes. See above under T53.

1645 - I leave.

The day was 70% sunny.

T59 at 1330 - I [Board] arrive and relieve Nolan.

1332 - For 40 seconds; W.

1350-1/2 - For 35 seconds; W.

1353-1/2 - For 28 seconds; NE.

1358 - For 58 seconds, during which M59 is near the nest calling "tsip."

1400-1/2 - For 12 seconds; E.

1409 - From the E; for 7 seconds; N some 8 feet to a perch a little above nest level, quickly on W.

1422-1/2 - For 25 seconds; NE.

1440 - For 84 seconds; N.

1449 - For 20 seconds.

1451 - M59 skids loudly once, near the nest.

1455 - M59 appears for an instant 6 feet from the nest, calls "tsip."

1457 - M59 is near the nest; he skids 3 times.

1500 - It's 80°, clouding over, breeze rising.

1502 - M59 skids once, flies to within some 10 feet of me and perches 3 or 4 feet up, forages and eats a green larva.

He calls "tsip" all the time, seems to disregard me.

1510 - M59 sings 5 skids, may also call.

1533 - For 17 seconds; W.

667  
6/30/56  
JB

1552 - For 27 seconds; NE.

1600 - No songs in the last half-hour.

1609 - For 42 seconds; W.

1637 - For 100 seconds; NE.

1700 - M59 sang twice.

It's 82°, the sky mostly clear, with a little wind.

1715 - For 30 seconds; W.

1730 - No songs.

1743 - For 30 seconds; W. M59 appeared 20 feet SW of the nest just as 59F arrived at it. He made a few "tsip" sounds and left the vicinity in about 1 minute.

1800 - No songs.

It's 80°, mostly clear.

1803-1/2 - For 20 seconds; N.

1830 - No songs.

1900 - M59 sang 3 times; no trips.

1902 - For 26 seconds; W.

1930 - No songs.

It's 76°.

There is no further activity of any kind. The 2000 temperature is 75°. I check to be sure the female doesn't roost on the nest; she does not.

2030 - I leave.