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THE OTTAWA NATURALIST.

VOL. XVI.

OTTAWA, AUGUST, 1902.

No. 5.

EARLY NESTING IN 1902.

By W. E. SAUNDERS, London, Ont.

(Read before the Ornithological Section of the Entomological Society of Ontario.)

On March 28th, 1902, I made a short trip in the afternoon to look after the Prairie Horned Lark. On a common in the eastern part of this city I found two pairs. One female was feeding rapidly, so that I judged she was in a hurry to get back and protect her eggs from the drizzling rain which was then falling, and her wet appearance hinted that she had been off the nest a good while. After feeding a while she preened herself and shortly after went behind a tuft of grass and rested there, screened from the wind and rain by the height of the tuft. After flushing her once or twice, I decided that she could not have eggs, and left her. The other female was found as usual by following the male, and she had not been watched more than fifteen minutes before she went on the nest, which was situated on the open common. Going over, I found 3 young, apparently about $\frac{1}{3}$ grown, with feathers sprouting on the wings and in good general condition, probably 4 days old. Allowing 11 days for incubation and 3 for laying, the first egg would have been laid on the 11th of March, which is so extraordinarily early that it drew me into a comparison with other birds and other years. These birds often have young flying before May 1st, and I found a nest on April 9th, 1898, with 3 eggs, half incubated, but never earlier. Mr. Morden once took a fresh set of 4 on April 7th, and his only earlier set was of 3 eggs, incubation $\frac{1}{4}$ on March 27th, 1889; but these were far from being 3 young on March 28th!

I find that the snow on open ground was practically gone this year on March 2nd, which gave the birds 9 days to build and prepare before laying. In other years there is usually snow much later than this; for instance, in 1901, the winter's covering was all melted on March 25th, and in 1900, about April 25th. It is evident from these dates that this Lark is a species of which certain individuals are much influenced by the state of the weather, although a number of other pairs observed this season, were on April 2nd still feeding in couples, and evidently not nesting as yet. On the other hand, the majority of birds seen along the roadsides between March 22nd and 28th were single males whose mates were probably engaged in the task of incubation.

The only other bird we have that regularly breeds very early, is the Great Horned Owl, and unfortunately the local data at hand from which we can make a comparison with the Larks, are exceedingly meagre, consisting of the record of two sets of eggs in 1902 and one in 1901.

Of course one would naturally expect that large birds would be more slowly influenced by abnormal conditions of weather than would small ones, and the data of these 3 sets fully confirm this conclusion. In 1901, when the snow left us on March 25th, and when no Larks' eggs, *probably*, were laid before March 28th or 30th, I took a set of Great Horned Owl, consisting of 2 eggs, almost fresh, on March 19th, six days before the snow had vanished on the open levels; whereas, this year, a set of two was taken near London on March 25th, of which one was almost fresh and the other had been incubated for perhaps 4 or 6 days. These two eggs were probably laid about March 18th and 22nd, after over two weeks of bright warm weather with the ground free of snow, and four or five days later than the date of those found before the snow had vanished in the previous year. These sets were both taken from open nests, that of 1901 from a nest built by a crow in 1900, and that of 1902 from a nest of undecided origin.

The other set from 1902, also confirms the conclusion that these birds do not regard the weather, but in a different way. It consisted of 3 eggs, and was taken on March 21st, from a hole in a basswood stub 42 feet above the ground. Two of these eggs were added, but the shell of the other one was pipped and the

chick was almost ready to emerge. As these birds doubtless incubate about 30 days, the one egg must have been laid about February 19th, at which time there was absolutely no sign of approaching spring and the thermometer often fell to the neighbourhood of zero in the night. The bird must therefore have laid these eggs entirely by faith in the hope of better weather to come.

The later breeding birds have also been affected by the long spell of early, fine weather, and the first set of Red-shouldered Hawks eggs for the year was taken on April 5th, five days earlier than the earliest previous record. Another was taken on April 11th. Crows were noticed building on March 28th.

ENTOMOLOGICAL NOTES.

TENT CATERPILLARS (*Cliticeampa disstria*) IN RAT PORTAGE DISTRICT, ONT.—The Rat Portage district suffered severely from the above pests during the latter part of June, when an area of many miles in extent, covering both the mainland and the islands on Lake of the Woods was devastated by immense numbers of these caterpillars. They fed very generally so that all classes of deciduous trees and shrubs suffered, and the trees were literally stripped. During the first week in July the larvæ were full fed, and, helped by the unusual amount of rain, the trees at this writing are putting forth some scanty supply of leaves. No parasites were noticed in the larvæ collected.

THE NEGUNDO LEAF-ROLLER (*Cacæcia semiferana* Walker) IN WINNIPEG, MAN.—The Ash-leaved Maples or Negundos were seriously threatened with this pest early in the season, the trees being covered with rolled leaves. The very wet weather of June, however, seemed to completely exterminate them. The affected leaves shrivelled up hard, seemingly under the influence of warm sunshine following rain, and afterwards no larvæ were seen. Search failed to reveal any parasites or other enemies.

A PLANT-LOUSE ON WILLOW.—From a point west of Portage came reports of considerable damage to a grove of young poplars. No specimens were sent, but the description given seems to indicate the Willow-grove Plant-louse, *Melanoxanthus salicis*, Harr., or a related species.

THE COCK'S-COMB ELM GALL-LOUSE (*Colopha ulmicoid*, Titch.) was extremely prevalent on elms throughout the city of Winnipeg this season.

Winnipeg, July 14th, 1902.

W. A. BURMAN.

Average force of wind.....	II	III	III	III	II	I	II	III	II
Number of auroras.....	0	0	0	0	0	0	0	0	0
Number of thunder storms.....	0	0	0	0	2	1	4	0	0
Number of fogs.....	3	0	0	0	0	0	0	1	0
Number of days without rain or snow.....	19	17	23	24	21	20	13	17	17
								19	14
									18
									222

Days of rain and snow only reckoned when at least 0.01 inch fell.

**Frequency of the different winds,
observations at 8 a.m. and 8 p.m. daily.**

1900	N	N E	E	S E	S	S W	W	N W	Calm
January...	7	9	4	2	10	6	15	7	2
February...	4	21	2	1	1	6	18	3	0
March...	3	4	5	1	2	18	11	18	0
April.....	6	2	8	5	10	9	10	10	0
May.....	8	11	8	2	7	9	4	13	0
June.....	8	4	5	3	6	8	21	3	2
July.....	2	2	4	1	9	12	20	8	4
August...	1	8	5	4	4	11	13	6	13
September	2	12	7	3	4	8	9	7	4
October...	2	15	12	2	4	8	9	7	3
November	8	8	9	9	3	9	11	3	0
December.	6	3	12	2	2	10	16	9	2
Year..	57	99	81	35	62	114	156	96	30

1900

Coldest day of year..... Feb. 2.... Mean temperature. —14.0
 Heaviest snow of year.. March 1-2 Depth..... 29 in.
 Last measurable snow.. " 16, " 1 in.
 Last frost..... May 11...
 First thunder..... June 8....
 Heaviest rainfall of year, July 17.... Amount..... 2.26 in.
 Warmest day..... August 26, Mean temperature. 79.4
 Last thunder..... Sept. 27...
 First frost..... Oct. 17...
 First snow..... Nov. 11...
 Stormiest day of year.. " 15... Approx. velocity, 55 miles.
 First record below zero, Dec. 16... .. —12.0

ABSTRACT OF METEOROLOGICAL OBSERVATIONS AT OTTAWA FOR THE YEAR 1901.

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	YEAR.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Average height of barometer at 32°, reduced to sea level...	29.972	29.871	29.864	30.035	29.841	29.996	30.037	30.041	30.074	30.152	30.065	30.099	30.004
Highest barometer ...	30.90	30.43	30.46	30.46	30.21	30.20	30.27	30.33	30.66	30.75	30.50	30.63	30.90
Lowest " ...	29.10	29.47	29.33	29.62	29.44	29.62	29.09	29.81	29.55	29.58	29.28	29.47	29.09
Monthly and annual range ...	1.80	0.96	1.13	0.84	0.77	0.58	1.18	0.52	1.11	1.17	1.22	1.16	1.81
Average temperature of air (F.) ...	11.72	11.35	24.33	46.44	57.17	67.52	71.82	68.29	60.73	47.79	28.07	18.49	42.81
Difference from average ...	+ 1.22	- 1.25	+ 2.13	+ 5.74	+ 2.17	+ 2.32	+ 2.52	+ 2.79	+ 2.93	+ 2.89	- 3.83	+ 1.19	+ 1.73
Highest temperature ...	40.0	34.0	40.0	81.0	81.0	96.8	98.3	96.8	95.8	71.0	58.0	52.0	98.3
Lowest " ...	- 24.0	- 10.0	- 8.0	27.0	39.0	44.0	50.0	44.0	31.0	26.5	- 2.0	- 12.0	- 24.0
Monthly and annual range ...	21.6	20.8	32.9	55.8	67.2	78.4	82.3	78.3	71.1	55.9	33.8	25.9	52.0
Average maximum temperature ...	1.8	1.9	15.8	37.1	47.1	56.6	61.4	58.3	50.4	39.5	22.3	11.1	33.6
Average minimum " ...	19.8	18.9	17.1	18.7	20.1	21.8	20.9	20.0	20.7	16.3	11.5	14.8	18.4
Average pressure of vapour ...	"	"	0.088	0.201	0.355	0.601	0.660	0.581	0.464	0.296	0.142	0.098	"
Average humidity of the air ...	"	"	61	59	74	85	83	86	90	91	92	92	"
Average temper. of dew point ...	"	"	15.5	34.6	49.5	64.3	66.9	63.2	56.9	44.7	26.2	18.0	"
Amount of rain in inches ...	0.20	0.00	0.90	2.99	3.91	3.76	3.18	3.23	1.91	1.45	0.40	2.13	24.06
Difference from average ...	- 0.30	- 0.43	- 0.14	+ 1.49	+ 1.32	+ 0.84	- 0.29	+ 0.19	- 0.78	- 1.01	- 1.20	+ 1.43	"
Number of days of rain ...	1	0	3	15	15	9	7	11	9	12	5	6	93
Amount of snow in inches ...	31.1	8.0	13.0	- 4.7	.....	.....	.....	.....	.....	.....	18.5	21.9	92.5
Difference from average ...	+ 6.2	- 13.7	8	0	.....	.....	.....	.....	.....	.....	+ 9.1	+ 0.1	- 7.7
Number of days of snow ...	8	4	8	0	.....	.....	.....	.....	.....	.....	7	9	36
Percentage of sky clouded ...	61	44	69	70	56	47	48	52	48	53	70	77	58
Number of days completely clouded.....	10	5	13	16	9	2	1	3	3	1	12	12	87

Average force of wind.....	III	III	III	III	III	III	III	III	III	III	III	III	III
Number of auroras.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of thunder storms.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of fogs.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of days without rain or snow.....	17	22	18	14	15	15	18	18	19	14	12	14	196

Days of rain and snow only reckoned when at least 0.01 inch fell.

Frequency of the different winds, observations at 8 a. m. and 8 p. m. daily.

1901	N	NE	E	SE	S	SW	W	NW	Calm
January...	8	4	15	2	3	9	18	3	0
February...	3	5	2	1	0	6	33	6	0
March....	4	7	14	2	6	10	11	8	0
April.....	13	15	20	3	6	0	0	3	0
May.....	3	9	15	4	7	5	11	7	1
June.....	1	9	5	7	5	13	15	4	1
July.....	4	7	7	2	2	17	9	8	1
August...	1	15	2	12	1	9	6	10	5
September	0	9	2	7	1	15	1	21	4
October .	1	2	2	13	1	9	5	24	5
November	3	7	9	3	0	2	8	28	0
December.	1	9	14	8	1	4	10	14	1
Year..	42	98	107	69	33	99	127	136	19

1901

Heaviest snow of year... Jan. 12... Depth..... 9 in.
 Stormiest day of year .. " 14... Approx. velocity, 30 miles.
 Coldest day of year ... " 19... Mean temperature -17.5
 Last measurable snow.. March 22. Depth..... 1 in.
 Last frost .. April 20...
 First thunder .. June 1st...
 Warmest day..... July 2nd... Mean temperature 83.9
 Heaviest day's rain.... " 30... Amount..... 1.54 in.
 Last thunder August 22.
 First frost..... Sept. 25...
 First snow .. Oct. 17...
 First record below zero, Nov. 29. -2.0

REPORT OF THE ENTOMOLOGICAL BRANCH, 1901.

The leaders of the Entomological Branch are glad to be able to report that a satisfactory amount of work has been done by the members during the last two years. Accidentally, no report was submitted to the Club last year, although a considerable amount of work was done. A gratifying interest in the study of insects has been shown by some of the younger members of the Club, as well as by the students of the Public Schools, and particularly by those attending the Normal School.

Mr. Harrington continues his studies on the distribution of the various orders of our local insects, and is preparing local lists for publication. His last contribution to the Fauna Ottawaensis "Hymenoptera, Superfamily 2, Sphegoidea," appeared in the OTTAWA NATURALIST for January last.

Mr. C. H. Young continues active work, particularly among the Lepidoptera. He has added many interesting species to the Ottawa list. One of these a very beautiful Agrotid has been named *Semiophora Youngii* in his honour by Prof. J. B. Smith, our highly esteemed Corresponding Member

Mr. Young and Mr. Arthur Gibson have added largely to their collections of inflated larvæ during the present season.

Dr. Fletcher and Mr. Gibson have been vigorously prosecuting the interesting work of rearing insects from the egg through all their stages, and much valuable original work has been done not only upon our local species of Lepidoptera but upon many others, the eggs of which have been sent to them from a distance by mail. The value of learning the preparatory stages of insects cannot be overestimated, and forms one of the most necessary factors in devising remedies for injurious species.

A most important addition to the works upon Entomology, which has recently appeared, is Dr. Howard's "Insect Book," a work of the same nature as Dr. Holland's "Butterfly Book," but of much wider scope. With Dr. Howard's and Dr. Holland's books it is now possible for beginners to take up the delightful study of insects and learn something at any rate about almost any insect they may come across; for all the orders are now treated of with the exception of the Moths and Beetles, upon which there is

already a great deal of published matter available to students. Until the present time this was almost impossible, and a great many boys and girls were deterred from studying insects by the lack of available literature. Among helps of a general nature available to the local members of our Club, mention must be made of the collection of insects now being built up at the Experimental Farm. The fine collection in the Geological Survey Museum consists mostly of Lepidoptera, although there are a few specimens in other orders. The collection at the Experimental Farm is a general one, and great pains have been taken to have the preliminary stages represented. Dr. Fletcher and his assistants are always pleased to welcome visitors and exhibit the collections to any who wish to see them. They are also particularly anxious to help any beginners who may apply to them. This is likewise the case, of course, with all the Leaders who have private collections and are always willing to show them, or to help others in identifying their specimens.

Many rare or interesting species have been reared or collected during the past year. Several of our members living at points distant from Ottawa have helped materially in this work. Rare species of Hymenoptera and Coleoptera have been sent from Vancouver Island, by the Rev. G. W. Taylor, and from Kaslo, in the Rocky Mountains, by Mr. J. W. Cockle. Similar help has been received from Mr. W. McIntosh, in St. John, N. B. Eggs of Arctians, which have been reared to the perfect moths, were received from Mr. A. Kwiat, of Chicago, and some of the stem-boring larvæ of the genus *Hydraxia*, were sent from Rye, N. Y., by Mr. Henry Bird. Mention is made of this merely to draw attention to the fact that every member may do good work, whether interested in Entomology or not, by sending living specimens of insects by mail to the Leaders at Ottawa. Living insects, if packed in close tin boxes, without "holes for them to breathe through," with some of the food plant, may be sent by mail from all parts of Canada within a reasonable distance of railways, and will travel in perfect safety.

The two most noticeable injurious insects of the year in this district were: (1) The Small White Cabbage Butterfly, *Pieris rapæ*, which did much harm in cabbage, turnip and rape fields

This outbreak, however, was terminated suddenly late in August and in September by a bacterial disease of a very virulent nature. (2) The Birch-tree Skeletonizer (*Bucculatrix Canadensisella*, Chambers). This is a minute moth, the caterpillars of which sometimes occur in vast numbers and attack the foliage of all kinds of Birches. Last summer there was an excessive outbreak of this insect, and Birches throughout the Province of Ontario were much disfigured by having their leaves skeletonized by the tiny caterpillars. The insect is of considerable interest to the Entomologist, from the peculiar habit of the caterpillars, unusual among larvæ, of spinning on the leaves small circular flat shelters called pseudo-cocoons, inside of which they moult their skins. The true cocoons are beautiful little brown objects of an entirely different appearance, resembling a tiny clinker-built boat turned upside down. When full-grown the caterpillars let themselves down to the ground and, after wandering to some distance in search of a suitable place to pass the winter, spin these elegant cocoons. The work of construction is a most interesting one to watch; three-fourths of the cocoon is spun from one end, the caterpillar then crawls inside and closes up the other end. Sometimes many of these cocoons may be found beneath a convenient slab of rock, at other times they are spun on fallen leaves, or on stems of plants close to the ground.

Among the most interesting insects reared during the summer was a family of the minute hymenopterous parasite *Bæus niger*, of which Mr. Harrington reared four males and 20 females from a single cluster of spiders' eggs. This is one of the smallest insects we have, and the females are wingless, while the exceedingly rare males are winged.

Some of our members have made collections of insects in various parts of the Dominion. Mr. J. D. Evans has done good work at Trenton, Ont. Mr. J. M. Macoun, Naturalist of the International Boundary Commission, brought back some choice specimens from the Cheam Mountains, in British Columbia, a locality also visited by Dr. Fletcher with good results.

Of equal value with the work done in working out the life histories of rare insects is a great increase to our knowledge of the preparatory stages of many of our common species, which has been

made by some members of the Club. This is a field of useful work where, with little trouble, if care be taken in observing and recording accurately, many, even with small knowledge and experience, may do good useful work. What is wanted more in every branch of natural history, is a few earnest students who will content themselves with doing a little, but doing that little as well as possible.

Pityophthorus coniperda, Schwarz, a scolytid, or small bark-boring beetle, mentioned in previous reports as infesting the cones of red pines at Aylmer, was observed on May 26th last, by Mr. Harrington to be seriously infesting the cones of white pine in a grove near the top of the long hill between Ironsides and Chelsea, Que.

Anthophylax attenuatus, Hald. A perfect specimen of this rare species was taken at Chelsea, Que., by Mr. Young, on June 1st. At the same time several specimens of the more beautiful *A. malachiticus*, Hald., were secured.

Homohadena badistriga, Grote. For several years the caterpillar of this moth has been troublesome on the Experimental Farm upon honeysuckles. When very small they attack the clusters of flower buds and do much harm.

Sphinx canadensis, Bdv. Two specimens of this rare moth were taken at electric light by Mr. Gibson in June.

Achatodes zeæ, Harris. Several specimens of this species were reared from larvæ found by Mr. J. W. Hart at Kingston, Ont. They were boring in the young shoots of Elder (*Sambucus Canadensis*) causing them to wither and die. About the same time several specimens were collected at Ottawa, by Dr. Fletcher, in shoots of *Sambucus pubens*.

Anarta cordigera, Thun. A fine specimen of this attractive little moth was taken on the Mer Bleue, on May 30th, by Mr. C. H. Young. It is rare at Ottawa, one specimen only having been previously taken. This was in the same locality, on May 17th, 1898. In Europe, the caterpillar which "is reddish ochreous, with a lighter lateral line and several larger and smaller dots on each segment," is said to feed on *Vaccinium*. It should be looked for by our members on Blueberry bushes in summer and autumn.

Heterocampa marthesia, Cram. A fine specimen of this very beautiful moth was reared from a larva collected in Clarke's bush, in September, 1900.

Heterocampa biundata, Walker. A remarkably fine specimen was taken at light in June.

Some interesting butterflies were taken during the season :—

Chionobas jutta, Hbn. At Mer Bleue on 31st May, and *Lycæna comyntas*, Gdt. (the second Ottawa record), at Aylmer, Que.; both by Mr. Gibson.

Lycæna lucia, Kirby. Was seen by Dr. Fletcher to lay 3 eggs on the young forming berries of *Vaccinium Canadense*, a new food plant, and the larvæ were fed to maturity on the flowers and green berries of *Cornus*.

Debis portlandia, Fab. Some specimens of this interesting satyrid were collected near Beechwood Cemetery, in 1900 and 1901, by Mr. A. E. Richard. This species is very uncommon at Ottawa.

Pieris protodice, Bd.-Lec. Never before taken at Ottawa, was collected at the Experimental Farm on September 21st. On the same day a few specimens of *Colias eurytheme*, Bdv., were also collected.

JAMES FLETCHER.
W. H. HARRINGTON.
ARTHUR GIBSON.
C. H. YOUNG.

REVIEW.

HUMAN FOOD INVESTIGATIONS. By Harry Snyder. (Univ. of Minnesota, Bull. No. 74).

The value of the foods used in these experiments was determined by feeding to men weighed quantities of food of a known composition and then carefully determining the amount of food which had been digested and made available for the body. In the part of the work published are discussed: the dairy products (butter, cheese and milk), oleomargarine, the comparative nutritive value of graham, entire wheat, and standard patent roller-process flour milled from the same lot of wheat, the digestibility of toast and bread; and also oatmeal and beans, as types of cereal and leguminous foods. The effects of different methods of cooking have also been considered, as well as the influence of combinations of foods upon digestibility.

One of the interesting results of this work may be mentioned. The addition of milk to a ration, with bread, butter, beans, eggs and potatoes, rendered a larger percentage of these foods digestible. Thus, milk is valuable, not only for the nutrients which it contains, but also because the soluble ferments which are present make the foods with which it is combined more completely digestible.

NOTES ON BIRDS IN COLORADO, 1902.

BY REV. W. A. BURMAN, Denver, Colorado.

While staying in Denver, during the past winter, I have been noticing some things about bird life that have interested me a good deal. My home being in Winnipeg, I have naturally noticed the effect of the different climatic conditions of this comparatively southern State upon the birds. The spring having now come here, I have also been on the look out for the migration of birds common to this State and North-west Canada.

First, I may mention the surprise with which I found ducks and various other birds here all through the winter. I at least had always imagined they went further south to the lower Mississippi and Gulf States. But in January I saw mallards, pintails, teal and red-heads, which were got on the lakes among the mountains just west of this. They were in good condition, indicating good feeding. What food they find is not clear to me, for though this winter was mild up to January 25th, we have had very cold spells since, and the cold in the mountain must have been pretty severe, as it froze up the lakes. In ordinary winter, during the most severe weather they are said to be found in lakes out on the plains. The northward flight seemed to me to begin about two weeks ago (say March 15th); it is now in full swing, and the birds which are shot are in much better condition than those we usually get in Manitoba in the spring. Is it lack of food or hard work that accounts for their leanness?

The first robins appeared about the same date, at first, stragglers, the advance guard. A week later the robins were in bands of ten or twelve, slipping about the lawns feeding on berries of Virginia Creeper, also on seeds of Russian thistle and other seeds growing on vacant lots. It is very amusing to watch their bustle and unrest, quite after the fashion of other biped tourists so common here. Even their feeding seems to be hurried, lunch counter style; it only needs the toothpick to complete the likeness. The only exception to this hurry was during stormy weather, as last week, when we had high winds with snow. Then, wisely enough, the robins took their leisure and really "did" the city. During the past few days—since April 1st—they have been fewer, evidently the crest of the wave has passed.

Perhaps the most interesting thing to me here, has been to note that our old friend, the English sparrow, has at length met his match—a foeman worthy of his steel. His aggression is not totally checked—I opine it never will be,—but his undisputed sovereignty of the city is no longer a matter of course. The sparrow vanguard reached this point about ten years ago, beating their way on some box cars. After the western fashion they soon tried to run the town, but found, no doubt to their surprise and mortification, that others were in that line of business. War was declared between the rival factions, which is still going on—guerilla fashion—the sparrows at any rate doing no more than to win the right to live in town to a limited extent. Numbers, in consternation at the unheard of prowess of their foes, have given it up as a bad job and have gone to live in the rural districts, until the whirligig of time shall enable them once more to be “monarchs of all they survey” amid the busy haunts of men.

The brave defenders of their native chimney tops and eave-troughs are known here as “House Finches.” (Probably *Carpodacus mexicanus frontalis*.—Ed.) They are a trifle smaller than sparrows and of more slender build, the body generally dark brown, the males with dark brick red-breasts and crowns. Their flight is peculiarly soft and noiseless. Until recently, when mating began, they were to be seen in flocks of from twenty to fifty—feeding often upon Russian thistle and other seeds, sometimes finding food the nature of which I could not discover, under the trees. I have a suspicion, however, that they were perhaps taking out the seeds from the samaras of the ash and box elder, *Negundo aceroides*, as these lay about in profusion. It is very gratifying to find these little people able to defy the tyrannical sparrows, the more so that their song is very sweet,—seeming to resemble more than anything else short selections from the song of the house-wren,—sung fortissimo, but with wonderful expression and pathos. As I write, the air is quite musical with their love-songs, in very pleasing contrast with the querulous harsh chirp of our friends the sparrows. It will be interesting to watch the final issue of the struggle now going on. It will probably be an armed peace—after the manner of other bipeds similarly placed.

WHAT THE SWALLOWS DID.

BY W. H. MOORE, SCOTCH LAKE, N.B.

During the summer of 1901 there were two pairs of swallows nested at our barn—a pair of Cliff Swallows outside and a pair of Barn Swallows inside. The Cliff Swallows were late in coming and were probably driven from some other barn by having their nest destroyed. They repaired the remains of a nest built the summer before, but left the entrance or door much larger than is usual for that species, it being fully four inches by one and one half, the ordinary way being to leave the door about $1\frac{1}{2}$ inches in diameter. At the time, we wondered why they did not finish building.

The eggs were duly laid, sat upon for about twelve days and hatched. The weather during this time had been warm, and some days were extremely so. The young were well supplied with food; and, not until they were able to meet the old birds at the door when they came with food, was the door closed to the usual size.

Then the question to us was, Why did they not make the doorway of the usual size, when the nest was first built? Why did they change it after the young were nearly fledged? After some consideration, we concluded, first, that the nest was cooler and better ventilated by having the large doorway, and, secondly, that less work was required to build it thus; we accordingly congratulated ourselves on having such an intelligent pair of swallows.

When we had solved, this question to our own satisfaction, they began to build another nest which was left unfinished. Now we thought our answer to the first question was surely wrong. It could not be to save work that the doorway was left large, for here they were making another nest.

The days were still very warm, and we found that the old birds, when resting from feeding the young, used this other nest to sit on in the shade of the eave of the barn instead of sitting on the roof as other people's Swallows are wont to do, or else are crowded in the nest with the young.

About this time we were confronted with another question. The parent birds partly walled up the entrance to the nest. Why did they do so only when the young were nearly fledged? So far, the young, as they grew stronger, would sit with heads to the door, waiting for food. It must have been much nicer for them than if they had been only a small hole for a doorway. But the parental love of the old birds ruled all the family affairs, and now the doorway was sealed up to a small passage such as other nests have. Then the young, when crowding to the front, could not fall out, as there was only room for one to get food at once, and an old bird was there to keep that one back.

About a week after, the young were able to fly; they were removed to a locality along a river where there was an abundance of insects. It was at this latter place that the writer had the pleasure of watching them go to roost. There was a flock of about three hundred birds composed of Cliff, Barn and Bank Swallows. After sundown on a damp day they were seen to settle in some tall coarse grass; then, as if frightened, they would all rise, wheel about in the air and be joined by more of their kind. This performance was several times rehearsed, and, while flying about, they would occasionally shake themselves to throw the collected water from their backs. This they could do while flying as well as perching birds could do if standing on a limb or other firm footing. Several were seen to thus shake themselves, and on two or three occasions were within twenty feet of the observer. At last, when nearly dark, all settled into the coarse tall grass again and were at rest.

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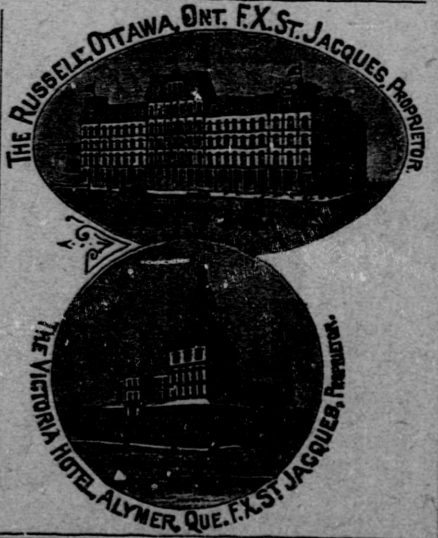
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