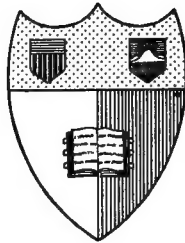


Familiar Wild Animals
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THE OPOSSUM

Familiar Wild Animals

BY
SILAS A. LOTTRIDGE

Photographs from Nature by the Author



NEW YORK
HENRY HOLT AND COMPANY

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*To Dorothy
Who Loves Animals
This Book is
Affectionately Dedicated*

PREFACE



THESE sketches and pictures are chosen from my *Animal Snapshots* to help stimulate school children in the direct observation of outdoor life. For years I have been studying and photographing our friends in fur and feathers in their native haunts. I have entered into their lives as much as possible, in order to know their habits and wild ways—how they live, and how they care for their young. I here attempt no more than a simple narrative concerning the birds and mammals that I have come to know a little about. The facts are all from my own observations and experiences, except in a few instances where I have drawn upon trustworthy sources.

I am under obligations to various landowners for the privilege of tramping about their fields, and in many instances for valuable assistance. To the boys, also, who have helped me in so many ways I extend sincere thanks.

Thanks are due the proprietors of *St. Nicholas* and *Field and Stream* for permission to republish articles which have appeared in these magazines.

S. L.

EAST ORANGE, N. J.,
January, 1906.

CONTENTS.

PART I.

Four-footed Beasts.

	PAGE
WOODCHUCK.	3
OPOSSUM.	13
FOX.	20
WHITE-FOOTED MOUSE.	35
GRAY SQUIRREL.	41
FLYING SQUIRREL.	54

PART II.

Birds.

BLUEBIRD.	67
ROBIN.	75
CHIMNEY SWIFT.	83
BOBOLINK.	91
SCREECH OWL.	101
SPARROW HAWK.	110

ILLUSTRATIONS.

	PAGE
THE OPOSSUM.....	<i>Frontispiece</i>
THE MOTHER WOODCHUCK ON THE FENCE.....	8
AN INTERESTED FOX.....	20
THE WHITE-FOOTED MOUSE.....	36
IN THE ORCHARD.....	48
A GRAY SQUIRREL FOREST IN WINTER.....	52
THE BLUEBIRD TREE.....	68
YOUNG ROBINS THIRTEEN DAYS OLD.....	80
NEST AND YOUNG OF THE CHIMNEY SWIFT.....	88
NEST AND EGGS OF THE BOBOLINK.....	94
"BILLY AND BETTY".....	106
YOUNG SPARROW HAWKS.....	110

THE WOODCHUCK



THE woodchuck is well known among the farmer boys and girls throughout the Middle and Eastern States, for he is as much a part of the farm as is the brook or the sugar-bush.

In form he is far from graceful, especially in the latter part of the summer when his body becomes very fat and pouchy. The color of his fur varies from a reddish brown to a grizzled gray or, occasionally, black; while his teeth, like those of the squirrel and prairie-dog, are strong and well adapted for cutting.

The woodchuck is of the earth earthy, and there is a peculiar odor about the place where he dwells, for he lives not in the lap, but in the bosom, of Mother Earth,—however his summer home may be in a wall or stone-heap. The woodchuck of the present day is rather inclined to desert the old home in the woods, where he fed upon tender bark and roots of various kinds, and become a dweller in the field near the clover-patch and garden. Here he is so destructive

that he has become a special object of persecution by the farmers, and from early spring until fall a continual warfare is waged against him; some are trapped, many are shot, and not a few are destroyed by the farm dogs.

The trap is set at the entrance of the burrow, being made fast to a stake which is driven into the ground. Woodchucks are more easily trapped in May or June than later in the season, for during the former months they are much oftener out in the open. The old ones frequently become very shy, especially those living in meadows remote from the house, and having their burrows in the edge of the woods. Sometimes one of these woodchucks will spring a trap day after day without being caught, or even dig around the trap, much to the disgust of the farmer boy, who is usually paid a bounty of ten cents for each "chuck" caught.

After the grass has been mown the woodchucks become much wilder, and it is at this time that the "village sportsmen" betake themselves into the country on leisure afternoons to indulge in the pastime of shooting them.

The farm dog occasionally develops great ability in the capture of woodchucks. A certain old dog by the name of "Shep," which belonged to a New

York State farmer, was a famous woodchuck hunter. After locating a woodchuck, Shep would watch his movements for a little time, then, while the woodchuck was feeding, she would move directly toward him. Keeping her body close to the ground she would stop instantly and lie very still whenever the woodchuck raised himself on his haunches to look about for danger. When Shep believed herself to be near enough to the entrance of the burrow she would make a dash for it. If she reached it first, there was sure to be one woodchuck less to nibble the fragrant clover.

No animal exerts less energy in the course of a year than does the woodchuck. He feeds upon the best in the meadow and occasionally the garden, being particularly fond of the juicy peas and beans and tender lettuce. Then as winter comes on forgetting all care and worry he crawls into his burrow and, like the bear, falls asleep, not to awaken until the warm spring sunshine has touched with caressing fingers the slumbering world of nature.

Some years ago while returning from the mill-pond where I had been fishing through the ice for pickerel, I came upon a man in the open field digging for a skunk, which he had tracked into what seemed to be a woodchuck's burrow. As the man was evidently

very near his game I waited to learn the result. The burrow branched, and following one of the branches the man came upon a little ball of fur, not the skunk he was after, but a woodchuck fast asleep. He was given to me and I took him home. When warmed he slowly awoke, but soon fell asleep again because Nature called for a longer nap.

Let us select a representative woodchuck family and follow in a general way its career, from the time the young are born until they are safely settled in homes of their own. The cubs usually number four or five, and the date of their birth is not far from the tenth of May. The snug little chamber in which they are born is located two or three feet under the ground and contains a small cozy bed of dry grass gathered the previous fall.

By the old rail fence just back of the orchard on my father's farm lived a woodchuck family. The mother introduced herself one bright warm morning in the latter part of May, just as old Rover and I were starting out for a day's fishing. The shrill whistle she gave was enough of a challenge for any boy and dog. So off we started full tilt in the direction of the sound. Of course Rover arrived first on the scene of action, and when I got there he stood thrusting his nose in at the entrance of the burrow, wagging

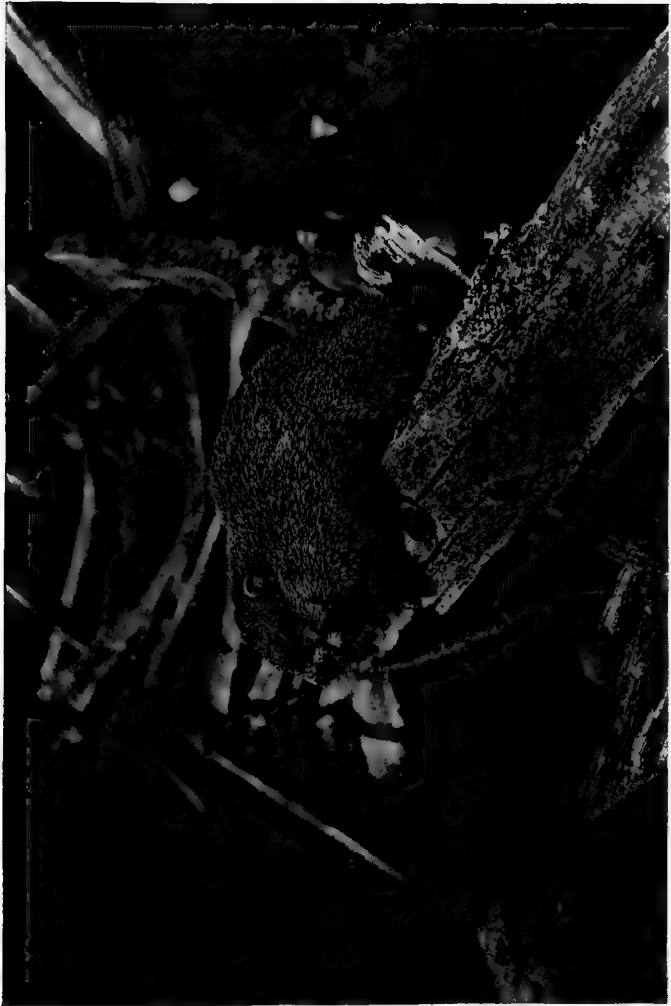
his tail vigorously and giving utterance to the short quick yelps so characteristic of a shepherd dog. The burrow gave evidence of constant use, and for a moment my attention was divided between the interests of hunting and fishing. However, as my game was in a convenient spot I decided to leave it for some future day's sport and make sure of the fish. It was not so easy to bring Rover to my way of thinking, but I finally coaxed him away from the fascinating spot.

Fascinating indeed it surely proved to be to me, and more than one day's sport I got out of that little burrow. I took care, however, that Rover didn't go with me when I made my visits and, instead of digging out the inmates boy-fashion, I waited for them to come out of their own accord. Several times the old woodchuck appeared, but feeling sure that there were "more to follow," I patiently watched and waited. Finally my patience was rewarded; for one fine morning five little cubs came tumbling after their mother along the narrow passage to the entrance of the burrow, where they looked with their great beautiful brown eyes upon the strange outside world. What a marvelous surprise it must have been to them to view the green grass and the beautiful flowers! The breeze brought to their dilated nostrils sweet odors

from the meadows, while a great burst of music saluted their ears, which were now really open for the first time. The wrens were singing in the old apple tree; the bobolinks were "running down" their "brooks of laughter" through the air; the meadow larks were whistling on all sides, while myriads of insects added their murmuring music to the general symphony.

The mother knew that all of these sounds were only a part of her world and meant no harm, but she listened very attentively for any unusual sound before she ventured from the entrance. When satisfied that there was no danger lurking in the fair clover fields or in the blossoming apple trees above, she led the way into the grass, followed by her little brood, which tumbled frantically along in their haste to keep close to her. They tried to imitate her in everything, and when she nibbled a clover leaf they followed her example, and soon the sharp little teeth had learned to cut the juicy leaves.

The real object of their first outing, that of filling their little stomachs, was soon accomplished, and then they began playing about in the grass very much like puppies; but the watchful mother was careful not to let them wander far from the entrance of their home. Suddenly her trained ear caught the



THE MOTHER WOODCHUCK ON THE FENCE

sound of something approaching and she lost no time in hustling the little ones into the burrow, for it might be old Rover racing across the meadow, and possibly he would turn their way or wind them if he came close. Sure enough! they were scarcely safe when the dog appeared in full sight over a knoll, making straight for them! The cubs could have traveled only a part of the tunnel before they heard the deep breathing of the dog at the mouth of the burrow. The exertion and the excitement must have made their tiny hearts beat fast, as for the first time in their lives they learned what it is to be frightened.

This was only the beginning of their education, for day after day they came out of their burrow and when they scrambled back, something had been added to their little stock of woodchuck knowledge. A part of this wisdom came through copying their mother, but by far the greater part came through instinct and through experiences of their own. They learned which grass was good for food, which for medicine, and which was not to be touched at all.

Some attention was given to the art of climbing, for from elevated positions they could command a much more extended view of meadow and woodland—yes, woodchucks really climb fences and small trees! and I found it extremely entertaining to

watch their clumsy first attempts. This lesson in climbing, however, might sometimes be omitted, but never a day passed that the little woodchucks did not receive a lesson in danger signals. They soon learned to distinguish, among the many sounds that came to their ears, those that threatened harm and danger from those that meant no harm at all. Although Bob from the next farm nearly caught one of the little fellows, they learned that a dog was not a very dangerous foe, as his presence was usually made known while he was some distance off; but when a fox was in the vicinity—then was the time to be wary indeed!

By the middle of August the little cubs were pretty nearly grown-up woodchucks, and the time was fast approaching when the frolicsome days of babyhood would be over and they would have to settle down to the serious business of life, either finding a deserted burrow or digging one for themselves. It would have been interesting could I have watched the separation of this family and have known all the circumstances leading up to it, but they "stole a march" on me, and within a space of three days the old burrow had but one occupant, the mother.

Usually each woodchuck has a burrow by itself, but occasionally a pair will live together through the

winter. Early in autumn I came upon such a pair not far from the summer home which had so interested me, and I pleased myself by imagining they were two of my old friends. The spot they had selected for their burrow was on a gentle sunny slope in one corner of the meadow. They had evidently been working, little by little, on the new burrow before they left the old one, but now they made a regular business of it and worked with a will. And rapid progress they made, for their feet are armed with powerful claws and there is a partial web between the toes, a combination which makes a most excellent pick and shovel. The fore feet are used principally for digging and the hind ones for throwing backward the loosened earth and stones.

For some distance from the entrance the burrow inclined downward quite sharply, then turned slightly upward and continued along beneath the surface for a distance of fifteen feet; this arrangement secured good drainage, which is all-important in the home of the woodchuck. There was a small side tunnel four feet long which ended in an exit, while the main burrow terminated in a chamber of considerable size, in which there was a quantity of fine grass for bedding.

When the woodchucks had completed their home they were ready for housekeeping. The meadows

had been mown and a tempting new clover crop was spread before them. There was nothing to do now save to eat, bask in the golden autumn sunshine, and eat again. With a few weeks of this sort of life there came a wonderful change in their appearance; their cheeks were distended, their fur glossy, and their skins stretched with fatness.

When September was well advanced, they could eat no more, and had only to wait and doze away the time until about the first week in October, when Mother Nature would put them sound asleep. The blood began to flow more slowly through their veins, a sleep crept gradually over them which they could not resist, and finally, side by side in their snug retreat, they curled themselves into balls of fur, and fell asleep.

Warm summer days followed with their mellow light; Indian summer came and went, but the slumber of the woodchucks was unbroken; and thus the cold cheerless winter passed in one long dream of summer.

THE OPOSSUM



THE opossum is certainly the most distinctive of the North American mammals, inasmuch as it is a marsupial. It seems rather strange that, among so many mammals, the opossum has neither kith nor kin. There was a time when the whole world was inhabited by marsupials, so those living to-day are the separated remnants of that once universal race.

The range of the Virginia opossum is from the latitude of the southern part of New York State and Michigan, southward to Central America. It is very common in the South, and probably there is only one species, but certainly there is a great diversity among the individuals.

The opossum is about the size of a large cat, its legs are short and its tail is long, scaly, and prehensile; its snout is long and somewhat pig-like, which accounts for the tremendous width it can open its jaws. The fur is of a general yellowish color, but on the back and sides a greater part of the hairs are tipped with

brown or black; intermingled is a liberal amount of pure white hairs. The brain cavity is small, but the senses of sight and smell are well developed.

The opossum, although upon the whole a stupid animal, has one very clever habit, when attacked it simulates death most successfully. At such times the eyes are usually closed, the muscles are rigid, and no amount of rough handling will provoke any signs of life, until an opportunity for escape presents itself, when it will make all the haste of which a slow moving opossum is capable. The most effectual method of reviving the seemingly lifeless animal is to drop it into a pool of water. The shock of this unexpected procedure is apparently too much for it, and it speedily seeks the shore. The immersion usually ends the "playing 'possum," for it will not readily try the stratagem again. This art has probably saved many opossums from destruction by other animals, but the "coon" is fully up to the trick, and few deceiving opossums escape him. I have found the ruse of "playing 'possum" to be specific rather than general among the species. Those that are partly tamed seem never to practice it.

The home of the opossum may be in a hollow tree, a crevice in the rocks, or under a building. The hollow tree, however, seems to be preferred. The

nest itself is composed of dried grass and leaves.

The opossum usually comes forth from his retreat at the close of day, wandering about in search of food; he is not strictly nocturnal, however, for cloudy days will often find him abroad, and I have seen him in the bright sunshine.

His menu is varied, but you may be sure it is a full one when it can be obtained. It consists chiefly of insects, small reptiles, young birds, and birds' eggs. Occasionally he dines from the poultry yard, and here he shows a decided preference for young chickens. Vegetable food enters but little into his bill of fare, although he is very fond of ripe fruits of various kinds.

The young, varying in number from six to twelve, are born in a very immature state—blind, hairless, and exceedingly small, in fact weighing but a few grains. The mother places the young in a pouch, where they are nourished and kept for about six weeks. After this they venture out and climb about over the body of the parent, clinging to her fur. Sometimes the mother arches her tail over her back, very much after the fashion of a squirrel, and the little ones cling to it by their prehensile tails, heads down, and feet just touching her back, presenting a curious sight

indeed. For a few weeks after they climb out of the pouch the young do not venture upon the ground, but return to the pouch for food and protection.

I have not been able to photograph any of these young opossums, but a farmer, knowing that I was interested in photographing animals, helped me to get some pictures of the old ones. He sent me word that there were a number of opossums about his place and that when he discovered anything of special interest he would let me know. One morning I received word that an opossum was in the chicken house. Camera in hand I soon reached the spot and found that the opossum had just completed a full breakfast upon fresh eggs. Leading from the chicken house into the yard was a small door; I focused upon this and then opened it. The opossum slowly came forth, and when he was in full view I pressed the bulb, and the old robber was taken.

The next week I was summoned again by the farmer and this time I photographed an opossum while he was feasting upon a nest of hen's eggs.

But it is in the South, on his native heath, that the opossum reaches perfection and his greatest size. For him the glowing October sun, and the silvery frosts of November, have developed the delicious flavor and fragrance of the persimmon. Through all

the painted autumnal woods the opossum finds spread for him by the lavish hand of Nature this sumptuous banquet of golden fruit. From twilight until the approach of day, the greedy little creature feeds upon the persimmons.

O, heedless opossum! Could you but see into the future you would not feed thus recklessly upon the the fruit, which in a few weeks must render you so temptingly fat! "'Simmon" time brings in "'possum" time, and from many a cabin the melodious negro voices, accompanied by banjo, accordion, or harmonicon, are heard singing:

“'Possum am a cunnin' thing,
He rambles in de dark,
Nothin' 'tall disturb his min'
But to hyah my bulldog bark.”

The hunting of the opossum in the South is usually done at night, the one important feature of the hunt being a good opossum dog. The opossum will take to a tree at the approach of the dog, and the dog should remain barking until the arrival of the hunting party. If the tree is not difficult to climb the opossum is soon captured, otherwise the tree must be felled or the game shot. The colored people enter into the sport with the greatest zest, and these hunting parties have merry times.

The hunting of the opossum in the North is more frequently done in the daytime. The hunt is usually confined to the edge of a forest or large timber along streams and the more numerous the hollow trees the better. I remember a hunt of this kind: I had been tramping about with my camera, and as I was passing through some large timber near a clearing on the Orange Mountains, I came upon an old colored man and a boy, who were carefully examining the trunk of a tree. I asked them what they were hunting for.

"'Possum," was the short answer.

When the colored man, who, as I afterward learned, was familiarly known as "Uncle Robert," found that I was out after animal photographs, he granted me the privilege of joining the party.

Uncle Robert's method of hunting the opossum was very simple; he knew of several hollow trees and from time to time visited them, occasionally finding an opossum. He was not very talkative at first, but gradually warmed up to the subject of opossum hunting, and told me that when he was a boy and lived in "Old Virginny, we all used to hunt de 'possum and de 'coon, for dey bofe is mighty good to eat."

While talking we were gradually making our way through the timber, and when we came to the edge

of the clearing Uncle Robert called a halt. Immediately before us was an old hollow apple tree. The boy nimbly climbed to the hollow.

One glance was enough and he exclaimed, "O Lord, Uncle Robert, a 'possum!"

The cavity was a shallow one, and I succeeded in making a photograph before the opossum was removed from his snug nest. When removed he proved to be a large fat specimen, "'bout as good as down-South 'possum," Uncle Robert declared.

The old man thought as long as I was taking photographs it would be proper for me to photograph "de 'possum and de coon togedder." A good idea!

THE FOX



THE fox is called the slyest and most cunning of our common wild animals. From the time of earliest animal lore, to "old Reynard," have been ascribed attributes which would lead us to believe him to be endowed with something that many are unwilling to concede to the lower animals,—something that seems more than mere instinct, a something akin to reason.

The fox is wily and cunning and sagacious, to such a degree that he taxes to the utmost the ability of our best huntsmen. Even with the aid of trained hounds and with a knowledge of the runway of the fox, the sportsmen are often eluded and outwitted by the artful Reynard. Traps, deadfalls, and all sorts of devices are used for his capture, and his ability to escape them can but command a certain respect from his human pursuers, a respect which cannot be felt for an animal like the opossum.

In the shadowy depths of his mother's burrow, the baby fox first opens his eyes upon a world in which



AN INTERESTED FOX

his part is to be a continual struggle; struggle not only for daily sustenance, but a struggle to escape the snares and pitfalls laid for him by his arch enemy—man. Among the fox kindred it is a survival of the fittest, combined with a wonderful development of hereditary habit, which has fostered, and in some cases multiplied, their race.

When pursued by a hound, the fox may deceive it in several ways, such as doubling on his trail, walking on fences, or wading in shallow water. The last ruse is by far the most effective. Nevertheless the hunting of the fox is most successfully accomplished by means of the hound. In the Northern States the hunting season begins in November; but the real sport comes a little later, when the ground is covered with a light snow, for then the hound can follow the trail more easily. A trail must be fresh if a dog is to follow it over the frozen ground with any degree of speed, and on a ploughed field it is almost hopeless.

Perhaps a few reminiscences of fox hunting will serve, better than anything else, to give those unacquainted with this clever animal clearer notions as to the scope of fox sagacity:—To begin with, it should be borne in mind that foxes, unless old and experienced in guile, will not, when hounded, run far away on a straight course, but will circle near the home where

they were reared. It is also well to know that foxes have certain runways through valleys and across hills, through swamps and along water courses, and that these are followed more or less regularly by the fox, either when pursued or when quietly moving from place to place in search of food. This fact is taken advantage of by hunters, and the runways must be located before success in the hunt can be expected.

In the fall of 1880 foxes were very plentiful in the State of New York on the hills between the Unadilla and Chenango rivers. There was scarcely any snow until late in November, and when it did come it was very dry, the wind blowing it from the fields and hill tops, and drifting it along the fences. Notwithstanding the bareness of the fields, thoughts of the old time sport tempted the more adventurous hunters. Two of these enthusiastic Nimrods set forth with a well trained hound before the snow had stopped sifting about even in the less exposed places. The hound soon struck a trail, and as the track was fresh he seemed to fly over the snow. The deep toned baying sent the blood tingling through the veins of both pursuer and pursued. The first hunt of the season was really on! The men took positions of vantage on the supposed runway, watching and listening carefully for the expected game. Meanwhile

the hound had gone quite out of hearing to the north. An hour passed and no fox appeared. Nothing was heard save the baying of the hound far away to the east. In half an hour the fox appeared in a valley, over which the hunters commanded a distinct view. As the fox could not take to the water in the frozen streams, he tried another trick which worked admirably. It was this: Within the valley and in sight of the hunters were two ploughed fields, each containing a marked elevation. The wind had swept these higher areas completely bare of snow and loosened bits of earth had rolled away, until the surfaces were quite smooth. The runway of the fox may have been across these wind-swept places. Be that as it may, the fox crossed each in turn. When the hound came upon the first place he lost the trail for a time, but finding it, proceeded to the second. The fox, instead of continuing his course as would naturally be expected, returned to the first by a circuitous route and then again to the second. He repeated this manœuvre three times, taking the same course each time, finally quitting the game by turning sharply to the left, and making off to the south, leaving behind him a most weary and perplexed dog.

At another time a fox was seen to follow a rail fence for about forty rods, nearly in the opposite

direction from that in which he had been traveling; he then jumped from the fence upon the ice of a small creek. By this ruse he succeeded in completely eluding the hounds.

If the fox is an old one and has often been before the hounds, he tries in succession several blocks to the trail, thus gaining time and tiring the dogs. I once knew a fox to throw the hound from the trail by taking to the highway for a distance, passing among a large number of cows feeding about a stack, and finally walking a fence; all this within half a mile. Why did the fox go among the cows? Did he reason that his passage would scarcely be noticed, whereas the hound would create quite a disturbance among the cattle,—enough disturbance to confuse him and perhaps cause him to lose the trail? Since the fox was far in advance of the hound and there was no immediate need for such an unusual act, and knowing as I do the cunning of Reynard, I am led to believe that this move was not entirely accidental.

I knew one fox to enter a village while being pursued; another ran into a large barn by one door and out through another on the opposite side; and still a third crossed the dooryard of a farmhouse and went upon the porch where a man was standing, actually crouching nearly exhausted at his feet

as though begging protection from the relentless hound.

When the snow is soft and deep the dog with his longer legs has the advantage, and sometimes the fox is overtaken and killed. At such times, I observed, the majority of foxes seemed to realize their great disadvantage, usually keeping so near to their burrows that, when hard pressed by the hounds, they could "hole up" as a last resort.

Let us look at some of the common methods employed by hunters in securing foxes that "hole up." The fox may be "dug out." This is serious business for a hunter when the ground is frozen to the depth of two feet or more, but if he decides that this is the thing to be done, he borrows a pick and shovel from some near by farmhouse. If the "boys" are at home, the wise old hunter incidentally mentions that he has "holed" a fox, and at once he has assistants at his command. Before the digging begins a slender green stick is cut, with which the direction of the burrow is determined, and a pit is sunk some four or five feet from the entrance. Then another bearing is taken and a second pit is sunk, and by this means much labor is saved. Sometimes a divide in the burrow is discovered, but the dog usually determines in which one the fox is hiding; at other times the fox

may be heard digging, and his whereabouts is thus disclosed. The scene now becomes one of great excitement for the boys and dogs, each getting in the way of the other, and delaying the capture. If no large stone or root interferes, the fox is soon exposed, and is usually seized and despatched by one of the dogs.

Another method of ferreting the fox, when rocks and stones make digging impossible, is that of "smoking him out." Dry punk is set on fire and, when burning well, is forced some three or four feet into the entrance of the burrow. Through the lack of sufficient air, quite a quantity of smoke and gases is formed, which after a time becomes diffused through the remotest parts of the burrow. This is a new enemy to the bewildered fox, and one on which his usual cunning has little effect. In his last desperate effort to escape, he tries to gain the entrance of his burrow, but falls exhausted near the smouldering heap that not only blocks his way, but is pouring forth its deadly fumes. After about two hours the remaining mass is raked out and a slender, slightly forked stick inserted and twisted about. In so doing the end usually becomes entangled in the fur of the fox and he is then easily drawn to the entrance of the burrow.

Still another method of capture is sometimes at-

tempted, that of "drowning out the fox," but this is seldom successful. It requires a large quantity of water, and often the soil is so porous that before the second supply can be added the first has been absorbed.

But we must not forget that these "holes" are interesting from another point of view, besides that of the hunter—they are the homes of the foxes. Here, during the springtime, on a soft bed of grass and leaves the fox babies are born. They are lively little fellows, varying in number from three to seven. So rapidly do they grow that the amount of labor expended in procuring food for them is great. The parent foxes must hunt day and night. At such times the female becomes daring, and has even been known to invade farmyards and capture poultry in the daytime.

I have become acquainted with several fox families, and very much have I enjoyed their friendship. All but one of these families were allowed to rear their young; the exception being in the case of a pair so destructive that they were dug out, and the young kept as pets. I wish to speak in particular of this family, not that they differed so much from others, but because I knew them better.

It was in an open pasture, during the first week in May, that I discovered their den. During the spring

four or five hens had mysteriously disappeared, and one day I saw a fox not far from the barn. There was nothing remarkable in this except that the fox was the darkest in color I had ever seen, outside the black species. The disappearance of the hens was now no mystery, a den of foxes being less than a quarter of a mile away. Such being the case, I began at once to cultivate the acquaintance of the family. In the parents I expected to find the ordinary red-fox variety, so common about the region; but one of them was extremely dark in color.

The entrance to the den looked like a very large woodchuck's burrow, save that it bore evidence of more constant use, and that scattered about were bits of fur and feathers of various kinds.

The first time I visited the burrow I did not see any foxes. After this, whenever I was near the burrow the darker colored of the old foxes was usually to be seen on a knoll not far away, sitting dog-fashion and occasionally uttering a sharp bark. I seldom saw the red fox, which I supposed to be the male, unless a dog accompanied me. In that case the darker fox would retire and the red one would come closer, apparently inviting the dog to a chase. However, since the dog was not a fox hound, he would soon return, only to be provoked again by the near

approach of the fox. I watched this most interesting strategy several times, but not being entirely satisfied, I chose a hound instead of a shepherd dog and, keeping firm hold upon the chain, I approached the den, resolved to study the situation, until I could ascertain the meaning of the peculiar behavior of the foxes.

The red fox behaved exactly as before—approaching in plain sight and, when the dog was loosed, leading him on a “straightaway.” In a short time the distant baying of the hound could no longer be heard. Not until the next morning did he return. For my own satisfaction and for that of those who are interested in fox lore, I repeated the experiment three times within ten days, with the same results.

On one occasion I took the hound to the knoll which was so often frequented by the female fox. Away he went on a fresh trail to the south. At intervals I could catch his baying, as he emerged into a clearing or passed over an eminence. After twenty minutes these sounds failed to reach my ear. During this time I had remained seated on the knoll from which the hound started. Imagine my surprise when, on hearing a fox bark, I turned and saw the dark colored fox standing not more than twenty rods from me! What did this mean? I was now at very

nearly the spot from which the fox had started less than half an hour before. The hound had taken the trail at this point, and had gone to the south—and here the fox was back again!

For two hours I remained near the den, but nothing was to be seen of the dog. Toward evening he returned home. Knowing the cunning of foxes, and believing that they can reason in a general way, I was curious to learn more about them. Accordingly on the third day succeeding the incident of the sagacious female fox, I led the hound near the den and put him upon her trail. As far as I could judge, they passed over the same course as before; the fox appearing after about the same lapse of time, taking up her station near the den, where she remained for a short time and then disappeared. I went home in about an hour, and the hound was not heard again that day; but in the morning he was resting on the doormat, apparently as happy as though an old fox had not fooled him.

This, with other data, furnished me material for serious thought in regard to this foxy family. Having satisfied myself sufficiently, as I believed, to warrant conclusions, I once more repeated the experiment with the hound and the female fox, with practically identical results.

From these experiments it seems reasonable to believe that, while the young are in the burrow and unable to care for themselves, it is the business of the male fox to keep dogs away from the den by leading them on "straightaways." I am led firmly to believe, also, that if the dog strikes the trail of the female fox, the male in some way crosses off the female, taking upon himself the burden of the chase. Certainly the cases I have cited point to this conclusion.

The duty of providing food for the young foxes does not rest entirely with the female, although the real responsibility seems to be hers. At all events, when food becomes scarce, it is the mother fox that, even in the light of day, and almost in the presence of man and dog, will venture near enough to the barns to catch a fowl for her starving little ones.

This condition of home affairs is true not only of this fox family, but of all others which I have observed, and I have reason to believe that it is usual among foxes. In other animal families similar results have been observed. As has been stated, foxes raised in a certain locality usually remain near home, probably bringing up their own young within a few miles of the parent den. So, too, with pumas. A single family lives within a given territory and the male and female, as a rule, hunt separately, as do the

parent foxes. The female puma is a far better hunter than the male, and when hard pressed for food for her young she becomes very bold and daring. Yet in proportion to her size and strength she does not surpass the mother fox.

A division of labor between parents is not a fact among the mammals solely; it is common among birds—among some the division being quite equal, while with others it is very unequal.

This division of care for the little ones of a family must be excellent domestic economy. Certainly my little fox friends were the fattest and glossiest little fellows imaginable. There were six of them, four red and two darker colored ones. It was most interesting to watch these little fellows at play; they would chase each other about, rolling and tumbling, tugging over bits of sticks, or sometimes over their food, and jumping about their mother, especially when she was lying upon the grass. Sometimes the mother fox would play with them much after the fashion of a dog. Twice I saw the male fox at the den.

We are told that sometimes live mice and occasionally other animals are brought to the den for the little foxes to play with and later to feast upon. Only once did I see anything of this kind, the victim in this instance being a young woodchuck. It was

evident from the woodchuck's movements that the mother fox had not injured the prey. It was amusing to see the antics of the young foxes. They were very cautious at first in their approach. Sometimes in their haste to retreat they fell over each other as the woodchuck made a dash for them. The old fox had to recapture the woodchuck several times and on the last occasion killed it, whereupon the little ones enjoyed a good feast.

I have yet to know a den of foxes that so regularly and systematically drew for its supply of food upon one poultry yard as did this one. The fowls being allowed to run at large, the ducks and hens and particularly the turkeys often strayed some little distance away. A greater part of the missing fowls were taken during the day, for at night they were shut in the poultry house, or, as in the case of the turkeys, were out of harm's way, high in the trees near the garden. Matters went from bad to worse. And when my favorite Dorking cock was served to the young foxes, it was too much! Straightway the foxes were dug out and the young were given away as pets. The old foxes were not killed, but after the day the young were taken I do not know that I saw the parents again. At dusk that evening I saw a shadowy form near the little house which had been prepared for one

of the young foxes. For several nights the barking of foxes was heard not far away, and sometimes the little captive made bold to answer. Through worry and confinement, and perhaps improper food, the little fox quickly lost his plumpness and the glossiness of fur. One morning a dead partridge was found beside his prison door, probably killed and brought there by the mother fox. Purposely, on the following evening the collar of the imprisoned fox was gently loosened, and the door of his house left ajar. In the morning the collar lay beside the door, and I imagined that the little fellow was safe with his mother among the hills.

I learned in the following autumn that two more of the young foxes escaped. I hoped that they would journey back to the valley in which they were born, never again to be trammelled by collar and chain.

THE WHITE-FOOTED MOUSE



THE white-footed mouse is by far the most beautiful species of the genus to which it belongs. Indeed it is almost a shame to call this handsome creature a mouse at all! He is almost a dandy in dress and neatness, and his spotless robe of grayish fawn above is sharply contrasted with the pure white beneath. This, coupled with the natural grace and agility of its movements, distinguishes the white-footed mouse as one of our most attractive little mammals.

Combined with this grace and beauty there is a gentleness of disposition reminding one of the flying squirrel—indeed it is said that these two little wood-dwellers are sometimes found living in the same cavity. An adult white-footed mouse when captured wild will seldom bite if taken in the hand, and after two or three days of confinement it is as gentle and confiding as though it had been born in captivity.

The home of the white-footed mouse is occasionally found in deep forests of evergreens or deciduous

trees; but its usual abode is along hedgerows, in the fields, or even in dwellings about well wooded sections of the country. The hunter's camp is very sure to be visited by them, and sometimes their friendliness becomes a burden. While their usual food is nuts and seeds of various kinds, they soon learn to eat almost anything about the camp. These little fellows show a most surprising capacity for food, and when once a hungry hord of them takes possession of the camp, well may the hunters and trappers look carefully after their stock of provisions; for when the snow lies deep through the forest and the nearest store is forty miles away, then is every ounce of flour and meal precious.

This little rodent has sharp teeth which sometimes he uses in a careless and inconsiderate manner; cord, fish line, hunting tackle of various kinds, and even snares set for other animals are cut to pieces. The trap is often sprung and the bait which might have caught a mink or marten has been devoured by this small midnight marauder.

Under favorable circumstances the white-footed mouse stores up considerable quantities of beechnuts for winter use. These seem to be his favorite nuts. Occasionally, when nuts are not attainable, seeds and grains of various kinds are stored. The nuts are usually shucked when gathered, at least this has been



WHITE-FOOTED MOUSE

my observation, and placed in a hollow of a tree or log. Woodsmen often find these stores of nuts. Several years ago I found a storehouse of some white-footed mice in a cavity of a maple tree. There were nearly three and a half quarts of as beautifully shucked beechnuts as one would wish to see. Only last year I found in a stump another storehouse, containing a quart of beechnuts and an equal amount of buckwheat.

The white-footed mouse, like some of the squirrels, constructs an outside nest, in thick tangles of bushes, from four to ten feet above the ground. The favorite location seems to be about some gently inclined vine, such as the wild grape, which affords a natural and easy highway from the ground to the home of the wee architect. The nests are slightly globular in shape, and composed of dried leaves, grasses, moss, and fibrous barks of various kinds, the material being closely compacted and the general appearance very pleasing. The entrance is usually on the lower side. Sometimes the foundation is an old bird's nest, very often that of the catbird. I once found a nest that was fifteen inches in length and about eight inches in diameter, this being the most irregular in shape as well as the largest one that I ever saw.

Occasionally several mice will occupy the same nest,

and if disturbed they hasten out, making their way along the branches to the ground. If the disturbance is slight, they come out upon the branches, gaze about on all sides and gently sniff the air, not returning until they are satisfied that all danger has passed.

Among the various species of mice there has been found from time to time the "singing mouse," and even among the white-footed variety it is no exception, according to a note that appeared in the *American Naturalist* several years ago by Mr. Hiskey, who wrote as follows:

"I was sitting a few evenings since, not far from a half-open closet door, when I was startled by a sound issuing from the closet, of such marvelous beauty that I at once asked my wife how Bobbie Burns (our canary) had found his way into the closet, and what could start him to singing such a queer and sweet song in the dark. I procured a light, and found it to be a mouse! He had filled an overshoe from a basket of popcorn which had been popped and placed in the closet in the morning. Whether this rare collection of food inspired him with song I know not, but I had not the heart to disturb his corn, hoping to hear from him again. Last night his song was renewed. I approached with a subdued light and with great caution, and had the pleasure of seeing him sitting among his

corn and singing his beautiful solo. I observed him without interruption for ten minutes, not over four feet from him. His song was not a *chirp*, but a continuous song of musical tone, a kind of *to-wit-to-wee-woo-woo-wee-woo*, quite varied in pitch."

This does not mean necessarily that the white-footed mice as a species are musical or that they have any considerable vocal power. I believe, on the contrary, that they are nearer mutes—attracting attention by drumming with their toes, a habit similar to the "thumping" of rabbits.

In spite of midnight revels and feasts upon beech-nuts and grain, the existence of the white-footed mouse is one of eternal and anxious vigilance; its bright eyes must be ever on the watch for the shadow of hawk and owl, whose descent means swift and silent death; its sharp ears must be ever listening for the slightest stirring among the leaves, which may herald the coming of its dread enemy—the weasel.

I was once passing through a thicket, when an unfamiliar sound caused me to stop to listen. Peering through the brush I discovered a screech owl standing on the side of an old bird's nest, only a short distance ahead of me. It was after sundown, but the light was sufficient to enable me to see objects quite distinctly some distance away. The little owl

was absorbed in tearing apart what at first sight I supposed to be the bird's nest. So intently was he engaged in this task that I approached unobserved, and when within thirty feet of the bird I discovered that a white-footed mouse had placed his home on the top of the bird's nest. The owl evidently knew that it was the abode of a mouse, for he was opening the nest by using both his beak and claws. Suddenly a white-footed mouse sprang clear of the nest, which was not more than four and a half feet above the ground, and struck upon the dried leaves below. Instantly the screech owl dropped upon him and bore him away in his talons to some evergreens near by. This was the only time that I ever caught the screech owl in the act of hunting the white-footed mouse.

As a pet the white-footed mouse is very interesting. In captivity it resembles in many ways the flying squirrel, especially in its fondness for climbing about your person and hiding in your pockets.

THE GRAY SQUIRREL



STEADILY the forests have been felled, and with them the gray squirrels have gradually disappeared, until their numbers have so decreased that for a hundred and fifty years here has not occurred one of those great squirrel migrations so common in the United States during the time of the early settlers. Guided by an impulse still unfathomed by naturalists, the squirrels congregated in vast armies and marched across the country. The distance over which they moved was largely governed by the obstacles which they encountered—rivers, lakes, and mountains. The climatic conditions and the food supply by the way, according as they were favorable or unfavorable, lengthened or shortened these migrations. As the squirrels pushed blindly forward, thousands upon thousands perished by the way, and the survivors gradually spread over a great territory, until lost in the vast wilderness.

Years might elapse before another great migration

would occur over the same route, but parts might be crossed by other migrations starting from different points. Then there were the lesser migrations, with fewer numbers—caused by a failure of nuts in certain sections—that extended over distances from sixty to two hundred miles. Everywhere the squirrels left desolation behind them in the path of these migrations, the nut, fruit, and grain crops being sometimes ruined. So destructive were they that we find on the statute books in many States rewards offered for each gray squirrel killed.

Every man's hand was against them, and throughout the whole year they were shot and trapped whenever possible. In addition to this, regular hunts were organized, in which the whole male population took part, hundreds of squirrels being killed in a single day.

On a small scale these squirrel hunts were quite common in Central New York as recently as 1840, and even to this day they occur in parts of the country. My great-uncle, Wesley H. Lottridge, described to me one of these hunts, in which he participated.

The hunt took place in the town of Columbus, New York, in the month of October, 1850. My uncle was appointed captain on one side, and "Uncle" John Richer, captain of the other. According to

the rules, by a certain date each captain posted in the village inn a list of his men, consisting of nine besides himself. On the day of the hunt the participants started as early in the morning as they pleased, but ceased shooting at the disappearance of the last rays of the sun. The hunters then collected at the inn, where the squirrels were counted by judges, and the men sat down to a banquet in the preparation of which quantity was even more to be considered than quality; for the men were literally as hungry as hunters, having worked hard with only a cold lunch since breakfast. The party having the smaller count paid the bill of all.

These hunts were similar to the wild pigeon hunts of sixty years ago, and to the jack rabbit hunts of the West.

The presence or absence of the gray squirrels, or black, which is a color variation of the same species, depends upon the nut crop. They are the most abundant, strange to say, when the nut crop is a failure, which happens about every other year. This is accounted for by the fact that contiguous districts the fall before were without nuts, and so the squirrels went into the adjoining region where the nuts were plentiful. Here there would be enough for all until the addition of the young in the spring, which would increase the number of squirrels above the normal.

Toward autumn, the nut crop being a failure in this district, the squirrels migrated into regions round about where food might be found.

The home of the gray squirrel is usually to be found in a hollow in a maple, birch, or beech, with the entrance among the branches forty to sixty feet from the ground. This is the real home, although often in the spring a summer house is constructed. This is generally located in the same tree with the other home, so that if the squirrels become frightened, they may run for shelter to the more secure dwelling in the hole of the tree. This second home may be for convenience during the time that the young are being reared; perhaps it is built for sanitary reasons; the temperature may be very much less during the hot weather; or it may be a pleasure house to them, a sort of tenting-out period that is so much enjoyed by some of the higher animals. Who knows? The material of the summer house varies considerably, but it consists chiefly of sticks, bark, leaves, with a lining of grasses or some other material. The entrance is on the side, the nest from below resembling that of a crow.

The gray squirrels do not lay up for winter use quantities of nuts or other food, as do the chipmunks, for they do not hibernate; but when the weather is not

severe they are abroad during the winter. However, the gray squirrel, in common with most of our other squirrels, has the habit of digging holes and hiding a nut or two here and there. It has been argued that this is an idle pastime, and that nuts so concealed in many places could never again be located by the squirrel, but it must be remembered that the sense of smell in the squirrel is very acute, probably guiding the animal far more than memory. It must be this wonderful sense of smell that directs the squirrel where to dig in the snow, securing from beneath the leaves the nuts that were buried weeks before; or that guides him to a solitary nut tree or to the grain in a barn.

This stored food constitutes only a part of the gray squirrel's winter supply. The other part he must scurry about to find. The beech trees and some others do not drop all of their nuts at the approach of winter. There still hang a few solitary nuts on each tree, and through a large beech forest the number so left is considerable. But the gray squirrel is not the only claimant for the nuts: the red squirrels and the red headed woodpeckers demanding for themselves the lion's share. The birds seem to think that these nuts are exclusively their property, and vigorously do they protest if a squirrel appears. One determined

red headed woodpecker will sometimes put a gray squirrel scampering after a few moments, for the blows from that long sharp bill of his are severe. The squirrels, being the earlier risers, are often feasting when the birds appear, but they beat a hasty retreat before these tricolored warriors.

The gray squirrel has other enemies in feathers, such as the goshawk and the red tailed hawk. A single hawk, however, can scarcely catch a gray squirrel, especially if the squirrel remains on the tree trunk, which he probably will be wise enough to do, thus being enabled, by dodging, to evade the hawk's claws. I never witnessed an encounter of this kind but once, and certainly the squirrel was "up to the trick"; for he eluded the hawk in the most exasperating manner, chattering and barking the while in a most impudent tone, "*Qua-qua-qua-qua-qua-a-a.*" The hawk was angry, the feathers on its head and neck being ruffled as was its spirit. At last it was obliged to retire, leaving the squirrel at his nutting. I have been informed, however, that the squirrel does not always get off so nicely, for sometimes the red-tails hunt in pairs, and then the squirrel has no chance for his life.

Gray squirrels are very fond of music, says Dr. C. Hart Merriam. The doctor in speaking of this men-

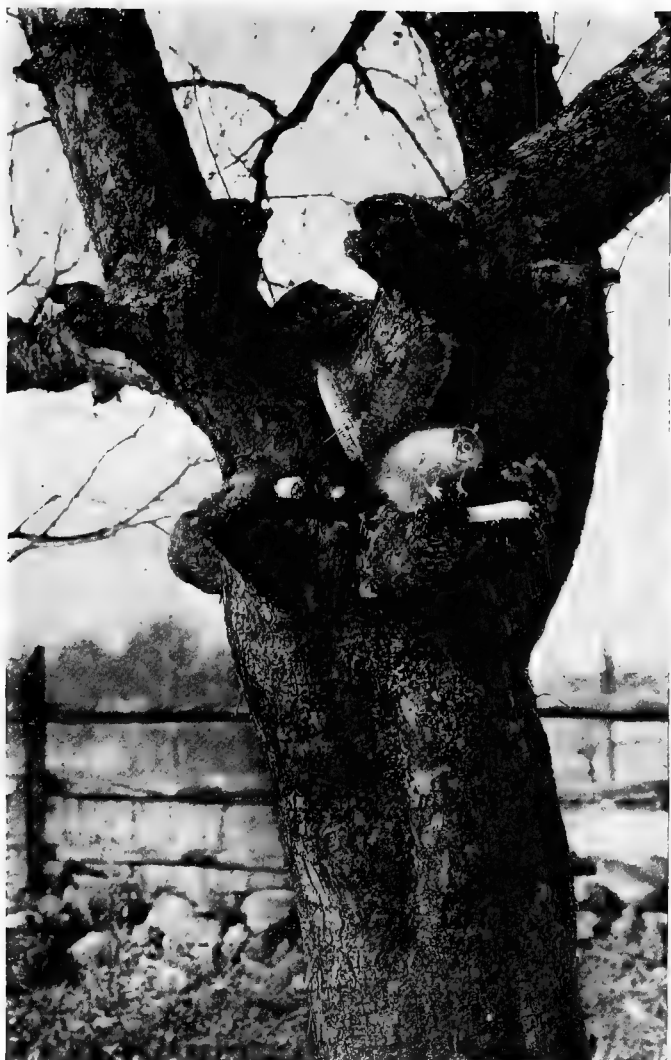
tions his experiments with some squirrels which frequented a box of nuts that his father supplied for them during the winter. As I have never myself observed this, I wish to quote from this eminent authority:

“They were extremely fond of music, and it affected them in a peculiar manner. Some were not only fascinated, but actually spellbound, by the music-box or guitar. And one particularly weak minded individual was so unrefined in his taste that if I advanced slowly, whistling ‘Just before the Battle, Mother,’ in as pathetic a tone as I could muster for the occasion, he would permit me even to stroke his back, sometimes expressing his pleasure by making a low purring sound. This was a Gray, and I several times approached and stroked him as above described. I once succeeded in getting near enough to a Black to touch him, whereupon he instantly came to his senses and fled. When listening to music, they all acted in very much the same way. They all sat bolt upright, inclining a little forward (and if eating a nut, were sure to drop it), letting the fore paws hang listlessly over the breast, and, turning the head to one side in a bewildered sort of a way, assumed a most idiotic expression.”

From August until November we may become

acquainted with the gray squirrel family as a whole. It is at this time that the old and the young may be seen early in the morning coming from the hard wood grove, along the old rail fence to the butternut trees at the foot of the garden. If you are on the watch, you may observe the silent troop galloping along with their beautiful tails well arched, and mounting the trees more like shadows than like wearers of fur. The frost has not yet loosened the nuts, but the squirrels are not daunted; speedily securing nuts, they sit upon the limbs with their tails over their backs, and, holding the nuts between their paws, quickly gnaw through the velvety covering and shuck to the juicy meat inside. Within an hour they go galloping back as though they had already stayed too long, silent as when they came; but if you do not see them, the telltale shucks will disclose who your visitors have been.

The old butternut trees must soon share with the cornfield their attraction for the squirrels. It was the raccoons who first discovered that green corn was in season, but the squirrels claim their part, and on some fence rail or post you may find a daintily stripped cob, left there as a reminder that the squirrels too are to share in the increase. Better still, perchance, you may wander by and surprise the reveler at his feast.



IN THE ORCHARD

There is an old orchard that I have known for years, where the gray squirrels have a regular playground in the autumn. It is connected with a piece of woods by a fence, and this fence is the grand highway of all the squirrel tribe. During their earlier visits to the orchard they come and go silently as if on wing. When most of the apples are gathered, and the frost has touched the leaves, leaving them sere and russet, there is in the atmosphere a crispness which has awakened the rollicking spirit in the gray squirrels. No longer do they follow the old fence, but cut across lots, chasing each other in and out, now on this side, now on that, on the way to the tree tops in the orchard. Here, while searching for food in the first light of the morning, they frolic, leaping from branch to branch, and chattering and scolding like a lot of magpies. If left undisturbed, they remain until the sun is more than an hour high, when they begin to retreat to their forest homes in the same jubilant manner in which they came. On reaching the forest, for another half hour they race through the tree tops before retiring.

If perchance, having found your way into the forest before them to await their coming, you disturb them in their frolic, they will instantly vanish from sight behind the tree trunks or the shielding branches.

You walk around a tree on which you saw a squirrel a moment before, and you set in motion squirrels about you; they move as you move, keeping ever a tree trunk or a limb between you and them. If you are accustomed to the ways of wood folk, you will sit down and keep your eyes and ears open. In the stillness you will detect, after a little time, a slight shaking of the leaves, or catch a glimpse of a gray shadowy coat now flecked by the sun, but almost invisible against the moss and bark of the maples. These shadows are the squirrels, furtively seeking their retreats. You may be resting under a tree in which there is a wary old gray squirrel, still some distance from his home. Do not for a moment think that he will leave the protection of the large limb on which he is reclining, and expose himself to view. There he will lie for hours until, weary in well-watching, you leave him that you may seek some less wise one.

During the remainder of the morning and until late afternoon, the squirrels stay in their homes. Then they are out again for their evening meal, but without the same joyousness with which they greet the dawn.

An early morning hour with the gray squirrels is as fascinating as it is to surprise them upon their return from the old orchard. It requires a morning with a heavy dew and absolutely without a breeze.

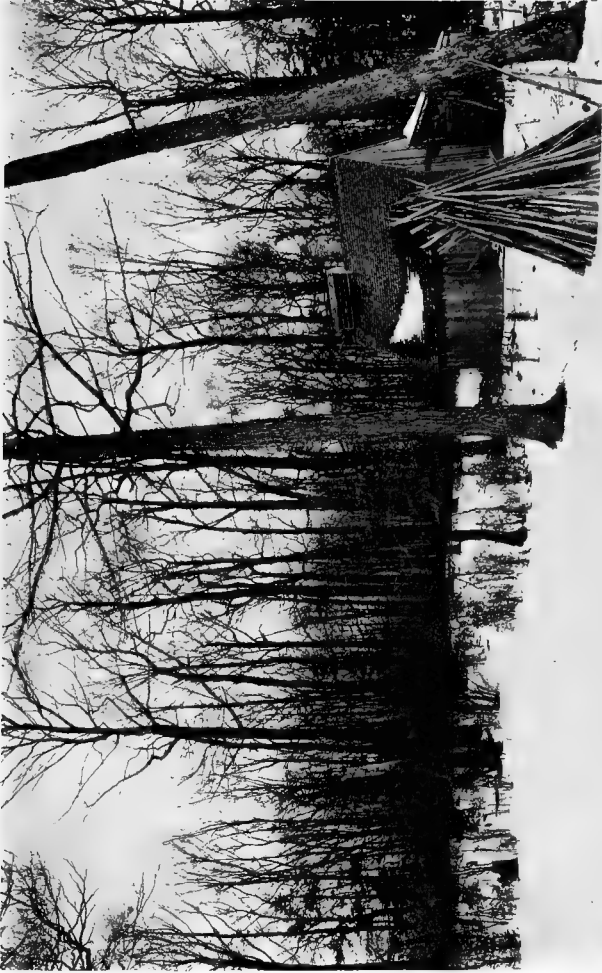
Before daybreak you must cross the threshold of their forest home, and resting upon some log or mossy knoll near their exit, await their coming. Your ears will serve you better than your eyes. At the first rosy dawn in the east, the squirrels from the outlying districts mount into the tree tops and begin their travel toward you. Their coming is first made known by a slight noise on the ground, but if you try to locate them by ear, you may be misled; for where everything is so still, a slight sound may be heard many rods away, through the large timbered forest. Before you have determined the cause of the first sound, or before you have fairly located it, another is heard in a different direction. You are all attention! A regular tattoo of these sounds is now heard on the forest floor, caused by the tiny showers of dew shaken from the leaves, as the squirrels leap from the end of one slender branch to the next. Soon your eyes begin to take part in the scene, as the graceful forms scurry through the leafy arches overhead. In a little while the gray troop have passed on their way to the orchard.

If our homes are conveniently situated, the gray squirrels will visit us during the winter and spring. If we tempt them with a little food, they will come both morning and afternoon, when the weather is not

too cold or stormy. This step taken, it is easy to become quite intimately acquainted with our little friends in fur. Out of a company of five grays that were accustomed to visit a certain tree, where food was placed for them, there was one larger than any of the others, and supporting a most magnificent tail. He became very tame, and appeared to be so vain over his fine appearance that I photographed him one morning while he was having breakfast.

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For the protection of these beautiful mammals we have laws; but all the laws in Christendom, however well enforced, cannot prevent animals that naturally make their homes among the larger timber from leaving when the forests are destroyed. It is a pity that, with our boasted civilization, there seems to be such a wanton destruction of our trees. It may be the heredity of habit that drives us madly on to denude the hills and mountains, thus leaving them bare, unsightly, and untenanted. The result is invariably the same, to dry up our springs and streams and to drive from us the gray squirrels and other animals. If this continues for another twenty years, as it has for the past twenty, the gray squirrels will be counted among our rare animals. In Central New York I have seen but one black squirrel in the last ten



THE GRAY SQUIRREL FOREST IN WINTER

years. West of the Great Lakes both grays and blacks are quite plentiful, but it seems that they too are now dwindling in number, and will finally be entirely exterminated.

THE FLYING SQUIRREL



F all the mammals that it has been my pleasure to know a little about, there is none other so confiding, so gentle, and so graceful as the flying squirrel. There is nothing striking about him in the way of color, although the dense silky fur of a grayish brown above and white beneath, rivalling in softness and beauty that of the chinchilla, renders him one of the most beautiful of our squirrels. The eyes are very prominent, large, dark, and peculiarly expressive.

The flying squirrel is a specialized type of his family, possessing a peculiar hair-covered membrane of skin on each side of the body between the fore and hind legs, and attached to both as far as the wrist and the ankle. When in a sitting posture or in the ordinary movements of the body, the flying membranes are drawn, by their own elasticity, close to the body, like little curtains, and do not detract from the delicate proportions of the graceful animal. But when the squirrel is about to fly it spreads its "wings"

and from the summit of a tree springs lightly into the air, and then glides silently away, always in a slightly descending direction, until a movement, probably of both body and tail, inclines it upward, and it alights gently upon the object for which it set out. The tail, being thin and flat with closely set silken hairs, probably serves a double purpose on these short flights,—that of rudder and parachute. I do not mean by this that the tail can in any way turn the animal from a straight line, except that probably by bending it downward, and at the same time elevating the chin, it brings the body to a convenient angle for alighting upon an upright object. The distance to which the flying squirrel can “fly” depends entirely upon the elevation from which it starts. The angle of descent is ordinarily from twenty to thirty degrees, although the desire of the animal, together with the direction and force of the wind, probably commands an extreme range of from forty degrees to a nearly perpendicular drop. The usual mode of travel from place to place, if trees are convenient, is sailing from the top of one to the base of another, then running up this and again sailing. It is surprising how quickly one of these little fellows can travel a quarter of a mile.

Do not imagine, because you have never seen a flying squirrel other than a mounted specimen, that

they are rare; in reality they are quite plentiful, but being thoroughly nocturnal they are seldom seen. Now if you really wish to know the flying squirrel at home, go into a grove of large maples, beeches, or chestnuts on a still moonlight evening in September, find a comfortable seat and remain quiet for a little while. Should it so happen that you do not see a flying squirrel you will be amply repaid, for other night-loving animals are abroad and they are as interesting as those which work and play by day. If you have not been accustomed to this rare treat, your eyes will be busy with shadowy glimpses and your ears with strange new sounds. There will be the patter of light footsteps on the ground, the squeaking of unseen creatures, the frantic hurry of some being pursued, the lonesome note of a distant bird, or the monotonous call of the whip-poor-will; these and a myriad of other sounds will fill the air, giving abundant evidence of the animal life that is astir. You listen! There is a sound like that of a nut dropping from a tree. Again you listen, and a slight rustle of leaves is heard overhead as a shadowy form glides through the air and, alighting upon the bole of a tree not ten feet away scampers up the tree very squirrel-like. The sprite has scarcely started before another alights at nearly the same place, and hastens

after the first. It is not unusual for three or four flying squirrels to start from the same or neighboring trees, and at times there will be various lines of flying squirrels crossing and recrossing each other.

Consider yourself fortunate! You are among the homes of the flying squirrels and you have seen them at their evening play. Frolic and amusement occupy the greater part of the waking hours of the flying squirrels, and old and young enjoy it alike. Even during the "business hours," when the storehouses must be filled with nuts for winter use, the same rollicking spirit holds sway over this squirrel band.

The flying squirrels live in communities, but during the winter months a half dozen or more occupy the same cavity in a hollow tree. Even in the storing of food for winter, several may unite in collecting a general supply. The storehouse may be in the same cavity as the living quarters, or in a separate one in the same tree, while it is occasionally in a tree some little distance away. The food stored consists of nuts of various kinds; while in their season buds and fruits are much enjoyed.

Wood choppers very often find the storehouses of the flying squirrels. I saw a man take six quarts of beech-nuts from a cavity in a large maple tree in the month of January, and from the same tree we counted eight

escaping flying squirrels. In this instance the squirrels and beechnuts were found in separate cavities.

We captured two of the squirrels, a male and a female, and the man took them home for pets. In a few days they were perfectly tame, and at night-fall they would come from their cage, and play about the house, apparently as contented as though they were in their forest home. It was found, however, that care must be exercised, for the squirrels seemed to enjoy trying their teeth on almost everything except iron. In the spring comfortable quarters were made for the squirrels in the woodshed attic, with just enough of the wild about to remind them of their old home. At the rear of the attic stood a large maple tree, the boughs of which touched the house; the old tree had but one cavity, but it was supplemented by a woodpecker stub brought from the grove near by, and fastened in an upright position about thirty feet from the ground. It did not take the squirrels long to find an opening at the end of the attic by the old tree, and thus their playground was considerably enlarged.

In the old stub the first litter was born, and as soon as these young squirrels were large enough to enjoy night frolics the attic became their playhouse.

The distance from the old tree to the edge of the

forest, where the beechnuts and chestnuts were plentiful, was only twenty rods, and it was an easy twenty rods, for the squirrels made use of a fence and an orchard.

By the time the frost had touched the leaves in the forest, leaving them russet, red, and gold, the old instinct had conquered the few months of civilizing influences, and the whole family of our flying squirrels must have visited the forest nightly, judging by the quantities of nuts that were stored in boxes in the attic and in the stub of the old maple tree. The family lived happily together that winter, but the next spring most of the young ones sought homes of their own, most likely in the forest near by. Other young were reared in the attic and the old tree, but the following August they all mysteriously disappeared, both old and young, probably obeying some migratory instinct. It is worthy of note that the autumn following their disappearance the nut crop was a complete failure in that immediate vicinity. Is there any connection between the two circumstances? If so, flying squirrels are as wise as they are beautiful.

Besides nuts, buds, and various roots the flying squirrels, both those born in captivity and the wild ones, are particularly fond of meat. Without doubt

they catch sleeping birds and also destroy eggs and fledgelings. By reason of this taste they have proved themselves to be quite a source of annoyance to trappers, destroying the bait intended for larger game, springing the traps, and of course many times being caught. Because of this interference trappers sometimes attempt to reduce the number of flying squirrels on the route along which they intend to trap during the fall and winter. This is done just before the trapping season opens, two trappers usually hunting together. One is armed with a heavy club, and the other with a shot gun. They go over the course searching for trees and old stubs that are likely to contain flying squirrels. When a suspicious looking cavity is observed the hunter with the gun stands ready, while the one with the heavy club strikes vigorously upon the butt of the tree. If the cavity is the home of a flying squirrel, it is quickly made known by his appearing at the entrance of the cavity, and frisking out upon the trunk of the tree, where he is easily shot by the hunter in waiting. Sometimes as many as six have been killed in as many minutes, all coming from one cavity.

Although the flying squirrels cause the trappers many a weary tramp, they all agree that these little

animals are among the most beautiful creatures of the forest.

Pet squirrels are very common, but they are usually of the red or gray varieties. I have had red, gray, and flying squirrels, but to me the flying squirrel is by far the most lovable. By nature he seems more gentle and affectionate; even a wild one will seldom nip your finger when taken in the hand, while a red or gray will bite fiercely.

My red and gray squirrels were quite tame, but they always lacked the complete confidence which was so apparent in the flying squirrel. The latter would nestle in my hand, crawl into my pocket or up my sleeve, or even go to sleep in my vest-front, evidently enjoying the warmth of my body. This natural affection and love of warmth are probably the reasons why several flying squirrels live together during the winter.

My flying squirrels occupied a large cage with a wheel attachment, the revolving of which seemed to afford them much amusement. Sometimes both squirrels would revolve the wheel together at a very high rate of speed, and then, clinging to the wires, ride round and round until the wheel nearly came to rest. Then both would put it in motion, often repeating the performance for half an hour at a time.

Again they would vary the entertainment by one doing the work and the other the riding. In fact they were apparently upon the lookout for new methods and combinations of revolving the wheel, and thus we were treated to a continuous and varied performance.

A single incident is sufficient to illustrate their love for a new amusement. One evening I placed in their cage two small apples. Upon awakening the squirrels discovered the apples, and one of them began to nibble at the fruit. The other squirrel approached the one eating the apple, who, to avoid being disturbed, immediately carried the apple into the wheel to complete his feast. In some manner the wheel began to revolve, and the bounding of the apple on the wire bars so amused the squirrel that he forgot his hunger, and began a play entirely new to him. Soon the other squirrel was attracted by the lively noise produced by the apple striking on the bars, and he joined his comrade in the wheel, and a rollicking time they had of it, jumping and bounding over the apple, while the wheel was rapidly revolving. This was the beginning of what proved to be great sport for the squirrels. After this it was not unusual for them to have two or three large nuts in the wheel, and when the wheel revolved somewhat of a medley resulted.

In all their varied movements in the wheel they were marvellously quick and graceful. Their motions were at times too rapid for the eye to follow. Some idea of their agility may be obtained by a description of the passage from the cage into the wheel; to go into the wheel the squirrels had to pass through a hole in one end of the cage, then through another hole in the end of the wheel, the holes being about two inches in diameter. By means of a light weight on one side, the holes were opposite only when the wheel came to rest. During its rapid revolution by one of the squirrels, the other would pass in and out with perfect ease. This is most wonderful, as it could have been but a fraction of a second when there was sufficient space for the squirrel to pass. Yet I never knew of either of them being caught.

For two years the squirrels occupied the cage, and then other quarters were made for them in a tree near the house. There they remained during the spring and summer, but as the nutting season came the forest depths proved irresistible, and our little friends vanished into its enticing shade.

PART II

BIRDS

THE BLUEBIRD



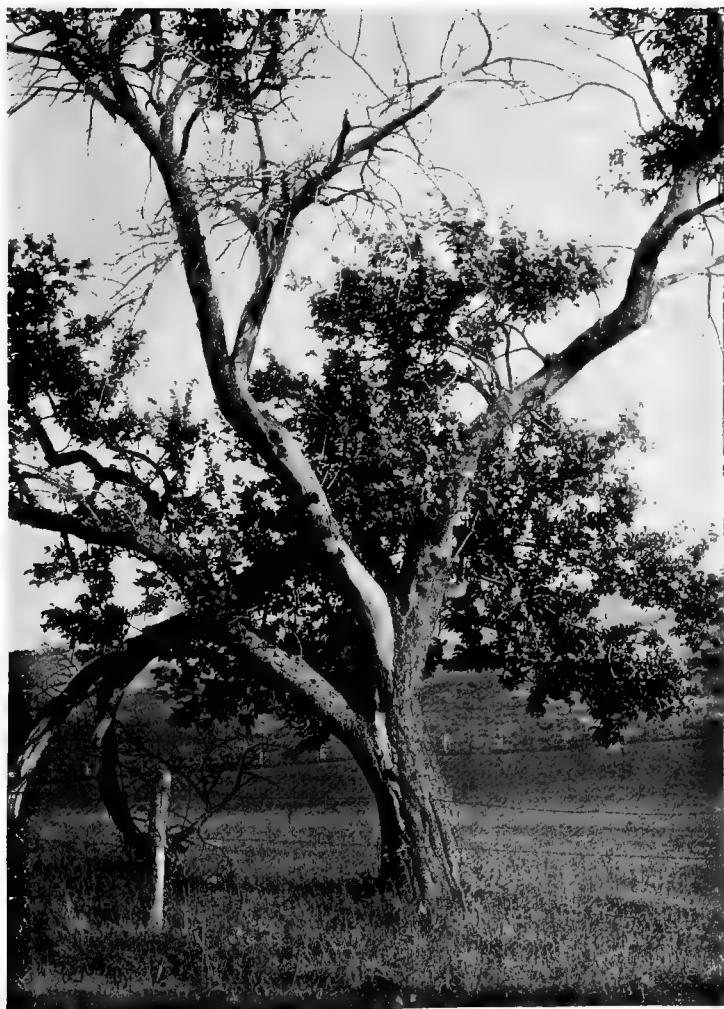
GENTLE south wind has been blowing at intervals for a week, the snow banks are diminishing in size, and here and there the brown earth seems to be pushing itself up from beneath the drifts. The sun has loosed the ice-fetters, and again the murmur of the brook is heard; while over the water the pussy willows are hanging their swollen buds, and out in the grove the sap is beginning to drop from the maple trees. These are indeed signs of spring! Now it is time to listen for the note of the bluebird. A plaintive note it is at first, but it will soon give place to a pleasing song, never loud, but always sweet and altogether suggestive of the warblers.

How welcome it is,—that bit of blue and brown, flitting among the yet naked boughs of the old apple trees! We look for the bluebird in spring with a feeling different from that for any other bird during the whole year. His note awakens within us the

assurance of the quick return of the spring beauty, and wake robin, and a whole troop of songsters.

In a day or two Lady Bluebird will arrive, a very modest little woman, with less brightly colored plumage, and more retiring manners, than her lord's. Now, if you are patient, you will have an opportunity to observe a most interesting courtship; for Mr. Bluebird is an attentive lover, exhibiting to his lady all the charms of his beautiful plumage, singing to her his sweetest songs, and feeding her with the choicest bits of food to be found. In actual bird life it sometimes happens that a rival appears upon the scene, and then many are the contests with voice and beak, until one or the other is vanquished. After this the courtship proceeds smoothly, and before long the birds begin to look about for a suitable place for housekeeping.

The "bird-boxes" and small cavities in trees are carefully inspected, until a spot is found to their liking. If the birds are not interfered with, the work of nest building progresses rapidly. But when the bluebirds are once settled they are very determined, usually succeeding in maintaining their own against their enemies, of which the house wrens, and especially the English sparrows, are chief. However, owing to the continuous warfare waged against them by these



THE BLUEBIRD TREE

pugnacious foes, the bluebirds are, year by year, becoming less numerous about our dwellings.

In my bird note book I find a sketch of the bluebird families that have, for several years in succession, occupied my "bird-box." This artificial home consisted of a hollow limb, about twenty inches long and eight in diameter, closed at top and bottom, and having an entrance for the birds on one side, while on another side was a door, through which the nest and its contents could be inspected. In the wall opposite to the bird's entrance a microphone was arranged, and a line joined it to a telephone receiver in the house. This unique "bird-box" was located about twelve feet above the ground and made fast to the body of a tree that stood in the rear of the house.

I did not expect to obtain results that could any more be turned into words than could the music of the veery or the murmuring of a mountain stream; but I wanted to hear the notes of the old birds and young, when undisturbed by man, and this was the only method known to me of accomplishing the desired end.

When the arrangements were completed, I waited for the house to be occupied. By March twentieth it had been inspected by many bluebirds, but none had

decided to remain. Through the apparatus I had the pleasure of listening to bluebird conversations such as I had never heard before. As the birds were house hunting their notes were at times very spirited, and their quick movements were plainly indicative of excitement.

The first week in April, after a very careful inspection of the house inside and out, a pair of bluebirds decided to remain. They commenced the nest at once, using fine grass as material, and the sounds of their building could be heard very distinctly through the telephone receiver. The third day a great commotion was heard over the line, and upon investigating I found that some English sparrows were trying to turn the bluebirds out. After two days of disturbance the bluebirds were victorious, but the male bird kept a very careful watch about the box for several days, proving himself to be a veritable "blue streak" to every English sparrow that came within a hundred feet of his home.

In due season the nest was finished, and on April twenty-third there were five eggs. By May seventh all the eggs were hatched. The peeping of the little birds and the quieting notes of the mother could be plainly heard through the receiver. The notes varied greatly in pitch and quality; the mother bird using

certain notes that the little ones appeared to answer, just as chickens will respond to certain sounds and movements of the hen. A certain note from the mother hen will call the chickens, while another will send them immediately to cover, if a hawk appears in the sky.

If one carefully approached the tree and scratched on the bark, the mother would give one low note and every noisy baby bluebird would immediately become quiet. Each repetition of the experiment called forth the same low note. This is characteristic of other birds as well. The ruffed grouse does it, and there is every reason to believe that all birds have some sort of a language of their own.

The old birds of this family became very tame. On the ninth day after the young were hatched the female must have been killed, for she disappeared on that day and was not seen again. This tragedy seemed to discourage the male, and as the young were in danger of starving, we took them into the house and brought them up by hand. They became great pets, and after they could fly about the yard they would come for their food several times a day. They remained until August fifteenth, and after that I was not sure that I saw them again, for one bluebird looks very much like another.

In late summer the song of the bluebird is changed to

a plaintive note that is as suggestive of coming winter as the song is of returning spring. At this season of the year, and especially in autumn, it is usual to see small flocks of them along the roadsides and about the orchards. At the approach of winter the greater number of these bluebirds migrate to the southern part of the United States, and some probably go as far south as the West Indies.

During mild winters a few remain in the Northern States, and those who are fortunate enough to ramble about the hedges and byways sometimes find them in sheltered places. On pleasant days, too, the bluebirds may sometimes be seen in the open fields among the brown weeds, eagerly searching for the few seeds that the wind shakes from the pods still standing above the snow; or, perchance, they may be found about the hay stacks near the barns, where the cattle are fed in pleasant weather.

One January morning I saw a very unusual bird-picture about one of these stacks. The ground was covered with a thick blanket of snow, over which the hay had been scattered. The loosened seeds were tempting bits of food for the hungry wild birds, and as the morning grew warmer a flock came from the thick underbrush of the woods near by. The greater number were snowflakes, but there were a few sparrows

and five bluebirds. On Nature's white background the blue of the bluebirds, the gray of the sparrows, and the brown and white of the snowflakes made indeed a variety of color and contrast.

The sweet disposition and gentle, lovable ways of the bluebird are evident even in captivity. I once had the pleasure of carefully studying the habits in captivity of both old and young of this species. The old birds were kept in a large room with several other varieties of American birds, and here they were models of good behavior, not only among their own kind, but in their relations with the other birds.

The young birds were kept in cages, and with a moderate amount of care and attention became very tame. It was amusing to see them, about the usual feeding time, arrange themselves on a particular perch. Each bird, in order of precedence, would take the food from a stick, and if one was purposely omitted, there was no fluttering of wings or selfish attempt to obtain the morsel as it was offered to the next bird.

These unselfish table manners I have observed in wild bluebirds as well. Several years ago a pair of bluebirds selected, as a home, the deserted winter quarters of a downy woodpecker. The cavity was located in the dead branch of a cherry tree which stood in the yard in the rear of the house. On the seventh

day after the young were hatched, a severe wind and rain storm so broke and split the old stub that the young were in danger of perishing. We soon converted a small basket into a temporary and comfortable nest for the unfortunate family, and from a second story window of the house we watched the birds unobserved. The old birds accepted the situation, and continued to feed and care for the young. As the food was brought there was no strife on the part of the young birds, but each waited his turn. This continued not only while the young were in the nest, but until they flew away.

The bluebird makes a very playful and affectionate little pet. Mr. A. Radclyffe Dugmore tells of a very interesting one he possessed. "While I am writing," he says, "a pet one, but three months old, is sitting on my paper, seeming to wonder what I am doing and why I do not play with him. He nips my pencil, but I pay no attention to him; then he tries to creep up my sleeve, and still I pay no attention; so, disgusted, he flies off in search for ants or other small insects. After a time I raise my hand and call; back he comes, like a flash, and, hovering more like a large moth than a bird, he perches on my finger, singing at the same time a soft little song that is his method of speech."

THE ROBIN



HAT familiar and much-beloved bird, the robin, is found in summer throughout the greater part of North America. He has a very strong and aggressive personality, and a clear voice, which always plays a prominent part in our morning bird chorus. His cheery friendliness renders him a great favorite, and his song compares very favorably with that of other members of his family. Although his music does not equal that of the thrush—that sweet warbler of the glen—there is scarcely another bird which expresses so much in its tones as does our robin.

A few robins remain during the winter in the Northern States, but most of them migrate at the approach of cold weather. In the Southern States during the winter months the robins may be found in enormous flocks feeding upon the holly, mistletoe, and Virginia juniper. There is very little singing at this period, but the call notes are frequently heard.

Robins migrate for the most part in flocks, arriv-

ing in considerable numbers in the latitude of New York about the middle of March. At this time they are in full song, although a few days later their music is more spontaneous and joyous. We are accustomed to date the real beginning of spring, not by the day of the calendar, but by the arrival of the robins. As we hear the old familiar song, we stop to listen, and pronounce it a splendid performance.

You hear a great deal about the damage done by the robins in the cherry trees and berry patches. Why shouldn't the robin come in for his share? He has labored several months of the year in order that the trees might produce, therefore a part belongs to him. It has been said by Dr. Coues: "The robin is a great eater of berries and soft fruits of every description, and these furnish, during the colder portion of the year, its chief sustenance. Some of the cultivated fruits of the orchard and garden are specially attractive, and no doubt the birds demand their tithe; but the damage in this way is trifling at most, and wholly inconsiderable in comparison with the great benefit resulting from the destruction of noxious insects by this bird. The prejudice which some persons entertain against the robin is unreasonable; the wholesale slaughter of the birds which annually takes place in many localities is as senseless

as it is cruel. Few persons have any adequate idea of the enormous, the literally incalculable, number of insects that robins eat every year. It has been found, by careful and accurate observations, that a young robin, in the nest, requires a daily supply of animal food equivalent to considerably more than its own weight. When we remember that some millions of pairs of robins raise four or six young ones once, twice, or even three times a year, it will be seen that the resulting destruction in insects is, as I have said, incalculable. I have no doubt that the services of these birds, during the time they are engaged in rearing their young alone, would entitle them to protection were the parents themselves to feed exclusively upon garden fruit for the whole period. But at this time the diet of the old birds is very largely of an animal nature; nor is this the only season during which the destruction of insects goes on. Upon the first arrival of the main body of birds, early in spring, long before any fruits are ripe, they throw themselves into the newly ploughed fields, and scatter over meadows, lawns, and parks, in eager search for the worms and grubs that, later in the season, would prove invincible to the agriculturist, were not their ravages thus stayed in advance by the friendly army of robins."

During the breeding season robins nest about the garden and house, sometimes even on the vines growing over the veranda. Th favorite place of nesting seems to be about old and neglected orchards, but never have I found a nest in the deep woods. The robin when not molested has little fear of man, and the building of the nest and rearing of the young can be very carefully observed by any one. For this reason this is one of the best of birds for the young ornithologist to begin to observe.

A few years ago I interested one of my young boy friends, who for two years past had been inclined to rob birds' nests, by making with him a careful and systematic study of the robin.

On April twelfth a pair of these birds was discovered building a nest in a lilac bush close to the house, and but a few feet from the dining room window. The nest had scarcely been begun when discovered, and I determined, for the sake of my young friend, to cultivate friendly relations between ourselves and the robins.

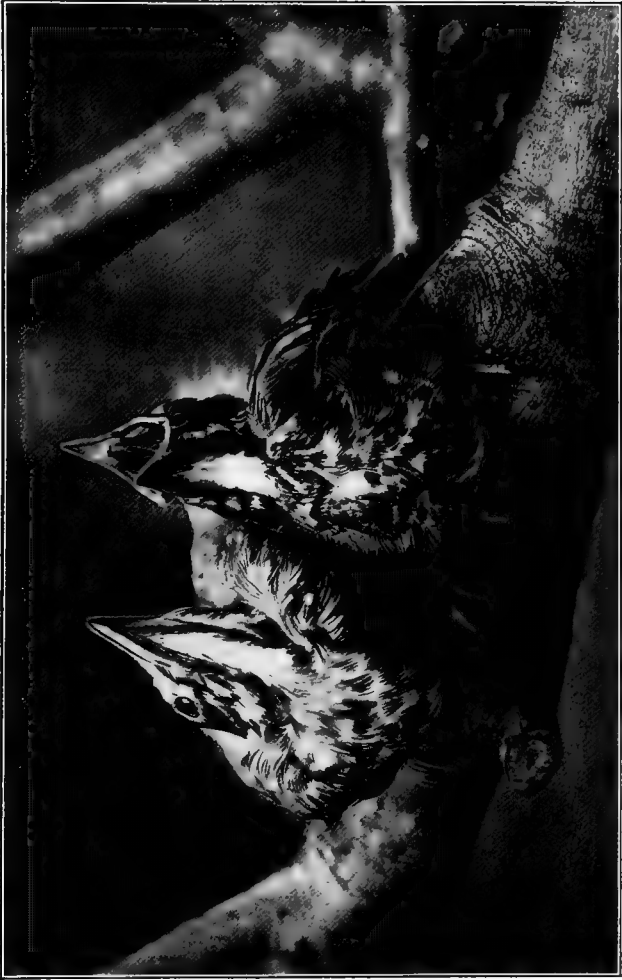
The female was a half albino, the wings being partly white, and she had a few white feathers on her breast. The male was so much like other robins that, only as he grew tame, could we distinguish him. As it has been found that most animals are made more approachable by satisfying the appe-

tite for food—even man being no exception—we decided to take advantage of this fact. Accordingly, on April fourteenth we placed a small board in the fork of two limbs of the lilac bush, on which we intended to offer food to the robins. We made it our business to be about the lilac bush and at the window as often as convenient, at first without apparently noticing the birds. In the beginning they were quite easily disturbed by our presence, and also by the appearance of the board so near their nest; the fear soon passed away, however, and it was surprising to notice how quickly it was dispelled after we began feeding them. In two days the robins would take food from the board while we were at the window, only six feet away.

Meanwhile the building of the nest was progressing, and as it was only ten feet from the window, the process of construction could easily be watched. Both birds took part in the building, although the female seemed to do the most of the work, particularly the shaping of the nest, which was done largely by means of her body. The nest was finished on April twenty-fifth, and it was a typical robin's nest; the bulky part being composed of roots and grasses, while the inner wall of mud was lined with very fine grass and a few long horse hairs.

On April twenty-sixth the first egg was laid. On the second day following, another, and so on, until the nest contained four eggs. The eggs were deposited in the morning between the hours of eight and twelve, and were of a beautiful greenish blue color, characteristic of the family to which the robin belongs. The female was on the nest but little until April thirtieth, but on May second the serious business of incubation began. In this the female took the most active part, being relieved about an hour and a half each day by the male, and with one exception she covered the eggs at night, although there was no apparent reason why the male should have assumed the responsibility on this particular night. Sometimes the male brought food to the female while she was on the nest.

On the eleventh day after incubation began, the first young robin appeared, and two days later the other three eggs were hatched. The young birds grew very rapidly, and in twelve days were ready to leave the nest. During the time the young were in the nest the old birds constantly took food from the board, particularly worms. The young robins were quite tame at first, but, as time went on, gradually grew wilder, and finally disappeared altogether on June fifteenth. We often saw the female about the house, and the first week in July the old nest was used



YOUNG ROBINS THIRTEEN DAYS OLD

again for a second brood, which was reared without accident.

There being no distinguishing marks on the male, he was lost sight of on August twentieth. The female was last seen on September twenty-sixth. The disappearance of the old birds ended the observations for the year. The results had been successful beyond my expectations. I hoped to carry the study farther the next season, and assist my young friend in answering the question which is so hard to answer, "Do birds return to the same nesting place year after year, and do they remember their human friends?"

The most direct benefit of the study, aside from the knowledge gained, was the conversion of the boy egg-collector into a protector of birds; and strange as it may seem, his first real interest came with the keeping of notes.

During the following winter the old nest was blown from the lilac bush. When March came, we kept a careful watch for the robins, and by the fifteenth several had been seen. On March twentieth one of our old friends appeared. It was the female, unmistakable because of her peculiar markings. She seemed as tame as when she left on her fall migration. For a week she remained about the lawn and old orchard, and then disappeared for a few days, but on April

sixth returned with her mate and began a nest in a bush close by the house. Only one brood was reared this season. The following spring she returned and reared two broods. With her fall migration our acquaintance ended. The next spring we waited and watched, even placing food upon the board in the lilac bush, but our old friends did not appear.

WHY THE ROBIN'S BREAST IS RED.

According to a certain legend, a bird played a part in the crucifixion. It was a modest little bird with gray plumage, which approached the cross timidly, uttering cries of grief. With its wings it tried to wipe away the blinding sweat and blood from the face of Jesus, while with its beak it tried to pluck away one of the thorns which was piercing his forehead. A single drop of blood fell on the breast of the pitying gray bird, and gave to the world the Robin Redbreast. Jesus said: "Blessed be thou, little bird, which sharest my sorrows! May joy accompany thee everywhere! Thine eggs shall be blue as the sky above; thou shalt be the 'bird of God,' bearer of good tidings."

THE CHIMNEY SWIFT



CHIMNEY SWIFTS are found in all parts of the globe except the colder portions. There are about seventy-five known species, but of these only four live in North America.

The swifts have slim bodies, rather short and compact feathers, while, for such small birds, their wings are unusually long and powerful, giving them unrivalled powers of flight. The natural homes and retreats of the swifts were formerly in hollow trees and caves, but these have been gradually abandoned for the chimneys used by civilized man. This adoption of a new home is a marked illustration of the readiness with which a bird may change its nesting place. Whether the home of the swifts is natural or artificial, when nesting, they are always associated in scattered companies, but for a few weeks before the fall migration they are decidedly gregarious, roosting in great numbers in favorable localities.

One species of the swift family, which breeds in various parts of the Malay Archipelago, is famous for

making an edible nest. It was thought for a long time that the substance, used by the birds in the manufacture of these nests, was chiefly seaweed, partly digested and mixed with mucus from the salivary glands, but from recent chemical analysis it has been proved beyond doubt that it is mucus alone. There are some famous swift caves in the northern part of Borneo, and I quote the following from Mr. H. Pryer, who visited these caves some time ago:

“At the White Cave and others I saw the nest-gatherers at work getting in their crop. A thin rattan ladder was fixed to the end of a long pole and wedged against the rocks. Two men were on the ladder; one carried a long four-pronged spear, a lighted candle being fixed to it a few inches below the prongs. By the aid of this light a suitable nest is found, and transfixed with the prongs; a slight twist detaches the nest unbroken from the wall of the rock. The spear is then passed within reach of the second man, who takes the nest off the prongs and places it in a pouch carried at the waist. The nests of best quality are bound up into packets with strips of rattan, the inferior being simply threaded together; the best packets generally weigh about one and a third pounds, averaging forty nests, and are sold at nine dollars each. These caves have been worked for seven generations without any diminu-

tion in the quantity; three crops are taken during the year."

Our chimney swift is a migratory bird, arriving from Central America, or still farther south, about the middle of April, and remaining until late in September. This bird is usually called a "swallow," or perhaps more frequently a "chimney swallow," but the likeness exists only in its habits and mode of dress, and not in its structure. Even in dress they may be easily distinguished, for the swifts have ten primaries, or long wing-feathers, and an equal number of tail feathers, the shafts of which are exposed at the end, thus aiding the bird in clinging to an upright support; while the swallows have nine primaries and twelve tail feathers. As a matter of fact the swifts are more nearly related structurally to the goatsuckers and humming birds than they are to the swallows.

Not only is the chimney swift confused with the swallow, but it shares some of the uncanniness ascribed to our bats, snakes, and toads. This is probably due to the nocturnal habits of the swifts and also to popular fables, written fifty years ago, concerning certain birds whose habits were at that time little known. It was, for a long time, believed that in the autumn swifts collected by hundreds in hollow trees, together with bats, snakes, and toads, and that at the appointed time all

fell into a deep sleep, lasting until spring was well advanced. Others went still farther beyond the bounds of reason in declaring that the swifts descended to the bottom of rivers, ponds, and lakes, where, during cold weather, they buried themselves in the mud with the catfish, the eels, and the snapping turtles. It is surprising how long such fairy tales cling to a species, for less than a year ago an old lady told me, that when she was a girl the "chimney swallows" from all the surrounding country collected at her father's mill pond, and then at night, when no one knew it, "they dove to the bottom of the pond and remained there until the cowslips came up."

Our chimney swift, in common with the other species of the family, has remarkable powers of flight, the estimated speed being from eighty to one hundred and ten miles an hour. This wonderful speed is attained by only a few of our birds. The swift is more often seen flying in the morning or late afternoon, and it apparently enjoys wet and gloomy weather more than the sunshine. The swift, like the swallow, feeds on the wing and its movements are swift and graceful, as it flies to and fro over its favorite feeding grounds. At times the wings vibrate very rapidly; then again the movement is but slight, producing a series of glides through the air, beautiful to

see. During this splendid exhibition of flight there occurs at short intervals the not altogether unmusical sharp and rolling twitter.

The nest of our swift is one of the most remarkable structures to be found among our common birds. It is usually placed in a chimney and is composed of twigs quite uniform in length and size, woven into a semicircular basket. As they seldom frequent the ground, there has been considerable speculation concerning the methods by which the swifts obtain their nesting material. It has, however, been found that instead of selecting material already scattered about by the wind they break twigs from dead limbs or trees, while in full flight. These twigs are held in place upon the side of the chimney and where they cross each other, by a very adhesive saliva secreted by the birds. When the nest is completed it is quite shallow as compared with that of a robin, being usually not more than a fourth as deep, and having none of the soft lining usually found in the nests of other birds. On the contrary, the home of the swift is rather rough within, while the entire surface, inside and out, has a glistening appearance due to the abundance of saliva which is used, not only at the intersection of the twigs, but also scattered somewhat promiscuously over them. The saliva when dry

ings are such that the light is poor at the best, they are most difficult young birds to photograph.

The swifts feed their young during the greater part of the night, and the noise made by their wings while passing in and out of the chimney often resembles the low rumbling of distant thunder. This is more pronounced by the time the second brood is reared, but it becomes unbearable only when, as sometimes happens for a week or two, a few hundred swifts take up a temporary residence in an old fashioned chimney, before starting on their southern journey.

I remember very distinctly flocks of this kind which assembled at my father's old farmhouse and took up their abode in the "parlor" chimney. The flocks varied from a hundred to two or three times that number, and the usual time of assembling was early in September. Many a time at dusk I have watched the birds flying in a large circle above the house, and then all at once, even while I gazed, the mass would change form—those on the inner part gradually descending and the circle narrowing until it resembled an inverted cone with rapidly moving sides, which swept lower and lower, until the birds at the apex dropped into the chimney, soon to be followed by the whole flock. I saw something of the same thing a few summers ago in Princeton, New Jersey, although on a

much larger scale; chimney swifts varying in number from twelve to fifteen hundred gathered each night, apparently from the surrounding country, to roost in an old fashioned chimney in an untenanted house on Nassau Street. How one chimney can possibly hold so many birds is a mystery which I have never yet been able to solve!

THE BOBOLINK



THE bobolink has a widespread geographical range, extending from the central portion of South America northward to the fifty-fifth parallel, and embracing all of the United States except the extreme western portion. It breeds from southern New Jersey northward to Nova Scotia and westward to Utah. Many are the names to which the bobolink answers: in the Southern States it is called the rice-bird, in the Middle States it is the reed-bird, while in the Northern States bobolink, May-bird, meadow-bird, butter-bird, and skunk-bird.

From the extreme southern limit of their winter home, south of the Amazon, the males, travelling in flocks of several hundred, start on their northward journey about April first, arriving in Florida toward the latter part of the month and some days before the appearance of the females. Upon their arrival in the United States the males are in full song, and only one who has heard the wondrous melody of the bobolink can form any idea of the effect produced by

several hundred singing in chorus. Beautifully as they sing in the North, they favor the South with still rarer treats. Audubon gives a description of one of these charming concerts in the following words:

“During their sojourn in Louisiana, in spring, their song, which is extremely interesting and emitted with a volubility bordering on a burlesque, is heard from a whole party at the same time; when, as each individual is, of course, possessed of the same musical powers as his neighbors, it becomes amusing to listen to a hundred or more of them beginning one after another, as if ordered to follow in quick succession, after the first notes are given by the leader, and producing such a medley as it is impossible to describe, although it is extremely pleasant to hear. While you are listening the whole flock simultaneously ceases, which appears equally extraordinary. This curious exhibition is repeated at intervals during the day.”

About the first week in May the bobolink is with us, and he who has not had the pleasure of seeing and hearing this superb bird has a great treat in store. If the bobolink concert belongs to the South, we have the solo work in the highest state of perfection, for immediately upon arrival at the North each male

begins to pay particular attention to some plainly dressed little bobolink maiden, and for the lady of his choice he sings his most hilarious melody. I know of nothing more delightful on a May morning than to be near an old orchard, where the sweet scented blossoms are still hanging, and to watch the bobolink at his wooing. As you approach, the female is not to be seen, but she is, without doubt, down in the grass, while the male, in his beautiful coat of black and creamy white, is sitting upon the tallest bush by the fence; or, perchance, is swinging for a moment from the slender branch of an elm, before rising gracefully into the air and pouring forth such ringing, vibrating, tinkling, and rollicking notes as "'tshe, 'tshe, 'tsh, 'tsh, 'tshe," and then circling right-about and setting sail for his former perch fairly shouting, "bob-o-lee, bob-o-lee, bob-o-linke."

After the wooing the happy pair selects a meadow, preferably near a running stream, and in a tussock of grass surrounded by plenty of green verdure a snug nest is constructed of bits of dried grass, collected by both male and female. The eggs, numbering from four to six, are of a grayish white with numerous blotches of umber upon them.

The nest is very difficult to locate—hours upon hours have I spent in trying to find one. In approaching

the nest the male bobolink uses the same tactics as does the wild turkey; proceeding leisurely, by a most roundabout way and pretending great anxiety over some different locality if you approach too near his nest and mate. The female is the more wary of the two, guarding the approach to the nest with the utmost care; she always runs through the grass a long distance before taking to her wings, except when you stumble upon her by chance as she is sitting upon the nest.

While I was spending a summer in Princeton, New Jersey, studying the birds of that section, a friend of mine suggested a new method of finding the bobolink's nest, which was successful as compared with the old haphazard way of searching about in the grass wherever bobolinks were plentiful. The method was this: Having located a good bobolink meadow, it is necessary for two persons to operate together. They begin at one side of the field and walk across it abreast about seventy feet apart, holding between them a cord upon which are fastened sticks two feet in length and about eight feet apart. These sticks striking the grass frighten the sitting bird from the nest, and she flies directly up—instead of running through the grass as usual for some distance before taking to her wings—thus revealing her secret to the hunter.

As soon as the young are hatched the male begins



NEST AND EGGS OF THE BOBOLINK

the task of helping the female provide for the hungry, clamoring little family, and an arduous task it is, for even after the young leave the nest the parents provide food for them until they are able to find it for themselves. During this period the gaudy coat of the male bobolink disappears—it is moulting time—and the whole family is of the same sober color; the song also is given up along with the coat, and the only note heard is the call note, a metallic *chink*.

About the first of August most of the young bobolinks are on the wing, practicing for their long journey; the old and young become more clannish each day as they move slowly southward along the river courses, where the smaller flocks unite, making a vast army, which moves slowly toward the rice fields. The bobolinks now become fat and thousands of them are shot and sold in the markets. Their flesh is said to be very delicate.

It is toward the latter part of August they reach the rice fields, and for about six weeks there is no rest for the rice growers. The birds swarm upon the fields by millions—a scourge worse than a plague of locusts. The loss caused by the bobolinks in the rice fields of the South must amount annually to over two million dollars. A greater part of this loss is incurred directly by the maintaining of “bird-minders,”

who patrol the fields from early morning until after sunset, firing guns and cracking the long lashes of whips. It is generally supposed that the firing of guns in the rice fields is for the purpose of killing the bobolinks, but, as the shot would destroy the rice, its object is simply to frighten the birds. Unless one has actually seen it, one cannot appreciate the amount of damage done by the bobolinks in the rice fields. To protect a hundred acres of rice from the bobolinks often costs from eighty to ninety dollars.

Besides the "bird-minders," other methods of preventing the ravages of the bobolinks have been tried, but thus far sooner or later all have failed. Among the various schemes probably the oldest and most often tried remedy is that of tarring the rice before it is sown. The tar on the rice is very distasteful to the birds, so that it has some effect in preventing the germinating rice from being pulled; but as the fields, except on the "uplands," are flooded as soon as the rice is sown, the long soaking renders the tar less efficient. The flying of kites over the fields was at first looked upon as a very effective remedy, but as the bobolinks soon became accustomed to them, they too proved ineffectual.

The turkey-buzzards are very plentiful in the South, and an attempt has been made to use them in frighten-

ing the bobolinks. For this purpose, poles from ten to twelve feet high were set up in various parts of the rice fields, at the tops of which were small platforms, and upon these meat was placed to attract the buzzards. These large birds flying about were mistaken by the bobolinks for hawks, and for a time this worked admirably, but as soon as the birds discovered their mistake the buzzards no longer alarmed them.

The bobolink question in the South is indeed a serious one, and the circumstances connected with it, though probably natural, are extremely interesting to a student of bird life. The bobolinks make havoc in the rice fields because man has selected for his own use the resting and feeding places which the birds have had since before the settlement of the country. If either is an usurper it is man. From the early bird history it is noted that the habits of the bobolink have remained practically the same; namely, the course of migration, the food habits, the love for the open meadow where it nests, and the points of departure and return to the United States are all unchanged.

When the forests of the Northern States gave place to meadow lands, the nesting territory of the bobolinks was greatly enlarged, and was no doubt a factor in increasing their numbers.

During their spring migration northward from South

America, the larger portion of them entered the United States by the way of Florida; the remainder, especially those occupying the western portion of the country, came in by the way of the Mississippi valley. In former times the Atlantic coast furnished the bobolinks with plenty of natural food, such as weed-seeds and wild rice. This was the condition in the latter part of the seventeenth century, when the bobolink was beloved by the people of the North and South alike. Meanwhile two conditions were slowly being brought about: meadow lands were increasing year by year in the North, and the growing of rice in the South was fast becoming a vast industry. The bobolinks now found beautiful nesting fields in the North, and, directly in the line of their old migration route, man was furnishing a bountiful supply of food in the way of the young rice, just beginning to appear above the ground. Another factor which should not be overlooked is, that, after the bobolinks' long sea journey, they are naturally exhausted upon reaching the Southern States, and so stop for a little period before they begin the long northern journey to their summer homes. This enforced rest brings them into the region of the rice, where, at the expense of the planter, they recuperate very rapidly. If the arrival of the birds was but a few weeks earlier or a few weeks later, the rice would escape uninjured.

During the southern migration opposite conditions prevail, although with similar results to the rice grower; the birds now take the land migration first, stopping in the Southern States to recruit their exhausted energies, caused by the rearing of the brood and by the long flight. This stop-over period in the South comes at the season of the rice harvest, furnishing the birds with an easy food supply—far easier than it would be to get it from the uncultivated fields—and this, coupled with the fact that the rice fields are limited in area, causes an individual loss to rice growers that would not be felt to the same extent if the crop were a general one, such as the oat or wheat crop.

That birds do not go much out of their old routes for food is well illustrated in the case of Texas. It is fast becoming a rice growing state, but as it is a little to one side of the path of the bobolinks that migrate through the Mississippi valley, the rice fields are not very seriously damaged.

We can easily see that to the southern rice grower the beauty of the bobolink, the sweet melody of its song, Bryant's poem—"Robert of Lincoln"—or the verses of Wilson Flagg can appeal but little. Poetry and sentiment do not often atone for individual loss, and the passage of the bobolink is truly a scourge to the South.

What are we at the North to think of our bobolink?
To me the happy days of youth were made happier by
the bubbling, rollicking melody of the bobolink, and
I cherish the memory of it above all other bird music.

“Nuff sed June’s bridesman, poet o’ the year,
Gladness on wings, the bobolink, is here.”

Bureau Nature Study.

Ithaca, N. Y.

CORNELL UNIVERSITY,

THE SCREECH OWL



THE screech owl is found throughout the whole of the United States and the southern part of Canada. It is one of the smaller owls, being about eight inches in length, with conspicuous ear tufts; its wings and tail are barred and its legs feathered. The adult bird may be gray or brownish red. This variation in color, or dichromatism as it is called, is well marked, and for a long time it was supposed to have something to do with the sex or age of the bird, some scientists even going so far as to class the two as different species. In reality it has to do with none of these, although just why it occurs has not been satisfactorily answered. This dichromatism occurs very frequently among the squirrels, and it is not uncommon in the insect world.

The screech owl is one of our most beneficial owls, for it feeds principally upon mice, reptiles, and insects, but sometimes—upon small birds. The greatest good is done in the destruction of field-mice, which do so much damage to the grass roots, to the grain both

when stacked and in the shock, and to young fruit-trees. The greatest damage to trees occurs in that part of the owl's range where the snow is so deep that it is impossible for the bird to reach the mice.

To the field student of natural history there are no tracks in the snow more common than those of the short-tailed field mouse. They are particularly plentiful about hedgerows, brush heaps, stone piles, hay and grain stacks, and farm buildings, while the orchard is one complete network of them. Sometimes in the morning one may read on the soft snow a chapter from Nature, written in her own hand and better than anything ever found in books. Let us study it together. The old orchard is before us; many of the trees have long since passed their commercial usefulness, but they should be spared, for they are now the homes of our animal friends. Time and the elements have dealt harshly with them, and the boisterous wind has torn many a limb asunder; here, for many years, the flickers have drilled their homes, and the cavities in the old trees have grown larger year by year. Toward one old tree, one-half of which is tipped over until it touches the ground, many mice tracks converge,—probably the seeds in the apples beneath the snow are the attraction, or perhaps some other dainty well liked by the mouse.

We notice that here a well defined track suddenly ends, and we wonder where the mouse could have gone; but if we look a little closer, we find, at the end of the trail on either side, a slight mark in the snow. These marks were probably made by the wing-tips of some night flying bird, in whose deadly grip the little mouse met its end. We now examine some of the cavities in the old trees, from one of which we draw forth a plump, sleek screech owl. Could he but talk, he would without doubt be able to explain those marks in the snow, and to tell the reason why the mouse would never again scamper about in the moonlight, leaving behind him dainty footprints in the snow.

Since the screech owl is of such great economic value, its presence in the agricultural districts should be encouraged. It is not, like many other birds, beneficial in one part of its range and harmful in another; but in doing so much good the screech owl sometimes does a little harm, for it occasionally kills small birds, and has been known to attack a ruffed grouse or hen, though no serious harm came to either. However, this bird catching propensity of the owl is very much in its favor at present, for it has developed a liking for the English sparrow, and is frequently to be seen about ivy covered buildings and other favorite

roosting places of the sparrows. This good report of the screech owl seems to be common in other states besides New Jersey and New York. From Mount Perry, Ohio, Mr. R. S. Russell writes as follows:

“Last summer the English sparrows were so thick around my house as almost to set me wild, when a little screech owl got to visiting us every night and at each visit he carried off a sparrow. My house is thickly covered with vines, and the little owl would make a dash into the vines and capture his sparrow every time. By fall they were well thinned out.”

The screech owl breeds throughout its range, generally in hollow trees, but not in the deep woods. Little nesting material, other than rotten wood and a few feathers, is used. The eggs, varying in number from four to six, are white and nearly round, and in our latitudes are usually deposited from the fifth to the twentieth of April.

The young, if taken a few days before they are ready to leave the nest, may be tamed quite easily.

In the latter part of June, 1904, I was informed that a coachman had caught two little owls while they were lazily dozing the morning hours away on the top of a woodpile. I called upon the man, and was informed that he had two owls, which he called “cat-owls.” They were in a box by the barn, and

he told me that three times a day they were fed bread soaked in milk. The larger owl, he informed me, was a male and the smaller one a female. I do not know how he determined this, but he was very positive in his statements concerning owls, telling me a great deal about these birds: that they were very scarce; that if, when about to set out on a journey an owl "hooted," you were sure to have bad luck; also that if for three nights in succession an owl was heard close to a house and from the same tree, there would be a death in the family within the next six months. To all this astonishing information he added that he could take these birds to a man in Orange who would pay at least six or eight dollars for them.

I pitied the little birds—they were screech owls—and offered the man what I considered to be a moderate sum for them. He accepted the offer very quickly, although it was considerably *less* than he had said he could get for them in Orange.

I carried them home in a paper box, and arranged temporary quarters for them, until I could construct something better. I gave each of them an English sparrow, which I fancied was more to their liking than bread and milk; nor did they need to be urged to eat, but eagerly began their feast at once.

We gave them appropriate names, corresponding to

sex as indicated by their former owner, calling the larger one "Billy" and the smaller one "Betty." They were rather large to thoroughly tame, but I handled them quite a little, and soon Betty appeared to enjoy it and became very friendly, but Billy would sometimes protest strongly with a hissing noise, similar to the prolonged sound of the letter *a* in *care*, accompanied by a snapping of his beak. Betty became so tame that my little daughter could scratch the owl's head, and it would have been difficult to tell from the appearance which one enjoyed it the more.

The little owls soon came to know my voice. When I called his name, Billy in particular would give me his peculiar cry of *a*, even before I was in sight. If he failed to answer, I always tried to get him to 'speak' before I would give him his portion of food. It was evident that this sound expressed with him more than one thing, and it seemed to me to be differently accented on different occasions. I did not think at the time that this training would serve in any particular way, except that it would probably strengthen certain points that have to do with animal intelligence. Upon arriving home one day, however, I was told that Billy and Betty had escaped, and that, although the basement had been thoroughly



"BILLY" AND "BETTY"

searched, neither could be found. I myself searched the basement again, but with no better success. Finally I called "Billy, Billy," and listened. Billy promptly responded by giving the sound of *a*, and, guided by the sense of hearing, I found him sitting on the gas pipe close by a joist, with Betty beside him.

The next morning I put a basin of water into a box, and in a short time Billy was taking a bath, and when he had completed it, he was the wettest bird that I ever saw; even the feathers on the top of his head were wet. After this Billy took a bath very often, but Betty less often.

I placed them in bushes several times, just to see what they would do. Both of them could fly well, but they did not seem to think of it when out-of-doors. When all was quiet they would remain motionless; startle one, however, and it would open its eyes wide, but if the light was bright the bird would quickly bring the lids close together, forming a mere slit, thus shutting out most of the light, and probably by this means giving it a far clearer image of me. Again being left alone for some time, it would arrange its feathers and become as motionless as before, keeping always the ear-tufts slightly raised. But if I gradually approached, it would slowly rise to its full height, at the same time elevating the ear tufts.

Standing in this position it resembled more nearly an old stub on the limb than a bird.

At last the owl-house was completed and placed in a cherry tree in the garden. Late in the afternoon the owls were put in it—free at last and with a home besides. The next morning both were there; but whether they had been out during the night I could not say. The second morning Billy was gone, and although I looked about I failed to find his hiding-place. In the afternoon I was working in the garden, and an old robin, that had a nest in the next yard, was making a great disturbance. I could see no cat or other cause for this outcry, and the young robins were not large enough to leave the nest. I stood it until my curiosity got the better of me, and then set out to find the cause of all this alarm. By this time the male robin had arrived, and he too was greatly distressed. A bluebird that chanced to be near had joined in, and then it dawned upon me that it might be the sight of Billy that was causing this uneasiness among the birds. Sure enough, in a snug retreat formed by some branches sat Billy, with his eyelids slightly open, trying to discover what all this fuss was about. I returned him to his home, and for the next two weeks he was to be found there nearly every day; Betty, however, was the more regular of

the two. The owls never seemed to be hungry, but this I accounted for by the fact that in the next yard there were several evergreens, where English sparrows roosted and nested in considerable numbers.

Vacation time came and passed, and when I returned, Billy was not in, but Betty was at home and had grown both in stature and in beauty during my absence. It seemed to me that the sparrows had greatly diminished in number, much to my joy. In a few days Billy returned, and he too had grown to be a beauty.

During the autumn and early winter they were to be found the greater part of the time in their snug house in the cherry tree, but occasionally one or both would be absent for two or three days at a time. It is now the first of February 1905, and the little owls are still "at home." I hope that they are rightly named, "Billy" and "Betty," and that when spring arrives they will decide to nest in their present abode.

THE SPARROW HAWK



THE sparrow hawk is sometimes called the "killy hawk," from the sound of its note, "killy-killy-killy," repeated in rapid succession. This beautiful and singularly colored little bird is quite plentiful in the northern part of the United States in summer, but at the approach of winter many migrate to the Southern States.

This hawk usually nests in large woodpecker holes, and consequently rears its brood quite close to the habitation of man. The period of incubation is about three weeks, and for several days after hatching the young are covered with a very soft down; in fact some of the down is not molted by the time the young birds are ready to fly.

It is a bird of the open country, rather than of the deep woods, and often it may be seen perched upon a dead limb of a tree by the meadow, watching for a mouse or a grasshopper. When the hawk has located its quarry, it hovers above it for a moment, then, dropping quickly, seizes it with its sharp talons, and



YOUNG SPARROW HAWKS

bears it away to the perch, to be devoured at leisure. I have often watched these birds feasting upon grasshoppers; and so intently were they engaged that I could approach very near their watch towers without seeming to disturb them in the least. One August afternoon I very unexpectedly came upon a sparrow hawk as he sat upon a stub, and as he paid no attention to me I watched him for some time. Within half an hour he caught and brought to the stub twelve large grasshoppers, which he devoured with apparent relish. This hawk feeds upon other insects also, seeming to have a special liking for crickets and spiders.

When the insects upon which he feeds are scarce, he gives more attention to the capture of mice; at such times he may be found about haystacks and even farm buildings, ready to capture any mouse that dares venture from under cover. Probably when food is scarce this hawk occasionally captures a bird, but this is the exception, rather than the rule. The fact that it is a hawk and has been known even occasionally to capture a bird or a chicken is, in the eyes of many people, reason enough for exterminating it. They do not stop to consider the great amount of good it has done in destroying mice alone. From the nature of its food, this bird should be protected

by law, instead of being a mark for every passing gunner.

The sparrow hawk lives in harmony with most other birds, even when nesting near them. Last summer I discovered two old maple stubs standing about twenty feet apart by the edge of a meadow; in one of these were flickers nesting, in the other were three hungry young sparrow hawks always clamoring to be fed. I watched these two families until the young of each flew away, and not once did I observe the sparrow hawks troubling the flickers. On the contrary, the sparrow hawks were a help, keeping all larger hawks and crows at a distance.

The blue jay appears to have a great dislike for the sparrow hawk, and on several occasions I have seen three or more blue jays noisily pursuing one hawk. I remember an incident of this kind that happened in the autumn of 1900 in a large apple-orchard, where I was photographing the nest of a red squirrel. When I first entered the orchard I noticed the hawk perched on the top of a tree, and as he was not far from the squirrel's nest, I frequently looked his way. It seemed rather unusual to me that this species of hawk should remain on one perch for such a long time, so I drew near to the tree. As I did so the bird gently raised his wings, vibrating them

two or three times, as if to make sure of them, and flew to a near-by tree; but the flight indicated to me that one of its wings had been slightly injured. I did not attempt to make the bird fly again, but after watching it a few moments I returned to my task.

In an hour or so five blue jays came to the orchard from a grove not far away, and, as is usual with these birds at this season of the year, they were noisy and ready for any sort of a frolic. Shortly after their arrival they discovered the sparrow hawk; instantly their crests were lowered, and for a moment their harsh notes were silenced. Recovering from their apparent surprise at finding a hawk so motionless, they soon found their voices, and one would scarcely believe that five birds could make such a noise.

At first the jays were content to remain some distance from the hawk and revile him in their language, but as this had little visible effect on him, and especially as he did not move, they approached nearer and nearer by degrees, finally alighting upon the tree with him; whereupon the hawk flew to another perch, only to be followed in a most tantalizing manner by the scolding jays. Several times this was repeated, the jays following closer and closer each time, till at last the hawk became so enraged that he made a dash at the nearest jay, striking him with

his talons in such a way as to pull out a few feathers. At this unexpected onslaught of the hawk, the noisy band of jays retreated to the forest, leaving "Killy" in the orchard.

The sparrow hawk, if taken from the nest while quite young, becomes one of the most charming of bird pets. The beautiful coloring of the feathers, the unusual intelligence and the graceful movements of the bird endear him to the few who have really come to know him. A friend of mine who had a tame one several years ago, told me that of all the birds he had tamed and loved, he cared most for his sparrow hawk. This hawk seemed to show no affection for any one but its master; but of him it was very fond, often, when he was out in the open field, alighting most unexpectedly upon his head or shoulder. It spent the greater part of the time about the open fields and orchard catching insects and mice; occasionally it would go to the woods, being absent sometimes nearly all day. The hawk enjoyed nothing better than hunting mice, if only his master would overturn the flat stones and boards for him, and it was surprising how expert he was in capturing them. He would catch them even when his appetite was satisfied, and, after killing them, would leave them on the fence or the limb of a tree.

This pet hawk rendered another good service, by guarding the chickens, although it was probably unintentional on his part, putting to flight all crows or hawks that came about the poultry yard. One day, while endeavoring to drive away a large hawk, a fierce fight ensued. The larger hawk retreated toward the woods, but the combat was kept up until, as they rose higher and higher, the watchers at the house lost sight of them. When last seen each was trying to gain the advantage that the more elevated position afforded. The little sparrow hawk never came back; whether he fell a victim to the larger hawk or whether he was shot by some thoughtless gunner will probably never be known.

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