



More
Little
Beasts

of
FIELD
and
WOOD.

William Everett Cram





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More Little Beasts
of Field and Wood



HARES IN THEIR FORM, OR SLEEPING PLACE

MORE LITTLE BEASTS OF FIELD AND WOOD

William Everett Cram



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Preface

MEN *who dwell in the forest are much given to superstition. It may be that this should be enclosed between quotation marks, for, while the wording may vary, the thought itself is as old as truth. That which to one is superstition, to another is merely to believe in all one sees or has reasonable evidence for believing, whether these things happen to be in compliance with the known laws of science (regarding matter) or are contrary to them. For one who has but a passing acquaintance of life in the woods and wishes to acquire the ability to observe Nature, I would offer this suggestion. Get a copy of Shakespeare's *Midsummer-Night's Dream* illustrated by Arthur Rackham and study carefully the drawings. In this way, better*

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than in any other I believe, will he get an idea of what he must train his eye to see.

The untrained eye sees only these birds and beasts and insects which, either through lack of fear, continue the activity of their daily life undisturbed by his presence, or else, because of fear, make themselves conspicuous in flight. After he has passed them by, many a contorted root or knot or mossy, lichen-covered stone or stump relaxes its rigidity and, shaking out its fur or feathers as the case may be, goes about whatever it may have been interrupted in by his approach. The trained eye and that of the born observer peers searchingly through the shadows without conscious direction from its owner; dwells long on withered leaves and lines of bark without knowing why some one particular object holds it, until, under its gaze, a leafless bough changes to the antlers of a deer, a distant speck of light or shadow advances to combine with shimmering leaves and form the mottling on an owl's wing; a mossy stump discovers eyes and ears and, at his nearer approach

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bounds off a frightened hare or lynx. He may gaze down through still water at fish and water beetles swimming there until the warier ones, unseen before, resume their wonted shapes again and, where he saw but wet reed stems or pellucid wavering water shadows, is now a living, active thing which passes, it may be, too near a certain mud-buried, old, slimy stone that seizes it with sudden, outstretched, gaping jaws and backs away, down into deeper water, amid all the roil and confusion it has created in gaining its dinner.

A terrified rabbit dashes past over new snow leaving, as it goes, its trail of footprints, and following with these are smaller tracks in widely separated pairs, yet the eye keen enough to see these, even as they form, sees not the snow-white ermine making them invisible, save for the one black tuft of fur, as if it were the very spirit of the forest itself. Is it to be wondered at if, seeing these hundreds of apparently impossible things occurring repeatedly in his daily walks, the inhabitant of the forest

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learns to believe, or at the least dares not to disbelieve in anything for which he has the evidence of his own eyesight, or the agreeing testimony of men of different tribes and races during the past and present ages in the short time that men have lived upon the Earth?

Introduction

THE *purpose of this book is not so much to instruct or give information of the ways and private lives of our wild animals, as it is to encourage all natural interest in such matters in order that those who have the inclination and the time may be helped to find out for themselves and so encourage the habit of acquiring at least a portion of their knowledge at first-hand.*

For all knowledge and learning of whatsoever sort that we may get from books is only second-hand knowledge, at best, something that the other fellow found out for himself, and, at the worst, something which he in his turn accepted at the hands of another.

The tendency for the past several generations has unfortunately been in the direction of depending upon this sort of second-hand learning, though of late we

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see increasing signs of a healthy reaction to a more independent study of things where this is possible.

Yet even second-hand knowledge of a subject is better than none and we certainly cannot acquire for ourselves information on all subjects; and while a few things gleaned for ourselves may outvalue, in their educational worth, whole volumes of "the written word" committed to memory, the written word should not be wholly neglected nor despised, but thankfully accepted for just what it may be worth.

So for those who have an interest in Nature, but whose lifework affords neither the opportunity nor the leisure for the study of such things as I have been writing about in these pages; what I have found to tell of my own observation of the ways of the woodland folk, may, I trust, offer something both of interest and information without at the same time spoiling the other fellow's fun by telling that which he might better have found out for himself—a delicate problem which must worry the mind of every teacher and instructor of those who are eager to learn.

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Many have expressed surprise that Thoreau should have told us so little of the lives of the wild creatures of the forest and meadow. The little that he has left us shows a keenness of observation and insight coupled with a power of putting what he saw into words, surpassing that of any other naturalist. It has frequently been suggested that his philosophical trend of thought so often held him in a brown study in his walks that he failed to see many things directly under his eyes. For my own part, I cannot believe this for a moment. He was unquestionably a born observer of Nature and the gift of observing is an instinct that, like instinct of any kind, works for itself, free and unhampered by the working of the mind or the body. It sees and hears and registers every track in the clay, every rustle in the shadow and the nibbled edge of a grass blade by the way, whether its owner be philosophizing or chopping down a tree for firewood, or both at the same time.

Thoreau was continually regretting (as what true

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naturalist has not) the days of Audubon and Nuttall and Wilson, when the charm of the unknown and the spell of the wilderness still enveloped the lives of so many of our common birds and beasts that now are catalogued and described in minutest detail.

Thoreau was a true sportsman, though not given to shooting, and apparently preferred to fish for horn-pout instead of trout, for your true sportsman is ever loath to spoil the sport of those who come after him. There is still much to learn of even our commoner wild things, and opportunities of endless delight in the finding it out for ourselves and in finding the right words to tell of what we have seen. And if ever in a single line we find ourselves consciously overstating or misrepresenting the plain truth, take that as a sign of utter unworthiness of all the good that might otherwise come to us from Nature. And may the time be long in coming when Nature shall be so thoroughly chronicled here as it is already in Europe and Great Britain. I would not undervalue the great and valuable share which Science

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has taken in the work of Nature-study, while protesting against the danger of carrying it too far.

Science's part in this work is one which could be achieved in no other way and quite beyond the reach of the born observer (if he would continue as such). The born observer, by close application to scientific methods of study, may, it is true, gather his share of such facts for himself, but must pay the necessary penalty in the loss of his natural gifts of observation and insight, just as present-day methods of education, while bestowing the valuable gifts of concentration and scholarly research, which fit one for routine and professional work, deaden or even entirely destroy creative power. My position in this is backed up by the personal testimony of Darwin and Edison and others. To quote Mrs. John Martin in her book, "Is Mankind Advancing." "I have for some years been looking for some recognition on the part of scientists of the uselessness of large portions of their labors. At last it has come and from the highest authority. Prof. Simon Newcomb, seconded by

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Prof. Carl Pearson, Lord Rayleigh, Mr. G. H. Darwin, and others, in the Carnegie Institute Report for 1914 calls a halt on the frenzied accumulation of more facts. . .” The men of science are as fine a body of earnest, untiring, truth-seeking men as could well be got together, yet the very intensesness of research necessary for the success of their share of the work, places the other and (I think it may be fairly said) equally valuable side of Nature-study, beyond their reach. I have taken long walks with men of scientific mind, and they have pointed out to me many interesting and beautiful things, which, but for them, I should have failed to see, while they in turn were equally blind to much that to me appeared as obvious as a signboard on the street.

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More Little Beasts of Field and Wood

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Chapter I *Wild Deer*

THE first settlers of this country found wild deer very common everywhere in the primeval forest. The name "Virginia" deer would seem to indicate that in the latitude of the Middle States they were most abundant. Venison was the staple meat of the families of the pioneers; deer were hunted at all seasons with dogs, shot with rifles, or smooth bores loaded with slugs or buck-

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shot, or even snared in their paths like rabbits. In the north, where the snow lay deep in the woods all winter, the deer were surrounded in their yards by parties of hunters on snowshoes, who slaughtered bucks, does and fawns without mercy or forethought. As early as the middle of the eighteenth century deer had become very scarce, or even entirely exterminated over a large part of the country. Early in the nineteenth century they had probably reached their lowest ebb in numbers. Even in northern Maine and New Hampshire, in the Adirondacks and Alleghanies, and in the Everglades of Florida they seemed on the verge of extinction, though a very few still lingered in the pitch-pine barrens of New Jersey and in southeastern Massachusetts.

Then the game law came to the rescue of the few persecuted survivors, though almost everywhere meeting with the utmost opposition.

When, as a boy, armed with a single-barreled muzzle-loader, I first began hunting the fields

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and woods for squirrels, woodchucks, hawks and crows, I should as soon have expected to get a shot at a bear as a deer. A report then of a deer having been seen in one of the neighboring towns was greeted by everyone with the greatest incredulity: "Evidently some stray calf lost in the woods." A few years later more circumstantial reports by various gunners and berry pickers, of a buck with antlers, stirred local hunters to scour the woods, as intent upon its destruction as if it had been a panther or a wolf. I remember expostulating with one of these who said in answer: "If I don't kill it somebody else will, or, still worse, cripple it with a charge of small shot." The general explanation then was that it must have been a tame deer escaped from captivity.

At that time deer were increasing in numbers throughout northern Maine, New Hampshire and Vermont, and gradually working southward. As a matter of fact — though most abundant there — the climate of northern New England is

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less favorable to them than is that farther south. Where the snow lies deep for months, often crusted with an icy surface that prevents them from wandering from their yards in search of forage, they are at the mercy of the pot hunters and lumbermen, who take slight notice of the law. In particularly hard winters, it is said that large numbers of fawns and even does die from starvation. It is to the great stretches of mountain forest and wild, unsettled country that the deer owe their safety. South of the White Mountains it is only very rarely that deep snow remains crusted long enough to put the deer on short commons, and just as soon as the law came to protect them from the hunters for the greater part of the year, the wanderers of the species began each season to move farther and farther southward.

Here they found the land less rough and hilly, and the forest area more restricted, yet with plenty of thick evergreen forest and tangled swamps for



DOE AND FAWN

WILD DEER

their concealment. Finally in small numbers they reached the salt sea marshes and tide-water river meadows, which evidently suited their taste particularly well, probably because of the salty taste of the wild marsh grass that grows there.

Here in Rockingham County, in the southernmost corner of New Hampshire, after ten years of almost complete immunity from being hunted, a two-weeks open season was decided upon, beginning on the first of December of each year. It so happened that in 1907, the first year when deer shooting was allowed, the first of December brought four inches of tracking snow, followed by cold weather and more snow, which lasted until almost the end of the open season.

Mén and boys turned out and ranged the woods in all directions, following the tracks of the frightened deer, that, inexperienced in this sort of thing, were driven first into range of one gun and then another. The slaughter which followed was most unsportsmanlike, and at the end of the

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season only a few deer were left to profit by the bitter experience which had taught them wariness. In each of the four years since then, the first half of December has brought but little snow, and the deer having learned caution are well able to take care of themselves. Comparatively few have been killed, and as a consequence the species has increased in this vicinity almost to its former abundance. For the first two years the law insisted upon the use of shotguns with buckshot only; many more deer were wounded than were killed outright. My own experience during those first few seasons of shooting deer with buckshot pretty thoroughly disheartened me for that sort of thing, and I was very glad when the law was changed to permit the use of single ball in shotguns.

On the second day of December, 1907, I found the trail of two bucks. After following this for an hour or so I became convinced that the larger of the two was by no manner of means

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unsophisticated. He led the way for the other, circling and doubling back on his track, and then leaping to one side into the thick undergrowth repeatedly threw me off the trail. At last I caught the flicker of a white tail as they dashed away, and fired, but without effect; then after following them for another half hour, I tried the plan of trailing them with the utmost caution, until from their footprints in the freezing snow I felt certain that I was near my quarry. I would then go thirty or forty yards to the leeward and keep along parallel with their course with a sharp lookout into every thicket and clump of evergreens where they might be hiding. Gradually working up to the windward, and finding the trail still leading away ahead of me, I would make another *détour*, and at last was rewarded by the sight of them standing in a thick birch growth not forty yards away. I fired at the big buck, aiming at his neck, and he went down into the snow, but was instantly on his feet only to fall

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again at my second shot, then rise and dash away.

I took up the trail again and followed for a mile or more in the failing light of the short winter day, with only one glimpse of my game running through a swamp out of gunshot; then the night shut down and I was unable to follow the track any farther.

The next morning came clear and cold, and with an early start I took up the trail where I had dropped it the night before; within less than half a mile I saw the great buck lying in the snow sorely wounded. He was not twenty yards away, and as he struggled to his feet I fired at his neck, but even at that short range it took three charges of buckshot to put an end to his misery.

He proved to be an old nine-point stag, and his wariness was explained by the scars of almost a whole charge of No. 2 shot beneath the skin of his back, and the long-healed wound of a small rifle bullet or slug in his neck.

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My next shot, two or three days later, was at a spike buck that ran past me across the open pasture land at a distance of about fifty yards; in the brilliant sunlight of a winter noon I could see the spot where my buckshot struck him behind the shoulder. He winced and went bounding on his way up the side of a little knoll, then stumbled and fell and was quite dead when I reached him.

The year following, 1908, the ground was bare and hard-frozen, without snow, for the first ten days of December, making deer tracking out of the question. Then there fell ten inches of dry snow, but deer were scarce and had learned to keep close and lie low beneath the cover of the young evergreens for the first few days after the snowfall. On the fourteenth, I had been unsuccessfully looking for tracks all the morning, when most unexpectedly I caught sight of a splendid buck standing among the young pines at the foot of a low rocky hill. It was a long shot, but I fired before I realized the distance, and saw him go

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bounding away up the stony slope: when I reached his track I found the snow spotted here and there with drops of blood.

He led me away over wind-swept ledges and down long gullies and frozen water-courses, through thick tangled underbrush and dark hemlock woods, until at last, looking ahead, I saw three tracks in the snow instead of one and knew that, as is the habit of deer before lying down, he had gone back, retracing his footsteps for a little distance, in order to see if an enemy were following. Then I moved along parallel with his course and half a gunshot to the leeward of it, and saw among other half snow-buried boulders in the shadow of the pines, one which held my attention. I raised my gun, but before I had sighted he leaped into the air and away as I fired both barrels in quick succession. Half a mile farther on, in making the circuit of a clump of young pines at the edge of a stump-dotted clearing, I saw no sign of his hoofprints and knew that,

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either he was in hiding there, or else had doubled back on his tracks and outwitted me. Retreating in my own footsteps until I had the northwest wind in my face, I pushed my way cautiously in among the little pines, which covered perhaps half an acre, and though hardly higher than my head were so dense and thickly crowded together as to be almost impenetrable.

Suddenly I saw the deer dash across a little opening; I fired both barrels, saw him stumble, but regain his feet and vanish among the trees. Following his hoofprints, which now showed him to be traveling with enormous bounds, down into a hollow and up the slope beyond, I came face to face with a startled woodchopper standing open-mouthed and astounded. He declared that the biggest buck he had ever seen had almost run him down, had turned its course when almost upon him, and gone from sight as quickly as it had come.

After that I followed the wounded deer for miles, but he was traveling down the wind, having

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succeeded in getting to the leeward of me, and I saw him no more. Darkness came down over the forest and I made my way home disheartened with my day's work, the last of the hunting season for that year.

In 1909 conditions for deer shooting were very similar to those of the previous year, though with one or two light snowfalls and warm, thawy days for tracking. On one of these I followed a trail through low, wet woodland, picking my way with caution between fallen twigs, any one of which if trod upon might have startled my quarry. Peering through wet blueberry bushes and maple saplings I saw the merest flicker of a white tail not thirty yards away. I felt certain that a deer was there, but could not be sure that it was not a fawn. After waiting motionless for what seemed a long time, I took a few cautious steps, still keeping my eye on that point among the bushes where I felt certain that a deer was hiding; a twig snapped beneath my moccasin and the deer sprung

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into sight, clearing bushes higher than a man's head at a bound. I fired while he was in the air and he stumbled and fell as he came down, but gathered himself and was away out of gunshot before I could reload. In the soft earth of the swampland I followed him without much difficulty, till coming to the ledgy slope of a hill overgrown with ground junipers and dense young pines, I lost the trail, and though I circled the place in ever-widening rings for an hour or more, I failed to pick it up again and was forced to the conclusion that the unfortunate deer must be lying in hiding or dead somewhere beneath that thick, matted growth of junipers. I then and there foreswore the use of buckshot in deer hunting.

Last year, 1910, on the afternoon of the first day of the open season, I trailed a deer over soft pine needles and wet leaves through an alder swamp until I heard the faint rustle of his feet beneath the pines, and then crouched motionless, watching for a sight. For some time I heard him

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moving about, evidently feeding. The light was failing fast, and when finally I caught sight of my quarry it was just the merest glimpse as he crossed a little vista between the tree trunks. A little later I saw him again, but not clearly enough for a safe shot, and I was determined, if possible, not to have another wounded deer escape me as the last two had done.

I crouched, listening to faint sounds of little hoofs moving about here and there, until the soft night wind springing up, sighed among the pine boughs overhead and carried my scent in his direction. With a whistle of alarm he dashed away, stopping at a safe distance among the dark forest shadows to stamp defiance, or a warning to his fellows that danger lurked near. It was then too dark to follow him farther and I gave up the chase.

A few days after that I woke in the morning to find the ground sprinkled with snow and a cold north wind clearing the sky of clouds.

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About midforenoon I found the tracks of three buck deer in a hardwood upland growth. They led down the wind and had evidently been made several hours, but I followed until they showed more freshly made and led away along a rocky ridge toward a thick pine growth on a southern hillside. Believing the deer to be in hiding there, I bore away to the eastward, following down the course of a narrow rock-strewn gully through which a little spring brook flowed.

Just before I reached the mouth of the gully, where it opened out to form a little tussocky meadow shut in by the pine woods, I noticed an old, weatherbeaten, grayish-tawny pine stub among the green foliage of the pines on the opposite hillside. As I gazed at it intently it gradually took on the outline of the head and shoulders of a stag with antlers mimicking wind-bleached knots and broken branches. I raised my gun and fired, aiming at the shoulder, and a splendid three-point buck dropped in his tracks never to rise again.

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My ounce ball had gone clear through shoulder and shoulder-blade and the bones of the neck and out the other side.

At the sound of my shot another deer sprung up and dashed away among the trees. The law last season allowed one to kill two deer, yet though my other barrel was still loaded, I am glad to be able to say that I felt no temptation to fire at him then or to follow his tracks, which led up wind and might have given me another shot.

This year, 1911, conditions have all been in favor of the deer, even more so than during the three previous seasons; two weeks of beautifully mild weather without rain or snow, and so nearly windless as to render noiseless walking over the dry floor of the woodlands out of the question for anyone not born an Indian.

On two days only has the earth been sufficiently thawed to make deer tracking possible. About the only chance for a shot has been to lie in wait, hoping that the deer might come within gunshot

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of their own accord, and this has not happened to be my luck this season.

Yet, though I have not so much as fired at a deer, I feel that these two weeks have been well spent; days of quiet enjoyment in the wild lands, seeing the little woodland folk busy about their own affairs. Day after day I have risen early, seen to the furnace, started the kitchen fires, done my work at the barn and got my own breakfast in time to be in the woods before daylight.

I have watched the stars grow dim and the light come in the east, while I listened to and endeavored to identify the various footfalls and distant faint sounds of the forest, hoping that each might prove to be a deer approaching.

Morning and evening I have heard the owls hooting and the foxes barking on the hillside. I have found deer tracks and well-trodden paths, but somehow, now that the season has opened, the deer themselves are very hard to find. Late in the afternoon of one of the first days of the sea-

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son, with the earth still frozen too hard for tracking and the outlook for getting a shot at a deer about as unpromising as it possibly could be, I bethought myself that there was no meat in the house, with the market four miles away and the butcher not coming until the day after the morrow. It was still early in the season, and, the law allowing only one deer for each hunter this year, I felt quite certain of getting mine before the season was past, for they have been increasing pretty steadily in numbers for the last three years. Last summer on more than one occasion I had seen them in parties of three or four together in the open field near my house. I determined therefore to take home a pair of rabbits for tomorrow's dinner, and removing the ball cartridges and replacing them with No. 6 shot, I went hunting for rabbit instead of deer. In half an hour I had my first one safely tucked away in the pocket of my shooting coat, and paused for a moment to consider whether it would not be wiser to reload

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with ball, at least in my left barrel, on the chance of getting a shot at a deer in the low woodland on my way home. As luck would have it I decided on rabbit shot instead of ball, and also as luck would have it, in crossing a little intervale of birch and maple sprout-land between dark hemlock woods, I started a fine buck that ran for a few rods in plain sight, leaped a combination brush and barbed-wire fence, stood motionless for almost a second at the edge of the hemlocks, and then noiselessly vanished among the black shadows before I could change my shot cartridges for ball.

I followed for a little distance, but soon lost the trail, and leaving the woodland shadows for the open, went home across the flat meadow-land in the gathering dusk, hardly feeling a regret, at the time, that I had thrown away my first chance of the season for a shot.

For had I succeeded in killing my deer then, what excuse should I have left for more days of

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leisurely still-hunting in the late autumn woods? however, I must admit that as successive days went by without offering me another chance, I came to regret more and more that I had chosen the probability of rabbit meat for the possibility of venison, on that particular occasion.

Our common wild deer, the white-tailed deer as it is now generally called, is possessed of wonderful powers of adapting itself to circumstances and changing conditions wherever it is given the slightest chance. In the White Mountains you will find its trodden paths winding upward among the rocky ledges and precipices, as high as the woods ascend. In many places where deer tracks show them to be as abundant as rabbits, you may lie in wait, day after day, or range the woods with noiseless footfall, without getting so much as a glimpse of one. After a very few seasons, however, of immunity from being hunted, particularly where there is much cultivated land with wide-stretching pastures and meadows, they lose

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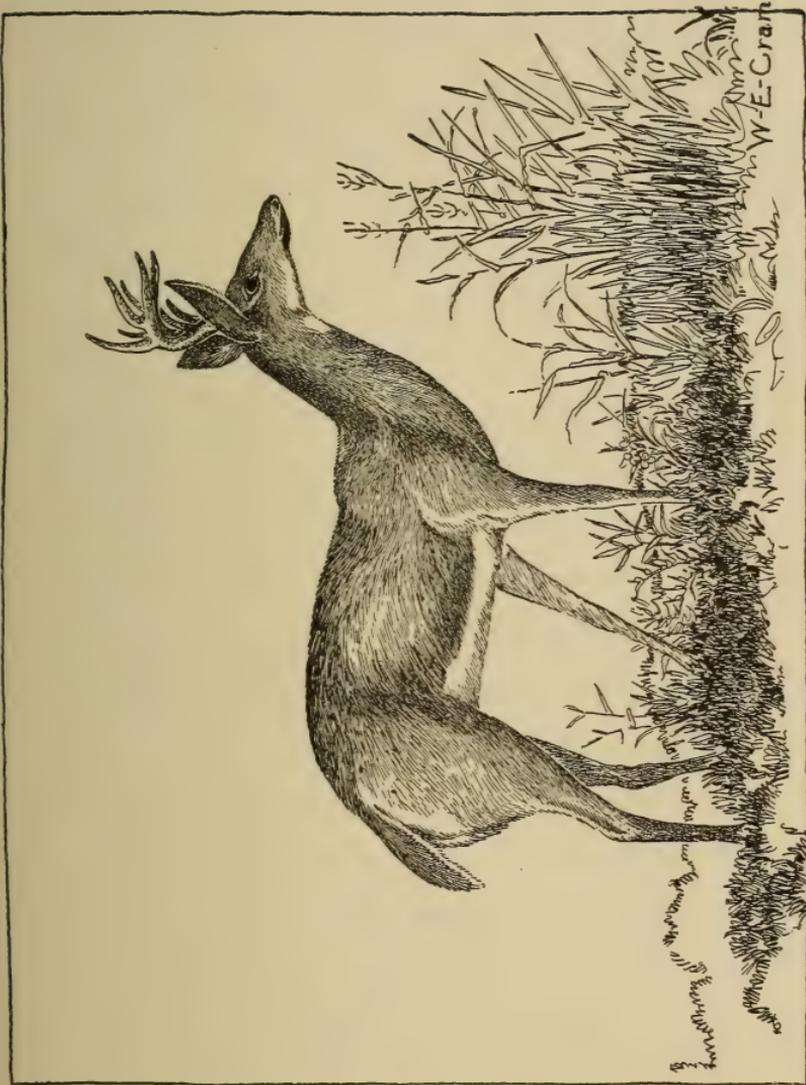
much of their native wildness. This is not to be wondered at, but it is somewhat more astonishing that, where a short open season is allowed each fall, the deer, though as wild and difficult to find — in spite of the narrow limits of their woodland hiding places — as are those who inhabit the limitless mountain fastnesses, should, during the rest of the year, regain not a little of their fearlessness and freedom of movement, and not infrequently be seen, even on bright days, in the cultivated open land and orchards.

This leads one to the belief that, wherever deer retain all their wildness and secretive ways throughout the year, the law is but lightly held. In farming regions there is always more or less complaint of the damage done by them to growing crops and young orchards. For my own part, while I not infrequently see them in my field during the warm months, and find their telltale hoof-prints with much greater frequency, I cannot say that I have ever suffered one dollar's loss from

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these visits. I have seen them, by twos and threes, enter a field of tasseling corn, and a little later emerge from the other side, yet, following in their footsteps, could see no sign of even a leaf nipped off. Undoubtedly, on occasion, new crops just springing from the soil, in particular the tender low-growing kinds, may be seriously damaged, or even ruined, by repeated visits. Young orchard trees also are often too severely pruned by deer who in the late winter and early spring nibble the tender bark and twigs.

My cousin, whose farm lies next to mine, had a number of most promising young apple trees ruined in August by an old buck, who perversely chose these particular trees on which to rub off the loosening velvet from his antlers, and at the same time rubbed off most of the bark from the stems and lower branches. Throughout the woods where deer are common you will find young straight-stemmed trees a few inches in diameter, — ash or maple or chestnut, — with their smooth



BUCK DEER

WILD DEER

bark hanging in shreds and tatters, where a buck has polished his new-grown antlers. At times, even quite late in the fall, I have heard the rattling of antlers on wood, deep in some hidden thicket or swamp, but have never yet succeeded in catching a buck in the act.

They are said to be possessed of a belligerent and war-like spirit at such times, ready to charge and fight any other male of their species that may approach. On more than one occasion men have been attacked and seriously injured, or even killed by them in parks and regions where deer have been overprotected for a number of years. For their first year the young bucks are without antlers, but in their second summer, slender, straight horns arise from their foreheads, and they are then known as "spike bucks," by the hunters. All buck deer, both young and old, shed their antlers late in the winter. These become loosened where they join the skull and are dropped off, or rubbed off against a tree. The following summer a new

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pair spring out, completing their growth in the short space of a few weeks, each year showing a new prong, until the full set of nine prongs makes him a "nine-point buck."

At first the antlers are soft and tender, full of little blood vessels, covered with a shaggy growth of velvet, and so sensitive that their owner is continually pestered and annoyed by the biting flies and mosquitoes of the swamps, for the first few weeks before they have had time to harden. Thus, that which is to be his weapon of defense is now his most vulnerable point.

The shed antlers, softened by melting snow and spring rains, are nibbled at and often entirely devoured by woodmice, squirrels and hedgehogs, perhaps for the lime that they contain, for of actual nourishment they can have but very little; still, at that season of the year, all the wildwood folk are on short commons, and undoubtedly are often glad to get even so unpalatable a morsel as a deer's horns. I have an antler showing dis-

WILD DEER

tinctly the marks of little teeth, which had devoured a considerable portion of it when it was found. In spite of the number of antlers that are dropped in the woods each winter, it is only very rarely that one is found.

The little fawns are born in May, either as lone babies or as twins. They are beautifully spotted with white on a buff ground.

I have watched a little one only a day or two old, following its mother as she nibbled and browsed here and there in a little, sunlit opening among the maples. At first they are very secretive in their ways and rarely seen. When their mother is away they lie close hidden in the grass or bushes, and will allow themselves to be all but trodden upon before they will stir or make the slightest sound. Although the mother may have wandered away a quarter of a mile or more while feeding, her sensitive ears warn her at once of your distant approach, no matter how carefully you may tread. She follows you, lurking anx-

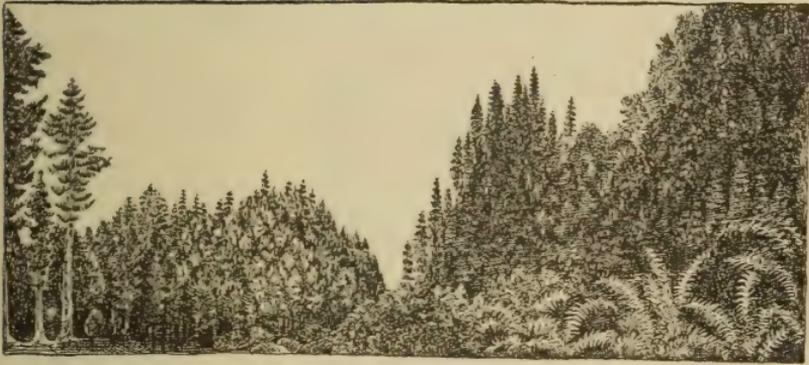
MORE LITTLE BEASTS

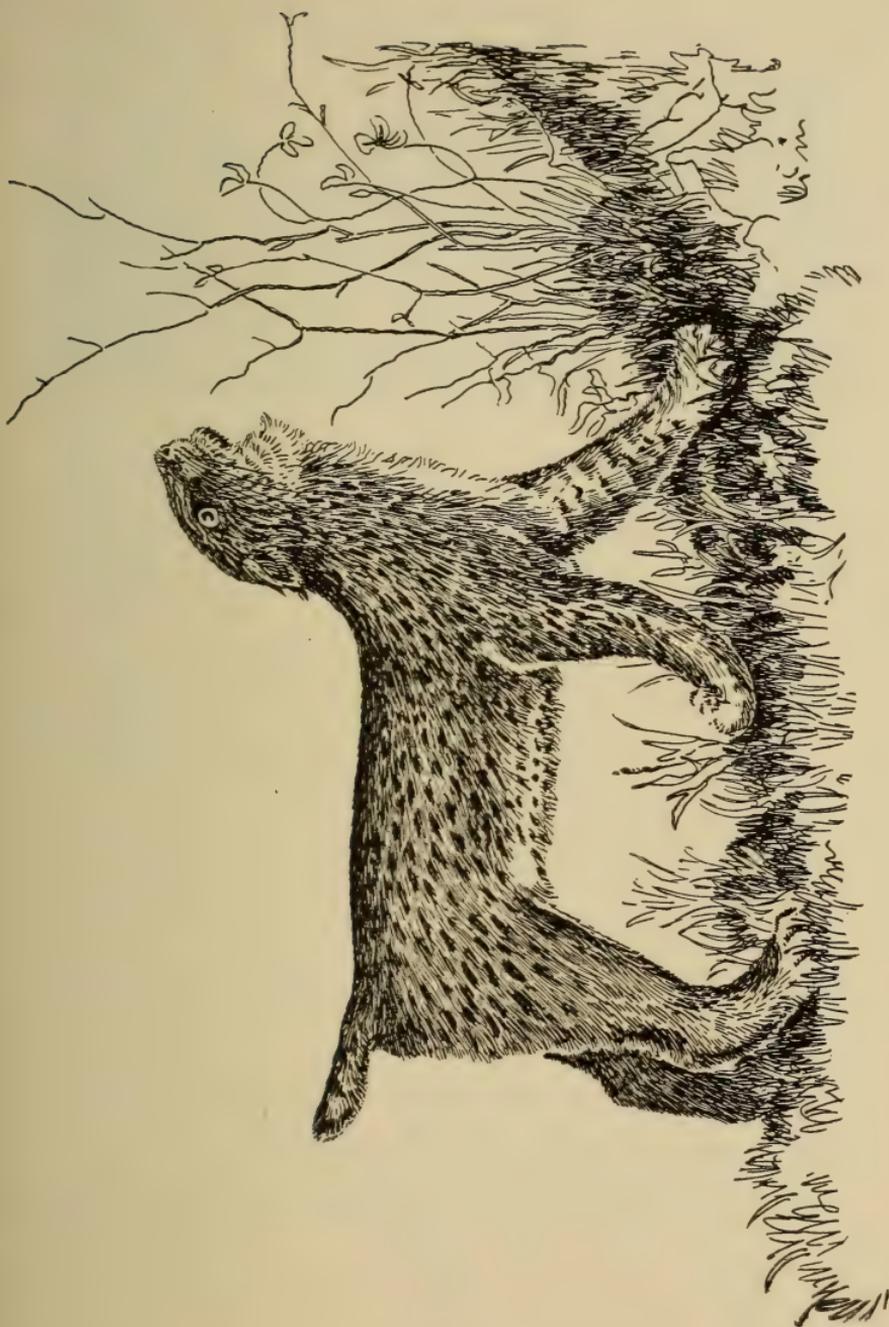
iously near, without showing herself, however, unless you actually succeed in discovering her treasure. When her alarm for its safety overcomes her timidity, she will run circling around you, bleating and stamping in her terror and apprehension. After mid-summer, the fawns, now nearly half grown, are frequently to be seen feeding, either by themselves, or in company with their mother, at the edge of grass fields and meadows.

One rainy morning last spring, while trout fishing, I witnessed a very pretty little woodland comedy. First I heard an angry stamping, and saw an old buck deer standing among the birches, his head held high, eyeing me. He was hardly half a dozen rods away, but the falling rain prevented him from getting my scent, and my wet khaki clothes so matched the color of a deer at that season, he evidently was doubtful of my identity. Presently a doe and a yearling fawn showed themselves. The fawn must have been

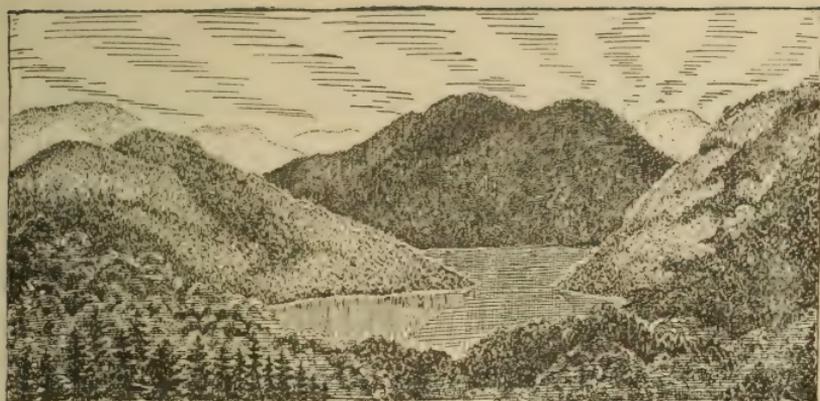
WILD DEER

long weaned, but now the sight of a little new brother or sister taking its nourishment had evidently awakened his early appetite for milk, for he followed his mother, hardly bigger than himself, teasing to be allowed a share.





WILDCAT OR BAY LYNX



Chapter II

Wild Cats and Lynxes—Hares and Rabbits

SCIENTIFICALLY speaking, we have no true wildcats in this country. We have, however, beside the common wildcat, or bob cat, or bay lynx, numerous members of the race of domestic cat run wild, in varying stages of savagery, from those which, obeying the call of the wild, leave their homes on long, lonely hunts of weeks' or months' duration, to the more nearly wild sort, born in the woods of parents who themselves were born, and have always lived, a wild life.

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Some of these approach very nearly to the type of true wildcat, found in the Old World, that many of the earlier naturalists believed to have sprung from the domestic cat in precisely this way.

Very few house cats are entirely domestic, fond as they may be of a warm fireside and cooked food and petting, the step back to a more or less wild state is with them very easily taken.

The wildcat of Europe is like a heavily built, thick furred, bushy tailed tabby, and many a family of our own tabbies, after a generation or two of life in the wildwood, gives evidence of reverting to that type, particularly if there should chance to be a trace of "down east" coon-cat blood in their veins; but there is this marked difference, that with very little encouragement most of them are ready to return to civilization, at least temporarily, while the true wildcat appears to be impossible of domestication, even when taken in the kitten stage.

WILDCATS AND LYNXES

The American wildcat or bob cat is of an entirely different species. It is a genuine lynx, long bodied, heavy limbed, short tailed and flat faced. Its fur is reddish-tawny, spotted with black, or dusky. Now while it is true that the bob cat when cornered is about as savage and ugly a beast as any that roams the woods, it is ridiculous to think of the dwellers in country places being often thrown into a condition of nervous terror at the report of a wildcat seen in the region; and just as ridiculous is it that, when such a rumor is once started, there will be dozens of repetitions by one and another who believe that they have seen the creature prowling about in search of victims.

As far as I can discover, wildcats are not common in any part of New England, and in most places are exceedingly rare. I have never yet seen one in the wild state to be certain of its identity, nor even succeeded in trapping one, though I have followed tracks in the snow which I felt certain

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were made by them. They seem to be about the most wild and retiring of all the wood dwellers. I am inclined to think that a family of them might inhabit a berry pasture near a country village for years and none of the inhabitants of that village be any the wiser concerning them. Their russet and buff spotted fur blends so beautifully with the elusive light and shade of the woodland ferns and undergrowth, and their furred feet carry them so noiselessly, the chance of one of their number being seen and identified is very small indeed.

Very possibly one or another of the fleeting glimpses I have had of disappearing furry backs which I have failed to identify might on closer approach have revealed themselves as wildcats.

Wildcats and lynxes seem to prefer thick swamps and bushy hillsides and old forest clearings where the tree tops and branches left by the lumbermen, and the new growth and brambles, make just such tangles as rabbits love to dwell in,

WILDCATS AND LYNXES

for rabbits are the bob cats' favorite game. In such places they can lurk in hiding, or sun themselves stretched at length along crumbling logs at noon day, and at twilight start out to hunt rabbits along their trodden paths.

In many parts of New England they are said to be increasing with the increase of wild deer. It is not improbable that they may kill fawns from time to time in spite of the vigilance of the old doe; they may also get an occasional stray lamb in distant hillside pastures. They seem to have no regular homes, but lead a rather vagabond sort of life, a cave among the ledges, a hollow tree, or prostrate log being their nearest approach to a dwelling place. At other times they sleep in sun or shade, either curled up in some sheltered nook among the brambles or else stretched along the branch of a tree, and ever with keen eyes, and ears alert for every faintest rustle that may tell them of approaching game, that may appease their own hunger, or else be taken to the secret hiding

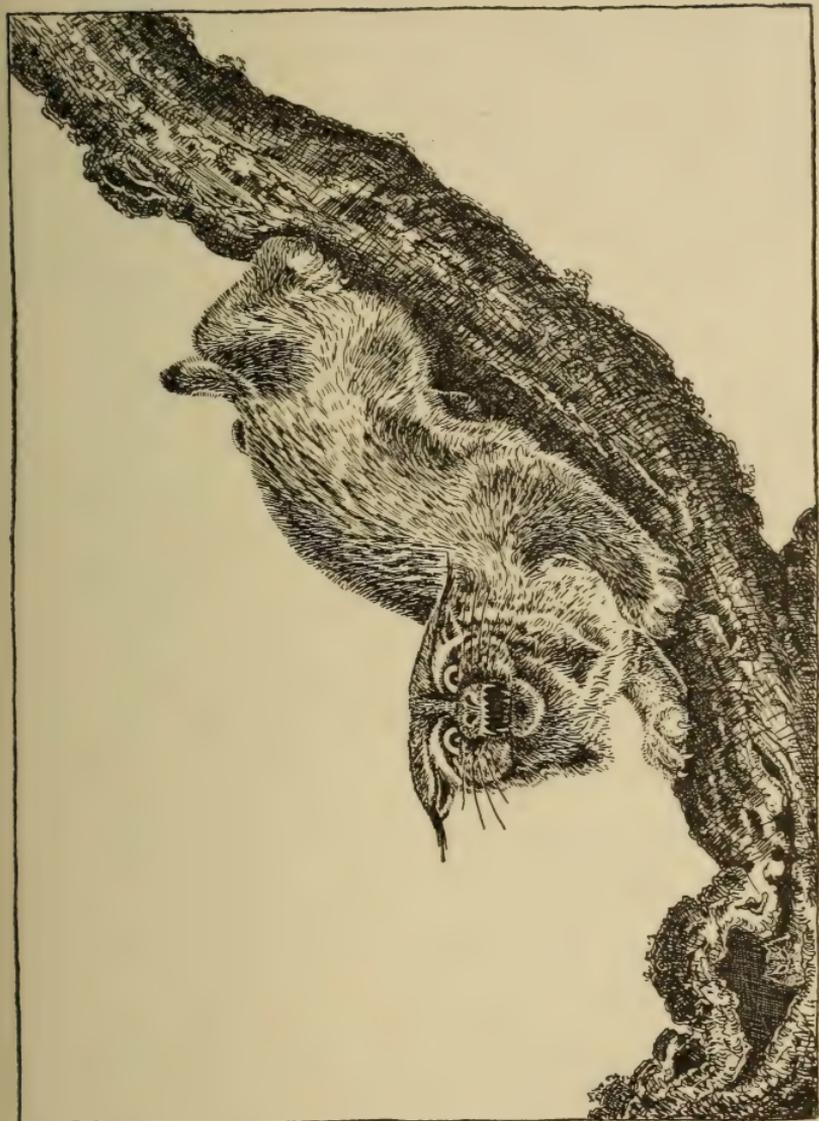
MORE LITTLE BEASTS

place where the fierce-eyed little bob kittens wait.

The Canada lynx, called by the French Canadians *Loup Cervier*, is larger and more heavily built than the bob cat, with shorter tail and long black ear tufts and longer, thicker fur of soft blended gray. It is occasionally found in the Northern States.

Its habits do not appear to be very different from those of the bob cat. It is a northern species, found in most abundance along the southern boundary of the barren grounds.

Lynxes, like one or the other of these species, are found all round the world along the northern forest line. Branches of the family have spread southward, wherever conditions are most favorable, as far as the tropics, although the northern forests seem to be the natural home of the race. Wherever found, certain characteristics would seem to mark them off from the other cats, though cats they certainly are beyond a doubt, the short



CANADA LYNX, OR LOJP CERVIER

HARES AND RABBITS

tail and long-tufted ears and their peculiar manner of traveling with leaps and bounds being most characteristic. Their flesh is said to be light colored and well flavored, and is not infrequently eaten by white and half-breed hunters as well as Indians.

Hares and rabbits as a family have been the source of much speculation and argument among naturalists of all ages. The present tendency would appear to be towards the opinion that differences between them are less fixed than was once held to be the case. Each of us has the privilege of holding his own view in the matter, and for my own part I am inclined to believe that the differences which distinguish the rabbits are all modifications brought about by domestication: First that all the originally wild species were hares, which are merely a sort of degenerate offshoot of the lynxes adapted to a vegetable diet; that domestication and confine-

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ment developed the weaker, short-legged type known as rabbits, and that all wild rabbits are descended from tame ancestors that at one time or another have escaped and run wild. Our common gray rabbit or cottontail possesses many characteristics both of the rabbit and hare family. The fact that there is no record of its having been found in any part of this country in the days of the pioneers would seem to indicate that its ancestors were brought here as tame English or Dutch rabbits, and that life in the forest has brought about a partial reversion to the original hare type. I believe that the modification of any species is much more quickly brought about than is commonly supposed, particularly in a species that breeds and matures as rapidly as the hares and rabbits. Four or five hundred generations have had time to live their lives and die since the time at which we may suppose the first tame rabbits escaped and ran wild in this country.



GRAY RABBIT, OR COTTONTAIL, IN SUMMER

HARES AND RABBITS

In making a distinction between hares and rabbits, naturalists in Europe have as a rule placed particular stress on the fact that rabbits at birth are "blind, naked and helpless," while young hares are born with open eyes, a coat of short fur, and more or less ability to take care of themselves. Another distinction considered perhaps of even greater importance is that while rabbits live in holes in the earth which they dig for themselves, hares never do, but make their nests in forms, as they are called, in the grass or bushes. Now, though our common cottontails are classed as hares, we find them quite as frequently dwelling in underground burrows as in forms, and as a rule bringing forth their young under ground. Only last May I saw a family of them turned out by the plough, in an old pasture, and they most certainly corresponded to the generally accepted classification of young rabbits, being blind, naked and helpless beyond dispute. Winter or summer you will find the feet of any

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cottontail that you may have the chance to examine, stained and discolored by the subsoil from the depths of its burrow. I have never known a cottontail to dig its own burrow, its habit being instead to appropriate the disused burrow of a woodchuck, of which there are enough and to spare. Cottontails feed principally in the morning and evening twilight. On first leaving their holes they stop, with just enough of their heads above ground to enable them to see and hear without themselves being seen. A half hour may elapse before they venture to come out into sight, and in the meantime the big ears are taking in every faintest rustle within the radius of half a mile, when the winds are still. The wrinkled nose is continually in motion, sniffing the air for the scent of fox, dog, man or weasel to the windward. "Brer Rabbit," sitting motionless as a statue, in his doorway, exhibits no outward manifestation of interest in his surroundings, yet his keen senses are forever conveying to his little

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brain news of all that is going on in the surrounding woods. Whatever his grade of intelligence — and I am inclined to think it rather below that of the majority of the wood dwellers — it is evidently high enough to keep him from carelessly running into danger; undoubtedly he owes his safety to instinct oftener than to reason, as is true of all of us who lead active, out-of-door lives. I have passed no small part of my life in the woods, and as a matter of course have seen thousands of wild rabbits at one time and another, and it is astonishing, when I come to think of it, how very few of them I have caught unawares, — a thing that has almost always happened in stormy weather when scent and hearing are not to be relied upon. Brer Rabbit knows if you or any other enemy is in the vicinity, and knowing this holds himself motionless wherever he may happen to be, whether in his doorway or crouching in his form on the sunny side of a stump, or squatting midway in his path or beneath

MORE LITTLE BEASTS

the bush he was browsing upon. And just there he remains. Time is of no value to him, no amount of patient waiting on your part is likely to be rewarded by the satisfaction of seeing him resume the interrupted course of his affairs. Of all the woodland dwellers I have had the chance of observing, deer, foxes, mink, otter, woodchucks or mice, a pretty large proportion was actively engaged at one thing or another, — hunting, fishing or feeding, playing or working; but, as I have said before, not one Brer Rabbit in hundreds have I thus caught unawares. Often — though not invariably — I hear him give warning to his fellows of my approach by thumping the ground with a furred hind foot. It frequently happens that in a morning's walk I see three or four rabbits crouching half hidden in the undergrowth and evidently believing themselves unseen. In the matter of avoiding their enemies in the open they certainly exhibit considerable slyness, but in no other way, so far as my obser-

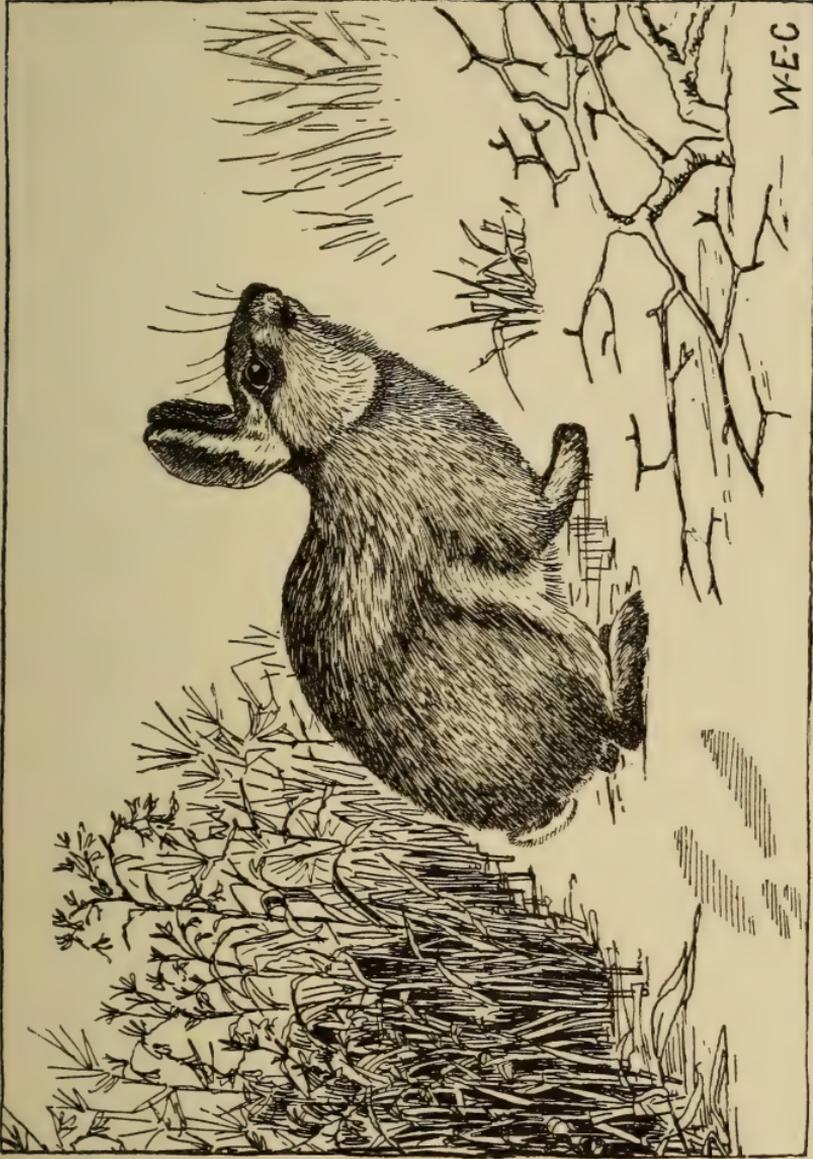
HARES AND RABBITS

vation goes, do they give evidence of the least ingenuity either as individuals or as a species. All the other rodents are possessed of constructive ability, either as builders, or diggers in the earth. While the wild rabbits of the Old World have learned the art of making underground homes of their own, in this country they live after the manner of the wildcats, lynxes and deer, taking things as they find them. The woodchuck holes which they appropriate are never remodeled in any way, not even to the extent of carrying in grass or dry leaves for the nest, which is commonly lined with their own fur, either shed in the natural season or plucked out intentionally.

Though they go day after day in the fall to certain old apple trees at the edge of the woods, to nibble at the fruit half buried among the fallen leaves beneath, it never seems to occur to them that by simply carrying home an apple in their teeth, after each visit, they could have unfrozen apples to eat in the bitter weather that

MORE LITTLE BEASTS

is sure to follow. When such weather does come they are forced to subsist upon a diet of maple twigs and blackberry stalks, though under the snow is still half the old trees' crop of fruit, unfrozen in those winters when the snow comes before the extreme cold. The form where Brer Rabbit loves to sun himself on winter afternoons shows no arrangement of twigs and weed stalks, such as we see in the stools and resting places of beaver and muskrat, but is simply a chosen spot trodden flat by use. Mr. Rabbit dislikes rainy weather and objects to wetting his feet quite as much as cats do, yet like the cats he can swim well enough when necessity puts him to the test. In the seaboard marshes of the Southern States and in the swamps of the lower Mississippi are found the marsh hare and the water hare, evidently members of the northern hare, or Jack rabbit, tribe, that have taken to dwelling in wet lands and adapted themselves to the situation. The marsh hare in particular,



GRAY RABBIT IN WINTER

HARES AND RABBITS

with its short legs, short, rounded ears, dull, mud-colored fur, and feet almost destitute of hair beneath, has become nearly as aquatic as a muskrat. The water hare, like the Jack rabbit, northern hare and polar hare, was undoubtedly native to this country ages before the white men came. The northern hare — commonly known as white rabbit or snowshoe rabbit — is now only found in northern New England and New York, ranging south a little way down the Alleghanies. North of the Canadian boundary line it is common as far as the woods extend, beyond which its place is taken by the polar hare of the arctic region. In earlier days the northern hare was abundant in all the Eastern States as far south as Virginia; the gray rabbit or cottontail was then unheard of. My father has told me that he remembered the first gray rabbits reported by the local gunners here in southern New Hampshire. They were naturally assumed to be tame rabbits run wild, and were known as “conies” to dis-

MORE LITTLE BEASTS

tinguish them from the northern hare, which was always called rabbit. At the time that I first began to roam the woods this division of titles still held; a rabbit was a rabbit and a cony was a cony, though at that time rabbits were already becoming scarce and conies the predominant species. Then the white rabbit practically vanished, only to reappear again in ever diminishing numbers at recurring intervals of seven or eight years. I can count three of these returns of the white rabbit to these woods within my own memory, the last in 1894. On the heavily timbered slopes of Pine Hill in North Hampton, N. H., a little colony of them lingered on until within comparatively few years, but the last time that I hunted those woods, in the fall of 1909, I found no sign of them, nor can I learn of any spot where they are to be found in any abundance south of Lake Winnipiseogee. On the mountains to the north of the Lake they appear to be the predominant species. I found them even abundant on the

HARES AND RABBITS

rocky, treeless summit of Mt. Keasarge, where were only wind-stunted whortleberry bushes and such low growths for them to hide in.

It is to be regretted that the fascinating title of cony as locally applied to the gray rabbit is fast falling into disuse; now that the white rabbit has practically disappeared, rabbit is becoming the common name for its successor the gray rabbit, cottontail — the almost universal cognomen south and west — is seldom heard in this part of the country.

The northern hare, from what I have seen of it in a state of nature, appears to be even less intelligent than the gray rabbit; depending for safety upon its tremendous powers of running and leaping, and a coat of fur that matches its surroundings season for season. During the late spring, summer and early autumn it is cinnamon or russet brown, to match the ferns and fallen leaves and pine needles beneath the shadow of the evergreens. In winter it is white like the

MORE LITTLE BEASTS

snow, and in the late spring and early fall shows a curious blending of colors, white and russet and gray fur in varying proportions, as the seasons come and go. The northern hare is an inhabitant of deep swamps and heavily wooded hill-sides; where a colony is established you will find the well-trodden paths and roadways leading from place to place. Although they have no holes or regular dwelling places of any sort they are wonderfully clever at keeping out of sight.

The game of hide-and-peek is a matter of life and death with them, and through generation after generation of playing it with one opponent after another their race has succeeded in bringing it pretty nearly to a state of perfection. Its food is much the same as that of the gray rabbit, browsing and nibbling here and there about the forests and swamps with never a thought of the morrow, but at all times instantly alert for any distant sound or scent of a possible enemy. In midnight storms of wind and rain they do not

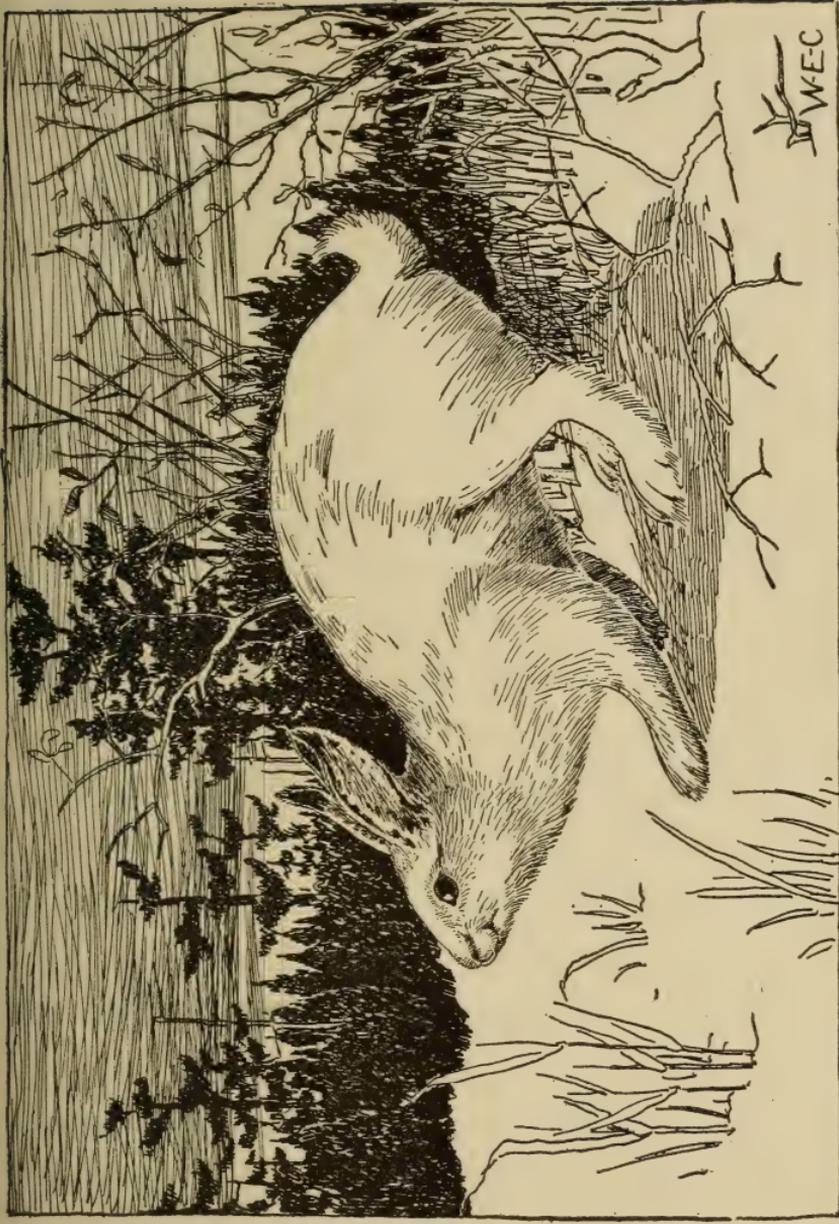
HARES AND RABBITS

retire to the protection of underground homes or the cavities of dying trees or even a cave among the rocks; instead they simply crouch with humped backs under the dripping boughs while the storm howls through the forest; their nearest approach to domiciles of their own is in the winter when heavy snows burden the sighing evergreens. As the storm comes on, these white rabbits, having satisfied their hunger with nibbling of twigs and tender bark, hop away to the shelter of the young spruces, to crouch there under the low thick branches while the burden of falling snow increases and the over-weighted boughs droop under the gathering load until trees of a few summers' growth show only as white mounds on the white floor of the forest. But beneath each of these white mounds is a snug little room surrounding the trunk of the tree, with a carpet of dry needles under foot and a roof of low, snow-buried branches overhead; in this hidden nook the hare cowers half asleep,

MORE LITTLE BEASTS

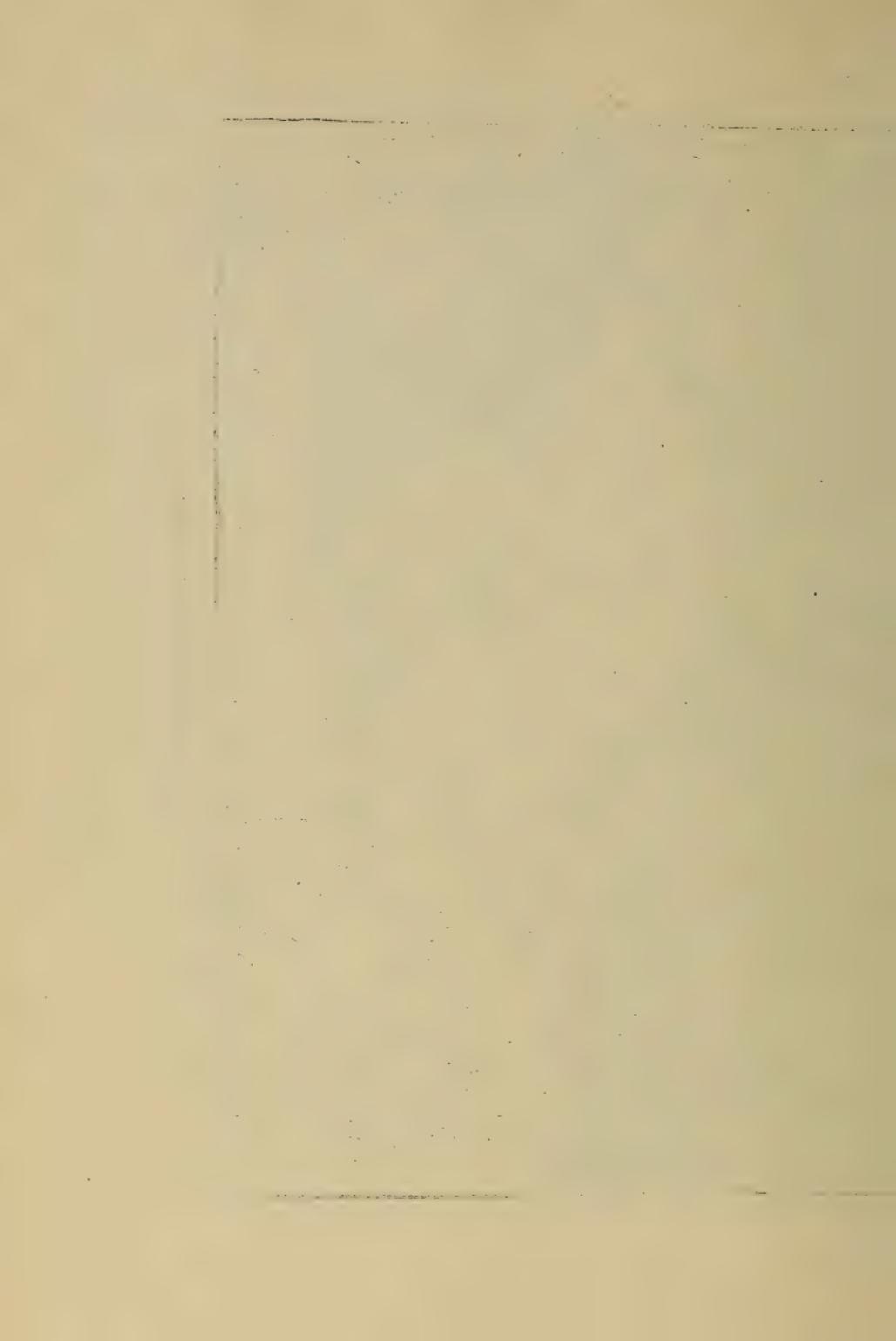
protected from wind and weather and in comparative safety from the attacks of the hungry prowlers without. He may pass several days in these cramped quarters, nibbling at such herbage as he is able to uncover by nosing into the surrounding snow, until at last his increasing hunger urges him to push his way up through the drifts out into the open air. His broad hind feet — which have earned him the title of snowshoe rabbit — carry him easily over the new fallen snow as he hops away, following the course of his buried path until joining the tracks of others of his kind, a new path is tracked out and in a short time becomes a well-beaten roadway. In the open timber these rabbit roads are clearly visible at a distance; then for long reaches are hidden from sight under the snow-laden boughs of the undergrowth, in places being veritable snow tunnels or subways roofed with snow.

Are hares and rabbits rodents or are they merely a degenerate branch of the carnivora



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NORTHERN HARE IN WINTER



HARES AND RABBITS

forced by circumstances during some long forgotten period of hardship and poor hunting to adapt themselves to a vegetable diet? I have studied the question from one point of view and another until fully convinced that this is the true solution of many a vexed point concerning them. On more than one occasion I had been asked by people of more than common intelligence if I believed it possible for cats and rabbits to interbreed. My questioner in each instance felt perfectly certain that cases under observation bore sufficient proof to settle the matter beyond all ordinary doubt. Now while classed among the rodents, hares and rabbits have always been in a group by themselves. All other rodents are characterized by their incisors; two pairs of strong, chisel-like teeth for gnawing. In the hares and rabbits the under jaw is furnished in this manner, but in the upper jaw these are replaced by four small and comparatively weak teeth that resemble the front teeth of a flesh eater

MORE LITTLE BEASTS

quite as much as they do the typical incisors of a rodent. In very young specimens there is yet another pair of even smaller teeth both in the upper and lower jaw beside the permanent ones, and it is a fact worth noting that in kittens and very young rabbits the dentition is more nearly alike than in adults. Now in pointing out the most insurmountable barrier to any possible relationship between cats and rabbits one would naturally indicate the distinguishing character of their teeth; yet while classifying animals by dentition we must not lose sight of the fact that the variation of the teeth was undoubtedly caused by the use and disuse of different teeth incident to the nature of the food the animal lived upon, and that we have no way of knowing just how long a period is required to bring about this modification. That the rodents became separated very far back in the history of animal life is a self-evident fact well borne out by sufficient testimony of fossil remains of the different ages,

HARES AND RABBITS

but let us suppose that the ancestors of our hares and rabbits were not included among the earlier rodents. Consider the possibility that at some much later period when the cat family had attained to something like its present stage of development, an island cut off from the mainland, should in the absence of native carnivora become overrun with mice, lemmings, and other small and defenceless animals; then that during a period of excessively cold winters a number of the smaller varieties of wildcats or lynxes driven southward by the cold or scarcity of food should find a way across the ice to this island, where, finding the hunting so good, they would remain until cut off from the mainland by the melting of the ice. Here they would breed and multiply until their numbers were increased to such an extent that at last the small animals that they had been living upon would be completely exterminated. Now in cases of this kind there are two courses which animals may follow ac-

MORE LITTLE BEASTS

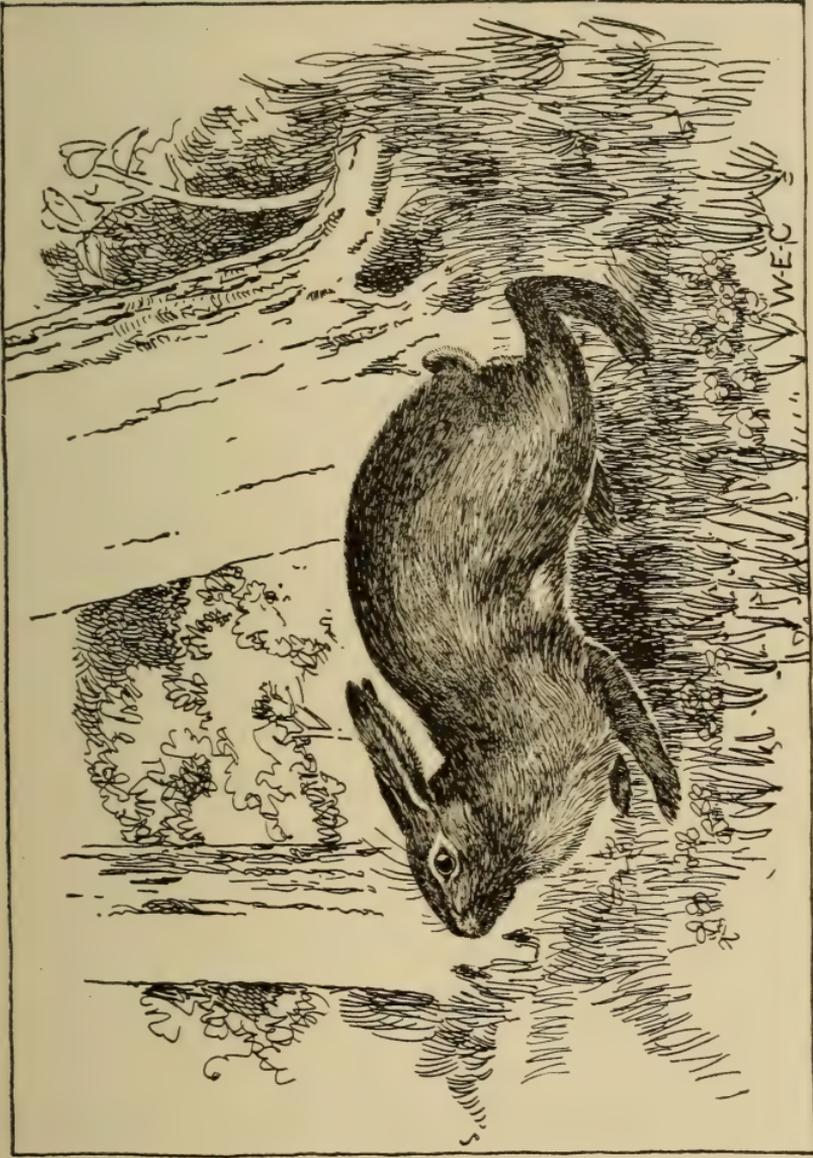
According to the laws of Nature, for when the supply of food is cut off no animal will give up its hold on life without a tremendous struggle. The larger and stronger of these cats would begin to prey upon the smaller and weaker ones, while these in their turn would be under the necessity of feeding upon whatever they could get, and long before the last of the mice and insects had vanished would be tasting and nibbling at grass and berries and mushrooms, as cats, weasels and foxes will ever do in times of famine. Now the law of the survival of the fittest works unceasingly and is ever ready at just such an opening to step in and work surprising changes; use and disuse are its most potent factors; only a very small proportion of the cats on the island could possibly survive through many seasons of such privations, and these few would be the ones best able to adapt themselves to the changed conditions, viz. certain of the larger ones that proved strong and active enough to succeed in

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killing a sufficient number of their weaker brethren, and those among the smaller ones that managed to survive on a vegetable diet and at the same time maintain that swiftness and agility which formerly had enabled them to catch more than their share of the rapidly diminishing supply of mice and insects and "other small deer," and must now insure their safety from being caught and eaten in their turn. The kittens of these few survivors would unquestionably have a somewhat better chance than their parents, one of Nature's foremost laws being that the coming generation must be cherished, even at the expense of the one that went before; nourished for a time on milk (though the supply must necessarily be considerably shortened on account of the meager diet of their mothers), they would at a very early age learn to follow the example of the older ones and take to nibbling at such plants as had proved to be most nourishing to their race, in most cases quickly adapting themselves to

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a wholly vegetable diet. Then the law of use and disuse would step in. As generation succeeded generation of these small, grass-eating cats, the sharp two-edged canine teeth of their race (always inconspicuous in kittens) would gradually cease to be developed, while the incisors, which in a full-grown cat you may see as six small teeth set in a row between the projecting canines, would prove the more useful and in time would become the principal cutting or gnawing teeth, following the same law of development through need which ages before, we may suppose, built up the characteristic gnawing teeth of the true rodents. Other changes would of course be going on all the time. From constantly pushing through between the stems of bushes and thick grass (among which they would naturally find their safest hiding places) the round flat head of the cat tribe would give place to a narrow shape, which would have the added advantage of placing the eyes where they could



NORTHERN HARE IN SUMMER

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see above and behind and on all sides at any time to forestall the possible approach of an enemy, whereas the eyes of a cat are set to focus directly in front in order better to see the quarry ahead, like those of a bird of prey. Following out along the same line we can see how the ears would grow longer to catch every faintest sound that might come down the wind, the hind legs longer for speed in running away, while the claws would lose their sharp tearing hooks through disuse; for the economy of Nature is such that only those essentials constantly in use may be long retained in perfection. Thus at the end of a few hundred thousand years (more or less) the inhabitants of our island would have evolved two separate types. Darwin says, "Whatever the cause may be of each slight difference in the offspring from their parents (and a cause for each must exist), it is the steady accumulation, through natural selection, of such differences, when beneficial to the individual, that gives rise

MORE LITTLE BEASTS

to all the more important modifications of structure, by which the innumerable beings on the face of the earth are enabled to struggle with each other, and the best adapted to survive."

Now let us take a hare or a rabbit of any species and compare it at different ages with the other rodents and then with the smaller members of the cat tribe. Although the rodent family is by far the largest order of mammals on the earth, both as regards the number of species and of individuals, and is thickly distributed in all latitudes where animal life is found, I believe that outside of the rabbit family there is not a single instance of a rodent having more than two incisors in each jaw, nor one in which the feet are completely covered with thick fur which hides the claws. Practically all other rodents use the feet like hands for grasping things, the feet of squirrels, mice and beavers being typical of the race. Rabbits and hares have five toes on the fore feet and four on the hind feet, just as all

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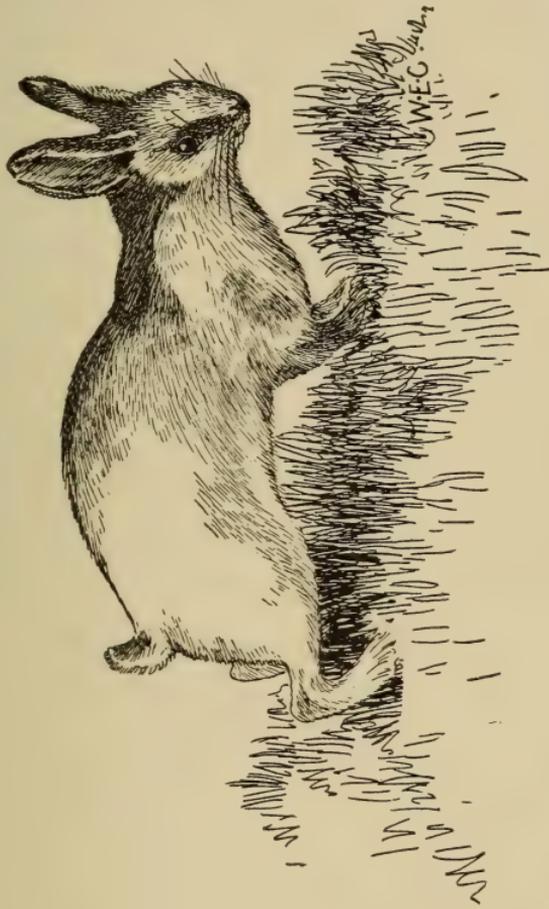
cats do under normal conditions (the six- and seven-toed domestic cats are merely freaks). Among the rodents four toes on the fore feet and five behind appears to be the general rule, though some species have four or even less on each foot, while a beaver has five on each foot. I cannot recall an instance where the number corresponds with that of the cats and rabbits. Like the cat, also, hares and rabbits have the eye furnished with a nictitating membrane, which may be drawn over the eye voluntarily while the eyelids are still open.

A marked feature of the rodent family is found in the structure of the teeth. Outside of the rabbit family, all rodents have the incisors coated with hard enamel on the front only, thus allowing the soft dentine to wear down fastest behind and keeping a constantly sharpened chisel-like cutting edge in front. Among hares and rabbits we find the incisors furnished to a certain extent with enamel on both sides like the teeth of the

MORE LITTLE BEASTS

flesh eaters, the result being that they do not wear to so keen an edge as do the teeth of the other rodents. The short tail of the rabbit may be accounted for in either of two ways: that the race of cats from which they were an offshoot belonged to the tribe of short-tailed lynxes, like the American wildcat or "bob cat," or that in escaping pursuit through bushes and brambles a longer tail would prove not only useless but a menace to safety and in time become diminished through the process of the survival of the fittest.

Thus we find in the hares and rabbits precisely the type of animal which might be logically expected as the outcome of natural selection in a race of cats compelled to exist on a vegetable diet, and at the same time avoid the pursuit of a larger race of cats, under just such conditions as may be found on many a little island off the coast. Having once adapted themselves to the changed condition of things, they would undoubtedly hold their own and multiply, until in the



NORTHERN HARE IN LATE AUTUMN

HARES AND RABBITS

course of seasonal or climatic changes some of their number would find a way to the main land, where, like the hares and cats of our own time, their rapid increase and natural inclination to migrate when overcrowded would in time disperse them to all quarters of the globe. Those acquired characteristics, which had enabled them to survive under privations, would continue to be of service in the struggle for existence wherever their migrations led them. The jack rabbit of the plains and the marsh hare of the south and the various hares and rabbits of the Old World, all exhibit certain highly developed characteristics which alike prove useful in the struggle, whether found in the little cottontail, or the white-coated polar hare that holds its own through the long arctic winter, well inside the Arctic Circle, and might easily be imagined to have crossed Behring straits from Siberia on the ice during some long passed winter of glacial cold.

And wherever you find them, north or south,

MORE LITTLE BEASTS

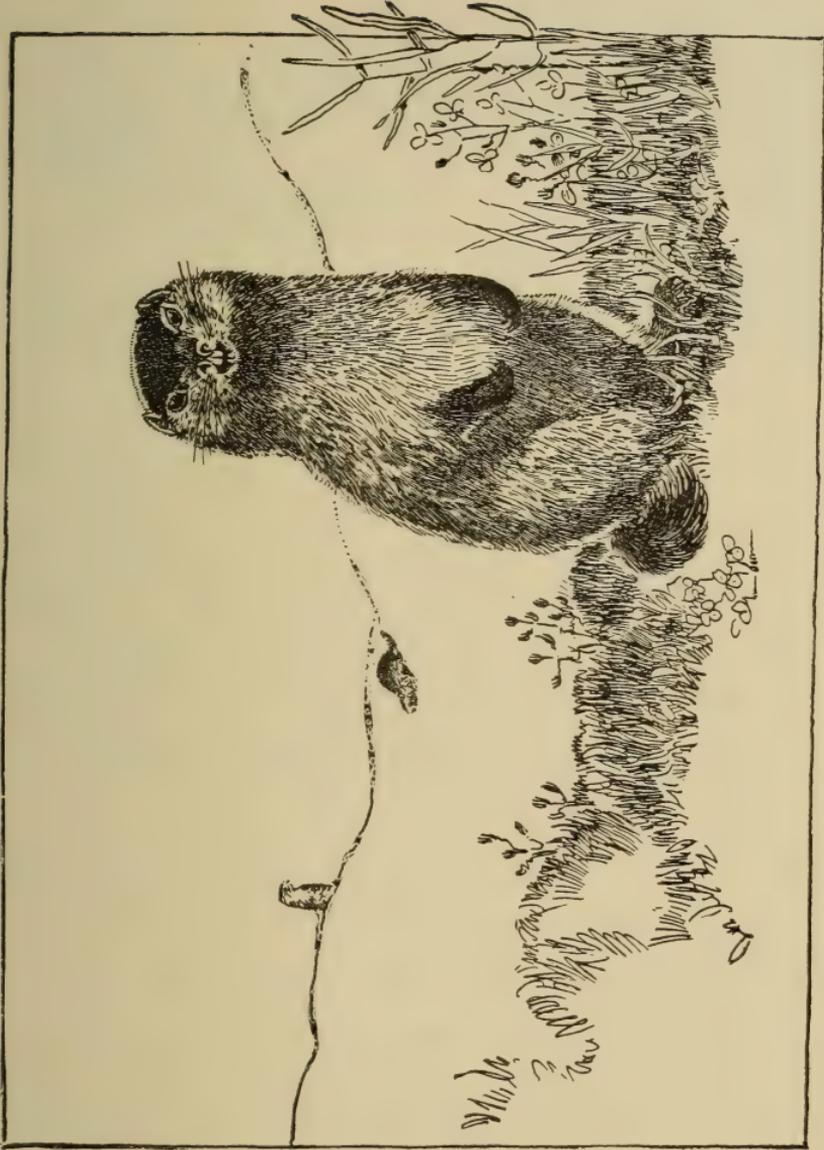
you may observe certain superficial peculiarities that to the most casual observer appear to suggest a kind of relationship to the cats. The round, full eye, with its black iris, might well be a cat's eye, darkened and modified along with other changes; the furry feet silently tripping over dry grass and twigs; the lank, "slab-sided" body and narrow hips, all so unlike our other common rodents. And if you should succeed in laying hands on the timid, big-eyed, furry thing, you would find that instead of using its incisors, as other rodents do, the long hind legs with their diminished, but not altogether useless claws, would be brought into play precisely as an angry cat scratches the one who has seized it, and at the same time you would be very likely to hear a weak, pitiful scream, more like the cry of an injured kitten than like that of any rodent.

In this connection it is to be remarked as certainly a little singular (though hardly to be accepted as scientific evidence) that the flesh of cats

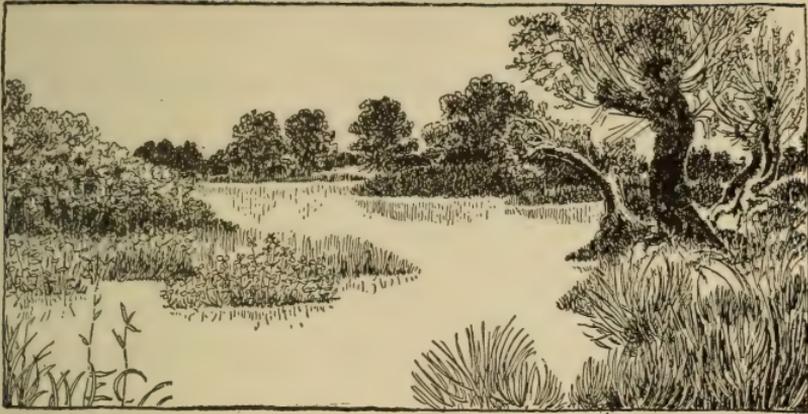
HARES AND RABBITS

and rabbits is said to be so very similar in quality, that innkeepers in Europe are not infrequently convicted of substituting the one for the other without any imposition being suspected by their guests.





WOODCHUCK



Chapter III

Woodchucks

MAY 21, 1911. — For the past month I have been hard at work out of doors for something like twelve hours each day, the continued dry weather not permitting even one rainy day for writing. My work in the fields and pastures during this time has given me glimpses of the little wild beasts from time to time, but no chance for leisurely observation. Yesterday while harrowing the corn land I saw four deer (all bucks) cross the pasture, stopping to browse in the grove at the edge of the field and then on again

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across the meadows, with white tails flicking in the wind.

The spring work is now pretty well along and this morning I took my fishing rod for a few hours' idle still-fishing in Old River, as a good commencement to a period of observation of wild life and a return to work at my desk. Following the reedy margin, I skirted a bushy knoll and came quite unexpectedly upon a group of little beasts busy with their own spring work. First I saw among the thick undergrowth on the steep bank a grizzly, gray woodchuck standing erect in his doorway. His attitude of mimicry of a mossy stump was so perfect that I doubt if a camera would have shown him as anything else; I stood watching him as he watched me for several minutes without detecting the slightest movement on his part. Hearing the sound of scratching claws overhead, I looked up, to see a second woodchuck scrambling up the trunk of a willow; he ran up the nearly perpendicular stem with at

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least the agility of a raccoon, though the tree at that height was scarcely bigger than his body and with bark hardly beginning to roughen as yet with the cracking of age. Reaching an outgrowing branch he rested his shoulder in the crotch, and turning his head looked down at me with one gleaming black eye, the sunlight falling through the leaves flecking his reddish tawny fur as the wind ruffled it. On his back and flanks were two marks which looked like scars made by shot perhaps, or the claws of a hawk, or possibly by teeth in some encounter in which he came off victor. A little way out in the stream a group of trees had been uprooted by storm or freshet, heaving up the muddy bottom to form a bulwark higher than my head. I climbed to the top of this and seated there overlooked a stretch of open water bordered with bulrushes on three sides and the sloping bank on the other; beneath the bank I could see where a muskrat had been at work, the clay from his digging still

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roiling the water. A pickerel hung motionless almost beneath me; a few lazy barvel swam aimlessly about and painted turtles poked striped heads out of water to blink at me inquiringly; red-wing blackbirds hovered and whistled around me, a rail cried among the rushes and a hawk screamed in the forest. Suddenly Mr. Musquash came out from among the roots almost under my feet and swam across the open water to his work beneath the bank, muddying the water as he threw up clods of reed roots and sodden vegetation mixed with clay and sediment. Then he came to the surface and swam toward me, stopping within a few yards to float with back and tail along the surface, and stared at me with beady eyes, sniffing with questioning nostrils to identify the thing he saw above him; then with sudden plunge was gone down into the muddy depths. The pickerel not six feet away remained unmoved beyond the rocking motion given him by the disturbed water.

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A little later a snapping turtle as big as a soup tureen poked his ugly snout out into the air, saw me and paddled a little nearer, with his mud-stained shell just awash and clumsy paddling feet holding him in position against the slow moving water.

The spring day had grown warm; the woodchuck in the willow climbed down and disappeared in the undergrowth and the other retired to his underground den. A comparatively quiet and unmolested life these two woodchucks must have here on their sunny, south-sloping bank with the muskrat for next-door neighbor; almost a sub-tenant as it were, for his doorway is directly under theirs and scarcely ten feet away, and as his hole penetrates up into the bank to above high water level, while theirs descends, the underground chambers of the two must be very near together. Here within this elbow of Old River they have perhaps a quarter acre of thicket to forage in; pine and swamp oak and elm, with

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one gnarly apple tree to give them sour fruit in its season. Along the waterside a tangled growth of alders and willows, and beyond these acres and acres of flags and rushes, then flat clay pasture land overgrown with ground junipers, stretching away in all directions to the pine covered highland, and not a house or patch of cultivated land for miles around; the only noise of civilization to disturb them the faint, distant sound of cars, and in the spring the whining saw-mill farther down the stream. For neighbors they have besides the muskrat, dwelling in their river bank, a family of red squirrels to share their secluded thicket, and across the river, two or three hundred yards away, are a dozen woodchuck burrows inhabited by various tenants as the seasons come and go. Probably their most dangerous foes are the foxes living on the pine covered slopes who make their favorite hunting grounds the low reed-grown river banks and meadows.

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Fancy the simple, everyday life of these woodchucks; peering out of their doorway each morning at daybreak, motionless, listening and looking until satisfied that no immediate danger threatens before starting out to forage for their breakfast. For an hour or more they may busy themselves browsing on the short grass and tender green shoots of the undergrowth or the sweet-flags growing along the water's edge. Their water supply is unfailing, and after having satisfied both hunger and thirst, they may pass the remainder of the morning dozing in the sun. Just how family affairs are arranged with them is not easy to determine; often a number of grown woodchucks dwell in the same burrow; as a rule the mother woodchuck has a burrow of her own in which to rear her young, but her care for them ends long before they are half grown; when only a few weeks old she turns them adrift to forage for themselves, a task for which they are perfectly capable. They are equally well able

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to defend themselves and are ready and eager to fight any foe that comes along. After a few weeks of irresponsible wandering (during which time they must evidently take shelter in any chance nook or hollow they may find) they make their first attempt at digging a hole for themselves; usually this is but a few feet in depth and with only one opening and seldom inhabited by them for more than a week or two. Before cold weather comes on most of them find and appropriate some long-established burrow with its underground tunnel and hidden back door. It is an odd phase of Nature's economy that (here in New England at least) the woodchucks should hold the contract to construct underground homes for so many of their neighbors. The fox, the rabbit, the mink and weasel, as well as all sorts of wild mice, depend upon them in this capacity; even the skunk (though a most efficient digger of burrows himself) is oftenest found living in one originally made by a woodchuck. For a

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rough guess I should say there are at least five hundred woodchuck burrows scattered over every square mile of field and forest in this region; a pretty large proportion of these I know for a fact to have been made twenty-five years or more and to have been inhabited by one small beast or another almost every season since. It is quite possible that some of these were dug before the days of the early settlers.

Each season sees a few new and elaborate burrows dug here and there by certain enterprising and energetic woodchucks, most of them to be abandoned after a few weeks, or at most a season's occupation, because of some defect of soil or drainage; when, however, it chances to be satisfactorily located in every respect, any one of these new-dug holes may prove to be a permanent underground home. The forest may grow up about it and again be cleared away, it may be buried deep with fallen brush or exposed to the day-long glare of the sun, but, year in and

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year out, it will be suited to the needs of some little beast or other and through continued occupation remain in existence longer than many a pretentious human dwelling.

The young woodchuck starting out in life looks first in at one hole and then another; finds one inhabited by a skunk, another by a rabbit family or by one of his own race; finding one without an occupant he enters cautiously, pushing aside the roots of grass and vines that are choking the entrance, and makes his way along the underground passage, here and there partly filled by the caving in of the earth or the upheaval of the frost; finding things to his taste he clears out the nest chamber and gathers grass or leaves and pine needles for a new nest and literally makes himself at home. There appears to be a wide range of taste among different individuals regarding the choice of a location, one makes his home by the water-side, another has his beneath the roots of an old tree in the swamp.

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The hillside forest, the sunlit, boulder-dotted pasture land, the cultivated fields, the brier-grown roadside, — everywhere you will find them. A tumbledown stone wall bordering an old orchard is perhaps the favorite resort, though a south-sloping hillside with old pine stumps and mossy boulders is also a very popular situation with them. Take my own farm for example; in the stone wall bordering the roadside there are half a dozen woodchuck holes, and in the wall between my field and my neighbor's are at least as many more. In the field itself from season to season and at more or less irregular intervals the holes are ploughed over and so are of necessity of a more transient nature, new ones being dug each season where clover or beans or garden vegetables are most promising, and sooner or later abandoned according to circumstances. In the pine grove in the corner of the field there are four or five burrows that have been in existence since my boyhood, as is also true of not

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less than a dozen of those in the pasture. The low swampy woodlot is not so well suited to the woodchuck's taste, yet even there I find their holes wherever a sloping bank offers a chance for drainage. The only land of mine where woodchucks do not dwell is the tide-swept salt meadow by the sea. Now no one ever accused me of encouraging woodchucks; on the contrary I keep up a pretty steady warfare against them with steel trap, rifle and shot-gun, and congratulate myself upon having fewer woodchucks than some of my neighbors. There is at least this compensation for having your land inhabited by woodchucks, — that they yield a very interesting and perfectly legitimate form of sport at a season when other shooting is prohibited.

The woodchuck tribe holds its own by means of boldness and audacity, combined with a certain shrewd caution backed up by a physical toughness and vigor to compensate for lack of fleetness. Early in the season, while the grass is

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yet short and offers but scanty concealment, most of them live in holes hidden to a certain degree among bushes and rocks and bramble patches along the stone walls or the borders of thickets and woodland. In June many of them, both old and young, have their abiding places in the hay and grain fields, preferring clover and tall herdsgrass; here they dig temporary burrows, throwing out their heaps of loose earth and trampling down a considerable space on all sides. In this hidden retreat they luxuriate and fatten until haying time. When the hay fields are cleared some of them retire to the border of the fields, where they have the advantage of both cultivated land and thicket. Others seek the shelter of the corn, where they dig new homes for themselves, and by breaking down the tall growing stalks obtain many a satisfying meal. Mr. Woodchuck makes no attempt at concealing the main entrance to his domicile, the heap of new earth thrown out being often conspicuous at a distance, but nearly

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always there is a back entrance cleverly hidden in thick grass or weeds and with no scattered earth to betray its location.

Often a burrow of long standing has four or five different openings at distances of a rod or more from each other and connected by well-trodden paths. Woodchucks do not depend upon twilight or darkness for concealment in their transgressions, seldom being abroad much before sunrise or after sunset, and seeming to prefer bright weather. Under the hot midsummer noon they love to lie sprawling half asleep on the warm earth or stretched out along a fence rail or a sun heated rock. Toward the close of the summer the greater part of their time is passed in this manner, their principal object now being to get fat. In the autumn they are less frequently seen abroad, and by the first of November the majority of them have retired to their winter dens in the woods. Their winter sleep is a most complete hibernation lasting six months or

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more, according to individual degrees of fatness. In March a few of them come out of their dens into a world of snow and cold where forage of the sort that woodchucks like is very scarce. As far as my own observation goes their first act on coming above ground is to taste the resinous bark of an evergreen, pine or cedar or spruce; very likely this has a corrective effect after their long fast. What they still have left of their wasted supply of fat rapidly diminishes; a very few days of meager picking among snowdrifts and half thawed turf reduces them to a condition of leanness and activity which puts them on a footing to face the hardships of a wintry world. There is for them no choice of weather now. The skunk, the raccoon and the bear have generally a sufficient supply of fat to carry them over a few days of imprisonment while the inclement weather lasts, but apparently the woodchuck wakes only when his fat is about used up. He lays up no stores for winter, and if he is so un-

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fortunate as to be forced aboveground before spring has come, must face the blizzard's cold and the driven snow in order to pick up here and there a green leaf among the drifts. As spring comes on more and more woodchucks awake from their long sleep; the last of April finds most of them abroad, though I am inclined to think that not a few of them continue their hibernation until well into May.

All the smaller hunting animals are of direct benefit to man because of the great numbers of mice and insects which they destroy. There is a question of the wisdom of reducing the number of any species beyond a certain point, but as far as man's material welfare is concerned I am inclined to think that the race of woodchucks would not be missed though entirely exterminated from the land. It is true that they eat grasshoppers and crickets in a small way, also that the flesh of young woodchucks of the season is eatable, being not unlike lamb, though an old

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one might well defy the appetite of a starving Indian. The skin too can be tanned into fine leather almost equal to buckskin, but the crops ruined by one family of the greedy and wasteful little beasts in a single season might almost be said to offset any benefit derived from the entire race since the beginning. However, the question of exterminating them is hopeless even if this were desirable; enough if we can keep their numbers in check.

They are of the class which appears to flourish under persecution. Not so very many years ago the State of New Hampshire offered a reward of ten cents per tail for all woodchucks killed within the state, yet without any very perceptible diminution of the supply of woodchucks. Since then the farmers have adopted the method of asphyxiating them in their dens by the use of carbon disulphide, and while some claim to have temporarily cleared their fields of the pests in this way, some of their neighbors take the view

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that the woodchucks instead of being smothered in their beds, are merely evicted and forced to move to other hunting grounds. One man reported that in order to determine the results of this method, he dug out a large number of holes where the chemical had been used and found only one dead chuck to show for it. It is only too evident that we shall never lack for woodchucks. Undoubtedly in the days to come, when our hill-side farms and uplands have become too arid for profitable agriculture, and serve only as house lots, forest reserves or woodland, and our lowlands and swamps have been turned into one continuous market garden, the neighborly little groundhogs will still continue their depredations, demanding toll of the farmers' earliest crops, in defiance of all his elaborate schemes for their extermination.

The marmot family, of which the woodchuck is a good representative, is found all round the world in northern latitudes. The marmot and the bobac of northern Europe and Asia are much

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more social and gregarious in their habits. Like the prairie dogs, which are also true marmots, they live in colonies, but unlike the prairie dogs they prefer mountainous and hilly regions, as do the marmots of the extreme western portions of this country.

The common woodchuck is an inhabitant of most of our northeastern states. In Canada and Labrador he is much darker in color, often nearly black. There is a black variety not uncommon in some parts of New England which seems to be quite distinct from the common sort, the fur being much softer, dull black on the hindquarters, more or less grizzled about the shoulders and gray on the cheeks. I have never known them to associate with the others, and have found them of a wilder, more retiring nature. The common woodchucks vary greatly in color through different shades of gray and rusty brown. I have seen them almost white, and one that was pale straw color all over.

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September 1, 1911. — One of the longest droughts ever recorded in this part of the world, shows signs at last of giving way to more normal weather conditions. We have not had an old-fashioned three days' rain in the last four years, and only a very few heavy rainfalls of even a few hours' duration. The water in wells and springs has been getting lower season for season; of a dozen springs on my land only two continue to flow. Two of three brooks were completely dry at midsummer, and the third was dry except for about one hundred yards below the springs that feed it. One brook which my grandfather once told me never failed but once in all his eighty years, and then only for a few days, has been dry now for very nearly a year. In the hot weeks of July, when for fourteen successive days the mean temperature was 80° at sunrise and 94° at midday, and on half the days rose to above 100° in the shade, even the large streams dried up, except where the water stood in

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deep holes. To my surprise, the habits of the woodchucks appeared to be more affected by the extreme dryness than were those of the other wild animals. In the spring they had been as abundant as usual, but as the drought increased they disappeared and for weeks I saw none of them. The natural inference would be that they had gone to the swamps and such places along the beds of streams as the water still lingered in, but I failed to find any evidence of this being the case either in their tracks or newly opened burrows. The only one that I saw during this time was on high land, a big dark-colored old fellow, searching for fallen pears at the edge of an orchard. The very last of July we had a gulf storm; three inches of rain with a north-easterly gale, filling the streams and lowlands. Immediately after this rain I began to see woodchucks in their old haunts, and since then they have been much in evidence. Can it be possible that, as has been suggested of the jumping mice,

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they have the power of voluntarily hibernating during such periods of water famine? Take him all in all, Mr. Woodchuck is pretty thoroughly well able to look out for himself. As compared with other wild animals he is not swift of foot, particularly when burdened with his load of fat in the late summer and fall, but as a rule he is seldom obliged to go far from his den in search of food, and can make fairly good speed in a short run. Neither is he an expert at climbing or swimming, though I have more than once seen him climb trees to a considerable height, and on other occasions have seen him both swim and dive, or at least plunge and swim for several yards under water. When cornered he can fight like a bulldog, and often owes his safety to his prowess in battle. When his hole is dug out he digs off through the soil, filling up the hole behind him as he goes in a way that makes it extremely difficult to follow him.



Chapter IV

Chipmunk

THIS morning I saw the first chipmunk of the season, at least the first that I have seen, though undoubtedly some of them have been out of their holes for weeks. I usually see them as early as the last week in March; sometimes even in February: once only in January, and that was fifteen years ago.

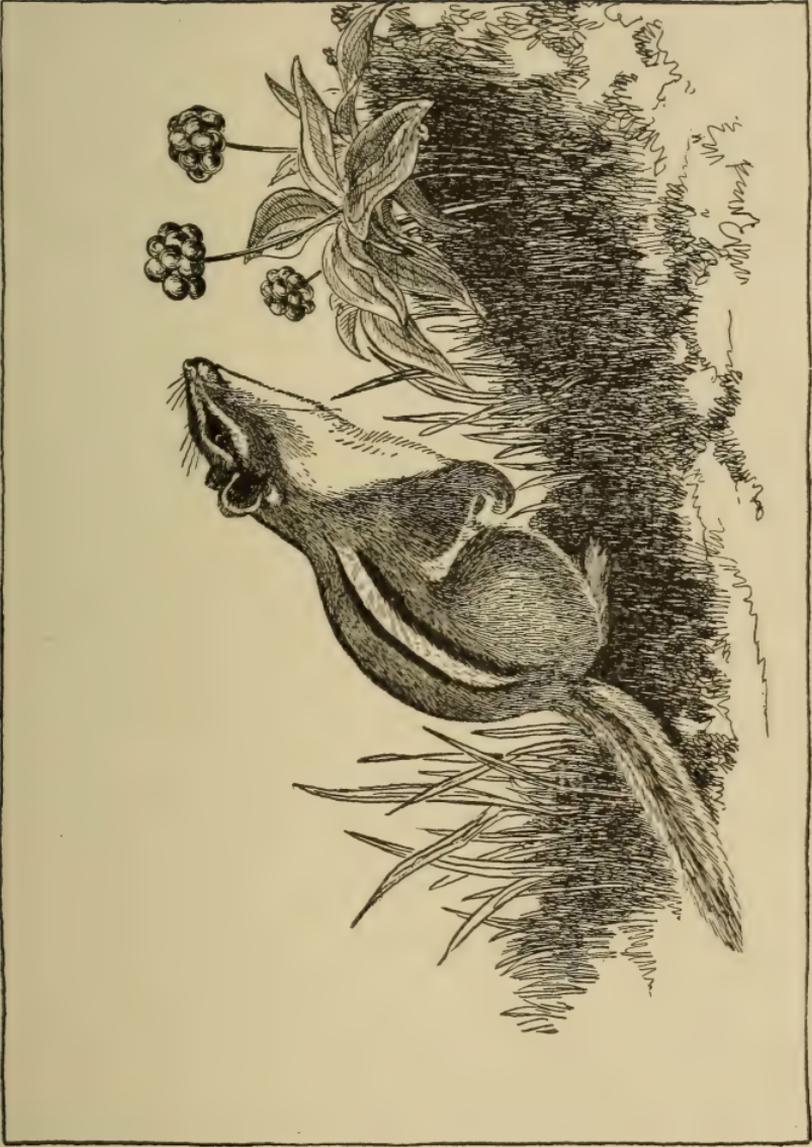
We had been having a cold wave with but little snow on the ground. One still, clear, zero morning I started out for a long tramp across country and it proved to be a day of unseasonable surprises for me. My object that day was to follow

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and study out the tracks of a colony of northern hares over on Pine Hill three or four miles away; the last stronghold of the northern hares in the vicinity.

Rabbits, foxes and red squirrels were the only little beasts that I expected to find abroad in such weather, and for birds, titmice, jays, grosbeaks, crossbills and snowbuntings, with partridges and a snowy owl or goshawk perhaps. I had scarcely gone a quarter of a mile from the house, when right in the home pasture at the edge of a little boggy spring hole, I found a Wilson snipe feeding, probing the unfrozen black mud for water insects of one sort or another.

Such occurrences in the very heart of a New Hampshire winter give one a strange sensation of overturned seasons. Later in the day I was to have a yet more unusual reminder of summer time. The sun was low in the western sky as I made my way towards home along a narrow wood road bounded by tumbledown stone walls. I can



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see now just how the thin red sunlight at the close of the winter day brightened the dry oak leaves where the wind had gathered them together on the slope of a rocky knoll, and right there, as if it were midsummer instead of midwinter, was a little striped-backed chipmunk amid the rustling leaves, a bit of Indian summer with snow and winter all around. With all the other chipmunks and the woodchucks fast asleep in their dens, and the summer birds long ago flown south, here was this one plucky little chipmunk, and the lone Wilson snipe by the unfrozen bog in the pasture.

Chipmunks are tender little beasts and very much averse to cold weather, as a rule, yet the species, in one variety or another, ranges well up into northern latitudes the world around, having learned that a burrow with a chamber below the frost line is warm and cosy, whatever the climate may be above ground. In cold, raw weather, at any season of the year, they keep to their dens for the greater part of the day, only venturing

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out of doors when they feel the necessity of gathering food. If the sun shines brightly, even though the March or November winds are cold and rough, you may see the pretty striped backs along the sheltered southern slopes where the wind fails to make itself felt. The gray stones of an old tumbledown pasture wall are a favorite haunt of theirs in such weather, particularly if a wind-break of young evergreens has sprung up, as so often happens in old pasture land. Here, where the ground is soft and the grass kept close-cropped by sheep or cattle, the chipmunks dig their holes. They have learned a way of hiding the openings to their underground homes, Nature, or evolution, assisting them by the bestowal, on every chipmunk, of a pair of most serviceable cheek pouches or pockets extending back as far as the shoulders. If you have ever watched the little chap stuffing one walnut after another into these capacious pouches, until he looks like some weird, deformed little dwarf of German

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forest tale, you already know their usefulness in the rush of the fall harvesting. Earlier in the season they were in use for another purpose than that of carrying nuts and acorns.

The chipmunk wants his doorway where he can see without being seen. If he hid it among the tall grass and weeds his outlook would be obstructed and weasel or snake might lie there in ambush to waylay him, so he chooses the most open and lawnlike spot that he can find, where the slope of the land is right to carry off the water in rainy weather. He makes the opening through the turf very small and enlarges it as soon as he gets an inch below the surface. Every particle of earth that he digs out he stuffs into his cheek pouches, and so burdened goes off to some chosen hiding place to unload. Careful search in the neighborhood of every borrow will reveal a dumping ground, with perhaps half a peck or more of newly dug earth in one heap. The selection of every such dumping ground bespeaks intel-

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ligence in the individual as well as in the species. I find them sometimes among the stones of an old wall, again in a hollow stump or log or between the roots of a tree; oftener yet beneath the low spreading boughs of a young evergreen or in the midst of a thick clump of weeds and brambles, and often rods away from the spot where the hole is being dug.

The chipmunk has little paths leading away in different directions, but never disclosing the exact position of his doorway, the grass around it being almost always undisturbed and untrodden by his feet. Watch him when he comes home with his load of nuts, and you will see him stop at the end of his path and sit bolt upright, looking about in all directions; then, if he thinks himself unobserved, he takes a sudden leap over the untrodden grass between the termination of his path and his doorway, and disappears from sight. On coming out again, he at first brings only the very top of his head into view, the position of his eyes enabling

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him to see all about him while in this position. Then in order to see a little farther away, he raises himself a bit higher, but even now it takes a sharp eye to detect him, for his russet fur blends with his chosen surroundings to perfection, the striping of his head and back simulating the surrounding grass stems and their shadows so beautifully, that even in the brilliant sunshine you might look closely at him and scarcely guess his identity.

Chipmunks are very commonly known as striped or ground squirrels, though true squirrels they certainly are not, being much more nearly related to the woodchucks and the so-called striped gopher of the plains.

Their ability to climb is but little more than that possessed by the woodchucks. In the autumn season, it is true, they may at times be seen well up among the boughs of nut-bearing trees, but there is no exhibition of that reckless agility so characteristic of the true squirrels. I have never found them living in any other than an under-

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ground home, though this is often dug beneath the roots of an old tree, whose hollow trunk gives easy climbing by a sort of winding stairway to fissures or knot holes, out of which the chipmunk likes to poke his head as out of a window.

The chipmunk is one of the most efficient and generally practical little characters to be found in the woodland. His resources are many and varied. Disliking cold weather as he does, he makes double preparation to avoid the necessity of being out in it.

His underground home comprises not only a snug living-room with plenty of soft dry grass for a bed, but a capacious granary as well. This is a separate chamber, and pretty certain to be well packed with seeds, nuts, acorns, beech-nuts, corn, buckwheat, barley or oats before winter has set in. Yet, evidently seeing the possibility of short commons in the early spring, if he indulges his appetite all winter long, he makes

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a practice of sleeping for weeks or even months during his winter confinement, thus saving his stock of provender for the time when it will be more needed, for early spring is really a time of greater privation for little beasts who feed on seeds and grain than are the icebound months of midwinter.

Whenever we have warm sunny days of the southwest wind at the end of winter, the chipmunks look out of their doorways for a breath of fresh air. In sheltered nooks where the sun warms the brown earth, they may be seen poking about among the russet leaves of the last autumn, searching for seeds or nuts overlooked in the harvesting, or perhaps for dormant or half-waked grasshoppers, insects forming a considerable portion of their diet at any season when they are to be found. I have seen them spring and catch the big banded winged locusts as they hover with rustling wings in the hot August air.

When a chipmunk has succeeded in capturing

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and killing one of these big fellows, a feat in which both paws and teeth are called into vigorous action, he sits bolt upright grasping his victim in both hands, as a small boy holds a banana, and nibbling eagerly away at it until only wings and legs are left. In comparison to his size, he has made a meal about equal to what a whole roast chicken would be to one of us, but after it is finished, he is generally as eager to get another as he was before. They also assay their luck on larger game at times. I have seen them hunting full-fledged sandpipers along the shores of a mill pond, and sparrows in the grass, but always without success, so far as my own observation goes, though this is not sufficient to class them as unsuccessful hunters generally, for even among the most skillful wild hunters you will witness a score or more of failures, before you may mark one successful kill, and with chipmunks, hunting is only a side issue at most.

Undoubtedly they do occasionally succeed in

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killing small birds that are learning to fly, while nests containing eggs or unfledged young must often furnish them a meal, though any destruction wrought by them in this way ought hardly to count against them more than when the farmer robs a hen's nest for its eggs, or kills an occasional chicken for his dinner, nor is the harm they do the farmers' crops ever very serious. They get most of their living from the forest; nuts — particularly beechnuts — and acorns, and such seeds as can be stored and kept through the cold weather, are what they chiefly depend upon. Strawberries, bunchberries, partridgeberries, blueberries and blackberries keep them supplied with fruit in the warm season. In the spring planting time they make trips to the corn field for the purpose of digging up the newly planted seed, and each autumn they claim their share of the harvest, to be carried away and stored along with their nuts.

When the apples and pears and cherries begin

MORE LITTLE BEASTS

to get ripe in the orchard they gorge themselves on the juicy fruit, also wild grapes and the fruit of the hackberry and gumtree. They prefer to gather the ripe fruit after it has fallen, but at times climb to a considerable height when unable to find what they want on the ground.

From what I have observed I am inclined to think they are but little given to wandering, preferring rather to live in the same locality and in the same hole year after year. They are very social; where you find one family of them dwelling, you may be pretty sure that there are others nearby. Each is dependent upon all the rest for timely warning when danger of any sort threatens, their sharp "chip," constantly repeated, carries far through the woods in still weather, and the approach of the most stealthy enemy is heralded while he is yet far away. A sudden attack, like the swoop of a hawk, calls forth a shrill gurgling cry of alarm, as the little chap makes his terrified dash for the safety of stone wall or burrow.

CHIPMUNK

I have never known more than one family to live in the same hole, and whether, in time of desperate danger, a chipmunk would dare resort to any hole except his own, I am unable to say.

I remember one that I caught in a box trap and kept in a cage for a few days, then carried back and released within a few yards of the place where I caught him, and quite close to the hole which I supposed he had occupied. Whether this really was his hole or not, I cannot say, for though he popped into it at once on being released, his stay was very short indeed, hardly a second had elapsed before two chipmunks emerged from the opening, fighting like two little bulldogs; over and over they rolled almost at my feet, then separated with equal suddenness, one darting back into the hole, and the other away for the woods, but which was the rightful owner was still a puzzle. Was the one that I had kept in captivity justly punishing an interloper who had taken possession of his home during his absence,

MORE LITTLE BEASTS

or was he himself receiving due chastisement for daring to enter the hole belonging to another?

Chipmunks are easily tamed, but it is cruelty to keep them long in captivity. I have never had the heart to do so for more than a few days, they always seem so miserably unhappy, and so glad of their freedom when released. I recall, when a boy, setting a box trap beside a stone wall at the edge of the woods. The season for cutting and stacking the hay on the salt marshes came on; starting away early each morning and getting home tired each night caused me to forget the box trap for a day or two. When I did think of it I immediately went there and found a chipmunk imprisoned inside. He had eaten the apple which was the bait and had probably been without food or drink for twenty-four hours or more.

I transferred him to a cage and offered him bread and apples and water, which he took from my hand without the least sign of fear, and I have

CHIPMUNK

often wondered if his experience at that time in any way lessened his natural fear of men and boys in general.

Chipmunks are such impulsive little beasts that it is a wonder that they do not oftener find themselves in trouble. I have seen one, scurrying along the ground towards its hole at the foot of an oak tree around which a flock of sheep were sleeping, run along a sheep's back in order to reach its doorway quicker, and suspect that if it had been dog, fox or wildcat sleeping there, the chipmunk would have taken the same course.

The chipmunk's strikingly marked fur with the alternating bands of black, russet and creamy white often arouses the very natural query, "why should this little animal, whose safety must often depend upon concealment, wear such a conspicuous coat?" As a matter of fact however the stripes are not at all easily seen at a little distance, and then only in certain lights, and when their wearer is motionless. By just what slow-working

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law of evolution they were brought into being we may only guess; perhaps a careful computation of the comparative number of chipmunks that fall victims to enemies that look down for them from overhead, those that hunt them on their own level, and those which lie in ambush or follow on their trail, might give us the clew we are looking for.

When in rapid motion, and the chipmunk is nearly always in rapid motion, the longitudinal bands of light and dark unquestionably have the effect of breaking up the continuity of colors.

A mouse, a rabbit or a woodchuck, or any other small beast with fur of the same general tone throughout, is comparatively easy to see when running, though invisible to the casual observer as it crouches in hiding. The chipmunk, on the contrary, is really much more difficult to locate when in motion than when it is still.

It is his habit never to go very far from some place of hiding, either his hole in the earth or an

CHIPMUNK

old stone wall or the underbrush of the thicket, and when danger threatens, it is his quickness that he depends upon first of all.

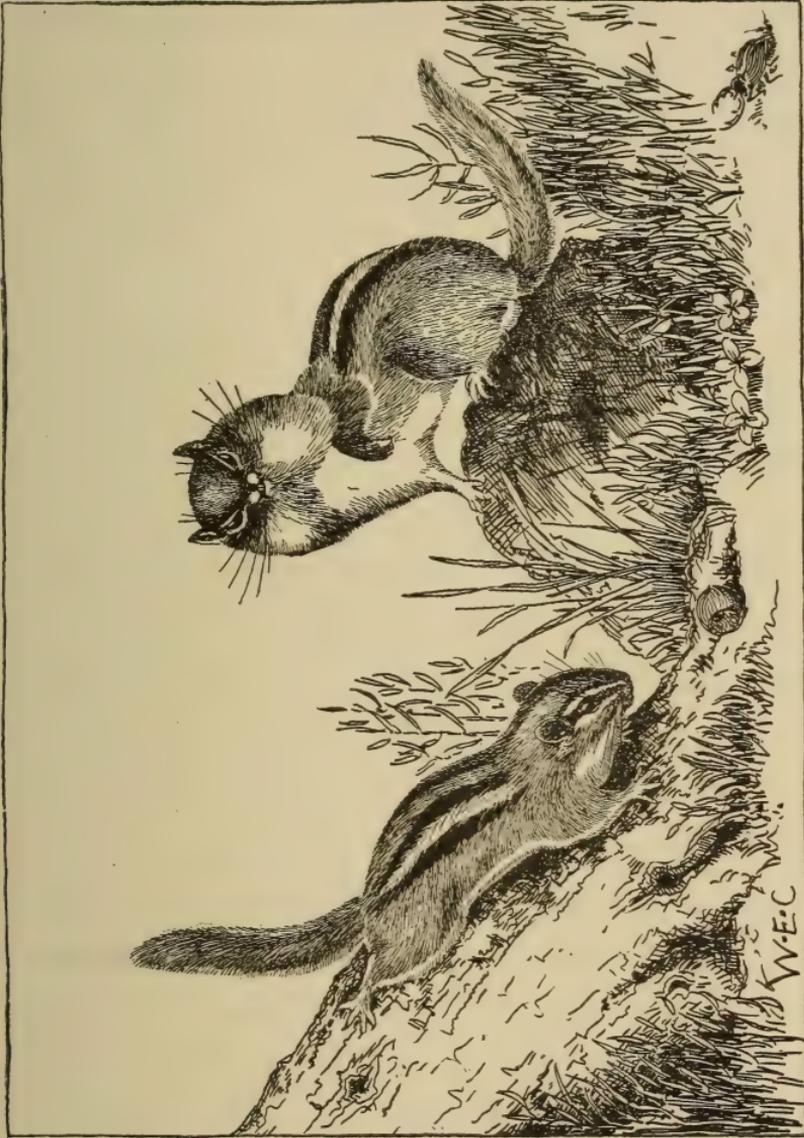
Whatever the reason for the chipmunk's stripes may be, they certainly bestow upon him both distinction of appearance and real beauty, and at the same time evidently have not rendered him too conspicuous for his own good. The species was abundant, according to all accounts, at the time of the first settlers, having held its own against the attacks of wildcats, weasels and hawks for untold generations, and undoubtedly dodged the flint-tipped arrow of the red-skinned boys, just as it dodges the stone of the schoolboy of to-day. In some parts of the Eastern States it is said to be less abundant of late years. For my own part I fail to notice any diminution in numbers, wherever my rambles or my day's work or my hunting or fishing may take me; and while I should regret any lessening of their numbers, I can scarcely wish them to become very much more

MORE LITTLE BEASTS

abundant lest the damage worked by them might get to be serious enough to overbalance the pleasure of their company in the woods and along the roadsides.

July 30th, 1911.— This summer a family of chipmunks are living on our lawn. One might easily walk right over their doorway without seeing it, so cleverly is it hidden in the short grass, just a little round hole hardly an inch in diameter at the surface of the ground.

I first saw this pair of little striped-backs last autumn in corn harvesting time. They began digging their hole among the rocks of the bank wall of the barnyard, where the crevices between the stones gave them good hiding places, as well as a chance to hide the loose earth which they removed in their digging. Tunneling along underground, they evidently made their chamber and granary beneath the lawn, and from there dug a passage directly up to the surface, carrying all the earth in their cheek pouches back to the origi-



CHIPMUNKS HARVESTING

CHIPMUNK

nal opening, and having the new opening through the short turf of the lawn only just large enough for them to squeeze through. In the warm Indian-summer days of last autumn, while I was husking the corn, I saw them making frequent trips back and forth from the corn bin to their hole in the wall, their cheek pouches well filled. They also gathered hickory nuts and butter-nuts and buckwheat, and undoubtedly put in an ample supply for the winter. From November to April they were hidden away underground and I saw nothing of them, but after the first of April I saw them day after day, running along the stone wall or skipping across the lawn or paying an occasional visit to the corn bin.

On an unlucky day in haying time, Mr. Chipmunk met an untimely fate through inadvertently stepping into a rat trap in the barn. It was at about this time that I first began to see the little chipmunks, by then nearly half-grown, sunning themselves on the warm gray stones of the barn-

MORE LITTLE BEASTS

yard wall, or running about to pick up the grain scattered for the hens. They would even enter the slatted coop where the mother hen hovered her flock of late chickens. Throughout the remainder of the summer and in the early autumn I saw them nearly every day, either busy with their harvesting, or sitting on the top rail of the fence enjoying the slowly failing sunlight of the season.

October 20th, 1911. — This morning while walking through some thick young growth, I saw a chipmunk run up a little oak tree only a few inches in diameter. On going close to the tree I could see him clinging fast to the stem almost at its summit and where it was, if anything, smaller than his body, though but little higher than my head.

He looked as fat as a pig, and his cheek pouches were well stuffed with nuts or acorns. When I shook the tree gently he only clung the tighter, but on giving it a jar with my gunstock, I was

CHIPMUNK

surprised to see Mr. Chipmunk most precipitately turn a handspring into the air and come down with a thump among the dry leaves at my feet, disappearing almost as he touched the ground. Right there where he had vanished, I found the doorway to his hole dug into the side of a little mossy hummock overgrown and hidden by winter-green and ivy. Evidently he had precipitated himself purposely, to fall as close as possible to his hole, and must have been all prepared for the jump when my gunstock jarred him from his perch.

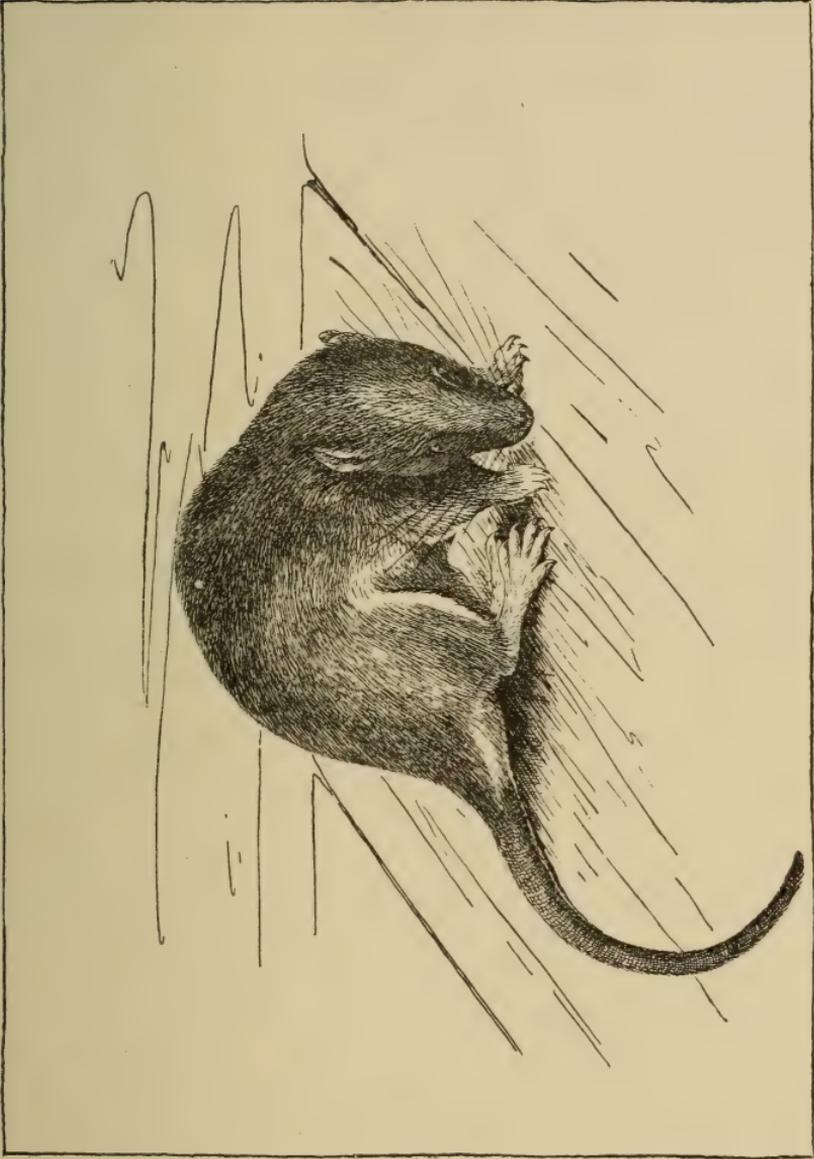
January 3, 1912. — It is now midwinter and the frost-bound earth is covered with snow. I have not seen a chipmunk for nearly two months, but I know that down in their snug dens they are waiting the coming of spring.



Chapter V

*Brown Rat—House Mouse—Meadow
Mouse—White-footed Wood Mouse
—Jumping Mouse*

THE brown rat, like the brown mouse, is to be numbered among our undesirable immigrants from foreign lands. Tradition says that the brown rat came first from Norway, traveling either overland or in ships' holds, by way of The Netherlands to Great Britain and southern Europe, and so in time across the Western Ocean to the New World, and everywhere in its wanderings driving away the smaller and less ag-



BROWN RAT

BROWN RAT

gressive black rat. Except from their own point of view, there would seem to be no very apparent reason for the existence of rats. As scavengers, they have proved to be the carriers of disease and pestilence; cats, foxes, skunks, etc., appear to eat them only under protest, evidently preferring any other sort of meat. Men have fought them with traps, cats, poison, ferrets, terriers and fire, yet they still increase both in city and country. On the farm they destroy grain and vegetables and kill young chickens, besides undermining the foundations of buildings and gnawing away the woodwork.

The common steel trap I have found to be the most useful in combating them. A half dozen small steel traps set in their holes and runways and covered with chaff will in time work a considerable reduction in their numbers. It is impossible to conceal a trap so carefully that an old rat will not be aware of its position; but rats are like humans, and in time are pretty sure to

MORE LITTLE BEASTS

get careless and take risks; the chances are that sooner or later the slyest old rat will through sheer inadvertence run into some trap that he had been avoiding for weeks. Young rats are more easily outwitted and are often caught the first night. The large wire cage trap with a tunnel opening which admits a rat, yet at the same time effectually prevents his escape, is very apt to prove disappointing at first, but if kept well baited with some tempting viand, will in all probability surprise you some fine morning with a whole family of prisoners behind its bars. The secret of success with this trap lies in a certain weakness common to both rats and men, and which often gets both into trouble; the trait of blindly following a leader. All the rats will usually shun a cage trap for weeks, until one, a little bolder or more foolish than the rest, or hungrier, squeezes through the narrow passage, and once inside, regales himself on the bait; then other rats follow without fear or forethought, often

BROWN RAT

until the trap is crowded. Only the other morning my neighbor found sixteen rats in a trap of this sort, after it had been set for many days without result. At my uncle's a trap of this kind was set in an unused pigsty, and one morning was discovered at the farther side of the pen and stuffed with straw, and in this straw was hidden a whole family of rats. The only explanation that offered was that other rats had dragged the trap over to the straw pile and then stuffed the straw between the wires in order that the prisoners might conceal themselves. This spring I have been trapping rats about the barn, setting traps in their holes and runways beneath boards. The commonest trick by which the rats have defied me is to bury the trap with earth or chips; at times they have used weatherbeaten corn cobs or rotten wood for the purpose, shoving them onto the pan of the trap and springing it. Now, if the cobs had been fresh ones, it might very naturally be supposed that the rats

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were carrying them to their holes for the corn that was left on them, but these old weather-beaten cobs could be of no possible use to them, and I firmly believe that the rats knew that if put on the pan of the trap it would spring and become harmless. I find that the best plan in setting traps for rats is to have them in places where you can look at them two or three times a day without having to go out of your way in order to do so. In this manner it is possible to capture a surprising number of the pests in the course of a year. The white, or black and white rats, which make such amusing pets, are probably albinos of the "Old English black rat," and will soon be, if they are not already, the only survivors of their race. In the opinion of naturalists generally the black rat was a native of India. From there, like the house mouse, it has been transported to all parts of the world, multiplying exceedingly, and always more or less a dependent upon man's labors; living in ware-

BROWN RAT

houses and graineries and pigsties and feeding upon the product of man's work. The brown rat is believed to be a native of China, and at a somewhat later period in history (probably in the eighteenth century) spread about the world as the black rat had done. Wherever it went it overcame and drove out the black rat, taking its place as a far more destructive and undesirable pest. The last stronghold of the black rat is said to be in certain South American countries, yet even there there is every reason to believe that the brown rat will soon follow it and rout it out as it has done elsewhere. In those tropical countries, however, the black rat has a slightly better chance of holding its own, being a native of warm climates, while the brown rat is a more typical northerner, thriving best in a cool climate. In western China there is found a rat that appears to be identical with the common brown rat, though living in the wild lands and avoiding the habitations of men. This is believed to be

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the race from which our common brown rat had its origin; of this there is a possible doubt, however, for here in the west we frequently find the brown rat living on the banks of rivers and in meadows far away from buildings and grain fields. Two years ago I had several stacks of hay left on the meadows all winter. The following summer I noticed small holes and tunnels in the hay, and narrow paths leading thence to the creek nearby, and concluded that a mink and her family must be living there. The next winter I went with a horse sled to haul off the hay and found the stack still inhabited. As I pitched the last of the hay upon the load, a brown rat jumped down and scurried away across the ice and snow to hide behind a tilted ice cake at the edge of the creek; finding this rather too exposed a situation, he came back, evidently with the intention of taking refuge in the load of hay, but having more rats in my barn than I really needed I struck at him with my pitch fork and

BROWN RAT

he retreated once more to the shelter of the ice cake.

The tide from the sea was pushing up along the narrow creek and heaving up and breaking the ice as it came. A few minutes later, very much to my surprise, I saw the rat dive into the icy water and swim over to the other bank; for a time he remained motionless at the edge of the shelving ice with just his head above water, then disappeared beneath the overhanging bank. What finally became of him I do not know, but his chances at the time seemed deplorably small: the last of the hay stacks gone from the ice bound meadows which stretched away for miles in all directions; the salt tide sweeping in from the ocean and hungry sea gulls wheeling about overhead. All the brown rats which I have found living in meadows and along river banks were alike in being smaller and more agile than those of the barns and stables, and with lighter colored, more yellowish gray fur; and I have found them

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dwelling in these places at all seasons of the year, not merely as summer campers.

When we were boys my cousin and I had two tame rats, one white with pink eyes, the other black and white with black eyes. They were very interesting, but got to be something of a nuisance, so that we determined to transport them to the woods and give them the chance of enjoying a free wild life. In a dry pine grove at the edge of the field we dug them a snug underground chamber roofed over with pine bark and dry earth and with a nest of soft grass.

Here, with a good store of corn and other provisions and a spring nearby for water, we considered them well provided for. It was then early summer and we felt certain that before cold weather they would have adapted themselves to life in the woods and be able to take care of themselves. We believed that their danger from foxes and hawks and other wild hunters in the woods to be less than that from the cats if we

BROWN RAT

had given them their liberty about the house and barn, and we were too merciful, I am glad to remember, to keep any creature in confinement for more than a day or two. Our rats enjoyed their new domicile in the woods for just as long as the food we had left with them lasted, then they returned to the house. The white rat became an intimate member of the family, having its home thereafter in the library, behind the books of a certain old bookcase. From there it made temporary excursions to all parts of the house either on its own feet or in the pocket or on the shoulder of some larger member of the family.

When my father or brother was writing in the library, the white rat liked to crawl up inside his coat, and with its head poked out of collar or coat sleeve would watch the movement of the pen for hours in a sort of fascination. The black and white rat took up its abode in a crevice of the boards in the passage way between the wood-shed

MORE LITTLE BEASTS

and the work-shop, and exhibited an equal interest in every sort of work that was done there. At intervals the white rat would visit it, and in return it would come to the library, sometimes spending the entire day there. I recall on one occasion going into the library and seeing my brother writing at the desk with the white rat perched on his shoulder and the other peering out of a pigeon hole, each following the motion of the pen with interested eyes. The cats were given to understand that they must not molest these two rats of the household, and for nearly a year they dwelt there undisturbed; but finally, first one and then the other fell victim either to our own cats, or more likely to some stray cat of the neighborhood, and their loss was deeply felt by every member of the family, to which they had become attached.

The common house mouse has made itself the humble companion of man all round the world in temperate latitudes, and wherever it goes its



HOUSE MICE

HOUSE MOUSE

mouse-gray coat has proved so inconspicuous and in every way serviceable that local variations appear to be exceedingly rare.

Mice make their homes wherever man does, and depend upon him not only for their food supply, but also for their dwellings and the material of which they make their nests, these being nearly always constructed of something men have gathered first — rags of old cloth, scraps of paper, straws, hair or wool from his domestic beasts, or feathers from his poultry. These nests are tucked away in some hidden nook between boards and timbers or in the crevices of stone or brick work where the mortar has fallen away. Old boots or bottles and boxes, tin cans, an unused drawer of a cabinet, haystacks in the barn, bales of wool or cotton or hemp, anything anywhere that the mice believe to be out of the reach of cats and the weather is made to serve as a home, and a nursery for the baby mice, of which there are half a dozen

MORE LITTLE BEASTS

more or less, born at frequent intervals and at every season of the year, and quick to mature and have families of their own; small wonder that their numbers increase, despite the constant war waged upon them by means of cats and traps. When I am pitching down hay for the cows and sheep in the winter, I see the mice dart away into the labyrinths of grass stems and clover. The meal in the grain bins is marked each night with their tiny footprints, like rabbit tracks in the snow, and always I can hear them rustling deep in the straw and corn fodder, in their search for scattered grain and seeds. Who can analyze the delight the trapper feels in the capture of wild animals for their fur? I first experienced it in the capture of a mouse: as a very small boy I sat in the little old shoeshop of a winter evening watching my grandfather at work. In the shop, opposite the work bench, was a desk at which my grandfather and my father wrote down their ideas on spiritual and

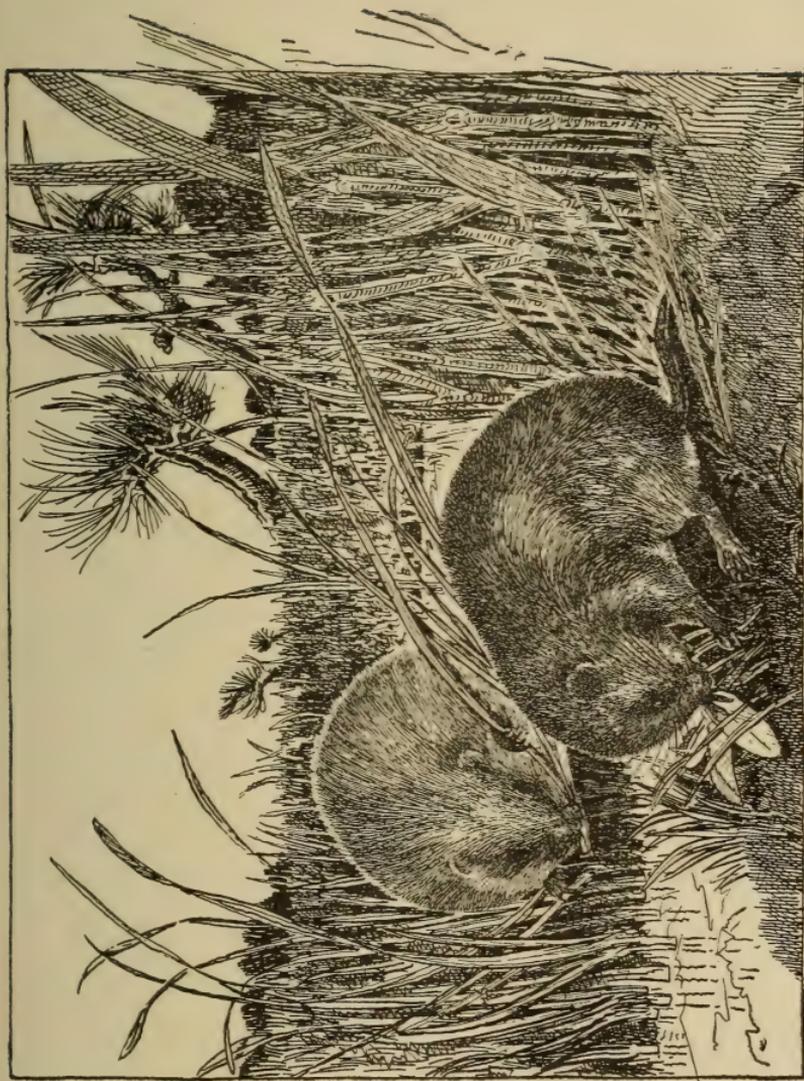
HOUSE MOUSE

philosophical matters; beneath the desk was a litter of papers and discarded manuscript, and a faint rustling among these thrilled me all at once with the desire of the hunter. There was an old mousetrap on a corner of the bench, and this I baited with some of the flour paste used in making shoes, and set it among the papers under the desk. Then for long minutes I sat on the bench at my grandfather's elbow, the tall candle on the bench waved big shadows about the little room, which was full of the musty smell of leather and old books and papers. Then together we heard the click of the trap, muffled by fur, and a new experience entered into my life, — an experience never to be quite repeated, but which awakened "the intuition and the expectation of something which when come is not the same, but only like its forecast in men's dreams." And in later years the successful trapping of woodchuck, weasel, muskrat, mink, raccoon, fox, otter each in its turn brought only a renewal of

MORE LITTLE BEASTS

the same thrill that I felt at the capture of my first mouse.

The meadow mice live in the shade of reeds and grasses as the wild deer live in the forest shadows. They have their regular paths and runways, trodden smooth by the constant passing and repassing of little pattering feet. Their food supply is everywhere about them at all seasons of the year and although it is their habit to lay by small stores of seeds and grain in the time of the autumn harvest, they are not dependent upon these when winter covers the fields and meadows with snow. All winter long they are continually pushing out new snow tunnels in every direction, picking up grass seeds and weed seeds here and there, nibbling at roots and stems and now and again by chance uncovering a dormant cricket or beetle. When the snow is deep they work destruction, unseen at the time, stripping the bark from young fruit trees and shrubs, often working ir-



MEADOW MICE

MEADOW MOUSE

reparable damage before the ground is bare again.

They have their burrows in the earth and round nests of dry grass on the surface so cleverly constructed as to be almost water proof. I have seen these in the time of spring freshets half under water, yet still dry within, with the little meadow mice, hardly bigger than bumble bees, huddled together there for warmth while the old ones are away foraging for food. The snow is really their safeguard, protecting them from their enemies as well as from the wind and weather. Along these dim-lighted runways they may go and come in safety, relaxing for a little that constant alertness which at other times and seasons is their only safeguard; but winter weather is treacherous and most uncertain; the south wind brings a thaw and all the lowlands are awash with ice water and melting snow, driving the meadow mice to higher grounds for safety. Great numbers of them must be drowned at such

MORE LITTLE BEASTS

times, for though they are good swimmers, the combination of melting snow and water-logged meadow grass submerged by the freshet must often prove too much for them. Those that reach the drier land are exposed to the danger of foxes, owls and weasels, winter hawks and cats, tame and wild.

Every winter thaw is followed sooner or later by a cold wave, and the water flooding the homes of the meadow mice freezes hard; it is wonderful that any of the little fellows manage to survive those winters when thaw and cold wave follow each other month by month; as a rule only a very small fraction of their numbers do survive such a winter as the one just ended (1910-1911). Last summer they were very abundant; I saw them in haying time by the dozen fleeing before the devastation of the mowing, and scurrying away from under foot when the bunches of hay beneath which they had taken refuge were

MEADOW MOUSE

pitched onto the cart. They are much more diurnal than other mice, and under the full glare of a midsummer sun are perfectly well able to look out for themselves. After the fields were cleared the marsh hawks came day after day flapping and sailing low over the stubble land, their long legs hanging loosely down ready to seize the scampering mice as they bolted away for shelter; night after night I heard the owls of one sort or another proclaiming their success at mouse hunting with hoot or screech or quavering note of exultation. The varying abundance of owls from season to season corresponds almost exactly with the varying abundance of meadow mice, and not for years have they been so numerous here as during the season just passed, yet in spite of all these hungry foes the mice increased continually in the fields and meadows while the warm weather lasted, and at harvest time worked untold harm in the corn-fields and gardens. Beneath almost every corn

MORE LITTLE BEASTS

shock I found their tunnels in the soft earth which was scattered over with chankings of ripe corn and shredded corn husks, where the mischievous mice had been feasting; often as many as half a dozen of them were to be seen scurrying away when the corn was loaded on the cart, and undoubtedly many more disappeared unseen into their tunnels beneath.

The potato fields suffered also, and more than once I dug out families of frightened meadow mice, together with half-eaten potatoes, all rolling about together in the soft earth. Before the snow came I took the precaution of protecting my young fruit trees with wire netting wrapped close about the lower part of the stem.

Last winter proved to be one of successive thaws and freezing north winds, with much bare frozen ground and ice-covered meadows. In spite of all their destructiveness, the unfortunate plight of these wild mice of the meadows at such times calls for our sympathy, yet when the spring

MEADOW MOUSE

came I could only regret that conditions had not been worse with them, for I saw only too much evidence of the work of the few hardy survivors wherever I walked in the fields. The winter before last was one of deep, dry snow from December to March, which undoubtedly accounts in large part for the great increase of these little brown marauders, for all winter long they might follow their lowly paths in comparative safety, while the early warm spring weather which came with the first of March was more than usually favorable to the rearing of their large and numerous families.

Meadow mice are the pluckiest of fighters, whether the foe be cat, owl, snake, dog or man. I have seen one give battle to an enraged mother hen backed up by her brood of clamorous chickens, though whether the hen desired the mouse for food for her family, or looked upon it as an enemy to be driven away from her flock, I was unable to determine. When fighting, the meadow mice stand erect to the limit of their diminutive

MORE LITTLE BEASTS

stature, and turning about face the foe from every side with little teeth laid bare, like diminutive woodchucks, ever ready for the onslaught. Their short legs and round bodies render them incapable of taking long jumps like other mice, yet they can make good speed over the stubble and are quick to disappear from sight when pursued. They are probably the best swimmers of all our wild mice; I have seen them dive and swim beneath the surface and take refuge under the ice where there seemed to be no air space whatever for their breathing. Their fur is of a quality similar to that of the muskrat. In dozens of instances I have observed them swimming many rods from the dry land, often where the surface of the water was roughened by the wind.

The white-footed wood mice are as beautiful as squirrels, such soft, warm, golden buff fur set off by fur as white as ermine underneath. They



WHITE-FOOTED MICE

WHITE-FOOTED WOOD MOUSE

copy the squirrels also in their ways and so are much less at the mercy of the elements than are the wild mice of the meadowlands and marshes. They are rarely to be seen at any great distance from trees except when they take up their abode in farmhouses and barns. Their homes are oftenest in the knot holes of old trees, either in those standing among others in the forest or by themselves on wind-swept hillsides and river banks; fallen timber, half buried and crumbling, is tunneled and hollowed out to make warm, dry galleries within. Among the gnarled roots of ancient oaks and beeches you will find their tiny doorways opening into dark passages that lead back to the hidden chamber where the little wood mouse family nestles in safety with stores of nuts and seeds and grain packed close in crannies here and there about them. The homes of those that live in stumps and fallen logs are deep buried by the snow in winter, but unlike meadow mice and moles, these wood mice are not content to

MORE LITTLE BEASTS

be confined to narrow buried paths and tunnels, but push their shafts directly up from their doorways to the open air. On the first morning after the heaviest snowstorm of the winter you will see the delicate tracery of their footprints leading you away across the white floor of the forest; there is no suggestion of aimless wandering here and there, such as one gets while following the purposeless footprints of a rabbit; each little trail goes direct to some chosen point, indicating that the mouse that made it knew exactly where he was going, — first, perhaps, to a winter bleached garget stalk to climb for the seeds contained in the dried and shriveled berries, then down again and away on another tack to where some secret store of nuts is located in the hollow of a buried stump. These dainty-looking little white-footed mice are great eaters of meat whenever the opportunity offers, and in spring and summer rob birds' nests high and low, sucking the eggs and killing and eating the young birds. In cold

WHITE-FOOTED WOOD MOUSE

weather, however (owing to the fact that with perhaps only one exception they are the smallest beasts abroad), they can get their meat only by foraging after the larger hunters of the woodland and stealing the trapper's bait. Notwithstanding their abundance everywhere, they are very seldom seen by the casual observer, for they are active only at night. Their big prominent black eyes are best suited for gathering the faint rays of the moonlight and dusk; only occasionally have I seen them out in daylight of their own accord, and then almost always in dull or rainy weather. Yet one of the very first bits of my observation of wild life was, I think, of a little fellow of this species. I must have been about three years old when my grandfather called me across the field to peer into the crannies of an old stone wall where cowered the prettiest of little buff coated beings imaginable. Gnome or fairy could not have been more wonderful to me than that tiny morsel of living fur looking

MORE LITTLE BEASTS

out at me from the shadows of the mossy old stones where it dwelt.

The wood mouse is in almost every way the opposite of the meadow mouse, its safety lies in swiftness and in the possession of senses of extreme delicacy; the ears and eyes are much larger than in other mice and its sensitive whiskers, almost half the length of its body, undoubtedly serve as a fourth sense that may be giving notice through vibrations fainter than sound of distant scratching claws on bark or padded footfall far away. Who knows but that the muffled, soundless beat of an owl's wings may set in motion vibrations which, putting the outstanding whiskers of the wood mouse all a-tremble, convey a meaning through delicate root nerves to the shrewd little brain within, though quite unnoticed by the keenest ear. I have never seen the white-footed wood mouse offer battle even in defence of its young or bite the hand which takes it up. It is easily tamed and becomes a gentle, whimsical

WHITE-FOOTED WOOD MOUSE

little pet, greedy for food and fairly content in confinement. In the fall and early winter they are quite fat for mice, but toward spring they lose flesh, while their shedding fur becomes thin and faded almost to mouse color, so that they are much less easily distinguished from other mice at that season. The mother mouse makes her nest of soft grass and feathers, often beneath a woodpile or crumbling stump in the pasture. I have often seen her when disturbed in some such place scurrying away, with all her family clinging to her and dragging alongside as she ran. Just before winter sets in these wood mice often move their abode from the woods to the shelter of barns and farm buildings, where they make their nests of straw and feathers in any hidden nook they can find, and join the common brown mice in a general feast of corn. There seems to be more or less bickering and quarreling between the two species, and from what little I have seen I am inclined to think that the brown mouse is

MORE LITTLE BEASTS

usually the aggressor and the victor. I wonder if the singing mice of which we occasionally hear may not be white-footed mice; for they are the only ones which I have ever heard whose voices could be called in any way musical. All their cries have a more or less bird-like quality, — faint and twittering generally, but with an occasional shrill chirp, not unlike the call of a young bird.

I suspect the mice that, before an oncoming storm in winter are often so noisy, running and squeaking in the wainscoting of old buildings in the country, are these very white-footed mice, for at the times when they are at the noisiest I have set traps for them, and nearly always a large proportion of the victims were of this species. I wish I had made a record of the number of wood mice I caught in the course of a few weeks last winter in one trap set beneath the eaves; I think it was nineteen, but cannot vouch for the exact number.

JUMPING MOUSE

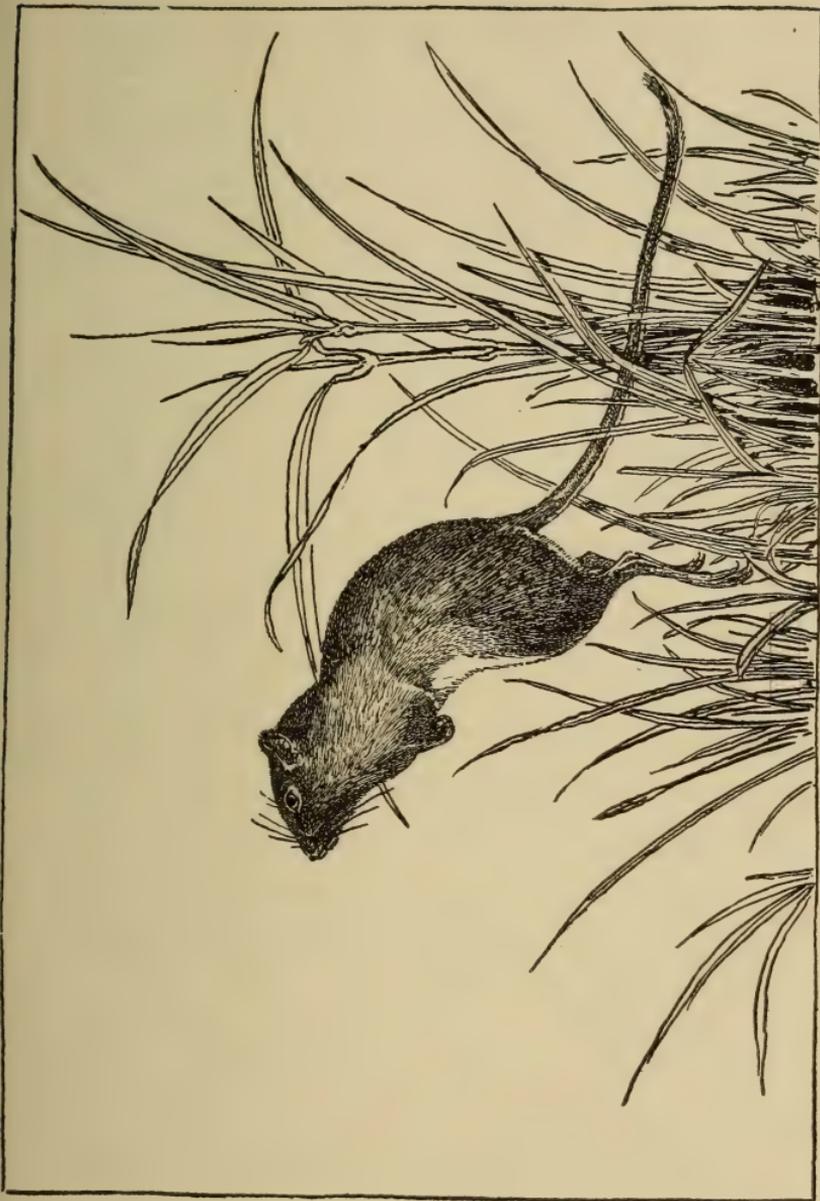
September 17, 1911. — This morning while out duck hunting I had an encounter with that rarely seen inhabitant of the wildlands — a woodland jumping mouse. I had just shot a brace of black ducks, one of which being only winged swam ashore and hid among the junipers on a little island in the stream. While tramping about among the low thick growth in search of the wounded duck, I saw right at my feet a little “orange tawny” mouse crouching there for concealment. Looking closely I saw at once that it was a jumping mouse, — such a strange kangaroo-like little chap, with tail and hind legs suited in dimensions to a much larger animal. Its orange-tinted fur was enough to identify it as of the woodland species — to my own satisfaction at least. The need of making the identification positive hardly warranted the killing of the little fellow in cold blood.

After watching him a little while, during which time his only movement was the motion of his

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breathing and a continual trembling as of fear, I decided to put his jumping powers to the test, but when my hand approached him he simply skipped a few inches to one side and then to the other and then endeavored to skulk away beneath the branches of the ground junipers, his longest jump at that time being hardly more than half a yard. Leaving him, I once more turned my efforts towards finding the wounded duck, but without success; then wading across through reeds and shoal water to the shore, I continued my hunt down stream, and by good luck met a fellow sportsman who suggested taking his dog to the island in the hope of finding the duck by the aid of the dog's keener senses.

Borrowing my friend's boat I secured the duck, which I had killed, and together we turned our course upstream. On reaching the island the dog entered into the chase with the enthusiasm of sportsman and naturalist combined, his interest in following the jumping mice, of which there



JUMPING MOUSE

JUMPING MOUSE

appeared to be more than one, preventing him at first from following the trail of the duck. At his approach the jumping mice proved themselves worthy of their name, making sudden grasshopper-like bounds from under his very nose. His joy in this game of hide-and-seek knew no bounds and he put the mice to the full test of their jactatorial powers, and finally covered himself with glory by discovering the wounded duck for which his master and I had been vainly seeking.

Scientifically speaking, these jumping mice — or kangaroo mice, as they are often called — are not true mice, their coarse fur and strangely developed hind legs classing them more nearly with the jerboas of Africa, or with the kangaroo rats of our own Southwest.

Though found in most of the northern states they are nowhere abundant. The duller colored meadow jumping mouse seems to be the least rare of the two varieties, and in late summer is not infrequently seen in hayfields and meadows after

MORE LITTLE BEASTS

the hay has been cut. The larger and handsomer woodland variety is also found in the meadows at this season, usually along the banks of little streams and ponds. They seem completely to lack the white-footed mouse's squirrel-like gift of climbing. The most that I have ever seen them exhibit in this direction was when one little fellow inadvertently leaping before he looked landed himself in the swift current of a woodland brook, and after swimming a few yards against the current, climbed upon and ran nimbly along the slender wet stems of floating brushwood, and then once more entering the water, swam to the shelter of the overhanging bank, thus proving himself capable of both swimming and climbing when the need demanded it, yet they frequently drown themselves in milk pans or pails of water into which their aimless leaping has precipitated them.

On the whole they appear to be much less quick-witted than are the true mice, depending for safety

JUMPING MOUSE

upon their faculty of taking sudden and erratic bounds at unexpected moments. Their food seems to be largely grass seeds and grain. At the end of summer they burrow in the earth, and curled up in their underground nests the whole family enters into a state of the most complete hibernation, which continues apparently unbroken for more than half the year. From my own observation I am inclined to think that their period of hibernation is longer than that of any other of our little beasts. I have never seen them active earlier than May nor later than September, and have seen them turned out of winter quarters by the plough in May, at which time they were still completely dormant and insensible.



Chapter VI

*Raccoon — Opossum — Skunk —
Porcupine*

GENERALLY speaking the coon chooses to dwell in thick woods, making his home high up in a hollow tree; yet at times a hollow log, a cavern among the rocks, or even a burrow dug out beneath the overhanging bank of a stream or gully is his domicile. In his nightly excursions he wanders indifferently over high land and low; through swamps and thickets and across open

RACCOON

fields and pastures. He is a great wanderer and goes everywhere, towns and villages excepted.

He robs the farmer's hen roost without fear or misgiving; goes into the corn field and pulls down the juicy ears when they are in milk. He climbs the tallest trees in search of the nests of birds and squirrels; gathers fruit of all kinds, wild grapes and berries and probably mushrooms, as well as nuts and acorns. He is fond of wading and paddling along the beds of shallow streams looking for shellfish and frogs. The salt meadows and the sea beach are favorite hunting grounds of his, as are the inland swamps and the shores of woodland lakes and rivers. He goes abroad only at night and prefers to spend the daylight hours in sleep. In sunny weather he curls himself up in the thick top of a hemlock, supported and rocked to sleep by the elastic branches, but when the storm winds blow he retires to the shelter of a hollow tree, the higher up the better.

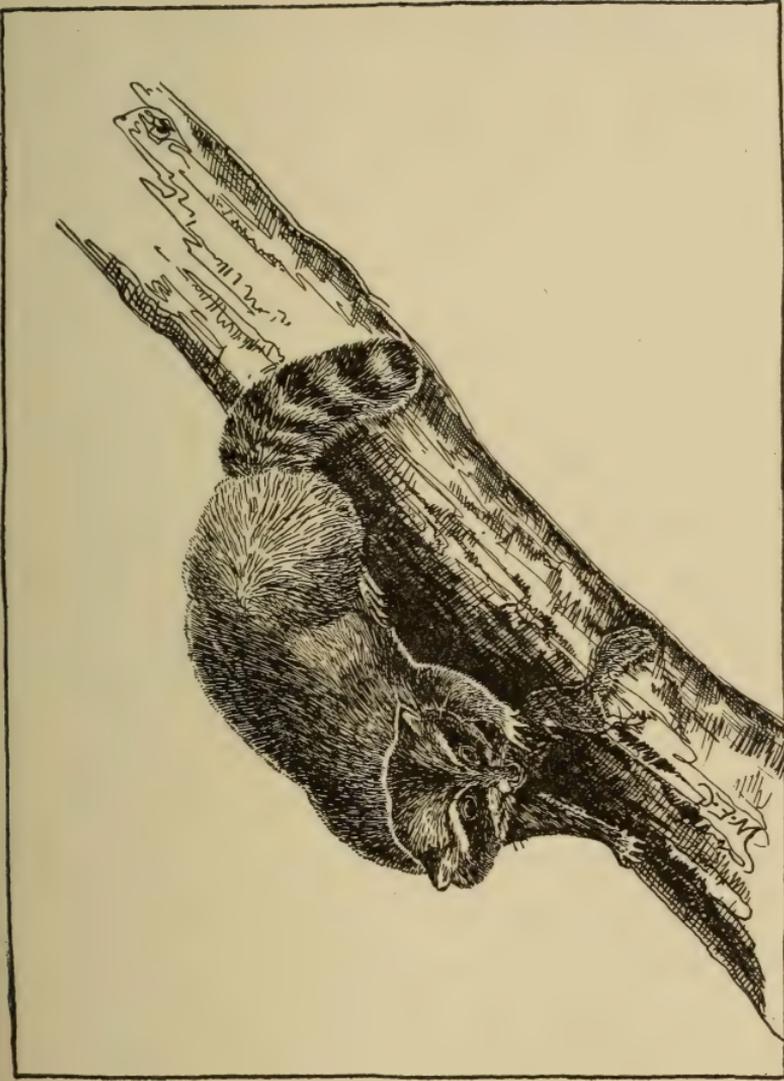
For so large an animal his ability to conceal

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himself in exposed situations is wonderful. When he flattens himself along the branch of an oak tree it takes a keen eye to distinguish his gray coat from the rough gray bark. One winter when working in the woodlot, I set a fox trap in a spring where I could look at it in going to and from my work. The spring was surrounded by flat clay land, with only scattered hummocks and thin, short winter-killed grass, affording about the most meager chance for hiding to be imagined. One morning I approached the spring to within a very few steps before noticing a big raccoon that had been caught in the trap.

By merely flattening himself to the ground he managed to present exactly the appearance of a low hummock overgrown with gray moss and short dry grass. Anyone not knowing that the trap was there might very easily have passed close by without mistrusting that a coon was in plain sight and almost under his feet.

On another occasion when I was trapping for



RACCOON

RACCOON

muskrat and mink, I was annoyed by having bait stolen from my traps and supposed that some sly old fox was outwitting me. One morning when going my rounds I caught a glimpse of reddish gray fur moving in the alder swamp where one of my traps was set. Thinking that I had surprised Mr. Fox in the act, I opened fire with my rifle. My second shot reached its mark, and hurrying to the spot, I discovered my victim to be a raccoon with one paw held fast in the trap.

Raccoons appear to be less regular in their habits of hibernation than are the woodchucks and chipmunks. Many of them are abroad in November and December. After a January thaw you may find their tracks in wet meadowlands, where they evidently go mousing at such times when the melting snow drives the meadow-mice from their retreats. In February and March they come out from time to time, but probably not earlier than April do many of them make a practice of being abroad each night. I know of

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no other little beast so eminently well fitted to look out for himself as Mr. Coon, for he appears to command the resources of all the others combined.

He eats every sort of food that Nature offers, animal or vegetable, and is almost equally at home in the forest or open country.

The raccoon possesses all the vices of both fox and woodchuck, and yet he is the most likeable of all the wood-dwellers.

The appellation "coon" requires no modification to be shared in common by the genuine southern ducky, and the little beast of the ring-tail and the inquisitive nose; the characters of the two are — from all that I discover — practically identical. The raccoon is just such an easy-going, good-natured, jolly, amusing rascal, that I can never kill one without feeling almost as if I had committed a murder. When he robs your hen roost he does it in the night, and kills everything within his reach. Then you set a trap

RACCOON

for him, and in the morning when you find him held fast by the paw, he shows no particular anger or fear or desire to escape, and, if you see fit to keep him in captivity for a term, quickly reconciles himself to his imprisonment and does not suffer from loss of appetite.

He seldom ventures abroad except by night, and for this reason is rarely detected in his misdemeanors. When the corn has just reached the proper stage for boiling, he comes with his entire family for an evening visit, and all night long they amuse themselves by pulling down and crunching the succulent ears and trampling them in the dust. Being classed as game, he enjoys the protection of the law until the 15th of September, but after that you have a chance to get even and learn the joy of coon-hunting on moonlit nights. Very few dogs are good "coon dogs," and a good coon dog may belong to any one of half a dozen different breeds. A dog that will persistently follow a coon track is exceedingly

MORE LITTLE BEASTS

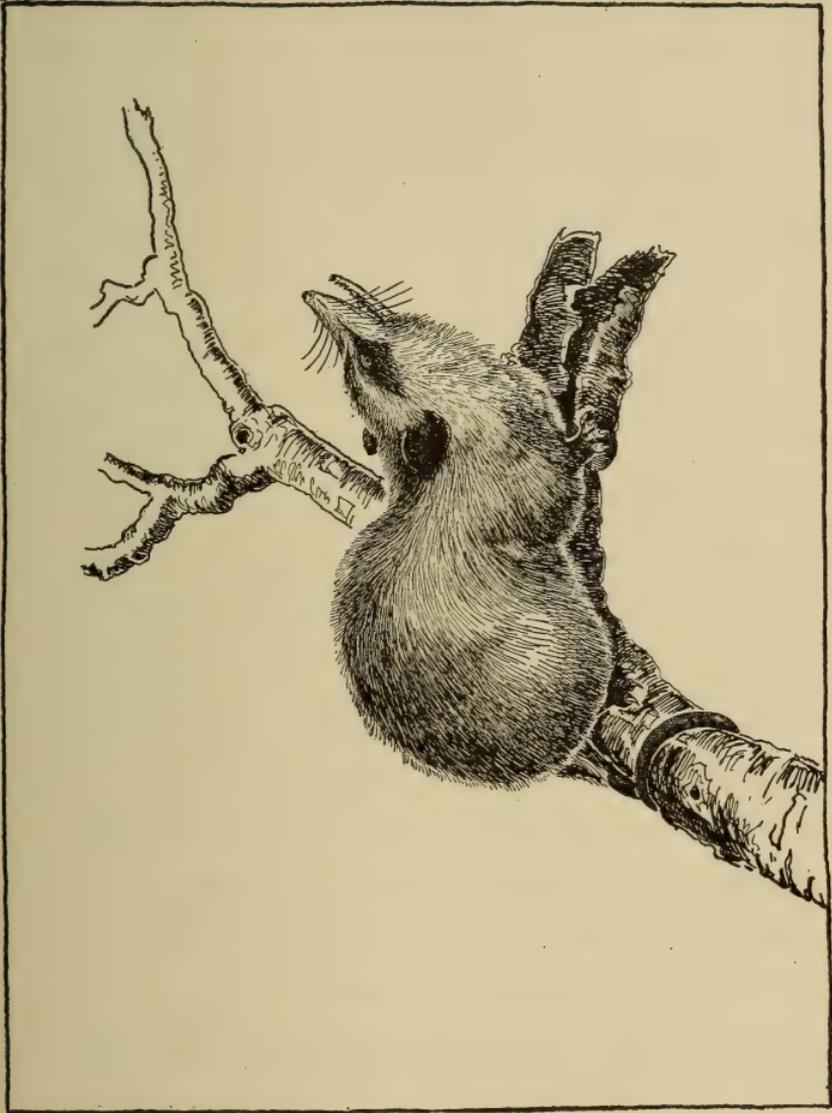
valuable in that capacity, but is worth little for anything else.

The opossums are members of that curious form of mammalian life—the marsupials or pouched animals—so called because of the pouch or natural pocket in which the mother carries her new-born young.

This is one of Nature's many experiments which, though exceedingly ingenious and apparently possessed of many advantages, has not proved on the whole worth while, judged, that is, by general results.

The marsupials as a class are decidedly behind in the contest for superiority, which began with the first appearance of active life on the earth and will undoubtedly continue until its term.

They are one and all creatures of small brains and sluggish circulation; yet, curiously enough, the manner of taking care of their young more nearly resembles that practiced by humans the



OPOSSUM

OPOSSUM

world over than is the case among most wild animals of greater intelligence. As it is with humans, so it is with the marsupials, the young of the highest, and this almost the lowest form of mammalian life, are the most immature and helpless when first born.

When the baby opossums are born their mother takes them with her lips and one by one places them in her natural pocket under her belly. Once they have the teats in their mouths they do not let go; as a matter of fact in many cases the sides of the mouth of the baby opossum actually grow together, inclosing the teat, while a curious little channel in the tongue carries the milk which the mother forces into it from time to time.

There are many things which seem to indicate that the marsupials were Nature's very first experiment in mammalian life. Almost every form of creature lower than the mammals brings forth its numerous young in a still more immature state; as eggs which are either cast adrift on the waters,

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attached to some twig or leaf, and forgotten, or secreted in a nest or pouch, where they are guarded and kept warm for a period sufficient to give them a start in life.

The common opossum is the only marsupial which has succeeded in surviving the cold winters and other hardships of a temperate climate, all the others being inhabitants of a tropical or semi-tropical region. The opossum is a most skillful climber, but in nothing else does he exhibit any skill comparable to that possessed by the other little beasts, the burrowers and builders, the swimmers and divers and hunters. He is almost four-handed and prehensile, like the monkey, his hind paws as well as his front ones being furnished with reversible outer toes like thumbs, for grasping, while his supple and scaly tail is almost another hand, with which he can hang suspended in order to reach any birds' nest or hanging fruit that might otherwise be beyond his reach. It is said that the little opossums, when big enough to

OPOSSUM

leave their mother's pouch, frequently climb upon her back and, nestling in her fur with their tails wrapped about hers, ride about with her on her nightly excursions for food.

The food of the opossum is both animal and vegetable in character, — fruit, berries, birds' eggs and young birds, — including chickens, — reptiles and insects. His sleeping place is a hollow tree or log, or a burrow dug in a hillside. In the autumn he fattens himself on nuts, acorns, persimmons and corn, and during the winter spends much of his time in sleep, but does not actually hibernate as do the raccoon and woodchuck.

It seems probable that the queer trick of "playing possum" practiced by this species is not really an intelligent feigning of death, in order to put an enemy off guard, and so give an opportunity for escape. Dr. C. C. Abbott, after careful observation, became convinced that it was instead an actual condition of insensibility, caused by terror effecting the action of the heart. This would

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certainly seem to be an explanation more consistent with the well-known stupidity of the individual opossum, yet at the same time we must not lose sight of the fact that, among the lower animals at least, the intelligence of the species is often far superior to that of the individual, and that a fixed habit of a species does not necessarily indicate that separate individuals are capable of reasoning out the why and the wherefore of the things which they may do instinctively.

The crab-eating opossum is a more southern species inhabiting swamps and wet low-lands. Although its food consists largely of crabs and reptiles that it captures at the edge of the water, the crab-eating opossum is as expert at climbing and birds'-nesting as is the common opossum.

The yapock, or water opossum, on the contrary, has carried this predelection for an aquatic life so far as completely to have lost the power of climbing, the species having developed webbed feet like those of an otter. Like the otter, the

SKUNK

yapock is an expert swimmer and diver and dwells in a burrow dug in the overhanging bank of a stream or pond. It is of even more southern distribution than the crab-eating species, being found only in South America.

Both of these water loving opossums have darker colored and thicker fur than their northern cousin of the dry land; the yapock being curiously mottled and blended with gray and black.

The skunk is about the only member of the weasel family that can afford to get fat. He belongs in the leisure class and has allowed his muscles to get soft through disuse.

The typical weasels, marten, mink, ermine, sable, depend for their safety and livelihood upon the possession of lean and active bodies forever in hunting trim, to leap, swim, dodge and fight as the instant's need demands. Like the other inhabitants of the wild they are protectively colored, each according to its own environment.

MORE LITTLE BEASTS

The mink and otter have taken the color of water-soaked logs, the marten's fur blends with the fallen leaves and the bark of pine and spruce, while the ermine and weasel follow the changing color of the seasons in the northland, from brown to white as the snow comes with the coming of the winter, and white to brown again as it wastes away in the spring. A striking characteristic of the whole tribe is the possession of two small hidden glands, that in times of anger and excitement give forth a musky, suffocating discharge, which undoubtedly serves greatly to disconcert an enemy in a hand-to-hand combat. The pine marten and sable have almost entirely dispensed with this most unpleasant feature, while the skunk, on the contrary, has developed it to a most striking degree. The two sacks appear to be merged into one which almost surrounds the base of the tail and is often of the bigness of a hen's egg. Its muscular coats are capable of exerting a pressure sufficient to eject the dreadful contents to

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a distance of several yards with considerable accuracy.

Thus defended, Mr. Skunk is no longer obliged to keep in fighting trim. He can stand his ground, while most of his enemies are ready enough to give him the path. Instead of fur of neutral tint to render him inconspicuous, he wears a parti-colored coat of the loudest black-and-white pattern, and a bushy tail, white tipped, to flourish as a warning, lest some over-eager hunter mistake him for more innocent game to the detriment of all concerned.

Throughout the warm weather he gets along well enough owing to the abundance of insects and reptiles and nesting birds. Though lacking the activity of the other hunters, he is still a good traveler and covers many miles of field and forest in a night's hunt.

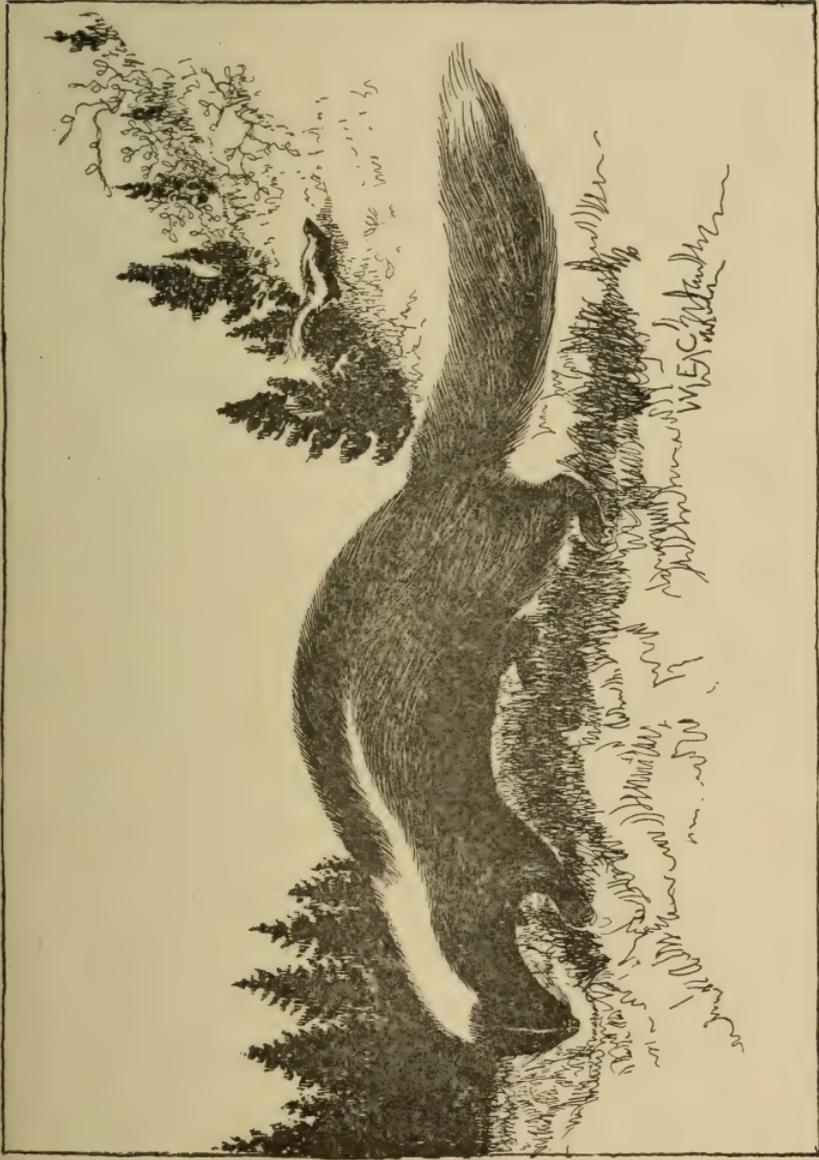
With the coming of the cold weather, conditions become more unfavorable for him. Insects and reptiles are dormant in the hard frozen earth.

MORE LITTLE BEASTS

The birds and beasts that yet remain to be hunted are well grown and active; only the fittest have survived and these have learned caution and alertness. Mr. Skunk, however, with forehanded prudence, has spent the plentiful season of late summer and early autumn in the agreeable occupation of cultivating fat, prudently gathering every sort of food within his reach without undue exertion, until by far the greater part of his bulk is fat, which he stores under his skin, as the chipmunk stores nuts underground.

When the hunting is not sufficiently remunerative to repay him for the effort required, he goes down into his underground nest and goes to sleep, tucked in with half a dozen or more of his fellows to economize warmth. Thus he dozes off week after week while the cold winds howl through the tree tops and the dry snow gathers with the increasing cold.

With most hibernating animals there is, varying according to the species, considerable regular-



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ity as to the time of "denning in," and in the duration and soundness of the winter sleep. With the skunks, however, such does not appear to be the case. While many of them go into winter quarters in the fall, others are abroad throughout the winter.

Sometimes a den of them, dug out in the coldest weather, will reveal the inmates awake and active, while at other times they will be found completely dormant. I have seen a skunk come out of his hole on a brilliant, windy, snow-dazzling January noonday, and after a look around retire again into his burrow. I am inclined to think that after mid-winter the majority of them simply take protracted naps of varying duration, interrupted by intervals of wakefulness.

The skunk, like most of the smaller carnivora, is at the same time a most destructive and a most useful neighbor; on the one hand being a very persistent hunter of mice, grasshoppers, crickets and beetles, and on the other an equally persistent

MORE LITTLE BEASTS

hunter of birds' nests, and a chicken thief into the bargain. On the whole I am inclined to the opinion that his destructiveness overbalances the good that he does, and that his place might be better filled by the mouse-eating hawks and the smaller owls, especially the latter, if these could only be protected and encouraged to become more abundant.

It would be a pity to have the skunks entirely exterminated, but of this there is little likelihood. The fact is that almost any species of the smaller wild animals if unmolested in the breeding season can pretty well take care of itself during the rest of the year if it is only capable of adapting itself to changing conditions. All the fur animals have this advantage, their fur being of value only to themselves, except in the cold months.

Skunk fur is one of the most beautiful and valuable of them all, the black portion, when prime, having that rich blue-black shade recognized by furriers as so superior to the dead-black of dyed fur.

SKUNK

For the past twenty years the price has been rising pretty steadily, until of late hundreds of thousands of skunk skins have been marketed each winter, yet in spite of the persistent trapping they appeared rather to increase than decrease, until about three or four years ago when they became, locally at least, positive nuisances. Since then, however, there has been a noticeable diminution, which may, or may not be due to the increased number that have been killed for their fur.

Most of the fur animals prey to a certain extent upon other fur animals smaller or weaker than themselves, so that while the high price of fur is unquestionably a menace to their safety at one season, it is also in a measure a blessing in disguise to many of them at just the season when it is of the greatest benefit, for it is during the warm weather that the young animals of this class are in the most danger of being eaten by the larger and stronger ones. Muskrats, for example, while

MORE LITTLE BEASTS

perhaps the most constantly persecuted of all the fur animals in the more settled parts of the country, are still abundant even in the vicinity of cities and towns, their worst enemies, the foxes and minks, having been thinned out by the trappers.

The skunk, while the most conspicuously colored of all the little beasts, is yet able to make himself quite inconspicuous at times even in exposed situations. By moonlight and in the dusk you may often see them at quite a distance as they move leisurely about in search of mice and crickets. If approached, however, they generally become motionless, and, flattened out in the grass, are very hard to detect in the uncertain light. It is only rarely that they come out in the daytime; I cannot recall ever having seen more than six or eight all told. On November 12th, while writing at my desk, I looked out of the window and noticed a small black object moving about in the dry grass at the foot of the hill nearly an eighth of a mile away. After watching it for a few

SKUNK

moments I was convinced that it was neither a black cat nor a crow, and taking my field glass saw at once that it was a skunk. By keeping to the hollows, and with the wind in my favor, I was able to approach to within two or three rods without being perceived and had a most excellent chance for observing his ways.

He was busily engaged in the pursuit of grasshoppers and crickets, walking cautiously along with a rolling, top-heavy motion, sniffing here and there like a dog and from time to time rising playfully upon his hind feet to pounce forward with nose and paws together on some unfortunate grasshopper, which he would crunch between his teeth with evident satisfaction. The grasshoppers and crickets were so numbed by the frost as seldom to hop more than a foot or two each time, but the skunk did not follow those that hopped away out of his reach, evidently depending upon surprising those that had failed to take alarm. Sometimes he dug rapidly into the turf with his

MORE LITTLE BEASTS

strong fore claws, but I think got nothing in that way larger than a cricket.

He would stop at intervals to scratch himself, or roll over on his side in the dead grass; then he would stand up and shake himself and lick down the long fur on his flanks.

After watching him for some time, I stood up and took several steps in his direction; whereupon he jumped back quickly, and erecting his brush, flourished it threateningly, all the time crowding himself down into a little depression in the turf, where, almost hidden, he let his tail fall over lifelessly to one side, and to my surprise the long black-and-white fur so mingled with the light and shadow on the grass stems that one might have walked by within a very few steps without mistrusting his presence. To all appearances he was really feigning death, "playing possum." As he lay motionless, the autumn wind ruffling his long fur this way and that, he looked for all the world as if he might have been lying there dead

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for a month. From observation at the time I came to the conclusion that skunks, like rabbits, squirrels, and undoubtedly most of the woodland folk, have more or less control over the arrangement of their fur, shading the black and white together, or separating them, making themselves inconspicuous or bringing out the characteristic markings of their species at will. We see this power much more clearly exemplified among birds, particularly in the case of the owls, grouse, woodcock, whippoorwill and the various waterfowl.

As Mr. Skunk refused to show any sign of returning animation while I was nearby, I retired to the shadow of the pine grove a dozen rods away, and presently saw him emerge from his hiding place and resume his hunting, but as he kept going over and over the same old act of catching grasshoppers, I left him undisturbed in that pursuit. For an hour I could still see him at work, though in a different part of the field, just at the edge of the pine grove where the afternoon sun

MORE LITTLE BEASTS

shone warm and red on the pine needles and fallen leaves. The following afternoon I saw him out again in the same place; after hunting grasshoppers for about an hour, he retired to his hole in the edge of the pine grove, perhaps to den in for the winter; at all events I saw him no more after that.

When the skunks leave their dens late in the winter they are quite fat, but being now compelled to compete with the other hunters in the chase of rabbits, partridges, mice and other active game, they lose flesh rapidly and become lean and active, the greater part of their hunting being now down in the woods and thickets. Later when the snow has nearly gone from the fields, though still deep in the woods, they come out into the open, to catch snakes and insects that are resuming an active life once more.

The little skunks are born in April or May, in families of six or eight, and of all the young animals to be seen at that season they are perhaps

PORCUPINE

the prettiest, their short, fine fur bringing out the varied black-and-white markings of the species with beautiful distinctness. On summer evenings you may see them following their mother Indian file while she teaches them the art of hunting and birds' nesting.

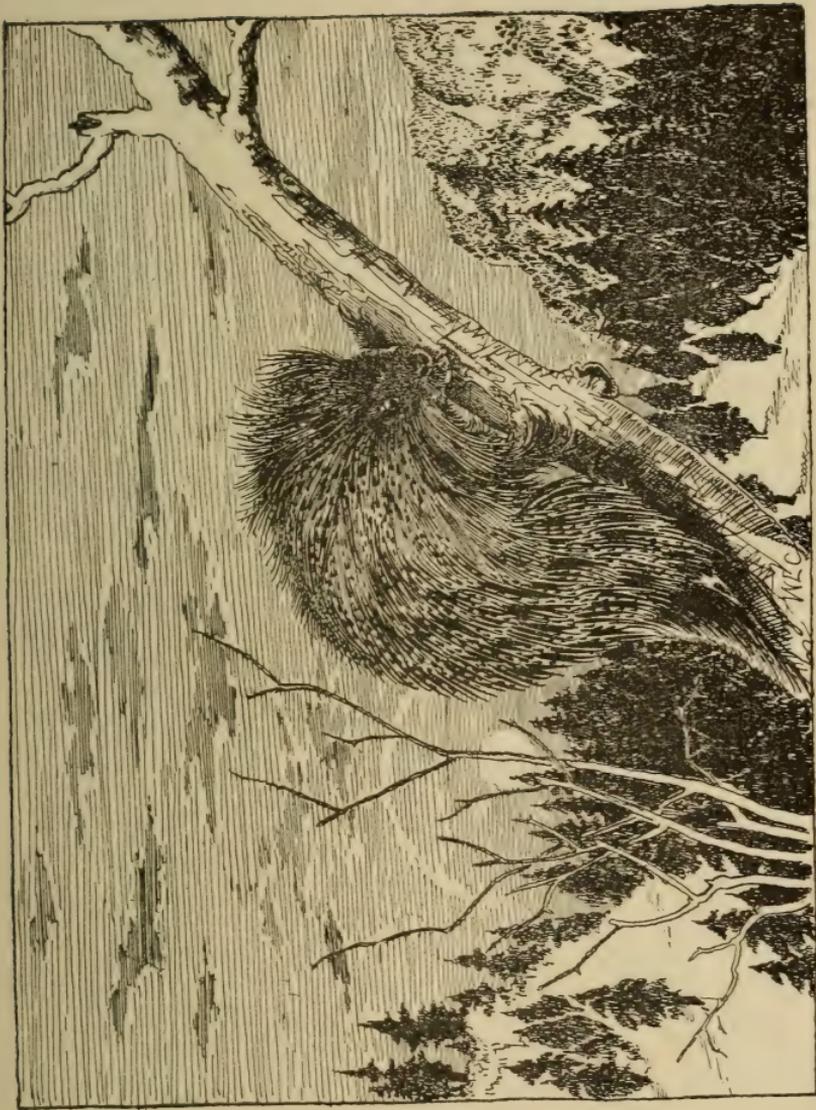
The porcupine, hedgehog, or quill pig, exhibits both in physique and character the degenerating effects of too easy living.

He is not under the necessity of exerting himself, either in the matter of getting a living, avoiding his enemies, laying up store of food against the coming of the winter, or constructing a home for himself. His food is everywhere about him, the bark of the forest trees constituting his staple diet the year round. This is neither very nutritious nor delicate, but appears to satisfy his taste, quantity, rather than quality, evidently being his motto.

In the matter of avoiding his enemies, the por-

MORE LITTLE BEASTS

cupine assumes an attitude similar to that of the skunk. The majority of the hungry freebooters of the woodland preferring to go hungry rather than sit down to a dinner of quill pig at the cost of having lips and paws pierced and stabbed by the quills of his spiny armor, for these quills are easily detached from their owners' skin, and although at first contact they may cause but an insignificant puncture, they are so covered with tiny backward-pointing barbs that the involuntary twitching of the skin of the unfortunate sufferer who has come in contact with them continually works them deeper and deeper into the flesh, so that even so insignificant a weapon as a porcupine's quill may inflict the death wound of such mighty hunters as the grizzly, the wolf or the panther. For a home, the porcupine takes possession of any chance cavern among the ledges or some prostrate hollow log, apparently never making the slightest effort towards improving the condition of things as he finds them. The natural



PORCUPINE

PORCUPINE

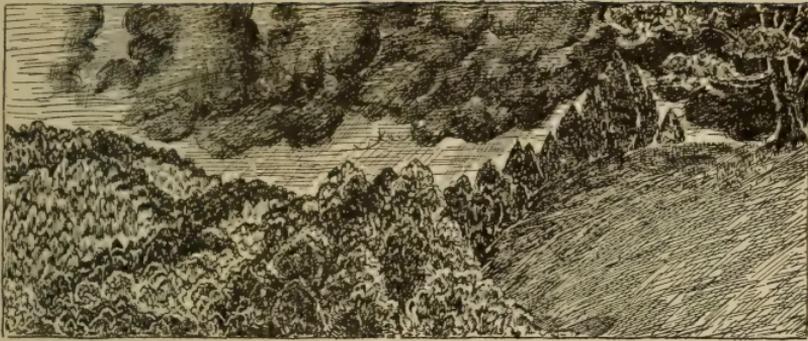
consequence of this sort of easy-going life might well be imagined and predicted.

He has a fat, clumsy body, possessed of just sufficient suppleness to enable its owner to climb to the tops of the trees the bark of which he feeds upon, instinct or dull reason enough to guide him in his search for food, to give the impulse which leads him to roll himself into a prickly ball when danger threatens, to lead him to look up a hidden retreat at the coming of the cold weather, to stir him to some slight degree of animation in the mating season, and, in the case of the female quill pig, to call forth a certain degree of care and protection for her young. The senses of sight, hearing and smell possessed by the porcupine are undoubtedly much less keen than in those other wild creatures whose lives depend upon them. In spite of his protective armor, the porcupine is not entirely safe from attack. Hunger now and then drives one and another of the wild hunters to pounce upon and kill him in

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defiance of the torture that must follow the allaying of their appetite.

The fisher, the largest of the martens, has a way of killing the porcupine without danger to himself. Old trappers say that at the approach of the fisher the porcupine rolls himself into a ball, just as he does when confronted by any other enemy, but the wily fisher crouches near, waiting his chance with tireless patience, until the porcupine unrolls, exposing his unprotected throat to the fisher's lightening-like spring.



Chapter VII

Moles, Shrews and Bats

THERE is a class of little beasts which, although abundant enough in almost all parts of the world, are but slightly known to people generally. These are the moles and shrews.

The true moles are round-bodied, gimlet-nosed, velvety-furred little chaps whose most striking characteristics are their big shovel-like front feet with which they are continually digging and tunneling about underground. The shrews are of more mouse-like build, with longer tails, and with feet that are better fitted for running than for digging. An intermediate group, known as shrew-

MORE LITTLE BEASTS

moles or moleshrews, have the piglike bodies and short tails of the true moles and feet suitable both for digging and running. We have in the Eastern and Northeastern States the common shrew, which lives among the roots of old trees; the larger water shrew that has taken to an aquatic life and developed a tail flattened and fringed, like that of a muskrat, for swimming; the short-tailed mole-shrew who divides his time about equally between digging in the earth and rooting about pig fashion beneath fallen leaves and crumbling stumps and logs; the common mole, and the hairy-tailed mole, both possessed of true mole habits, and the star-nosed mole, that like the water shrew haunts moist and watery places, where mole-like it tunnels continually in soft black mud, often under water.

As a class the moles and shrews are perhaps the most bloodthirsty and carnivorous beasts in existence, even more so than the weasels. The common shrew is the most diminutive of all our

MOLES, SHREWS AND BATS

little beasts; something less than half the size of an ordinary mouse. It has silky, slate-colored fur, varying to olive brown or silvery gray in some specimens. In common with the others of its family it is possessed of a pointed nose lengthened almost to a proboscis, and with this it is continually prying into crevices and seams of the rotten logs and stumps, nosing about under fallen leaves and exploring the tunnels of every sort of grub or beetle in quest of prey. It is active throughout the winter, often running about on the surface of the snow in the coldest weather, though it must find insects scarce at such times, probably depending upon such as it may find dormant beneath rotten bark, and it may be gathering nourishment from the multitudes of minute snow fleas that at times late in the winter blacken the melting snow. It also seizes upon any scrap of meat or drop of frozen blood scattered by some larger hunter — bird, or beast or man.

In summer it undoubtedly robs the nests of the

MORE LITTLE BEASTS

smaller birds and very likely kills young mice when it has the chance.

Its nest is made in a crevice of a stump or beneath a fallen log or wood pile. These shrews do not seem to be altogether nocturnal for I have sometimes seen them out in the daylight, though it is but rarely that one has the opportunity to catch a glimpse of them under any circumstances. Most of those that I have seen were found hiding under wood piles or old fence boards in the pasture.

To-day, August 10, 1911, when I was sitting in the shadow of the pines in the pasture a short-tailed shrew came hurrying along over the dry red pine needles to within a few inches of my hand.

I watched him for perhaps a minute as he ran about here and there in the broad daylight, directly under my eyes, a rare opportunity indeed for observing any member of his family, for all the shrews are lovers of the night, secret in all their ways and seldom seen abroad by day. Yet here

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was this little fellow going about under the bright light of a mid-summer noon, generally in the shade of the pines it is true, but at times crossing a belt of sunshine that had found its way between the tree tops overhead. Often his long pointed snout was turned up until his face was all creases and wrinkles, reminding one of a little beady-eyed dwarf, then he would lower it to probe among the pine needles. Suddenly he took alarm and skipped across the narrow wood-path to the entrance of his burrow, when he disappeared, though for a little while I could hear him moving about among the fallen branches and dry twigs a few yards away. Fifteen minutes later I again noticed the peculiar musky odor common to all shrews, and soon saw him emerge from the opening of his tunnel. As it happened I was looking away just at that instant, and without thinking, and contrary to all the laws of Nature-study, turned my head slightly in order to see him more distinctly; as was to be expected, he instantly

MORE LITTLE BEASTS

dodged back out of sight and I saw him no more, though I waited for some time hoping that he might reappear. Undoubtedly if I had not turned my head he would have given me another opportunity of observing him, and perhaps of finding out his reason for being abroad at mid-day.

Possibly he was after a drink of water, the dry season having put many of the woodland folk on short rations in that direction. Seven or eight rods away from where I saw him there is a little brook, not yet quite dry, and it was towards this that he was going. Very likely he had been to the brookside and was on his way back to his nest when I saw him look out from his tunnel and dodge back at sight of me sitting in his path. I found his hidden runways here and there beneath the fallen pine needles, and in the little woodland path where I first saw him, they had been trodden over and uncovered by the cows and sheep, which might account for his being out in the air at that particular spot.

MOLES, SHREWS AND BATS

This short-tailed shrew is much the most abundant species and is often pounced upon and killed by the house cat, but never eaten. It is generally looked upon as a mole, but may be easily distinguished from the true moles by its fore feet, which are only slightly larger than the hind ones, and quite unlike the clumsy scoop-shovel affairs of the genuine ground mole. The short-tailed shrew is considerably larger than a mouse, with slate-colored fur close and soft as velvet. In its habits it is a shrew in summer and a mole in winter, though even in cold weather it often ventures above ground to root about among dead leaves beneath the snow. At times it comes out on the surface of the snow and runs about, lured by the smell of raw meat, of which it is ravenously fond and capable of engulfing enormous amounts.

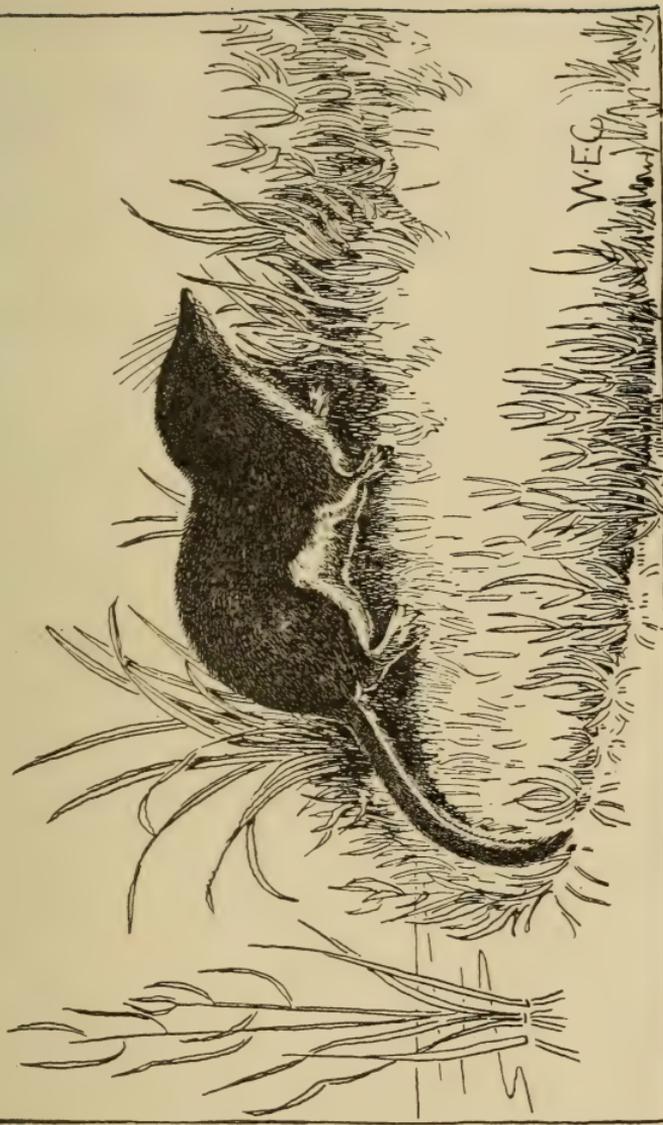
A man possessed of such an appetite in proportion to his weight could devour several sheep or a good-sized heifer in the course of a day. The shrews that I have had in captivity could consume

MORE LITTLE BEASTS

several times their own weight in raw meat in a surprisingly short time, besides drinking milk greedily like little hogs. When eating or drinking or fighting they turn up their taperlike proboscis, exposing two sets of crimson teeth, which give them a most terrifying aspect, in spite of their small size. To other creatures of their own dimensions they must be terrific foes, for they set about everything they do in a sort of blind fury, uttering all the time harsh, squeaky and grating cries, and emitting a rank, musky or cheesy smell that must be almost overpowering at close quarters.

The bite of all shrews is said to be poisonous, but I have never seen it put to the test.

The water shrew is much less generally abundant than the others. There is but one place where I have ever seen it (and there only on three or four occasions,) a reach of perhaps a quarter of a mile of a slow-flowing meadow brook, fringed with willows and alders and trailing smilax vines,



WATER SHREW (very rare)

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backed by pine and hemlock woods on the one hand and open pasture on the other. Here I have seen the water shrews swimming, at times on the surface, again under water with trails of silvery bubbles in their wake. On one occasion I saw two of them together swimming beneath the surface. They swim with astonishing swiftness and are seldom in sight for more than a few seconds. The water shrew is about the size of the short-tailed species, and is slate colored above and silvery beneath. They probably catch and eat small fish and tadpoles as well as water insects, perhaps with an occasional diet of frogs' eggs for a change.

I have never found their homes, but believe that they live in holes beneath the bank and among the roots of waterside trees.

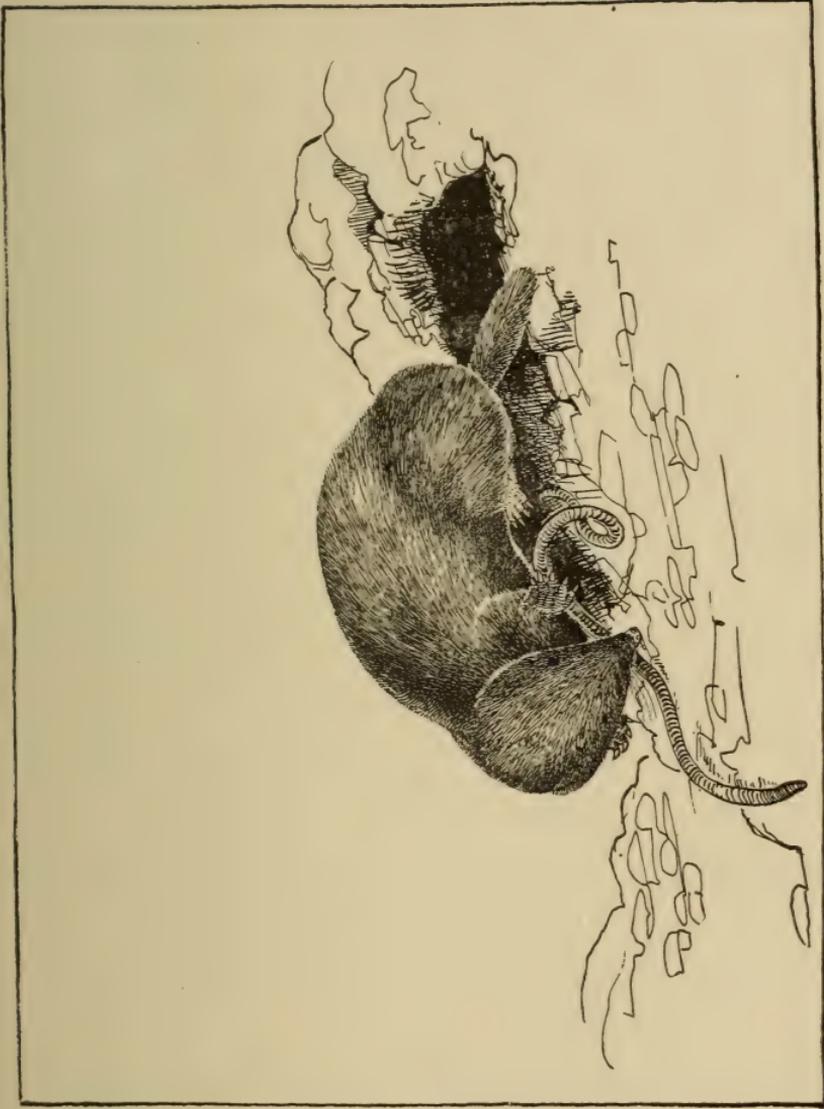
Of the moles, I have found the hairy tailed much the most abundant. A blackish, slate-colored, piglike little beast with a tail about as thickly covered with hair as is that of the wood-

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chuck, and of much the same general proportion. The common mole is a little larger and has the tail almost destitute of hair. Both are genuine little gnomes, mining and tunneling forever underground and rarely coming to the surface even for a short scamper above ground.

“Blind moles” they are frequently called, and not incorrectly, for their eyes are so rudimentary as to be little more than pigment spots beneath the skin, and only just sufficiently sensitive to the light as to serve the simple purpose of distinguishing between daylight and dark. Their other senses however appear to be developed in a degree to compensate them for the lack of seeing.

They live in complicated underground galleries, in warm weather quite near the surface, and in winter deep down below the frost level, gauging the depth of their work to follow the movement of the earthworms upon which they principally feed. Forever traversing their tunnels back and forth, they snap up every earthworm and grub or



HAIRY TAILED MOLE

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beetle whose subterranean progress in search of bulbs or roots to feed upon has caused him to blunder into the trap which the mole has dug for him. Mr. Mole, however, does not get all his living in this way; whenever scent or hearing informs him of the working of grub or worm nearby, he proceeds to burrow away in that direction, stopping at intervals to listen for the faintest sound or tremor that may guide him. Coming to the passage of an earthworm, he follows it as the hound follows the trail of the fox, digging along with remarkable quickness, boring into the soil with his gimletlike snout, pushing a part of the dirt aside as he works along, and crowding the remainder back into the tunnel behind him. Having overtaken and engulfed his humble quarry, he still pushes ahead with undiminished appetite, disinterring a chrysalis perhaps, or the underground nest of a spider with its dozens of tiny yellow eggs done up in a silken bag.

Moles are savagely fond of raw flesh, and a

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fight between two of them is pretty certain to terminate in a cannibal banquet for the victor. I suspect that when the mole in his subterranean travels happens upon the nest of a field mouse with young ones, the entire litter is devoured at a meal, and in the winter he must often discover snakes, lizards and toads, or even jumping mice, in a condition of defenseless hibernation, and at such times would scarcely hesitate to make a meal of whatever he could devour. Dozens of the common striped garter snakes are often to be found coiled up in an intertangled mass, and completely inanimate, and would supply the lucky mole who chanced upon them in their winter quarters, with sufficient meat in cold storage to last for almost the entire winter. I have found snakes partly eaten under just such circumstances as led me to believe that moles had been dining upon them in their sleep. Judging from the length of time that is required for an entire snake to die after it has been dissected while wide

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awake and active, one would imagine that when dormant the loss of one half of its length would hardly be likely to destroy the vitality of the other half. Fancy the dismay of waking from a long restful sleep, to discover that miscreant moles had been devouring a considerable portion of one's anatomy while one peacefully slumbered!

As these borings which the mole makes while foraging for food are more or less filled up behind him as he moves along, he probably does not return the same way, finding it easier instead to continue burrowing along searching for more victims as he goes, until gradually working round he makes connection at some point with his permanent runways.

In an enlarged chamber, formed at the junction of a number of intersecting galleries, he has his nest. In all likelihood the female has a separate nest chamber of her own in which she guards her young. Descending shafts are sunk here and

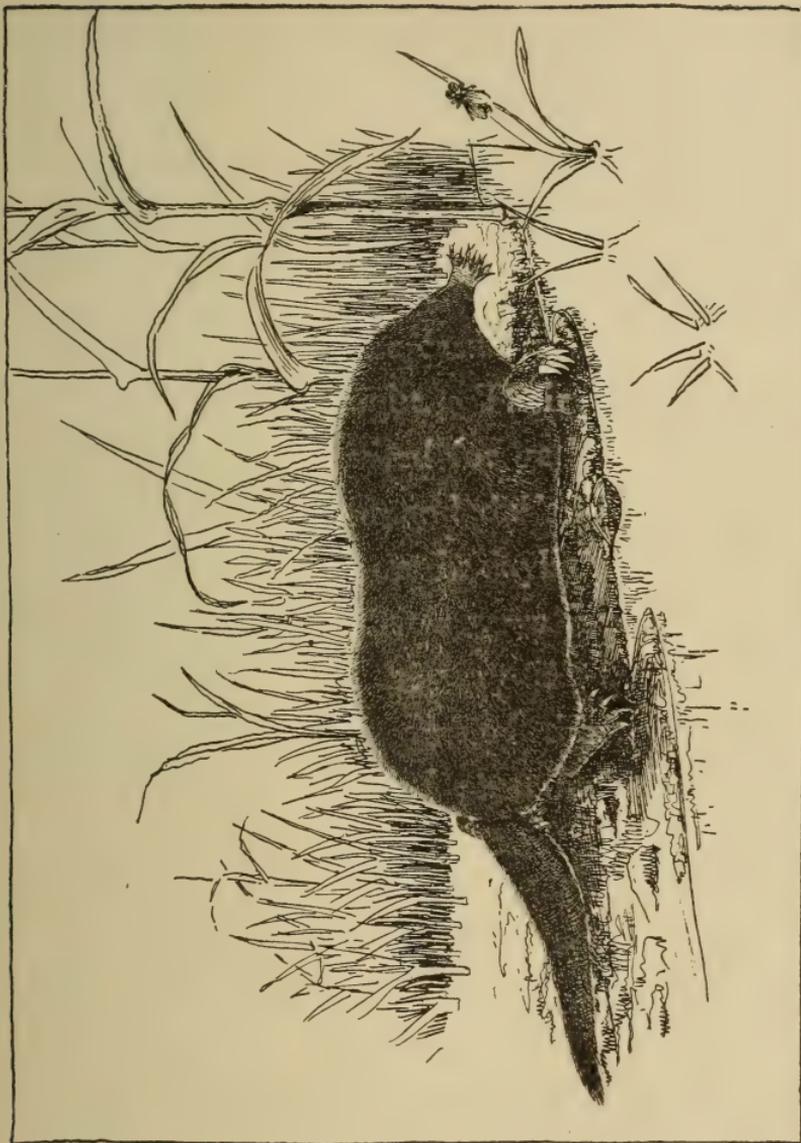
MORE LITTLE BEASTS

there as wells for the purpose of furnishing a water supply.

All these small insectivorous animals are very dependent upon the supply of drinking water, unlike some of the vegetarian species, who appear capable of subsisting for considerable periods upon the sap of the plants they feed on. In the droughts of late summer and early autumn, large numbers of both moles and shrews die, evidently because of their inability to reach water.

Whenever the water level sinks below a certain depth, so that the moles in digging their wells come in contact with ledge or hard-packed gravel that resists their efforts to go lower, they are forced to come to the surface and start off on long pilgrimages in search of lower lands. Being quite unsuited for this sort of travel, they make but slow progress, and as a consequence many perish.

I have frequently seen them at such times, usually in the evening, though occasionally at mid-day, hurrying along at the best speed they are



STAR NOSED MOLE

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capable of making. Even the semi-aquatic, star-nosed mole, whose accustomed haunts are in swampy meadowland and along brooksides, is at times forced to migrate, when long weeks of rainless weather have dried the black peat of his homelands and turned the channel of his favorite meadow brook into a sun-baked furrow.

Meadow and brook alike underlaid with hard-packed clay, and no water to be had for the digging, I have seen them crossing areas of high dry land where in times of sufficient rainfall you would hardly ever have seen them. An overabundance of rain affects the moles of the uplands more disastrously than it does the star-nosed moles of the wet lowlands, for the latter are such capable swimmers and divers that when their homes are flooded they assume the habits of the otter and mink. I have never seen them in the act of catching insects while swimming, but should not be in the least surprised at witnessing such an act on their part, having so often observed their powers

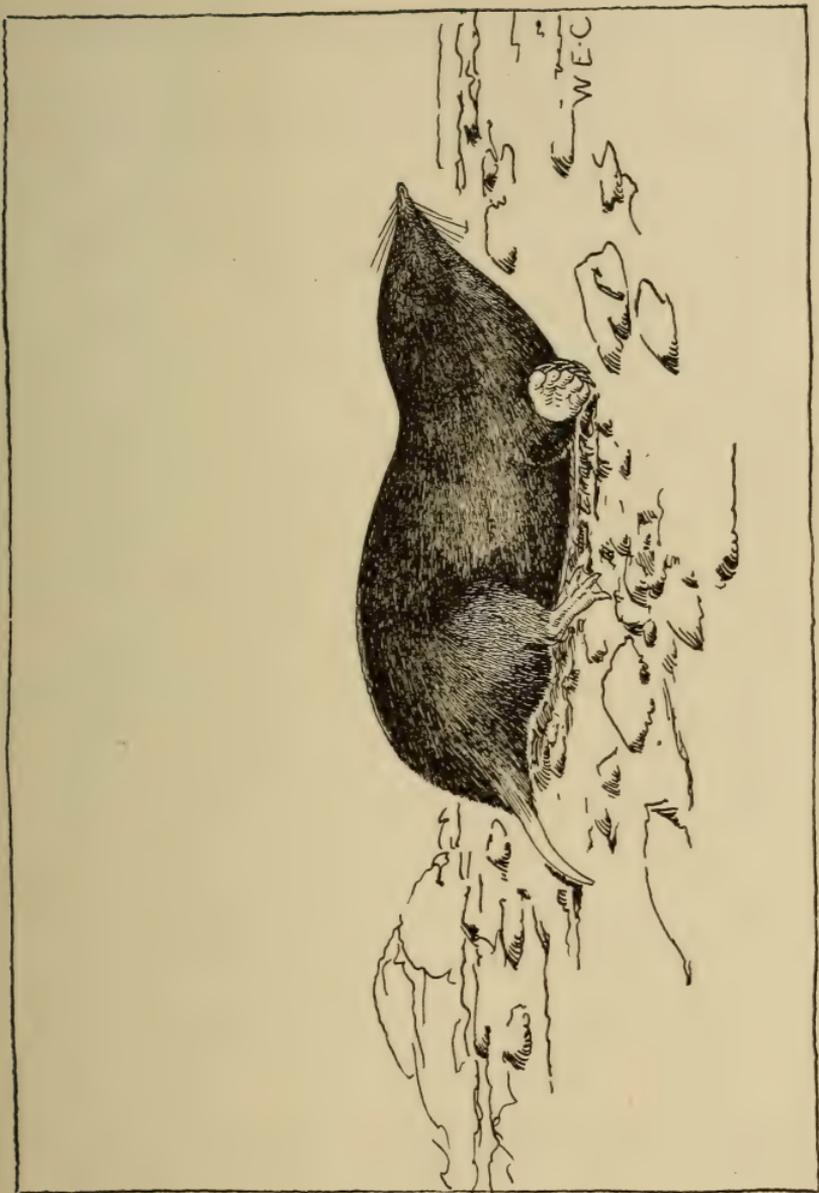
MORE LITTLE BEASTS

of swimming both in still water and where the wind-ruffled surface put them to a severer test, or in the narrow channel of a quick-running brook.

The common mole of the uplands, despite his scientific title, *aquaticus*, exhibits but little resource when his galleries are filled by heavy rains, at least so far as my observation goes. I have often found these moles after heavy thunderstorms in midsummer, having to all appearances been driven out by the flooding of their tunnels, and drowned on the surface before the storm had ceased.

Wherever in wet lowlands you see numerous little heaps of black soil thrown up, you may know that the star-nosed moles have been at work. They seem to dwell in colonies as a rule and inhabit the same limited area for years. The heaps of earth thrown up by them are much larger than those of the upland moles.

While undeniable nuisances in lawns and grass lands, moles as a class are of great service to the farmer, not only on account of the great number



GROUND MOLE

MOLES, SHREWS AND BATS

of insects and grubs which they destroy, but in the capacity of subsoilers, continually stirring and loosening the ground below the reach of the deepest plow.

Their tunnels also serve as drains to carry off an excess of surface moisture. Although at times they unintentionally uproot bulbs and newly set cuttings in their work, it is doubtful if they ever do any harm by actually biting into them; if they ever do this it is only for the sap in times of water famine. Most of the damage for which moles are blamed is really the work of the meadow-mice. Huxley has shown us the immense value of the earthworm in agriculture, in loosening up the soil, and as moles feed largely upon earthworms, this fact might be set down as an item in their disfavor; yet as there never seems to be any noticeable diminution of the supply of earthworms, even in seasons when moles are most abundant, we can have little to worry about on that score. The only wise course for us to follow is to endeavor

MORE LITTLE BEASTS

as best we may to help in keeping the balance of Nature on an even keel. I doubt if even from a selfish standpoint we should be benefited by the extermination of any of the forms of life about us, not even rats, mice, wolves, mosquitoes or flies, and certainly there is no form of life, either insect, beast or human, which could desirably be permitted to increase unlimitedly without check or hindrance. However, Nature can be trusted to look after this matter better than we, while man with all his ingenuity has never yet succeeded in exterminating a single form of insect life, and probably never will. A large proportion of the beasts and birds that have joined the extinct class within historical times were *not* those most persistently hunted. Just as surely as man succeeds by an unwise policy of overprotection in increasing the numbers of any species beyond a certain point, Nature steps in with disease or degeneration in one form or another and quickly restores the balance.

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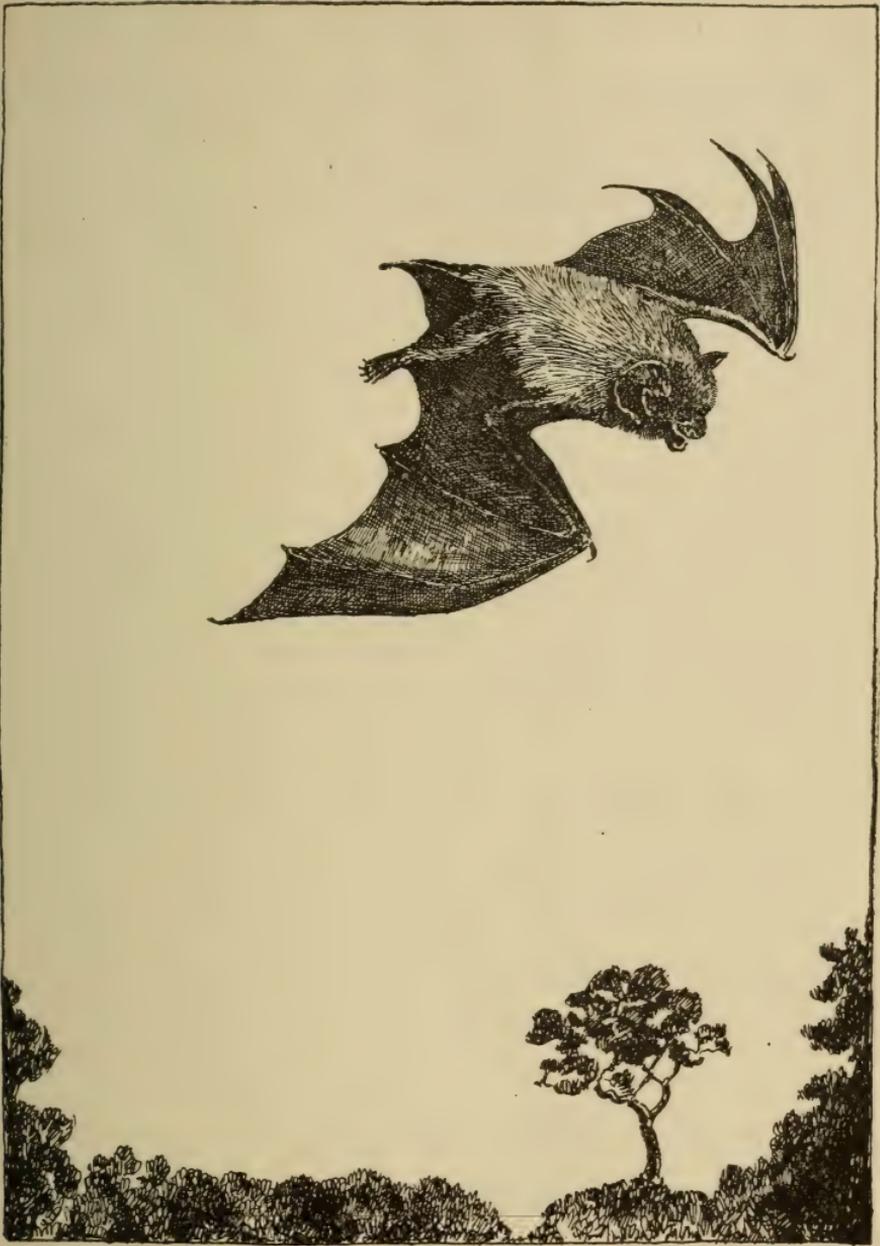
Flitter-mouse is an old English name for the bat, like the German, *Fleder Mäuser*, but the bat is much less like the mice than it is like the moles and shrews. In some ways it would seem to be more nearly related to the monkeys. But after all is said the bats are still in a class by themselves, weird, strange, uncanny little folk, soft, gentle and friendly, half goblin and half fay.

I have just been sketching a baby bat as he scrambled about over my desk among books and papers. I found him in the barn this morning, June 23, 1911. I was getting down some lumber from overhead and noticed what looked like a bit of old leather nailed to the side of the barn, then saw that it was a young bat clinging flat to the rough boards. I had evidently dislodged him from some dark nook where his mother had hidden him away for his afternoon nap. The mother bat is unique in her manner of caring for her young. At times she carries them about with her, nursing them as she flies; then when wearied by

MORE LITTLE BEASTS

the burden of their diminutive weight, she hangs them up unceremoniously here and there on a bush or the branch of a tree, or tucks them into the crevice of some old building to sleep away the time contentedly while she is away.

The little bats (usually two in number) appear to be perfectly adapted to this sort of usage, hanging there for hours, for all the world like some dilapidated old scrap of a bundle, supported by the tiny hooks which each of them wears at the bend of its wing. Old and young spend the hours of daylight together, often in colonies of thirty or forty, or even more. A favorite sleeping place of theirs is the cramped space between the ridgepole and the roof boards of an old barn. Looking up from below you can see where the rough old boards are worn smooth by their passing in and out. At twilight you may hear them squeaking together in queer little dry, rasping tones as they scuttle down to peer out at the weather, only to withdraw again into their nar-



BAT

MOLES, SHREWS AND BATS

row quarters if there is still too much light in the sky. When the darkness finally settles down, they come out one by one, taking wing in quick succession out into the night.

Artists of all ages have taken the bat for a model when depicting goblins, demons, imps or devils of every sort; imagination can go no farther in the direction of the weird and the incongruous. The big misshapen ears above the impish little face with its wide gaping mouth, and beady little eyes twinkling beneath shaggy, woolly eyebrows are sufficient in themselves to inspire awe.

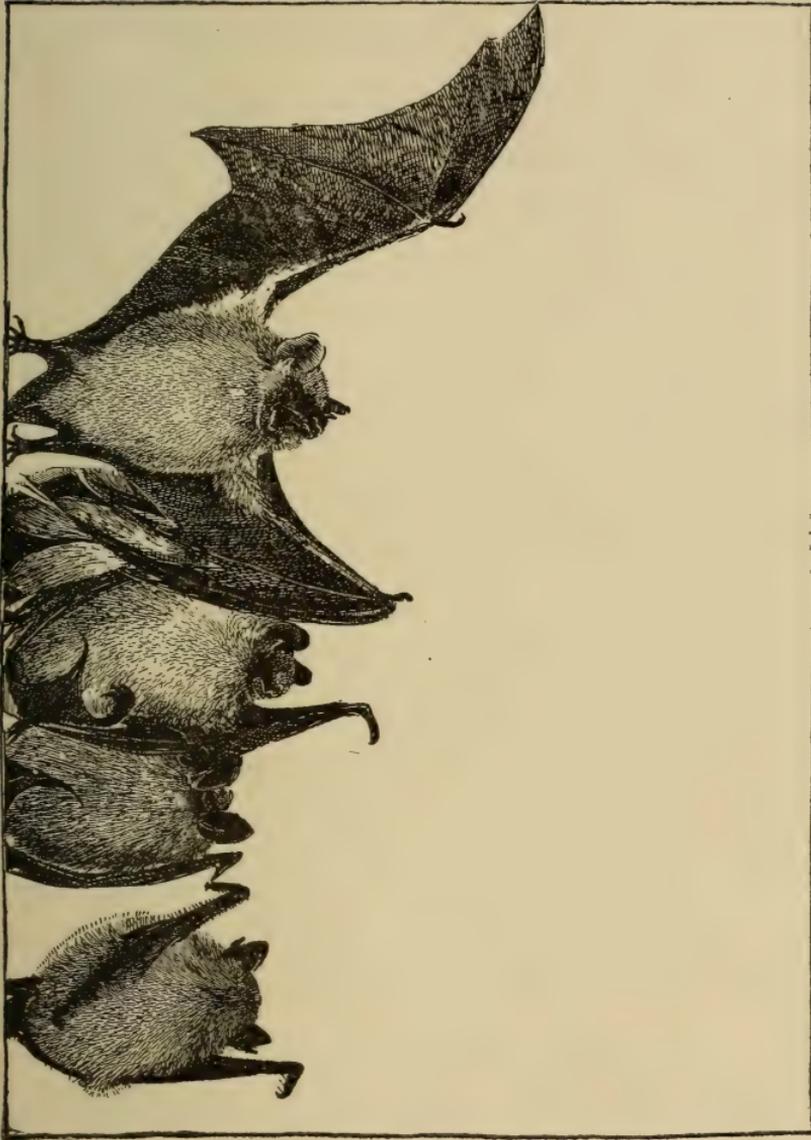
Just how keen a bat's eyes actually are it is difficult to say, for he has another sense which enables him to detect the nearness of any object which he may happen to approach in his flight, even when blinded, as has been amply proved by a number of experiments.

The simplest explanation which appears to offer itself, and the one I think most generally

MORE LITTLE BEASTS

accepted is this. The vibrations of air, set in motion by the flapping of a bat's wing, are driven against each nearby object and recoil like waves from a rock, just as we see the ripples made by a boat on still water return from the bank to surround the boat again. The sensitive membrane of the bat's wing detects these faint vibrations, and veers away instinctively. When a bat hangs motionless, you may approach a pencil or stick quite close to him without any evidence on his part that he is conscious of its nearness.

Our northern bats are all exceedingly useful, for they feed entirely upon insects, particularly mosquitoes and night-flying beetles. Most of this insect game is caught on the wing; as the bat flits by you in the dusk you can hear the gritting of his teeth as he passes through a swarm of midges or gnats. Occasionally he flutters down to the ground and hitches awkwardly along, picking up beetles of one sort or another. Many of the tropical species are said to be decidedly harm-



BATS IN THE WINDOW.

MOLES, SHREWS AND BATS

ful. The fruit-eating bats, which are as large as foxes and have wings that spread four or five feet, are perhaps the most destructive, though less fearful to the imagination, than are the carnivorous vampires, which, though smaller, are so hideous both in their general aspect and their habits, feeding as they do on flesh and blood, living and warm. The smaller bats and fowls, and at times larger animals and even men, are attacked while asleep and the living blood sucked from their veins.

While the hot, wet, heavily forested regions of the tropics would appear to be the true home of the race of bats, representatives of the family are to be found in almost every part of the world, with the exception of the polar regions. Their powers of flight have enabled them to wander abroad over the surface of the earth and its oceans. On many a lonely island in the Pacific, where other forms of mammalian life are unknown, bats are exceedingly abundant. They are also found in deserts far away from the water.

MORE LITTLE BEASTS

Here in the north, bats sleep all winter long, large numbers of them crowded together in close contact, each contributing its diminutive quota of heat for the benefit of the general assembly.

From October to May they maintain just sufficient vitality to keep from freezing, without any unnecessary waste of tissue. Even in warm weather they are sometimes found in a sleep so profound as to be almost hibernation. One species, the large hoary bat, which is found, though rarely, in the mountains of northern New England and New York in the summer, migrates southward and towards the sea-coast in the autumn, and back again to the highlands in the spring. This species is to be known by its large size, narrow, pointed wings and swift zigzag flight. Its fur is richly mottled and blended with light and dark brown. I have seen a few specimens flying which answered to the description of this species, but have never had the chance to identify them.



Chapter VIII

Life

SPRING'S breath is in the air, the dreaming
Earth,

Long wrapped in deep repose,

Beneath the snows,

Waiting the season's birth,

Stirs in her sleep;

Still her warm heart doth keep

Sweet memories of love's departed days;

Yet does her bosom thrill

Beneath its mantle chill,

Owning the magic of her lover's gaze;

MORE LITTLE BEASTS

For now her lord the Sun,
Afar his course hath run,
And comes to wake her with his kindling rays.

Ah! 't is no idle word,
In song and saga heard,
That tells the tale of love's awakening power.
The Northmen's myth sublime,
The poet's tender rhyme,
Breathe kindred truths, that fit the passing hour.

Poet or Viking, heart of flesh or flame!
That heart's own history
Revealed life's Mystery;
To Nature's child the nature secret came.
And who shall say
That in the heart of clay,
Throbbing beneath our feet, no spirit dwells?
Or that yon star,
Pulsating from afar,
Naught save a blind mechanic force impels?

LIFE

O ye who deeply con great Nature's lore,
 (Yet backward read),
 Do ye not miss indeed,
The mightiest truth in all that mighty store?
Ye deftly read that hieroglyphic page,
 And downward trace
 The footsteps of the race,
Until ye find the glory of our age,
 Its thought sublime,
 Lost in primeval slime.

Ye hold the substance, but the vital flame
 Eludes your grasp;
 Spirit ye cannot clasp;
O brave truth-seekers, can ye therefore claim
 That love and trust
 Are accidents of dust?
 Though ye may scan
 The unfolding powers of man,
And mark the height to which his thought may
 soar,

MORE LITTLE BEASTS

How can ye tell
What inner life may dwell
Even in the slime that paves the ocean floor?

“God’s spirit moved above the lifeless waves,
And life was born.”

’T is thus creation’s morn
Has shone on us across the centuries’ graves.
To-day the lamp of ancient faith burns dim;
New lights arise,
And flood the eastern skies,
And echoes far great Nature’s primal hymn.

Life is, and was and shall be, ever still,
The regnant soul;
While suns and planets roll,
Shall bend obedient matter to its will;
Day after day
Shall veil itself in clay,
And ever thus its spiral track ascend:

LIFE

Each shell downcast
More perfect than the last,
Each step more potent for the crowning end.

'T is thus I fain would read the ancient writ
Of ages gone,
Graven on crumbling stone;
At the great mother's feet, I thus would sit,
And list the story of her morning time,
And as I heard,
Each retrospective word
Should inly glow with prophecies sublime;
Life is and was and shall be, evermore.
Oh, deep and vast
The records of the past,
But measureless the promises in store.

SARAH ELIZABETH CRAM.

Instinct and reason are words which have been used in a distinctive sense as separating that which directs the movements of animals from the more

MORE LITTLE BEASTS

thoughtful intelligence of the human mind, but in Nature we very rarely find lines of sharply marked distinction, the link may be missing to our defective eyesight, but it is there nevertheless in every instance. Instinct we may safely assume had its birth coincident with the first awakening of active life, and down through all the ages has been one of the strongest factors in the general struggle. Where then did intelligence have its beginning? Is it the final outcome and blossoming of highly developed instinct; instinct become at last observant and quick to profit by what it sees and take advantage of every new condition with which it comes in contact, or is instinct but the stored up experience of a dim, but ever-growing intelligence that is older than even instinct itself? Among the lower animals there are numerous instances where instinct is unquestionably supreme and no evidence of even an incipient reasoning power is to be detected, but to assume that with the appearance and growth of

LIFE

reason the force of instinct must necessarily diminish is, it appears to me, scarcely logical. Instinct is still one of the most valuable forces in Nature, and, for the greatest good of any species, is not to be crowded out, but only controlled by reason.

Reason or intelligence we may call one end of the chain, instinct the other, but the distance between the two extremes need not imply a missing link between or any break in the chain as a whole.

Instinct is an absolute necessity to any living creature in the general struggle for life, while reason is more a luxury than a necessity, and where instinct is sufficiently keen and life is simple may be dispensed with. Lacking instinct reason could never enable man or beast to get a living unaided. A man without instinct, were his reasoning powers never so highly developed, would be classed among his fellows as little better than a fool should circumstances compel him to leave his desk and join the ranks of outdoor workers. Just

MORE LITTLE BEASTS

what instinct really is we may never know; what we do know is, that it is quicker than thought or reason and often a truer guide. In times of sudden danger it acts at once, while the brain yet hesitates. It is not an unfailing guide either in man or beast, yet in the great majority of instances it may be trusted to direct us aright, even if now and again it does urge us to leap or strike or dodge at the wrong instant or in the wrong direction, to our own undoing. Particularly is instinct a necessity when our lives are nearest the lives of the wild things of the woods and waters, — in hunting and fishing and trapping. The game starts up before us and instinct brings the gun to the shoulder and swings the sights along its flying course, but awaits before pulling the trigger, often an appreciable part of a second, while the slower working brain makes sure that what it sees is the quarry it has been searching for, calculates the distance and the speed of flight, then signals the order to pull.

LIFE

The old gunner, as a rule, is quite unconscious of pressing the trigger; his brain, at the exact instant when it perceives that the sights are in line with the game, merely formulates the wish that the gun shall be fired, and the flash and report follow instantly. Often the brain seems to be allowed no part whatever in the decision; the hunter feels without stopping to reason about it that the time has come to shoot, just as he feels without knowing why that here is the very spot to place a trap, or the angler is urged by his guiding instinct to cast his line on some particular spot, rather than on another that would appear to the eye to be a more promising reach of the stream; and he seldom has cause to regret it.

Can anyone doubt this is identical with that which we name instinct among animals? Is it not the acting of long-trained members on their own account, the eye and the ear and the hand and the foot working together in unison without stopping to consult the brain? Let the most skillful sports-

MORE LITTLE BEASTS

man, if he is unused to snow-shoeing, start out through thick woods with a pair of web shoes bound to his feet; he will find himself from the very start-off under the necessity of teaching his legs and feet how to manage their clumsy gear, with no time to spare for the observation of tracks and signs of beast and bird, and should his eyes stray off through the snow-flecked undergrowth in search of his quarry he will in all probability quickly find himself capsized, with his gun sticking muzzle down in the snow. If his ancestors before him have tramped the woods on snowshoes he will profit by their experience and learn the quicker for it, but at the best, many a day of tiresome discipline will be required before his feet shall have learned to lift the broad frames aright to sift off the loose snow, to avoid the trailing heel of its fellow snow-shoe, and to relieve itself without a sound from encumbering twigs and fallen branches and half-buried stumps and logs, leaving the eye free to search ahead and on

LIFE

all sides for the faintest sign of the trail winding away dimly between the trees. Here reason and instinct work together on something like equal terms to accomplish the same end.

Instinct may however be trusted at times to work alone, while the brain is "absent-mindedly" concerned with other matters, or worrying over distant affairs that have no connection whatever, it may be, with the woods and the wild things there. The feet take charge of the snow-shoes, and the hand and the eye of the gun, and the latter may even take aim and fire with all the necessary precision before the brain has had time to get back to nearby things.

Who can doubt that this instinct in man is the same as the instinct which guides the wild animals in the woods? The fox may not know how he follows the trail of the hare, but he knows why he follows it; it is not altogether instinct and hunger that lead him on. I believe that his foxy brain holds clearly enough the image of the game

MORE LITTLE BEASTS

he is after; his ears are alert for the faintest pit-a-pat or rustle of furry foot among the leaves and moss; faint vibrations of the air no human ear could perceive tickle his delicate hearing with a meaning clear as a spoken word to him, and his simple woodsy mind distinguishes at once the light tread of a rabbit or a mouse from the sound of a wind-rustled leaf, by powers long handed down through generations of hunting fore-bears, and sharpened and developed and held true through his own experience day by day. How can we divide instinct from reason here?

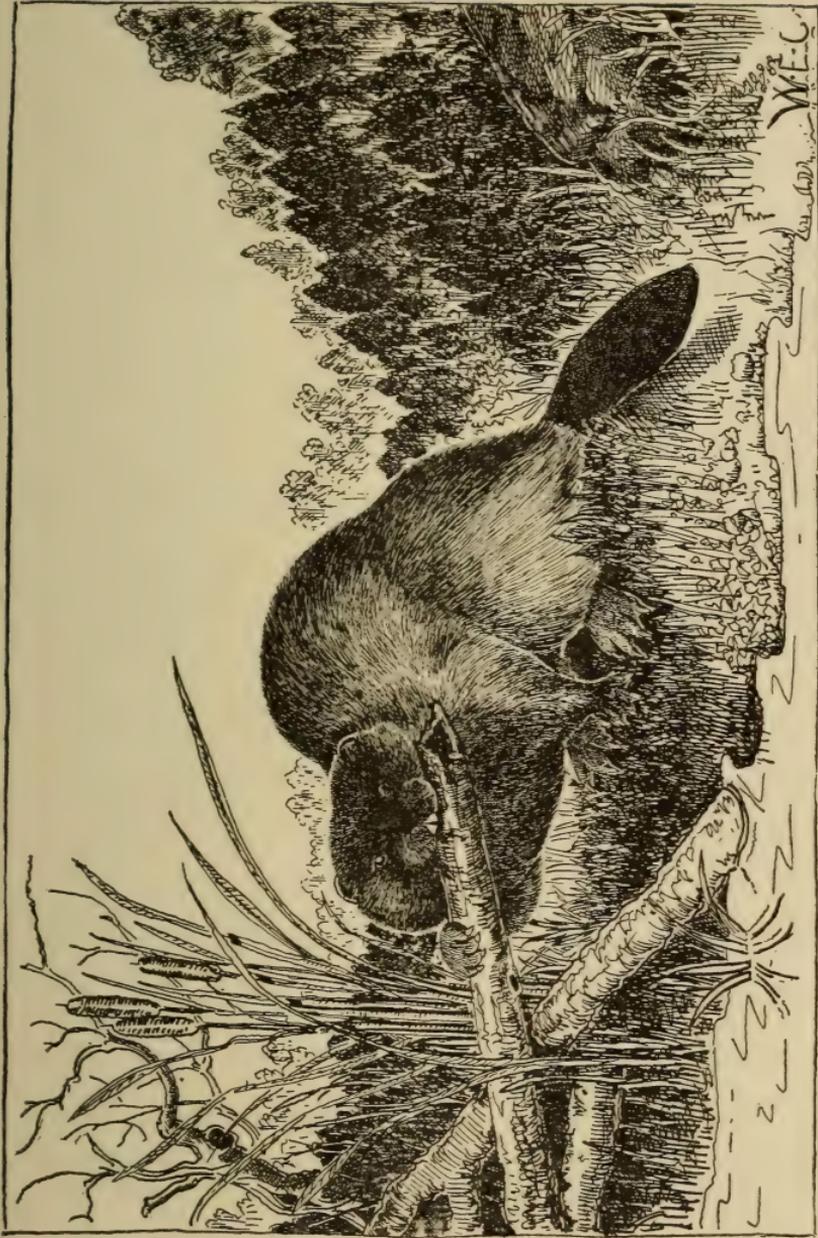
I for one can never believe that blind, unseeing instinct teaches the fox all that he knows. The fox cub of the season, first beginning to hunt for himself, and the young crow that has just learned to fly, are unsuspecting fellows, easily outwitted, though quick to learn and undoubtedly profiting by the example of their parents which they follow imitatively; but there are numberless things which each must learn for himself and times when

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neither instinct nor reflex action can possibly meet all the requirements of the case. It is a perfectly well-established and undisputed fact, that in wild, thinly settled country, foxes are much more easily outwitted than where men are more abundant. Much more to the point as evidence that their instinct is in part at least assisted by natural intelligence, is the equally well-established fact (which I have myself repeatedly observed and heard commented upon by trappers and local observers), that while a new method of setting traps or wire snares, a new combination of scents, some old combination of scents, or a secret of trapping that has not been practiced in a certain region for half a generation perhaps, and is revealed as a dying bequest of some old trapper to his grandson, ambitious to follow in his footsteps, may prove surprisingly successful for a season or two, it can never be profitably followed for any length of time in that particular vicinity. And when it has once become useless any method of trapping or

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snaring or poisoning foxes is sure to continue unsuccessful for a considerable number of years. From what I have observed I should not hesitate to say that at least the full length of a fox's life, — twelve or fourteen years, — must elapse before more than an occasional fox can be outwitted in that particular manner. Now how could instinct possibly bring this about? It is too absurd to suppose that after one or at most two winters during which possibly one fourth of the foxes in a certain district have met their fate in a particular kind of trap, and one out of twenty has been pinched and has got away again, all the fox cubs of that region born in the next ten years should be from the first inspired by an inborn fear which holds them back from that particular danger. Here is an instance in point which I can relate from personal observation. There is a shallow muddy spring some two rods long by six or eight feet wide in the flat clay land of my home pasture. In *Country Life in America* for April,



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1902, I read how foxes might be sometimes trapped in just such places. I set a trap at that spring about one foot from the bank, sinking trap and chain in the soft black mud, which immediately closed smoothly over everything, with a half inch of water over the mud. Just over the pan of the trap I gently placed a little island of green moss such as may be seen here and there dotting the black, boggy places; beyond the trap I stuck up a weather-beaten, water-soaked stick with the bait on that, as if the trap were set beneath it for mink. Now foxes are very fond of stealing the bait from mink traps set in narrow spring brooks; time after time you will find their tracks leading directly to that point of the brook's bank nearest the trap, the footprints showing clearly where the sly thief stood with feet close together, stretching himself out above the water to reach the bait. Sometimes if a little tussock or stone protrudes from the water in a convenient place the snow lodged there will show the print of his fore foot.

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He knows well enough that if a steel trap were hidden in the snow and moss above-water the smell of iron would betray its position to him rods away; and so long as he keeps his feet dry he feels safe. For a few days the foxes passed by my trap at the spring without going very near. They wanted the bait and turned aside from their course to investigate, but were cautious about approaching too close at first. Then one morning I found a she-fox fast in the trap. Not long after an old dog-fox put his foot in it, but managed to break away; since then, though I have set traps there every winter, not one fox of the scores that have passed that way has been fooled by that harmless looking little island of green moss. The knowledge that the trap is there does not frighten them away. At times in very cold weather they will come night after night, until the thin ice pushing out from the bank on the side farthest from the trap is strong enough to hold them and enable them to get the bait from that direction.

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I have caught at that spring in the meantime, a coon, one or two skunks and several crows, but never another fox; nor have traps set in a similar manner in nearby springs ever proved successful. Now I am quite positive that no one else has ever attempted to catch foxes in this way hereabouts. No other little green islands of moss in muddy springs have ever proved dangerous to them in this immediate vicinity. How then did all the foxes of this region learn their danger so quickly, without some common method of communicating facts one to another? As I have stated before, it is not the spring itself or the grass-grown banks of mud which they have learned to avoid. I still see their tracks there just as before and they still manage to carry off the bait from time to time. Call it language, telepathy, what you will; in some way, through some form of animal communication, the intelligence has spread among them all that a perfectly harmless-looking little island of green moss is not to be trusted. The

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rapidity with which knowledge of this sort spreads among wild animals varies greatly with the species. Among skunks, woodchucks and minks it appears to be only the individual who suffers that profits by it.

Skunks, for example, are commonly most unsuspecting, and easily taken in any kind of trap, — box trap or dead-fall, or a steel trap set on a stump without the slightest attempt at concealment. One of the most conspicuous characteristics of the skunk is his lack of fear, and after having been pinched pretty severely he seldom shows much fear of the trap that hurt him; yet in most instances it is extremely difficult to catch him again in that particular kind of trap. Try to catch a three-legged skunk in a steel trap; he will spring it night after night and get the bait without endangering his remaining legs. Sometimes he will turn it bottom up and you will repeatedly find it sprung in that position, the steel jaws gripping the dry grass and pine needles beneath it; then again

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he will push his nose or a paw under the flat spread jaws, often burrowing down into the soft earth or snow in which the trap is concealed. Among foxes in settled regions these tricks are so common that they might very reasonably be attributed to instinct or the inherited experience of the species; but where one skunk out of a dozen will repeatedly manage to spring a trap and get the bait, in one way or another on successive nights, the others dwelling in the same burrow seldom appear to learn from him. Skunks winter in burrows in the woods, often six or eight together, and during the latter part of the winter are in the way of coming out in search of food every night when the weather is not too severe. After your steel trap has been sprung until you are tired of resetting it, fix a dead-fall or a common box trap near the burrow and the chances are that one of the first victims will be minus a leg, and it is quite as likely to be a young one of the previous summer as one of the old ones. After

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he is out of the way the others may be taken one after another in steel traps set without any attempt at concealment. A skunk that has once been hurt in a dead-fall will often learn to get the bait by digging into the pen from behind, or if the ground is frozen too hard for that he will crawl up the top log and enter the enclosure from above. In either case he may generally be caught without much difficulty in a steel trap set inside the dead-fall, but he is pretty certain never a second time to attempt to crawl in beneath the log that has once fallen on him, though if the dead-fall is allowed to remain sprung with the top log resting on the bottom one he is very likely to enter the trap by crawling over both logs in search of the bait.

Now if Lloyd Morgan's verdict, that animals do "not perceive the why and think the therefore" is conclusive, how could it be possible that a skunk should do these things? How could he be led by instinct or reflex action to overturn the

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steel trap or laboriously force an entrance into the enclosure of the dead-fall from behind, or above, rather than go into the opening beneath the top log? If it were merely a matter of reflex action, the fear arising from his suffering when caught in the trap being overridden by his compelling hunger, we should naturally expect that in his second attempt to get the bait he would simply approach the steel trap from the other side, just as the skunk that was hurt in the dead-fall will endeavor to dig in from behind. I fail to see how the most vivid imagination can logically explain these actions as due wholly to instinct. It was instinct which led the skunks in the first place to follow up the scent of the bait until the trap gripped them, instinct that drove them to bite the cruel iron jaws, and failing to free themselves in that manner, it was undoubtedly instinct rather than reason that made them bite and gnaw the numbed foot held fast in the trap until they got away. Instinct might even lead the skunk or

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woodchuck to dig down the loose earth from the side of his burrow in order to bury the trap that has been placed in his doorway (a thing which both of these animals will often do), but instinct could never teach the fox or skunk to overturn the steel trap or dig into the rear of the dead-fall or to recognize the fact that a trap is harmless when sprung; nothing short of reasoning the matter out according to their own "dim-eyed understanding" could teach them these things. Now all this I can vouch for as common, every-day facts in the experience of the trapper. I have always been especially interested in the smaller wild animals of the hunting tribe, the "fur animals." I have hunted and trapped them and followed and studied their trails in the snow. I have associated with local trappers and gathered what information I could from them. I know and can state positively from my own experience, proved over and over by an hundred tests, that a steel trap set beneath the dead leaves and then snowed

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under will be avoided by ninety-nine out of every one hundred foxes that pass that way, unless the smell of the iron is disguised by some more powerful scent. Yet the same trap when sprung, with a squirrel or a rabbit or a muskrat held fast in its jaws, will be fearlessly approached and the game pulled from its grip by at least one fox out of every ten. Most foxes (it is impossible of course to say just what proportion of them, perhaps one-half, possibly nine-tenths) are too cautious to risk meddling with a steel trap even when it is sprung, but this very fact, it seems to me, only goes to prove the more conclusively, that their actions are guided by instinct and intelligence working together, impulsive animal instinct guided and controlled, in part at least, by a slowly awakening intelligence which day by day is learning to observe and dimly understand.

Now all these things I have not myself seen in the act, but I have read most of them in Nature's own handwriting in the snow, which is really

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much more convincing than being an eye witness under the ordinary conditions of woodland observation, when, peering through tangled underwood in the uncertain light and dappling shadows, you see, but are very seldom quite certain of what you see, the time being usually so short and the camera of service only under the most favorable circumstances. But the tracks in the snow are there before your eyes, clear as print and as easily read, and there they will remain, to be revisited if you like and deciphered at your leisure, until the next snowfall or a thaw blots them out. There are times, however, when to see the thing in the doing has a convincing power greater, to the observer at least, than any conclusion arrived at by the logical balancing of evidence against evidence; when the turn of a neck, the gleam of a woodland eye looking for an instant's glance straight into your own, leaves you with a sense of "knowing without knowing how you know" that behind the glance that met yours was a thought, and that

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your image reflected in the eye of the wild thing that looked at you would remain as a memory to be puzzled over.

You may, if you like, class a conclusion thus arrived at as in itself a product of instinct rather than reason, but instinct in man as well as in beast is often a good guide in the search for the truth, and may at times point out to the thinker which line of an abstruse problem will lead him to the final truth of the matter, just as the instinct of the fox tells him which line of the confused trail will lead him true to his quarry.

My neighbor, the accuracy of whose observations I can vouch for, was eye witness recently of a little incident in fox life which convinced him, and which would I think go far towards convincing anyone, that foxes are capable of both observation and forethought. He tells me that early one morning a few weeks since he heard his pullets in the orchard clucking nervously together, but without any general outcry of alarm. On

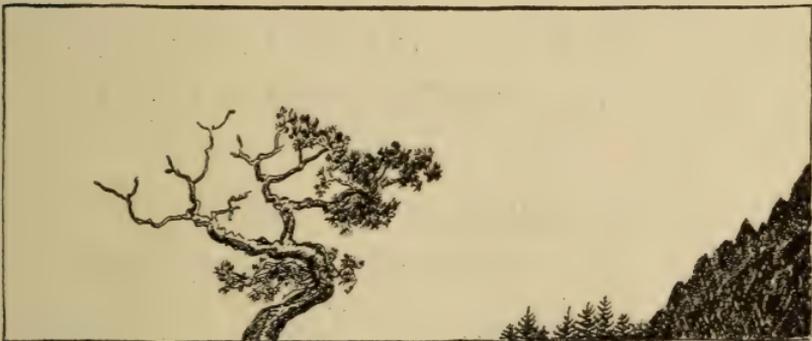
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going to investigate he found the flock staring with outstretched necks at a fox that had separated one of their number from the rest and was driving it cautiously away from the house without making any attempt at seizing it.

Mr. Burroughs, in the *Outlook* for December 14, 1907, says, "When the animals are confronted by conditions made by man, then man could give them valuable hints." Undoubtedly this old fox was in a manner profiting by the hint dropped him on some previous occasion by an irate farmer, who at the clamorous outcry of his terrified flock rushed out, gun in hand, and let fly the stinging shot in his reckless anger. His object we may be certain was not to teach the fox caution, but the result was the same in the end. It taught the fox what neither instinct nor reflex action could have taught him, and much more quickly than the process of evolution or the slow working of natural selection. Both instinct and reflex action were undoubtedly active at the time in urging the

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farmer on and in speeding the terror-stricken fox in his break-neck dash across the pasture, but only on the theory of intelligent reasoning and the putting of two and two together, can we satisfactorily explain the manner in which the fox was ultimately led to control his natural instinct, which would lead him to pounce on the nearest pullet and make off with it at once. An intelligence not so very different from that of the human animal must have been working in his foxy mind, enabling him to "Perceive the why and think the therefore," underlying the actions of man, beast and bird alike.





Chapter IX

The Home Pasture

An Old Orchard

By many tempests bent and torn,
The aged apple trees still stand.
Their twisted branches stained and worn
Beside the crumbling stones and sand.

A little pile with vines o'ergrown
And fringed about with "Bouncing Bets"
Which tell this once as "home" was known —
The humble blossom ne'er forgets!

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'T is holy ground, long since made blest
By birth and death and love and loss,
A place to muse awhile and rest,
And cast aside life's gathered dross.

E. L. C.

MY first observations of wild animal life were made in "the home pasture." There, as a boy, I spent much of my time watching the ways of squirrels, woodchucks and birds. A list of the little wild beasts that I have seen there would include about all that are to be found in this part of New England, though the pasture itself contains but about thirty acres of highland and low. For the past two or three centuries it has provided summer feed for sheep and cattle, and incidentally both summer and winter provender for roving undomestic beasts.

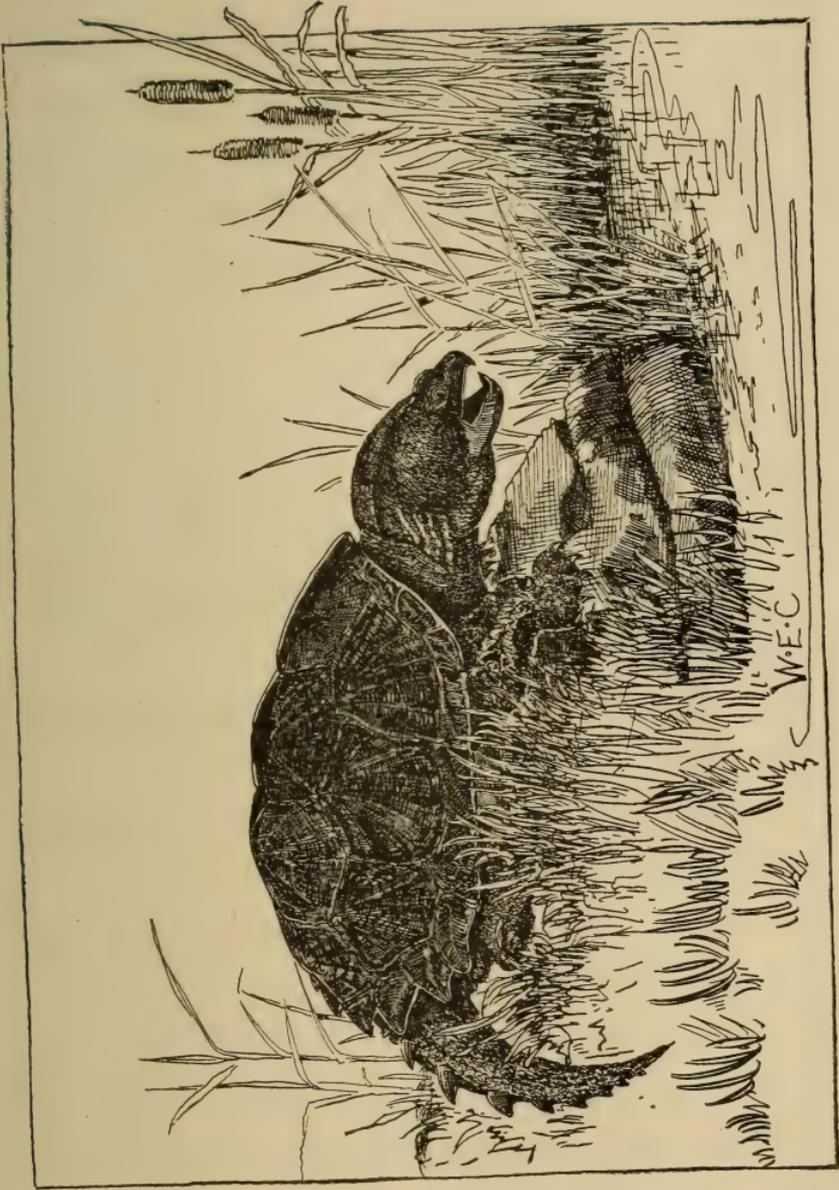
Two little spring brooks just wide enough for a muskrat to swim in comfortably, enter the pasture from the south, and each flowing under its

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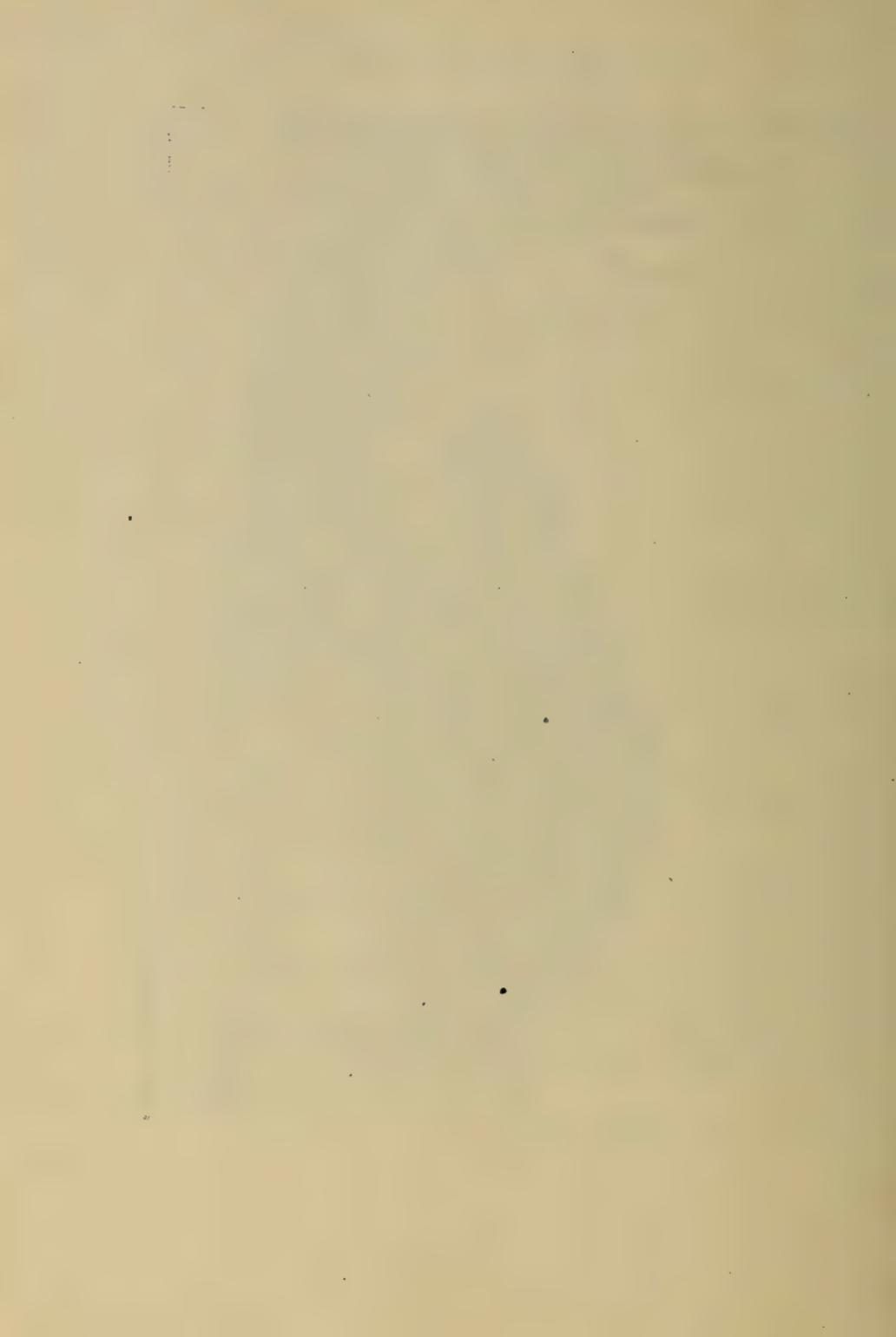
stone bridge, they come together and find a devious way across the flat clay land to join "Old River." There are no less than ten springs that feed these two little brooks, yet the combined waters of them all are easily accommodated, except in time of freshet, in the narrow channel of the main brook, hardly a foot wide or deep.

The inhabitants of these brooks are little blunt-nosed brook-pickerel, newts and green-backed, goggle-eyed frogs with their families of uncared for wriggling tadpoles, and yellow spotted turtles, with now and then a painted turtle or a rough-backed old snapper that has found the way up the narrow channel from Old River.

There are also many small eels in these brooks, and it is odd to think that every one of these little eels was born in the ocean, and has found its way unguided, except by instinct, through ten miles or more of winding tide-water creeks, rippling shallows and quiet mill ponds to the head waters of the little pasture brook.



SNAPPING TURTLE



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Beyond the brooks the land rises in a pine-covered slope where dry red pine needles carpet the ground beneath the old rough-barked bull pines, and beyond that the bare, sheep-trimmed hill top, hemmed in by clustering growths of young white pines. Practically all the young trees in the pasture are white pines, for the ever-nibbling sheep nip off every shoot of oak or maple or elm within their reach; only here or there a lucky sapling protected in its infancy by fallen brushwood, has managed to lift its topmost shoot beyond their reach, and then is safe to stand alone and grow up into the sunlight as Heaven wills it should. There are half a dozen of these little saplings that have sprung up within the last few years, — birch, maple and elm, already higher than a man's head and bidding fair to make fine trees in their own good time, and join the ranks of the old-growth hardwood trees, of which nearly a score now stand in groups or singly with massive columns and wide-spreading tops unlimited for

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sky room. White oak and red oak, red maple and rock maple, elm, ash, hickory, linden and beech are here. The cavities in these old trees furnish homes for many of the native inhabitants of the pasture. Every one of them shelters a family of squirrels, red or gray, or else a colony of wood-mice. In the hollow branch of a rock maple raccoons find lodging. At night they bestir themselves, awake, come down to earth, and follow the well-trodden sheep path down to the stone bridge and then along the wet margin of the brook, frog hunting. The biggest maple of all is a splendid symmetrical tower still, though long past its prime. At the base of the great trunk is a cavity in which I have spent many a rainy hour, and here I frequently leave axes and wedges or hang up the long cross-cut saw in the dry interior as one would in a tool house and almost as safe from the weather. There are perhaps a dozen woodchuck holes here and there about the pasture, some beneath the gnarled and twisted roots of these old

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hardwood trees, others on sunny knolls among the pines. All of these holes are domiciles of long standing; I think that there has not been a new woodchuck hole dug in this pasture for a dozen years at least. A few of these holes have continued to be the homes of woodchucks exclusively for an indefinite number of years, but most of them change owners from season to season, the best holes being seldom unoccupied for many weeks at a time. When one woodchuck is killed or sees fit to change his abode, a skunk, or a whole family of them is pretty certain to move in within a few weeks; then when the supply of nearby mice and insects begins to run short and the skunks wander away in company in search of more favorable hunting grounds, a gray rabbit may move in for a while, until evicted by some wandering weasel or mink, who very likely makes it his abiding place temporarily. Nearly every summer a pair of foxes make their summer home in their den on the sandy hillside and raise a family of

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lusty cubs; on sunny afternoons I often see them racing and playing together until, tired out, they stretch themselves at length on the dry moss to sleep in the sun.

In the low ground, meadow-mice, moles and shrews have their homes and runways, and at times a lone muskrat has his dwelling in the brook beneath the bridge or in the little swampy growth of alders where the two brooks come together. Something less than a century ago, before my grandfather cleared it and let in the sunlight, all this low ground was a wet and tangled alder swamp; then from the black swamp-mud overlying the stiff clay pan, there sprung up wild meadow grasses, blue flowering flags, thistles and white clover. Here cows and sheep now browse and nibble through long summer days, while swallows skim low over the sunlit grasses where once only woodcock and other shade-loving birds lurked in the sunless tangles of the alder swamp. Each summer I clear out the channels of the little brooks

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to give their waters a free course to find their proper level, but still the old spirit of the swamp fights hard year after year to regain possession of its lost domain. Along the brook's margin the alders spring up in clumps and extend their root fibers across the stream to catch and hold fast every floating leaf or twig or bull-rush stem, quickly forming an obstruction that holds back the water, causing it to overflow the low banks. Already the swamp has gained possession of an area of several rods where the alders now grow thick and tall and the dry land is but a collection of little hillocks, around which the waters divide and subdivide and join again with no perceptible channel or current anywhere.

Each of these little brooks has its own particular character and personality. The main brook drains a little swamp on my neighbor's land, and its waters are tinged by the decaying leaves and vegetation. Having traveled farther from its underground source than have the others, it is

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more quickly affected by the changing seasons. In summer it is comparatively warm, and in winter is early frozen over and buried from sight beneath drifting snows, but I can still hear it murmuring contentedly to itself on its hidden way to join Old River. Draining as it does a wider area, it is more subject to overflow in times of rain and thaw than are the others.

Next in size is the brook that flows from a deep spring just beyond the southern boundary line of the pasture. A clear, cold, rippling brook running over a bed of clay and gravel, it still flows on unfrozen throughout the winter, for at its source the water comes bubbling up from deep underground far below the reach of frost, and in its quick course to join the larger stream, the coldest winds of winter do not have a chance to chill it to the freezing point.

At times the deep snows bury it from sight for a few hours, but after the storm has cleared away the little brook quickly melts the snow above it

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and goes sparkling along between high white banks in the thin winter sunshine. The north wind sifting the dry snow across the pasture fashions drifts and snow wreaths along the banks, but every particle of snow that comes in contact with the running water is quickly dissolved and becomes a part of the brook itself.

All winter long the caddis worms and water beetles crawl along the bottom and busy themselves about their own affairs as if there were no such thing as winter in their lives.

In the black peaty soil out in the middle of the pasture there are a number of little springs that come welling up through circular openings in the deep clay beneath; for them there is no chance for a downward flow, as all about them the black soil lies flat and level as a floor. Left to themselves they would of necessity form stagnant ponds and bog holes fringed about and overgrown with water grass and rushes. With a view to preventing this, I dig for them narrow channels

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and water ways to the nearest of the free-flowing brooks, but even with a way thus laid open for them, the sluggish water, heavy with the black sediment of the old swamp, lacks sufficient head-way to keep clear a channel for itself; either the crumbling banks fall in, or wire grass and reeds spring and take root to catch and hold back the sediment and drift as the lazy water tries to crawl between the stems. So from season to season I find it easier to dig for them new channels, than to endeavor to keep the original ones clear, for the roots of the wire grass form a matted bed which only the sharpest spade can cut through, and quickly renew themselves and grow again wherever they have once become established, but by turning the water into another channel, the old bed dries out and the wire grass gives place to the common wild grasses of the low pasture land.

All across the low land and up the slope of the hill the hard-hack springs up anew each season, and though the sheep browse and nibble at it con-

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tinually they fail to keep it in check. Undoubtedly a sufficiently large flock would succeed in keeping it under control, but in that case I am inclined to think there would be little feed of any sort left for the cattle. When it first springs up, the tender leaves and buds of the hard-hack furnish good feed for the sheep and it is hardly to be regarded as a nuisance for the first season or two of its growth, but the slender stems when they die become dry and seasoned into a wood as hard and solid as oak or hickory and about as durable. The next season's growth starting up from the roots, becomes dry and seasoned in its turn, helping to form a clump of wiry stems between which the sheep are unable to thrust their noses, eager to nip off the tender new growth, which thus protected for the season is able to push up into the sunlight, nodding its conical tufts of purple blossoms in the wind, and later scattering its ripened seeds over the snow. The seeds that are not gathered and eaten by the snow birds and winter

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finches during the cold weather, sink into the snow and are buried from sight until a thaw comes and the freed water carries them here and there, until at last they find lodgment among the grass roots, where with the coming of the spring they will sprout and make the beginning of new clumps of hard-hack, which in time spread and thicken and scatter seeds in their turn, until the whole pasture is overgrown and ten acres shall not furnish grass enough for one cow for the summer. In August before the seeds have ripened, I take my bush scythe and spend long days in the pasture mowing down the stubborn clusters of wiry hard-hack stems. When they have become fairly established and make a thick growth occupying the land, it is necessary to rake them together and burn them, after they are cut; for if left on the ground they form a protection for the new growth which starts up from the roots. But once the ground has been well cleared it is easy to mow off the new shoots of the following season

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with an ordinary grass scythe, and if this is followed up for a season or two you will have your cleared area under control so that only here and there a lucky shoot escapes the nibbling sheep.

There is a tradition that a small flock of sheep feeding with the cows will clear a pasture of bushes of all kinds, but hard-hack is not the only exception; ground laurel, bay, sweet fern and ground juniper alike defy them. The only creatures, as far as I know, that will kill the ground juniper, are the stub-nosed, short-tailed meadow-mice, and then only when their numbers have so increased that along with the few junipers which they kill by girdling under the snow in hard winters, a still larger proportion of young fruit trees and hardwood saplings are destroyed in a similar manner.

The bay sends up at first scattered clusters of harmless-looking gray and twisted stems through the thin turf, each stem surmounted by its cluster

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of fragrant leaves. It is persistent and aggressive like the hard-hack, but instead of scattering its seeds on the snow, to be spread abroad and increase its range in that manner, it contents itself with dropping each seed down among the roots of the stalk which bore it, where it will have the protection of the parent cluster. In this way the clump of bay-berry bushes thickens and spreads out in a circular form year after year, keeping all the space between the stems so thickly carpeted with the stiff shining brown leaves of the season before that seeds of taller-growing plants falling by chance among them have slight prospect of taking root and growing up to overshadow them. Grass or other provender for the cattle has no more chance of growing in a clump of bay than it has beneath the pines. For scattering a certain proportion of its seeds abroad, the bay appears to depend upon the agency of the birds, the myrtle warbler in the late autumn months stuffing itself with the wax-coated seeds. The thin covering of

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wax on these bay-berries probably contains sufficient fattening properties to tempt the birds to swallow the seeds entire, as one may often see whole flocks of them doing at the season when all animate Nature is engaged in one way or another in storing up carbon for warmth against the coming winter, whether it is to be passed north or south. The germ of the seed itself is encased within an inner coating, so hard and indigestible that it is undoubtedly often carried safely in the bird's gizzard over miles of forest and open in the course of the migration. Often associated with the bay, the sweet fern grows thick in little openings among the pines, and when the hot sun pours down at noon day, the combined fragrance of sweet fern, bay and pine renders the air delicious almost to the point of intoxication. The sweet fern (which is not a fern at all, but a shrub in the same class as the bay) bears its seeds in the form of small nuts like diminutive chestnuts embedded in a soft burr; just what scheme Nature

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has worked out for the distribution of these seeds I do not know, for to tell the truth I have never detected bird or beast in the act of eating them or carrying them off. I have eaten them myself and found them not unpalatable, and beyond question there is some little wanderer of the woodlands who knows them well and values them enough to gather them for his winter store, and in so doing scatters here and there a seed, where chance favoring, it will sprout and take root; for in some way or another the sweet fern is spread thinly at intervals in widely separated patches, though its seeds have neither wings wherewith to fly, like the seeds of maple and pine and birch, nor hooks to catch in the fur of animals, though it is possible that the burr itself when dry may sometimes steal a ride in this manner. Unlike the hard-hack and bay-berry, the sweet fern is a friend rather than an enemy to the pasture. Years ago, a drover looking over our flock, called my attention to the fact that where the

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sweet fern grows you will find the most luxuriant pasturage.

The ground laurel, sheep laurel or sheep kill grows like the bay in clustering patches and along the fringe of the pine groves. Like a little brother of the mountain laurel, scarcely higher than one's knees, its clustering blossoms are more beautifully and richly tinted than are those of either the mountain or the swamp laurel, but despite its beauty, it is a most unwelcome tenant of the pasture, for in early spring before other forage is fairly started, the shining evergreen leaves of the sheep laurel often tempt the hungry flock turned out to early pasture, and those lambs whose instinct has failed to warn them against the danger are often poisoned by eating the leaves. Old sheep rarely touch it, and it would be interesting to know if young lambs from a flock that has always fed in pastures where the laurel does not grow are in greater danger when exposed to the temptation, than are the lambs of sheep that through bitter

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experience have learned to avoid it. Only a small proportion of those that are poisoned by it actually die from its effects. I suspect that the seeds of this laurel (like those of certain other poisonous plants) sometimes manage to protect themselves from being digested after being carried to a distance, by poisoning the birds that have been tempted to eat them. Yet in winter the ruffed grouse stuffs its crop to the bigness of an orange with the leaves of the laurel and does not appear to suffer any ill effects.

The round blue berries of the ground juniper and red cedar are coated with a sweetish gum to tempt the birds. Wherever they may chance to fall, in the low lands or on the hill top, there springs up a little prickly evergreen perfectly capable of defending itself in the most unprotected situation. The tough crooked stem of the ground juniper sends out thick, low-spreading branches in all directions, the dense bronze-green foliage overshadowing and killing out all the

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grass beneath. In time a single juniper will overspread several rods of ground in its slow, relentless growth. Yet the juniper in its turn is often doomed to be overshadowed and smothered by the pines. When the pine cones tossing in the wind at the summits of the great trees open their scales to release their ripened seeds, many a juniper is doomed. Each pine seed is furnished with a tiny sail, and when the soft winds of Indian summer set the pine boughs sighing together, you may see myriads of them twinkling against the blue like snowflakes in the sun; very slowly they settle earthward, finding lodgment at last by chance in every conceivable situation. When one of them happens to fall among the crowding branches of a ground juniper its case might well seem hopeless, but the tiny seed sinks through the thick foliage to the earth beneath and rests there for the winter. In the spring it takes root and sends up its pale-green shoots towards the light, content with only a few inches growth the first

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season. A number of seasons may elapse before it manages to reach up into the sunlight. Then the straight pine stem pushes up ten or twenty inches in a summer and with each year's new growth spreads out a whorl of slender branches thick with clustering pine needles. The pine now has the sun and the juniper must take the shadow, and soon begins to show thin and sickly foliage, lacking sunlight and air. In a comparatively short time there will be only its bleached skeleton beneath the shadow of the pines, — gnarled and twisted branches bereft of foliage and bark and half buried in the red pine carpet, but persistent still, for the wood of the ground juniper, like that of the cedar, is almost proof against decay.

Where the white pines spring up thickly, crowding each other for room, there is a general struggle among them, each striving to overtop all the others and get more than its share of sunlight, where there cannot possibly be enough for all.

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Only the strongest may survive, and each season a large proportion of them must die. Those that live grow up straight and tall, their living foliage confined to their topmost branches. Each spring slender new shoots start up from the summit of last year's growth, while the lower branches die from lack of sunlight. The space between the stems of the growing pines becomes filled with a network of slender dead branches and upright poles, the brittle skeletons of those that have died in the struggle for existence. In the course of years these crumble away and fall from exposure to the weather, until only the beautiful columns of the timber pines rise clean and tall with their green tops sighing far above the earth, and each season's shedding of pine needles spreading a thicker carpet over all the unsightly litter of fallen branches beneath. Along the borders of the woods and in open spaces, each tree has freedom to grow more as it will; the lower branches spread and thicken and grow outward in all direc-

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tions with full, green foliage close down to the ground.

There is a difference of opinion regarding the nature of the "old-growth, bull pines or old pasture pines," botanists recognizing no distinction between them and other white pines, to all intents and purposes siding with those who claim that any white pine, given room enough to grow in unrestricted and insured immunity from the axe or lightning or other accident of nature, will in its own good time grow to be a "bull pine." Certainly there is no fixed and recognizable difference in the foliage, yet many a pine growing alone by itself with conditions apparently all in its favor, lives to attain a goodly age without acquiring the peculiar character of the bull pine, with its rough, deep-furrowed bark and yellow coarse-grained wood (as unlike common pine wood as oak from hickory) and general air of vigor and never-ending growth. I find that the majority of lumbermen and farmers believe that the bull pine is

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a different tree from the start; that it is the same as the "old-growth" pines, that in the days of the early settlers, predominated in all the pine forests hereabouts, and my own observation leads me more and more to agree with them. Springing up here and there among the other pines, you will find certain individual trees which by the time they have reached the height of a man's head begin to show the characteristics of yellow wood, and dark colored rough bark extending out along the branches. I have watched with interest the growth of a number of these in my own home pasture and studied them at various ages. Even when crowded in upon all sides by other trees, their trunks never exhibit that appearance of smooth green-barked poles so characteristic of the common young-growth white pines. At first these rough-barked little pines appear to make a slower growth than the others, but have a way of making room for themselves later, their flattened branches elbowing the other trees aside.

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Undoubtedly these trees would have had a much better chance of surviving in those earlier days when practically all this region was forest land. It is my belief that they are indeed the lingering survivals of the original "old-growth" pines of which the primeval forest was largely composed, and that the "second growth" pine, which makes up by far the greater part of our present pine woods is merely a variety which has proved capable of adapting itself to the changed condition of things, as we see them to-day everywhere starting up in clearings and taking possession of old pastures and abandoned fields. With increasing years the trunks of the bull pines have a tendency to straighten themselves in their upward growth, but only rarely do we now see the magnificent "mast pines" towering straight as an arrow, two hundred feet and more above the earth.

I know of but two such, one to the north and one to the south of Lake Winnepesaukee. Some-

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times two, or even four or five great branches rise towering together to form the head of the tree, like the old bull pine in my home pasture, which is six feet through the solid wood where the five great branches spring out from the main trunk. Yet it is still a young-looking tree of rapid growth, not having as yet attained the flattened summit of maturity, so characteristic of old-growth pines, when at last the thickening foliage, as if unable to reach higher, masses itself at the very top, dark and heavy against the sky. The second growth white pine, on reaching a height of eighty, or at most one hundred feet, begins to show thin and tapering at the top with dying foliage.

Twenty years ago I could see standing up against the sky two miles to the southwest of my home, the bleached dead trunk of "The Old Look-out Pine." For many a generation of mariners it had stood a landmark for fishermen coming home from the sea, though it was nearly ten

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miles from the salt water. Until within the last fifty years it towered dark and rugged almost two hundred and fifty feet above the hills; then twice in the same summer it was struck by lightning, as if Jove himself had uttered its doom. The great top came crashing down into the surrounding forest and only the bare trunk remained standing, yet still over-topping the other trees by the length of many a goodly log. Now the old trunk itself is down and has lain for many seasons crumbling beneath the shade of the uprising second growth.

The Old Pine

O, stormbeat sentinel of olden time!

How is thy glory fled!

Yet in thine awful ruin still sublime

Thou standest lone and dead.

Thy massive trunk all scarred and seamed with
age.

Thy giant arms on high,

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Tho' rent and splintered by the tempests' rage,
Still pointing to the sky.

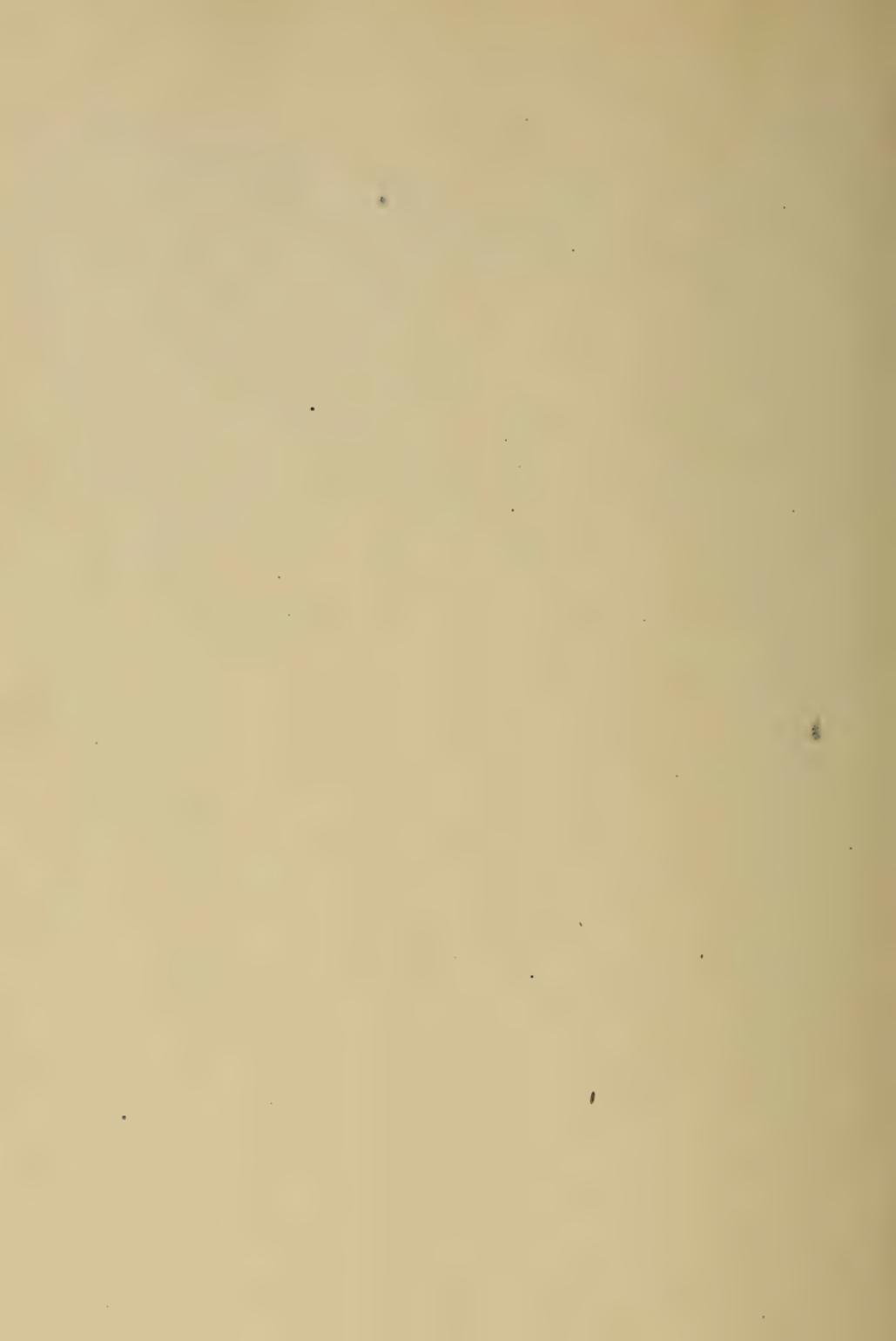
Below, the wreck of all thy former state.

Lies scattered past recall.

Time wrought through centuries to make thee great

And time must work thy fall.

S. E. C.



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