

THE LIVING YEAR

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THE LIVING YEAR

by

Richard Headstrom

illustrated by

Anne Marie Jauss

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It snowed all day. The snowflakes began to fall shortly after daybreak. They were light and airy and the slightest breeze blew them merrily along in whirling clouds.

The storm appeared to be much like those we have in early spring, which last but a short time and then pass away. But as the morning advanced, the flakes continued to come down and before long patches of brown earth could be seen only around the base of a tree or in a sheltered corner of the house and barn. It had become colder, too, and the wind had begun to blow with more intensity. Perhaps a real snowstorm was in the offing.

By mid-afternoon the stone wall that bordered the road had become all but lost from view. The wind now

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howled about the house and blew the flakes into drifts that grew higher and higher. Grotesque shapes took form on the landscape, as trees and shrubs became wreathed in snow. All life outdoors seemed to be suspended, waiting for the storm to run its course. A lone chickadee appeared, however, in a near-by apple tree. He seemed gay and happy, in spite of being buffeted by the wind and snow, and went about his business of finding insects with cheerful industry.

It was still snowing when darkness fell. But during the night the storm passed, for when I awoke the sun was just beginning to rise above the eastern horizon. Through a window all but frosted over, I looked out at the whitened landscape and was dismayed at the amount of snow that had fallen. Only the tall evergreens in the distance might provide fare for those who were fitted to eat at their table; for a while, at least, fruit-laden shrubs and the withered stalks of weed plants would be no festive board. Even the feeding stations, which I had put up around my house, were so completely covered as to be wholly inaccessible; and when some time later I managed to get to them, wandering prints testified to disappointed visitors.

Prints are easy to read if you are acquainted with them, and those which I found in the snow told tales as clearly as if I had been an eye-witness to the behavior of my feathered and furred visitors. The almost undecipherable prints of a sparrow revealed the futile attempts of the little bird to gain entrance to a sheltered feeding station, which, by some malicious quirk of fate, had been entirely filled with snow. The

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lone print of a woodpecker at another station was a telltale sign that the bird had made a brief appearance but, finding nothing to eat, had presumably flown off to more productive feeding grounds.

On the ground, I found the prints of a crow and a robin. I knew the crow would find food somewhere but the robin seemed faced with the bleak prospect of starving to death. Several starlings had also left their calling cards but at the moment they were nowhere to be seen, although I was sure they would return. The tracks of a gray squirrel, who was in the habit of visiting daily a tray I had set out for his own private use, marked an erratic course about the grounds. I could read his tracks as clearly as if I had watched him running out of the woods and hurrying eagerly to the tray containing his breakfast. I could see him, in my mind's eye, grubbing about vainly in the snow that covered it, and, with disappointment in his heart, search the grounds before he reluctantly returned to the woods, where he doubtless hoped to find a nut or two. He did return later in the day, when his visit was not unrewarded, for I had, meanwhile, cleared the feeding stations of snow and replenished them for any hungry callers.

Some people abhor squirrels and consider them a nuisance; personally I cannot help liking these frisky, bright-eyed little creatures and would willingly suffer the loss of a few apples or a few ears of corn rather than forgo the pleasure of their visits. I have always found them responsive to my overtures of friendship and have long since discovered that their companionship provides a few moments' pleasure and comfort in this

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disquieting world. If you have ever had one of these little beggars climb your coat and take a nut or two from your hand, you know what I mean.

The gray squirrel has been indicted for robbing birds' nests, but the number of birds he might destroy in the course of a year are certainly few compared to the number that lose their lives because of other enemies or other causes, such as storms. He has also been charged with stealing the food we set out for the birds in feeding stations and trays, but why shouldn't he, if we fail to take the proper precautions to safeguard it? I have seen food scattered on the ground and placed on window sills and other similar places and then have listened to complaints that the squirrels ate most of it.

The gray squirrel is not a fair-weather friend, and if you treat him right he will always remain near at hand. Even during the winter he is abroad except during a severe storm, when he retires to his home until it passes. He does not hibernate and does not have to lay up large quantities of food to see him through the winter, being confident he can find what he needs by diligent search. But he has the habit of digging holes and hiding a nut here and there for future use. The next time you see a squirrel so engaged stop and watch him for a few moments. After he has dropped a nut into the hole and refilled it with loose soil, observe how he presses the soil firmly in place with his front feet. He is careful, also, not to leave any trace of his excavating, for before he goes off to hide another, he covers the spot with grass and leaves.

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These hidden nuts do not wholly sustain him during the winter and he must scurry about to find other food, such as the nuts which still remain on the trees. Of course, he is not the only claimant for the nuts and must compete with the red squirrels and redheaded woodpeckers. The woodpeckers seem to think the nuts are exclusively theirs and enforce their claim with their sharp bills. The red squirrels, too, resent their larger relative and, strangely enough, will not hesitate to attack him.

I don't know whether the gray squirrel is an out-and-out coward or just pacific by nature; at any rate he will not engage the red squirrel in combat and usually retires upon the latter's appearance. In the face of the competition offered by the red squirrels and woodpeckers, it would seem unlikely that he would get many nuts, but he has solved the problem by rising early and gathering his share before the others arrive.

During the days following the snowstorm, I took several walks through the near-by fields and woods and in the snow I found the tracks of many two-footed and four-footed creatures. I discovered the prints of a deer mouse among some wild rose bushes, and in a clump of sumacs the tracks of a cottontail. I also found the tracks of the ruffed grouse in a wild grape thicket. With some curiosity I followed them across an open field to the edge of the woods, where they disappeared in a profusion of bushes and undergrowth. I had no way of knowing whether the bird was in the immediate vicinity or had vanished, for it was impossible to follow

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the tracks any farther or, for that matter, to locate them in the tangled undergrowth.

Apparently I was closer to the bird than I suspected, for, as I poked about, there was a whirr and buzz almost at my feet, and with hysterical notes of alarm the grouse rose from the ground and flew off into the woods. The noise set a blue jay to screaming in the distance, and I was reminded of Thoreau's description when he wrote of "that unrelenting steel-cold scream of a jay, unmelted, that never flows into song, a sort of wintery trumpet screaming cold, hard, tense, frozen music, like the winter sky itself. . . ." A moment later I saw the bird, a brilliant spectacle against the snow, but only for a moment, as he quickly flew to a near-by tree and was lost among the snow-covered branches.

I shifted my position a few feet and saw him perched on a limb. I need not have moved, for a jay has an insatiable curiosity and would soon have reappeared to learn, if he could, what I was doing there. Call the jay a thieving rascal or whatever name you will, he nevertheless has many engaging qualities and we would miss him were he to vanish forever from our woods and thickets.

Although nature appears at its lowest ebb in January, there is still much of interest to be found in the outdoors. To be sure, it is the time of the year when I prefer to sit snug and complacent beside my warm fireside; yet if I do not occasionally get outdoors and roam through the fields and woods, I have missed something vital and stimulating. Even though there is a sharp bite to the air

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and the snow makes walking difficult, all discomfort is quickly forgotten when I spy among the naked branches of a tree a little mote of gray and white moving about with lively abandon. I see the chickadee at all seasons, but it is in the winter that I really notice and appreciate him. For when all nature seems to have retired before the icy blasts of the north wind, the chickadee is a-wing, gay and happy, enlivening the winter scene with his amusing acrobatics and merry chatter of “chick-a-dee-dee-dee-dee.” He actually seems to enjoy a snowstorm, and in the most bitter weather I find him frolicking from tree to tree, laughing and joking in his own inimitable way. He is the bird of whom Emerson wrote:

This scrap of valor just for play
Fronts the north wind in waistcoat gray,
As if to shame my weak behavior.

I often find a white-breasted nuthatch or two in company with the chickadees, for they hunt together all winter for beetles, caterpillars, and the pupae of insects among the cracks and crevices of trees. Watch these birds cavort about a tree and you may get the impression they like to view the world upside down, since the chickadee often hangs head down from a twig while the nuthatch usually alights head down on the trunk. The latter has feet adapted for clinging to the bark and is able to run so rapidly about on the tree that he is often called the “tree mouse.” He is a most industrious little bird, always on the move, climbing easily up or down the trunk, straight up or straight down, or circling it, according to his mood.

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I have always thought that the chickadees and nuthatches get along well together and I believe they do if they confine their activities to their own hunting grounds. But I am not sure they remain on friendly terms if one of them should invade the other's territory. I have noticed, for example, that whenever a chickadee is feeding on one of my trays and a nuthatch appears the newcomer pecks and harasses the chickadee until the latter flies away and leaves the nuthatch in sole possession.

Many visitors call at my feeding stations during the course of the winter. One year several evening grosbeaks visited a tray I had erected outside my study window. I mention their unexpected visit because it was the only time I had ever seen these birds in my grounds. I had just finished lunch and had entered my study when I happened to glance out the window. At that very moment two evening grosbeaks alighted on the tray and proceeded to feed. The appearance of these birds from the Canadian North was startling, and before I could recover from my surprise they were joined by several others. I approached the window warily and saw on the ground a flock of possibly fifty or more, though an accurate count was impossible for they suddenly took flight and disappeared into the sky. I have always wondered why they did not tarry longer, or return, or why I have never seen these birds in my grounds since, as they are rather quiet and sedentary, especially where food is plentiful, and make friends easily, and when well treated become unusually tame. Every winter I have looked forward to another visit,

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but though I have occasionally seen them in the woods, feeding on the seeds of conifers and various deciduous trees, I have never had the opportunity, so far as I know, of playing host to them again.

As I write I recall another winter's day. It was bitterly cold, with the thermometer hovering about the zero mark. A thick blanket of snow covered the landscape, and the wind whirled the snow in maddening gusts. But in spite of driving flakes and low temperatures, a flock of tree sparrows found good cheer in a near-by field, where brown stalks of weeds and grasses stood in phalanxes against the sky. They flew, with cheerful industry, from one brown patch to another, clinging to the dead stalks as they carefully explored them, picking out the seeds.

Every now and then, one or more, made thrifty by the wintry dearth, would hop around upon the snow, searching for seeds that had been scattered by the wind. It was not alone a serious quest for food; it was also a frolic in which the sparrows' gay notes fell upon the air like the tinkling of sleigh bells.

Weedy and bush-grown fields are also hunting grounds for goldfinches and juncos. Only yesterday a flock of goldfinches descended upon the field back of my house. These birds are at their best in late summer or early September, when they may be seen in flocks, feeding upon their favorite thistle seeds. But even in January, when their bright summer colors have faded to a more somber hue, they are a delight to watch as they meticulously search for seeds on the dried and withered

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stalks which, in the bright sunshine, trace delicate and intricate shadows on the snow.

With the exception of one or two species, such as the snow bunting and Lapland longspur, which habitually seek open fields far from all cover and which in January can be found along the coast, feeding on the seeds of the beach grass, most of our winter birds prefer sheltered places: thickets and bush-grown roadsides, orchards, cedar and alder swamps, and stands of pine and other coniferous trees. In an alder swamp, I have occasionally come upon a flock of redpolls, fearless and usually friendly little birds, but sometimes during the winter season, extremely wild. Crossbills and pine grosbeaks frequent stands of coniferous trees when these trees bear fruit; golden-crowned kinglets and brown creepers apparently prefer woods of oak and maple. In hemlock groves I often find the juncos, merrily chattering away, although these birds, as I have already remarked, may also be found in fields. These birds are truly winter birds for they seem to enjoy the cold and snow and as long as they can find enough to eat are frequently seen throughout the winter months.

As January advances and heavy snows begin, hairy woodpeckers leave the forest and appear in villages and orchards in search of food. The downies, of course, are always near at hand, and the silence of the winter woods is often broken by the tapping of their bills as they search for insects on the trunks and branches of trees.

It is a mystery how the woodpecker can unerringly

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drill into the very spot occupied by an insect beneath the bark or wood. Some believe that the vibrations produced by a grub as it cuts away the wood with its strong jaws are conveyed through the beak and skull of the bird to the brain, but this does not explain how it can locate small grubs that make no audible sound or grubs and ants that lie dormant and motionless in winter. Perhaps the bird can fix the exact location of the burrow by tapping with its beak in somewhat the same manner that a carpenter, by striking the wall of a room with a hammer, can determine the position of a timber hidden under laths and plaster.

The woodpecker is a familiar bird, and yet few of us realize how eminently successful he has been in the struggle for survival. Long ago he discovered that to have his mate lay her eggs in a hollow tree or in a cavity which he excavated would protect her eggs better against the elements and enemies than if they were laid directly on the ground, or in a comparatively frail basket made of twigs, grasses, or other material.

But even earlier in his development, he had become so modified in form and structure that he could assure himself of a constant supply of food in the form of the insects that are to be found at all times of the year in burrows and beneath the bark of trees. His short, stout legs and toes, furnished with strong, sharp claws for clinging to the bark, are well adapted for climbing. Even his tail of stiff feathers, terminating in sharp spines or quills, can be pressed against the bark as a prop or brace to hold him in an upright position while at work. But such equipment would be useless did he not have

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the means of penetrating the wood and dislodging the insects hidden there. His hard chisel-shaped beak, however, forms an exceptionally effective wood-cutting instrument and his hard skull is constructed to absorb the shock of constant hammering. For spearing and conveying the insects to his mouth, he has a highly specialized tongue that is long and cylindrical, with a tip hard as horn and with many strong barbs, and operated by a marvelous mechanism that can extend it far beyond the beak. Thus while most birds, of necessity, must be content with such insects as they can find on the surface of plants, in open crevices, or flying in the air, or with such seeds and berries as are readily available, the woodpecker is able to find food at any time.

Although much animal life is in a state of dormancy or rest, the January scene is not wholly one of inactivity. This is the month when raccoons mate and bear cubs are born in caves or in hollow trees. Mink forage along the frozen banks of brooks and streams, and foxes prowl the silent woods in search of cottontails, mice, and other food.

Few animals have as many enemies as the cottontail. Hawks, owls, crows, skunks, foxes, red squirrels, weasels, mink, and snakes—all animals, indeed, that can catch him—consider him legitimate prey; and then there is your hunter, man and boy, who, with the odds overwhelmingly in his favor, hunts him in the name of what he likes to call sport.

Every year millions of these little animals lose their lives, and if Nature in her omniscience had not made

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him a prolific breeder he would long since have become extinct. Yet in spite of his many enemies, the cottontail lives and flourishes.

Anyone not familiar with this little inhabitant of the brier patch and hedgerow might think him wholly defenseless against his enemies. This is not so, of course, and I doubt very much if any animal that Nature has created is without some means of defense.

Many a cottontail has saved his life by “freezing” or remaining quite motionless, except for the trembling of his whiskers and the almost imperceptible movement of breathing. I have seen a cottontail “freeze” and while no amount of staring would disconcert him, I admit that when I approached too closely he quickly raced away.

The cottontail is by nature a timid animal and at the slightest sound of danger will usually seek safety beneath some cover. He can travel with considerable speed over the ground, his long legs propelling him forward in a series of jumps which sometimes cover a distance of eight feet or more, but he has none of the specializations for speed seen in the jack rabbits and depends for safety more on the protection afforded by the undergrowth than by flight. He often makes use of a deserted burrow of a woodchuck or skunk, especially during the colder months, as a retreat in which to spend the daylight hours or as a place of refuge in time of danger, though sometimes such a retreat fails as a sanctuary if he is pursued by a mink or weasel, for these animals can enter almost any burrow, however small.

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It is questionable if many of these animals succeed in following a cottontail to his burrow, for, as a rule, the cottontail, when pursued, uses the runways leading to the burrow. These runways crisscross and twist and turn so much that he can usually elude any pursuer or at least escape long enough to find a place of safety. Yet, the goshawk will follow these paths on foot in a most unhawklike manner, to drive him out into the open and into the waiting talons of his mate, for goshawks usually hunt in pairs during the winter.

Several years ago I spent a pleasant afternoon with a group of young naturalists, following the wanderings of one of these rabbits. It was an elementary lesson in tracking, but one which I think they enjoyed immensely, as we traced the somewhat erratic course made by the animal the night before on his search for wild rose hips and other hardy berries. As rose hips and berries, however, are not too plentiful in the winter the cottontail also feeds on the twigs and bark of small trees and bushes. He is partial to sumac bark, as I pointed out to my young friends, for as we followed the tracks we came to a clump of sumacs where the little animal had recently been at work.

That same afternoon we found pellets of bone and fur under various trees, evidence that owls had been hunting in the vicinity. Owls are beneficial birds and in the field of usefulness are the complement of hawks, the hawks working by day and the owls by night. They feed on mice and other ground animals which they capture with their feet, the prey, unless it is too large, being

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swallowed entire and the hair and bones disgorged afterwards in the form of pellets.

We also found other things of interest. We encountered some flies, for instance, and I explained to my astonished audience that they were not true flies but species of stone flies that complete their nymphal lives in ice-rimmed streams in winter and appear in the frosty air as adults which mate on the banks. True flies, such as bluebottles and greenbottles, however, may be seen in January. They emerge on warm days from their winter retreats in the corners of attics and crevices of outbuildings, and usually starve as a result of appearing out of season.

Insects are rarely seen during January, but a few species, such as the springtails, are in evidence. These are small, grotesque-looking creatures with a device that permits them to jump or spring when disturbed. They may frequently be seen as dark patches on the quiet waters of still unfrozen ponds.

Insects seem to be rare in winter compared to the countless numbers that we find during the summer months; yet they abound in a less active state if we know where to look for them. They may be found everywhere, passing the winter in all the stages that comprise their life cycles. The light buff oval egg masses of the gypsy moth, for instance, may be found on the trunks of trees, on fences, in the crevices of rocks, on piles of wood, and in similar places. This is the insect that a well meaning amateur entomologist imported from Europe about 1868 with disastrous results. Many millions of dollars

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have been spent in trying to get rid of the gypsy moth, but all that has been accomplished so far is to confine it to New England and a small area in New York and New Jersey.

Another familiar and occasionally troublesome insect that passes the winter in the egg stage is the tent caterpillar, whose protectively varnished egg bands are conspicuous on the twigs of the wild cherry. Some years ago children were urged to destroy the eggs and we were admonished to burn the nests and destroy the caterpillars in the spring. We were even advised to cut down the wild cherry trees if necessary. If we had cut them down as advised, what would have happened? We would simply have forced the females to lay their eggs on apple trees and other related plants with the result that we would have changed the tent caterpillar from an eater of wild cherry leaves to an eater of apple leaves, since experiments have shown that when a leaf-eating species is deprived for several generations of its normal food and reared on the leaves of some other plant it will adopt the new food as “normal.”

Perhaps it is not even advisable to burn the nests or destroy the caterpillars, for it has been found that the egg masses contain parasites that keep in check the tent caterpillars and probably other caterpillars as well. Should we destroy these parasites it is possible we might upset a whole chain of delicate balances.

Equally conspicuous on the twigs of deciduous and evergreen trees are the curious egg sacs of the bagworm. They are made of silk, in which are fastened leaves or

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bits of stick. If we examine these bags we will find many of them empty, others full of soft yellow eggs. These bags are made by the full-grown larvae which pupate within them. When the male moths are ready to emerge, the pupae work their way to the lower end of the bag and halfway out of the opening at the extremity. Then their skins burst and they emerge. The adult females, however, partly emerge from the pupal skins and push their way to the lower end of the bags where they await the approach of the males, since they are entirely destitute of wings and legs. After mating, the females work their way back into the pupal skins where they deposit their eggs, mixed with the hairlike scales from the ends of their bodies. Then they work their shrunken bodies out of the bags, drop to the ground, and perish. The eggs, meanwhile, remain in the pupal skins until they hatch the following spring.

Fallen logs and rotting stumps serve as a winter retreat for many insects, and in the soft wood we may find the nymphs of the wood cockroach, the only outdoor roach that winters in the north. Frayed cattail heads may seem a poor place in which to winter, but the larvae of the cattail moth find them quite serviceable. The half-grown larvae of the viceroy butterfly spend the winter in silken cases, suspended from the twigs of willow and poplar, and the larvae of the pistol-case bearer hibernate in pistol-shaped cases attached to apple twigs. The odd-shaped cases are usually overlooked unless you know where to look for them. If you are in the habit of getting outdoors during the winter you will be more apt to find the large and conspicuous

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silken cocoon of the cecropia moth, the largest of the giant silkworm moths. Children call this cocoon the "cradle-cocoon," because it is shaped like a hammock and is suspended lengthwise beneath a branch or twig. Cleverly made, it consists of two walls of silk, the outer one being thick and paperlike and the inner one thin and firm; between these walls is a matting of loose silk which provides excellent insulation and makes a snug retreat for the wintering pupa.

Like the insects, spiders spend the winter in all stages of life. Adults and young spiders of various ages hide in a variety of shelters and many small spiderlings stay through the cold months sheltered within the egg sacs in which they have already hatched. Only yesterday, while examining the dried up heads of some thistles, I found the pear-shaped egg sac of the orange garden spider fastened to one of the stalks by many ropes of silk, so that the storms of winter might not tear it loose. I opened it and found a large number of spiderlings, which immediately crawled all over my fingers. These spiderlings are cannibalistic, the stronger feeding upon their weaker brothers and sisters so that from a sac which in early winter contains a large number of spiderlings there emerge in the spring a much smaller number of partly grown spiders. Sometimes the egg sac of this spider is infested by ichneumon parasites, which in turn are preyed upon by secondary parasites.

Quite sure that I would also find the egg sac of the banded garden spider, if I searched diligently, I spent several minutes looking about before I discovered one between the dried leaves of a goldenrod. This egg sac

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is quite different in form, being cup-shaped with a flat top. In making it the spider makes the flat side first, then attaches the mass of eggs to it, and finally covers the eggs with the cup-shaped portion.

Later that same afternoon, in turning over a field stone, I found on the underside several brown papery disc-shaped egg sacs of a drassid spider. I also found beneath the stone a carabid beetle, a millipede that immediately disappeared into the soil, and several sow bugs.

Thus January is not the month of desolation which it might appear to be to the unobservant and uninitiated. Even your ardent fisherman need not be without his sport. True, many fresh-water fish rest quietly upon the bottoms or hide among leaves and rocks and take little or no food. But some move about beneath the ice and feed more or less regularly. Some of them even bite freely for baitfish (the pickerel, for instance) and may be taken through the ice.

January is not without beauty, too. Along roadsides the purplish red stems of the red osier dogwood give warmth to the wintry landscape, and in rocky crevices of woodland hillsides, the common polypody, with its rich foliage, softens into beauty the rugged outlines of the barren winter landscape. In the woods the green fronds of the Christmas fern add their touch of winter cheer as the ground pine and ground cedar, in heavy ermine cloaks, brave the wintry elements to color the shadowy woodland floor. While the beech's upright bole casts purple shadows on the snow and its polished brown

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stems describe an exquisite tracery against the sky, other trees silhouetted against a cloudless sky assume a form and character lost to us when robed in leafy splendor. We see them now in a different perspective, not as a means of shade from the hot summer's sun but as living things each with its own individuality, with its own composition, like so many pictures in an art gallery—many, varied, and ever changing.

They have their own name plates, too, if one can read them. There is, for instance, the red maple with its red buds and twigs, the tupelo with its dark blue fruit clusters and the poison sumac, its globular ivory berries hanging from the naked branches in long, slender, drooping pendants mutely reminding one, "Do Not Touch." Even old tree stumps, decrepit and unsightly, gradually crumbling into eternity, attempt in a lavish display of fairy candleabra to pass gracefully from the scene by becoming decked with the branching coral-like cladonia, whose red tips are in rich contrast with their frosted green branches. And if you want to peek into fairyland, examine these lichens with a magnifying glass.

NATURAL EVENTS IN JANUARY

Foxes hunt for rabbits, field mice, and other food.

The silence of the winter woods is broken by the tapping of woodpeckers searching for insects on the trunks and branches of trees.

The light buff oval egg masses of the gypsy moth may be

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found on the trunks of trees, on fences, in the crevices of rocks, on piles of wood, and in similar places.

The purplish red stems of the red osier dogwood add a touch of warmth to the wintry landscape.

Crossbills, pine grosbeaks, and redpolls feed on the cones of evergreens.

Various stone flies complete their nymphal lives in ice-rimmed streams, appearing in the wintry air as adults and mating on the banks.

Pickerel bite freely for baitfish and may be caught through the ice.

Cottontails browse on buds and tender twigs. The bark of the sumac is particularly favored.

Flocks of juncos animate hemlock groves.

The protectively varnished egg bands of the tent caterpillar are conspicuous on the twigs of wild cherries.

The globular ivory berries of the poison sumac hang from the naked branches in long, slender, drooping clusters.

Tree sparrows and goldfinches may be seen in fields and bushy growth, feeding on weed seeds.

Springtails mass in dark patches on the quiet waters of still unfrozen ponds.

Except on extremely cold days, red and gray squirrels enliven the woodland scene.

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The green fronds of the Christmas fern brighten the snow-covered woods with their winter cheer.

Heavy snows begin, and as the snow cover deepens winter birds flock in numbers to feeding stations.

Mink forage along the frozen banks of brooks and streams.

Bear cubs, remarkable for their diminutive size, are born.

Pellets of bone and fur, under trees, indicate that owls have been hunting in the vicinity.

Raccoons mate.

The curious egg sacs of the bagworm hang starkly from the twigs of trees.

Larvae of the cattail moth winter in frayed cattail heads.

The dark blue fruit of the tupelo, in clusters of two or three, are conspicuous on the naked branches.

Ground pine and ground cedar, in heavy ermine cloaks, brave the wintry elements to give color to the shadowy woodland floor.

In the soft wood of rotting stumps may be found nymphs of the wood cockroach, the only outdoor roach that can winter in the north.

In a lavish display of fairy candelabra, old tree stumps are decked with the branching corallike cladonia, whose red tips are in rich contrast with their frosted green branches.

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Hairy woodpeckers leave the forest and appear in villages and orchards in search of food.

Evening grosbeaks may make a surprise visit.

Larvae of the pistol-case bearer hibernate in pistol-shaped cases attached to apple twigs.

The white or brown papery disc-shaped egg sacs of the drassid spider may be found attached to the under sides of field stones in dry fields and along roadsides.

Lapland longspurs may sometimes be seen in company with snow buntings, feeding on the seeds of the beach grass.

The beech's upright gray bole casts purple shadows on the snow and its polished brown stems describe an exquisite tracery against the sky.

Pupae of the cecropia moth may be found within large silken cocoons attached lengthwise to twigs of various trees.

Half-grown larvae of the viceroy butterfly spend the winter in silken cases, suspended from the twigs of willow and poplar.

On warm days bluebottle and greenbottle flies emerge from their retreats in the corners of attics and the crevices of out-buildings—and usually starve as a result of appearing out of season.

In rocky crevices of woodland hillsides, the common polypody, with its rich foliage, softens into beauty the rugged outlines of the barren landscape.

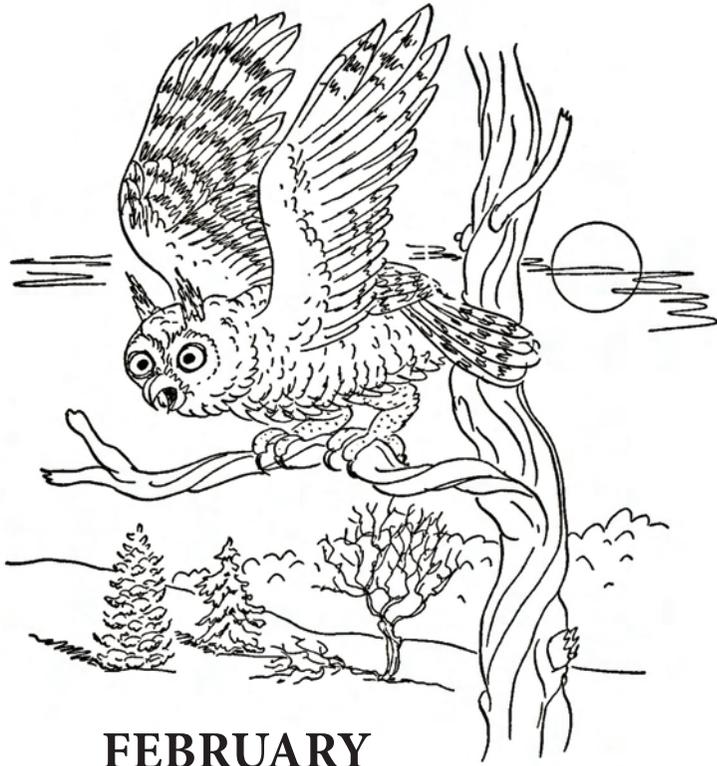
THE LIVING YEAR

Chickadees and nuthatches hunt for insects in the cracks and crevices of trees.

The red buds and twigs of the red maple are seen against a background of snow.

Spiderlings of the orange garden spider spend the winter within pear-shaped egg sacs, suspended from the withered stalks of thistles and other herbs.

Carabid beetles, millipedes, and sow bugs may be found under stones and logs.



FEBRUARY

The ground is covered with a white shroud and trees and shrubs are hung with icy pendants that glisten brilliantly in the sunshine. February is here; and, as winter advances, my thoughts turn to the birds and mammals still abroad in field and forest, battling chill winds, swirling snows, and freezing temperatures, and gambling their lives against a diminishing food supply.

As I observe these brave and hardy creatures I am amazed at their physical vigor. The chickadees think nothing of being out in a driving snowstorm. The

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kinglets feed unconcernedly, though the north wind howls and pine branches groan beneath heavy burdens. The shrews hunt even during sub-zero weather, when biting winds sting our faces and crusted snow crackles underfoot.

I am so accustomed to seeing the chickadees that I take their presence for granted. But whenever I see the kinglets, I never cease to wonder how these dainty birds, seemingly so delicate and fragile, manage to survive. Even more surprising is how the shrews get through the winter. I should expect such diminutive animals to seek refuge when the first frosts whiten the ground in the autumn and remain hidden until the rays of the spring sun begin to warm the earth. Instead they are as active as in summer, hunting at all hours and in all sorts of weather. I frequently find their elfinlike tracks in the snow, but I do not often see these mouselike animals because of their size, quick movements, and habit of working under cover. Occasionally, I do come upon one of them poking his delicate snout into a crevice in the bark of a tree trunk in search of insects, or ferreting about in the leaf mold or among decayed pieces of wood.

How these little animals hold their own against adverse climatic conditions and a host of natural enemies is beyond understanding. Yet the shrews are widely distributed and are abundant in many places. I suspect one reason for their successful fight for survival is that they seem able to adapt themselves wherever there is shelter and food, apparently as much at home in

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the dark, moss-carpeted spruce forests of the north as in our own deciduous woods, grassy fields, and marshes.

We often mistake shrews for mice or moles. They resemble both, but they may easily be distinguished from the mice by their pointed noses, small eyes, and finer fur, and from the moles by their smaller size and mouselike feet. Perhaps if shrews were seen more often we might recognize them, but one seldom gets more than a glimpse of them as they rustle among fallen leaves, or dart from one fallen log to another.

Their food consists of insects, snails, small annelids, and other food that they can capture. It doesn't seem possible they can find enough of such fare during the winter to subsist, but apparently there are sufficient dormant insects to supply their needs. Plants are eaten sparingly, but if their preferred diet is not available they can live on a plant menu for many days. Because of a very rapid rate of digestion, they require an enormous amount of food and literally eat all the time. If deprived of food for several hours, they starve to death as I discovered when I tried to keep them as pets and found that they require almost constant attendance.

Despite their small size—they measure barely four inches in length and weigh only a few grams—they are highly predatory, courageous, and pugnacious little animals and will not hesitate to attack creatures several times their own weight. Except for repellent scent glands, which do not seem too effective, they have no defense against their natural enemies. Owls, hawks, shrikes, herons, and mammals, such as foxes

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and weasels, prey upon them with impunity. That many shrews fall victim every winter may be seen by the large number of their bones in owl pellets alone.

Thinking of the shrews, I cannot help comparing these tiny yet hardy animals, who must hunt constantly for food, with the clumsy, lumbering porcupines, who find plenty to eat in the bark and leaves of evergreen trees and need bestir themselves so slightly for their meals. Deer, too, have food ready at hand in twigs and the foliage of evergreens, but heavy snows and drifts often make travel so difficult that many perish from exhaustion and starvation. And other animals find the season one of hardship. As the snow cover deepens and food becomes scarce or unavailable, gray squirrels make use of tunnels to hunt for buried nuts, and weasels, mink, and others, made bold by hunger, roam far and wide in search of prey.

This is one time of the year when the weasel is not likely to kill for the mere pleasure of killing. I know of no animal who has a greater lust for blood. Here, indeed, is your true predator. Bold and inquisitive, with a high degree of cunning, and utterly without fear, he is quick, sure-footed, keen of scent, and relentless in pursuit. It is probably true, as has been said, that he is the most perfectly organized machine for killing ever developed among the mammals. His teeth are designed to seize prey and his jaws are provided with powerful muscles. His ears are attuned to catch the faintest squeak of a mouse and his extraordinary wiry, lithe, and muscular body permits him to follow his prey to the deepest recesses of their retreats. Add to all this a sharp nose

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and a low forehead in which are set a pair of small, penetrating eyes with a cunning gleam and without the faintest suspicion of mercy, and you have an animal which might be described with one word—rapacious.

And yet, paradoxically, the weasel, of all our wild animals, is, perhaps, of the greatest value to the farmer. At times he inflicts considerable damage on poultry, but on the credit side of the ledger he is one of the most effective checks on the hordes of meadow mice and other rodents which so often destroy forage crops, orchards, vineyards, and garden produce. Providence seems to have assigned him the mission of keeping these pests under control, for whenever a weasel appears mice and other rodents rapidly diminish in number.

I do not doubt his change of coat from brown to white helps him to capture his prey, but I rather suspect his change of dress is of more value as a means of protection for, surprisingly, this fierce marauder is subject, in his turn, to the law of fang and claw and often falls victim to wolves, foxes, and birds of prey, although how such animals succeed in catching him is something of a mystery.

The mink, unlike the weasel, though a member of the same tribe, does not bother to change his coat but remains brown throughout the entire year. I have often found his tracks along a snow-covered bank and have frequently seen the animal dodging in and out of the ice-free water, or swimming beneath the surface in pursuit of prey, for the mink is an expert swimmer and is as much at home in water as on land.

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At this time of the year, when still waters are frozen, the mink will haunt open rapids and warm springs in the woods. Frequently he will run beneath the ice of a closed brook, if he can find an opening in it and if the water in falling away has left a narrow strip of unfrozen turf beneath ice and snow, for it is in such places that meadow mice spend the winter, their burrows opening out from the banks in the same manner as those of muskrats. But water is not essential to his happiness, and if streams freeze he will enter the woods and hunt rabbits and such other animals that he can capture.

I wonder what would happen to preying animals, such as the weasel and mink, if the meadow mice and other rodents were suddenly to diminish in numbers; certainly they would find it difficult to exist. But the meadow mouse, for one, is a prolific breeder and one large litter follows another in rapid succession, until it seems as if the countryside would be overrun with them. But their enemies are many, and from air, land, and water a constant menace threatens, ready to snuff out their lives in a savage rush of wings, feet, or fins.

Meadow mice are active throughout the winter, scurrying about in their runways beneath the snow on trips of exploration for the blanched shoots of grasses, seeds, and hardy rootstocks. Many doorways lead to the upper air and at night the mice scamper back and forth across the snow. If we could read their tracery of footprints on the white surface, as they lead from tree to tree and to stump and rock, what tales they might tell, tales of adventure and daring. For what other reason would they leave the comparative safety

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of their tunnels to venture forth where danger lurks from fox and owl?

I have been curious, too, to know why the deer mouse stores up vast quantities of seeds, nuts, and other edibles, and then, instead of staying home like the chipmunk, runs about when cold weather comes. Even on the most bitter nights of winter, when countless stars form a canopy over the tree tops, biting winds hiss through stiff branches, and snow is piled high over tangled brush, the deer mouse is abroad, skipping along the snow from tree to tree and shrub to shrub.

Doubtless it is the call of high adventure that lures him forth. To maintain a nightly revel, however, he must draw heavily on his stored-up food supply and, as winter begins to wane, his supplies are often nearly exhausted. So, too, are the seeds and berries which remain on shrub and tree, for others besides himself have dined on them. Is it any wonder, then, that he is thin and shabby when spring comes, no longer the round-bodied, handsome creature of autumn?

Like the mammals, our wintering birds find it necessary to search assiduously for enough food to keep them alive, and for this reason they often eat berries and other fruits which they normally ignore. The scarlet pennants of the barberry, made sour presumably by a provident nature so that summer residents and fall migrants leave them untouched, now become life-saving food. And the bitter, velvety, crimson plumes of the sumac, showing like flaming torches against the sky, are eaten with avidity by such birds as the chickadees

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and blue jays. But even such food sometimes becomes inaccessible when winter goes on the rampage; only the crossbills seem unaffected by heavy snows, for the evergreen cones on which they feed are usually above even the deepest snow cover. Actually they don't feed on the cones but on the seeds, which they scoop out with their tongues, after prying the scales apart with their curiously crossed bills.

At this moment of writing, a brown creeper is busily exploring the trunk of a towering elm outside my window. This little feathered brownie reminds me of the nuthatch, for he has the same habit of spiraling around the trunk, though he starts at the bottom and works his way upward. He spends most of his time searching for insects, and while his may seem to us an unexciting existence, he appears to be happy and contented and will occasionally burst into a long and ecstatic song in March and April.

I think most of us are unaware of the many plants that remain green throughout the year. The snowberry, bearberry, checkerberry, partridgeberry, mountain laurel, sheep laurel, pipsissewa, and inkberry are only a few that add a touch of summer to the winter scene. There are the pines, spruces, and hemlocks, too, but somehow they escape our notice, and what a pity, for the spruces and hemlocks, their white robes glistening beneath dancing sunbeams, are never more effective than at this season. The pitch pine, too, at all times a sturdy tree, never seems so rugged as when its spreading, scraggly branches groan beneath a burden of snow.

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There are many other features of the February landscape that remain unnoticed by most of us. Stroll along a snow-covered woodland path with an observing eye and you will find much to intrigue you. Note the bracket fungi, in greens and reds and browns, encircling old stumps, or stiff and white, standing out from crumbling or fallen moss-grown boles. Note the naked trees, silhouetted against the winter sky, and the grotesque shadows they cast on the whitened ground. Entirely disrobed, they reveal in complete nakedness their separate individualities. Compare the angle at which their branches grow out from the main trunk, the degree and direction at which these branches curve, the appearance of the bark, the arrangement of the buds, and you will find points of dissimilarity which will enable you to recognize them, much as you distinguish your friends by the color of their hair, the tint of their eyes, the curve of their lips, the tilt of their noses. You will find it, if I am not mistaken, a charming and fascinating study.

You will also discover, as you become acquainted with our silent companions of the woods and roadsides, that they are often disfigured by swellings on the twigs and branches or by other peculiar deformations. Sometimes these outgrowths or excrescences, which are known as galls, are not particularly noticeable, but at other times they flag attention. Irregular bud deformations of the black birch may escape the eye, but the dried remains of the flower-gall so disfigure a white ash that they are rarely passed unnoticed. Occasionally a hackberry is found with so many of the so-called “witches-brooms”

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that the galls might almost serve to identify the tree, and frequently an oak will be adorned with so many oak apples that it looks like a leafless apple tree with last year's fruit still hanging from the branches.

Frequently the naked twigs of many choke cherries appear from a distance to have been charred by fire, but a closer examination will reveal the branches covered with black, compact, rounded, swollen masses. These masses are caused by a plant parasite, the black knot. To some extent the presence of this parasite might be used to distinguish the choke cherry from the wild black and red cherries, for though the parasite occurs on all three, it is more abundant on the choke cherry.

On the nude branches of many trees you may find the winter retreats of various insects. The trim, leaf-wrapped cocoons of the promethea moth look very much like dead leaves and hang straight down from the branches of such trees as wild cherry and sassafras. Many years ago I found hundreds of these cocoons in a clump of sassafras. I took a number of them home and kept them outdoors in an insect cage. One day, after the warm weather had set in, the moths began to emerge and soon the cage was filled with them. I let most of them escape but kept a few for breeding. Within a day or two the females deposited whitish, brown-stained eggs on some leaves which I had provided, and after the eggs had hatched I reared the caterpillars until they spun their cocoons, thus completing the life cycle. I gave the cocoons to some young entomologists and I am glad to report they kept them safely until the following spring.

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If you live in eastern New England you may find the nests of the brown-tail moth on the twigs of such trees as maple, elm, oak, apple, pear, and wild cherry. The nests are small, firm-webbed retreats of silk and leaves, and are usually placed at the ends of the twigs. Like the gypsy moth, the brown-tail came from Europe and made its first appearance near Boston, but unlike the gypsy moth its manner of arrival is unknown. The moths are white with yellowish-brown hairs at the tip of the abdomen. The caterpillars spend the winter within their nests, when a third or half grown, and when fully matured have tufts of white and brown hairs. These hairs, especially the brown ones, carry an irritating poison and if the human skin is exposed to them cause the "brown-tail rash."

Many other insects spend the winter in silken nests. One that comes to mind is the Baltimore checkerspot, a butterfly found in swamps and wet meadows during June and July. Like the tent caterpillars, the larvae have the habit of working together for the benefit of all. As soon as they hatch, they spin a silken tent for their home. They enlarge and repair it as necessary, and though they often wander from it they generally return to feed and molt. After the third molt, the caterpillars stop feeding and become more or less dormant. This fast may begin as early as the middle of August, and the caterpillars cannot be induced to eat until the return of spring. They will not even feed in the southern part of their range, where they would have plenty of time to mature as butterflies and to produce another generation of caterpillars that could pass the winter. Evidently the

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instinct to bridge the winter as they do has become so firmly fixed after countless generations that it cannot be changed.

Although the caterpillars feed on various members of the figwort family, they seem to prefer the turtle-head. Look for the silken tents on the withered stalks and if you fail to find them, which is not unlikely as the species is not common and very local, look, instead, for pitcher plants, which are to be found in the same sort of environment, and you will discover many other interesting insects hibernating within the leaves.

February, in many ways, is a month of contrasts. Normally a month of cold and snow, there are days when spring is in the air—days when the mercury climbs high and howling winds give way to gentle zephyrs; when a benign sun warms a frozen earth and melting snows cascade along rock-ribbed gullies; when butterflies flit about in a sunny glade. Butterflies are certainly not a part of winter; we think of them as part of the summer scene, flitting about lazily in the sunshine,

Seeing only what is fair,
Sipping only what is sweet. . . .

Yet I have often found mourning cloaks in February flying about in the snow-clad woods. These butterflies hibernate as adults in a convenient shelter and often emerge on mild winter days and fly about from tree to tree. They remain abroad only during the warmer parts of the day, and as the temperature begins to drop they disappear one by one, returning to their winter quarters until the sun's rays again call them forth.

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So far as I know there is only a single brood of this species in the northern states. The individuals seen in February are the ones that emerged from their chrysalids in July. They are also the same ones seen in autumn flying about in the sunshine before seeking their winter quarters, where they remain, except for brief flights during the winter, until May, when they lay their eggs. Thus they live for ten months as adults, an extraordinarily long time for a butterfly.

The mourning cloaks are not the only insects to be seen at this time. On warm days gnats fly about, sometimes in small swarms and at other times by the thousands; snow flies emerge and walk over the snow; and diving beetles rise to the surface of ponds and streams. The diving beetles spend the winter on the bottoms of ponds or under banks, where they remain in a dormant or semidormant state, except when they are attracted to the surface by a rise of temperature. I always delight in watching these insects move through the water, for they swim and dive expertly. They are well adapted for an aquatic existence, having an oval body, which lessens water resistance, and long, flattened hind legs, that serve admirably as propelling organs.

Diving beetles are usually black or brownish marked with yellow. They have slender antennae in contrast to the club-shaped ones of the water-scavenger beetles with which they might be confused. Some of them are an inch and a half long while others are very minute. But big or little, and in either case quite innocent-looking, they are fierce and voracious and a terror to the other small inhabitants of pond and stream. They frequently

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hang head-downward from the surface of quiet waters, and if you observe them carefully you will see that just before they dive they lift their wing-covers and take in a supply of air in the space beneath them, which they use to breathe while submerged. I have frequently taken these beetles home, as they make interesting aquarium animals if well supplied with food, and, though I have kept them alive for several months, I never succeeded in keeping them as long as Harris, who kept one "three years and a half in perfect health in a glass vessel filled with water, supported by morsels of raw meat."

The appearance of the diving beetles may lead one to suspect they are the first manifestation of renewed activity in our ponds and streams. This is not so, for many animals living in our fresh waters are active throughout the winter season. I distinctly recall a February afternoon when I was poking about in a shallow but swiftly flowing brook and a two-lined salamander suddenly slithered from beneath a flat stone. Since then I have found many of these salamanders, for they are among the ever-present winter inhabitants of our swift shallows.

Nymphs of various May flies are also abundant in swift rivulets and spring-fed brooks, where they feed on the green algae, which they scrape from the rocks, or on the soft silt, which they sift and swallow. And brook leeches, often with young attached, may frequently be found clinging to the undersides of rocks. These leeches do not suck blood but feed entirely on aquatic insects. They are oval, flat, and olive green in color, with two lines of black dots near the center of the dorsal side. In

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the colder parts of spring-fed brooks, scuds swim jerkily about, searching for food and in turn being eaten by brook trout. These little animals—distant cousins of the shrimps, crabs, and lobsters—are the acrobats of the water world, for they can climb, jump, swim, or glide with equal ease. They are shaped like fleas, with arched backs and narrow bodies, and have appendages for climbing, swimming, and jumping. Apparently Nature was in an expansive mood when she created them.

The larva of the dobson fly, commonly known as the hellgrammite, is another active inhabitant of rapid streams. I use the word “active” advisedly, for if the water grows cold the larva will become sluggish and feed indifferently. As the temperature rises, it springs into renewed activity, probably to the dismay of other aquatic insects, since it is a fierce predator, a devouring enemy of May flies, stone flies, and caddis flies.

Averse to light, it hides by day in a hole or in a crevice beneath rocks, and is seldom seen unless a stone is suddenly pulled out. I have found it occasionally but more by accident than intent. It is a queer-looking creature and so unlike the adult fly that the two hardly seem related. But there are countless similar instances in the animal world of young being unlike their parents, so it is not altogether surprising.

Although the earthworms at this time of the year are deep in the ground, their relatives, the bristleworms, are active by the millions in ponds and streams, where they overturn the ooze of the bottoms as effectively as the earthworms overturn the topsoil of the land.

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And in small pools, where other animals are very scarce, water isopods crawl sluggishly over the muddy bottoms, feeding on dead leaves and other decaying vegetation. These little crustaceans, which look like miniature armadillos when viewed from above, seem to think that February is as good a month as any in which to mate, so females may be found carrying eggs in brood pouches under their legs. They must believe in frequent matings because from February until summer they have a new brood of young every five or six weeks, and the females are always carrying a brood pouch full of eggs or of developing young ones.

Other animals also feel the urge to breed. Yellow perch begin to migrate to their spawning places in shallows along pond and lake shores; skunks and gray squirrels seek their mates; and the great horned owl may be heard courting with loud hoots.

I know of nothing more disturbing than to be suddenly startled by the loud “who, hoo-hoo-hoo, who-who” of this owl, as his cry speeds through the cold, frosty air, breaking the silence of a winter’s night with unexpected shrillness. It has an eerie quality, and a suggestion of nameless terror. I wonder if the creatures of the woods experience the same sensation of fear which we sustain when suddenly confronted with danger as this fierce predator announces his presence, for no living thing above ground, except the larger mammals and man, escapes his talons. Even the skunk is not exempt, for this implacable enemy, flitting through the woods silently as a shadow, cares

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little for the disagreeable consequences of attacking such a pungent animal.

I do not often see the great horned owl but I frequently hear him on winter nights when the lack of food sometimes drives him to visit an isolated farmyard. Never a really silent bird, he is more vocal in January and February, particularly during his courtship. His mating antics are most curious and something to see. He nods his head, flaps his wings, and bows, using, meanwhile, the choicest words of the owl language in his most persuasive manner. If mating occurs early enough in February, the eggs may be laid before the end of the month. Whatever your opinion of the bird, you cannot accuse it of neglecting its young, for the mother sits closely on her eggs during the cold days and long nights and it is not uncommon to find her stolidly incubating under a thick blanket of snow.

As February grows old, melting snows gradually reveal patches of spreading strawberry leaves in fields and meadows and mats of lovely gray reindeer lichen in woods and thickets. When I first saw this lichen it was a summer's day and I wondered how the reindeer could find its stiff, coral-like growth either palatable or edible. But when months later I found it again newly uncovered by snow, soft as a sponge, and exceedingly lovely in its freshness, I saw how easily the reindeer, lemmings, and other cold-climate animals could subsist on it and why the Scandinavians once made bread with it.

The strawberry plants, of interest in the spring when

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their white flowers cover the ground and even more attractive later in summer because of their red, pulpy berries whose delicate flavor is unrivaled by cultivated varieties, attract us now for the dainty lace bugs which spend the winter beneath the leaves. I suggest you find one of these tiny insects and examine it under a lens. You will be surprised and henceforth you may realize that small things are not always so insignificant as they seem.

Spring is still a month away, yet spring is in the air and signs of it are everywhere. Snow buntings in swirling flocks have begun to move northward along ocean beaches, and the first woodcocks have appeared, though the main flight will not appear until later. The first geese are returning on their spring trip northward and black ducks are winging their way to their breeding grounds. Starlings are beginning to whistle and cave bats, awakening from their winter's sleep, are making short flights in their quarters. But spring will not have arrived until I catch my hot glimpse of blue among the naked branches of a roadside maple. For only with the arrival of the bluebird will spring have come, though my calendar tells me otherwise.

NATURAL EVENTS IN FEBRUARY

The trim leaf-wrapped cocoons of the promethea moth are conspicuous on the naked branches of the wild cherry and sassafras.

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Weasels, shrews, and other mammals, not in hibernation, search for food.

Snow buntings, moving northward, feed along the ocean beaches in swirling flocks.

The red berries of the barberry are eagerly sought by wintering soft-billed birds.

Nymphs of various May flies are abundant in swift rivulets and spring-fed brooks.

Gray squirrels use tunnels under the snow when hunting for buried nuts.

Yellow perch begin to migrate to their spawning places in the shallows along pond and lake shore.

During mid-winter thaws, the mourning cloak butterfly may be seen flitting among the trees in sunny glades.

The great horned owl is heard courting with loud hoots. The eggs may be laid before the end of the month.

Naked trees, silhouetted against the winter sky, cast their tracery on the snow-covered ground.

On mild days, snow flies may be found walking over the snow.

Deer nibble twigs and the foliage of evergreens.

Starlings begin to whistle.

The larvae of the dobson fly, known as hellgrammites, may be found in holes and crevices beneath the rocks of swift-flowing streams.

Skunks mate.

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Northward flights of black ducks begin.

Water isopods begin to breed. Females have eggs in pouches under their legs.

Cave bats make short flights in their winter quarters.

Two-lined salamanders are active in swift shallows.

Various insects hibernate in the leaves of pitcher plants.

Brook leeches may be found clinging to the undersides of rocks in swift riffles.

Shelf brackets, in greens, reds, and browns, encircle old stumps or, stiff and white, stand out from crumbling or fallen moss-grown boles.

The larvae of the Baltimore checkerspot butterfly winter in silken tents on the withered stalks of members of the figwort family.

Scuds swim in spring-fed streams.

The pitch pine, despite its scraggly appearance, reveals a picturesque ruggedness beneath its burden of snow.

Dainty lace bugs find refuge from the winter storms under spreading strawberry leaves.

The first woodcocks appear; these are occasional individuals, the main flight still a month away.

Bristleworms are active in ponds and streams.

Spruces and hemlocks, their white robes glistening in the February sunshine, provide a decorative background for winter's stage.

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On sunny days, diving beetles frequently rise to the surface of ponds and streams.

Brown creepers on the trunks of trees industriously search for insects.

Gray squirrels mate.

In patches free from snow, the reindeer lichen carpets the forest floor with a gray corallike growth.

On warm days gnats fly forth in small swarms or by thousands.

Half grown caterpillars of the brown-tail moth pass the winter in small, firm-webbed nests of silk and leaves on the tips of twigs.

The dried remains of the flower-gall persist on the naked branches of the white ash.

The black knot stands out on the naked branches of the choke cherry.

The scarcity of other food drives chickadees, blue jays, and other wintering birds to feed on sumac berries.

The first hardy flocks of geese return on their spring trip northward.

Kinglets feed unconcernedly, though the north wind howls and pine branches groan beneath heavy burdens.

Porcupines feed on the bark and leaves of evergreen trees.

Meadow mice scurry about their runways beneath the snow on trips of exploration.

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Crossbills feed on the seeds of the pine, which they pry loose with their curiously crossed bills.

Evergreen plants add a touch of summer to the winter scene.

Oak apples are conspicuous on the leafless branches of oak trees.