

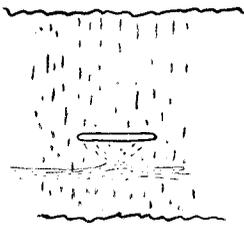
VII

MARCH, 1855

(ÆT. 37)

March 1. 10 A. M. — To Derby's Bridge and return by Sam Barrett's, to see ice cakes and meadow crust.

The last day for skating. It is a very pleasant and warm day, the finest yet, with considerable coolness in the air, however, — winter still. The air is beautifully clear, and through [it] I love to trace at a distance the roofs and outlines of sober-colored farmhouses amid the woods. We go listening for bluebirds, but only hear crows and chickadees. A fine seething air over the fair russet fields. The dusty banks of snow by the railroad reflect a wonderfully dazzling white from their pure crannies, being melted into an uneven, sharp, wavy surface. This more dazzling white must be due to the higher sun. I see some thick cakes of ice where an ice-car has broken up. In one I detect a large bubble four inches in diameter about a foot beneath the upper surface and six inches from the lower.



In confirmation of my theory, the grain of the ice, as indicated by the linear bubbles within it, was converging beneath this bubble, as the rays of light under a burning-glass, and what was the under surface at that time was melted

in a concave manner to within one and a half inches of the bubble, as appeared by the curvature in the horizontal grain of the more recently formed ice beneath. I omit to draw the other horizontal grain. The situation of this bubble also suggests that ice perhaps increases more above than below the plane of its first freezing in the course of a winter, by the addition of surface water and snow ice.

Examined again the ice and meadow-crust deposited just south of Derby's Bridge. The river is almost down to summer level there now, being only three to four feet deep at that bridge. It has fallen about eight feet since February 17. The ice is piled up there three or four feet deep, and no water beneath, and most of the cakes, which are about one foot thick, have a crust of meadow of equal thickness (*i. e.* from six inches to a foot) attached beneath. I saw in one place three cakes of ice each with a crust of meadow frozen to it beneath, lying one directly upon another and all upon the original ice there, alternately ice and meadow, and the middle crust of meadow measured twenty-eight by twenty-two feet. In this case the earth was about six inches thick only for the most part, three to four feet high in all above original ice. This lay on a gentle ridge or swell between the main Derby Bridge and the little one beyond, and it suggested that that swell might have been thus formed or increased. As we went down the bank through A. Hosmer's land we saw great cakes, and even fields of ice, lying up high and dry where you would not suspect otherwise that water had been. Some have much of

the withered pickerel-weed, stem and leaves, in it, causing it to melt and break up soon in the sun. I saw one cake of ice, six inches thick and more than six feet in diameter, with a cake of meadow of exactly equal dimensions attached to its under side, exactly and evenly balanced on the top of a wall in a pasture forty rods from the river, and where you would not have thought the water ever came. We saw three white maples about nine inches in diameter which had been torn up, roots and sod together, and in some cases carried a long distance. One quite sound, of equal size, had been bent flat and broken by the ice striking it some six or seven feet from the ground. Saw some very large pieces of meadow lifted up or carried off at mouth of G. M. Barrett's Bay. One measured seventy-four by twenty-seven feet. Topped with ice almost always, and the old ice still beneath. In some cases the black, peaty soil thus floated was more than one and a half feet thick, and some of this last was carried a quarter of a mile without trace of ice to buoy it, but probably it was first lifted by ice. Saw one piece more than a rod long and two feet thick of black, peaty soil brought from I know not where. The edge of these meadow-crusts is singularly abrupt, as if cut with a turf-knife. Of course a great surface is now covered with ice on each side of the river, under which there is no water, and we go constantly *getting in* with impunity. The spring sun shining on the sloping icy shores makes numerous dazzling ice-blinks, still brighter, and prolonged with rectilinear

sides, in the reflection. I am surprised to find the North River more frozen than the South, and we can cross it in many places.

I think the meadow is lifted in this wise: First, you have a considerable freshet in midwinter, succeeded by severe cold before the water has run off much. Then, as the water goes down, the ice for a certain width on each side the river meadows rests on the ground, which freezes to it.¹ Then comes another freshet, which rises a little higher than the former. This gently lifts up the river ice, and that meadow ice on each side of it which still has water under it, without breaking them, but overflows the ice which is frozen to the bottom. Then, after some days of thaw and wind, the latter ice is broken up and rises in cakes, larger or smaller with or without the meadow-crust beneath it, and is floated off before the wind and current till it grounds somewhere, or melts and so sinks, frequently three cakes one upon another, on some swell in the meadow or the edge of the upland. The ice is thus with us a wonderful agent in changing the aspect of the surface of the river-valley. I think that there has been more meadow than usual moved this year, because we had so great a freshet in midwinter succeeded by severe cold, and that by another still greater freshet before the cold weather was past.

Saw a butcher-bird, as usual on top of a tree, and distinguished from a jay by black wings and tail and streak side of head.

¹ Or rather all the water freezes where it is shallow and the grass is frozen into it. *Vide* Mar. 11th.

I did well to walk in the forenoon, the fresh and inspiring half of this bright day, for now, at mid-afternoon, its brightness is dulled, and a fine stratus is spread over the sky.

Is not "the starry puff (*Lycoperdon stellatum*)" of the "Journal of a Naturalist," which "remains driving about the pastures, little altered until spring," my five-fingered fungus? The same tells of goldfinches (*Pringilla carduelis*) (Bewick calls it the "thistle-finch") "scattering all over the turf the down of the thistle, as they pick out the seed for their food." It is singular that in this particular it should resemble our goldfinch, a different bird.

March 2. Another still, warm, beautiful day like yesterday.

9 A. M. — To Great Meadows to see the ice.

Saw yesterday one of those small slender-winged insects on the ice. A. Wright says that about forty years ago an acre of meadow was carried off at one time by the ice on the Colburn place. D. Clark tells me he saw a piece of meadow, on his part of the Great Meadows, five or six rods square, which had been taken up in one piece and set down again a little distance off. I observe that where there is plowed ground much of it has been washed over the neighboring grass ground to a great distance, discoloring it.

The Great Meadows, as all the rest, are one great field of ice a foot thick to their utmost verge, far up the hillsides and into the swamps, sloping upward there, without water under it, resting almost every-

where on the ground; a great undulating field of ice, rolling prairie-like, — the earth wearing this dry, icy shield or armor, which shines in the sun. Over brooks and ditches, perhaps, and in many other places, the ice, a foot thick in some places, is shoved (?) or *puffed* up in the form of a pent-roof, in some places three feet high and stretching twenty or thirty rods. There is certainly more ice than can lie flat there, as if the adjacent ices had been moved toward each other. Yet this general motion is not likely, and it is more probably the result of the expansion of the ice under the sun and of the warmth of the water (?) there. In many places the ice is dark and transparent, and you see plainly the bottom on which it lies. The various figures in the partially rotted ice are very interesting, — white bubbles which look like coins of various sizes overlapping each other; ~~○○○~~ parallel waving lines, with sometimes very slight intervals, on the under side of sloping white ice, marking the successive levels at which the water has stood;

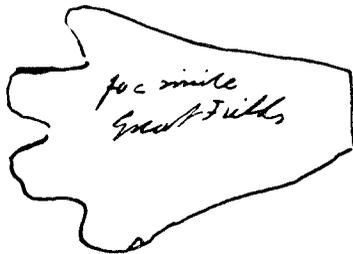


also countless white cleavages, perpendicular or inclined, straight and zigzag, meeting and crossing each other at all possible angles, and making all kinds of geometrical figures, checkering the whole surface, like white frills or ruffles in the ice. (At length the ice melts on the edge of these cleavages into little gutters which catch the snow.) There is the greatest

noise from the ice cracking about 10 A. M., yesterday and to-day.

Where the last year's shoots or tops of the young white maples, at the *Salix Purshiana* shore, are brought together, as I walk, into a mass, a quarter of a mile off, with the sun on them, they present a fine dull-scarlet streak. Young twigs are thus more florid than the old wood, as if from their nearness to the flower, or like the complexion of children. You see thus a fine dash of red or scarlet against the distant hills, which near at hand or in their midst is wholly unobservable. I go listening, but in vain, for the warble of a bluebird from the old orchard across the river. I love to look now at the fine-grained russet hillsides in the sun, ready to relieve and contrast with the azure of the bluebirds.

I made a burning-glass of ice, which produced a slight sensation of warmth on the back of my hand, but was so untrue that it did not concentrate the rays to a sufficiently small focus.



Returning over Great Fields, found half a dozen arrowheads, one with three scallops in the base.

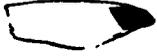
If we have a considerable freshet before the ice melts much, apparently much meadow crust will be moved on the South Branch. There is about six inches of frost in the swamps.

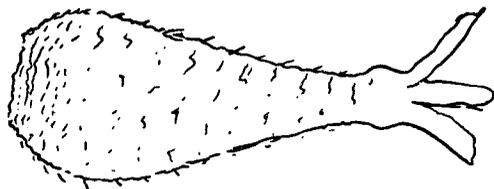
Heard two hawks scream. There was something truly March-like in it, like a prolonged blast or whistling of the wind through a crevice in the sky, which, like a cracked blue saucer, overlaps the woods. Such are the first rude notes which prelude the summer's quire, learned of the whistling March wind.

March 3. Saturday. P. M. — To Conantum.

This afternoon it is somewhat overcast for the first time since February 18th inclusive. I see a dirty-white miller fluttering about over the winter-rye patch next to Hubbard's Grove.

A few rods from the broad pitch pine beyond, I find a cone which was probably dropped by a squirrel in the fall, for I see the marks of its teeth where it was cut off; and it has probably been buried by the snow till now, for it has apparently just opened, and I shake its seeds out. Not only is this cone, resting upright on the ground, fully blossomed, a very beautiful object, but the winged seeds which half fill my hand, small triangular black seeds with thin and delicate flesh-colored wings, remind me of fishes, — alewives, perchance, — their tails more or less curved.

I do not show the curve of the tail. I see,  in another place under a pitch pine, many cores of cones which the squirrels have completely stripped of their scales, excepting the (about) three at extremity which cover no seeds, cutting them off regularly at the seeds or close to the core, leaving it in this form, or more regular: —



From some partially stripped I see that they begin at the base. These you find left on and about stumps where they have sat, and under the pines. Most fallen pitch pine cones show the marks of squirrels' teeth, showing they were cut off.

Day before yesterday there was good skating, and it was a beautiful warm day for it. Yesterday the ice began to be perceptibly softened. To-day it is too soft for skating.

I might have said on the 2d that though it is warm there is no trouble about getting on to the river, for, the water having fallen about six feet on the South Branch, the ice, about a foot thick, slopes upward in many places half a dozen rods or more on to the upland, like the side of an earthen milk-pan, and you do not know when you have passed the water-line.

Also I noticed yesterday that the ice, along the river-edge at the Great Meadows, still clinging to the alders and maples three or four feet from the ground, was remarkably transparent and solid, or without bubbles, like purest crystal, not rotted; probably because the rays of the sun passed through it, and there was no surface beneath to reflect them back again and so rot the ice. Of this I made my burning-glass.

I think it was yesterday morning that I first noticed

a frost on the bare russet grass. This, too, is an early spring phenomenon. I am surprised to see that the radical johnswort leaves, which have been green all winter, are now wilted and blackened by it, and where a wood was cut off this winter on a hillside, all the rattlesnake-plantain has suffered in like manner.

Again I observe the river breaking up (from the bank). The thin and rotted ice, saturated with water, is riddled with oblong open places, whose prevailing form is curving *commonly* up-stream, though not always, — *i. e.* southerly *here*. Has this anything to do with the direction of the prevailing winds of winter, which make the waves bend southerly? Since the cold of a week ago — they may be of older date — I see many tracks in the earth, especially in plowed fields, which are cracked up into vast cakes in some places, apparently on the same principle that ice is.



March 4. Sunday. River channel fairly open.

P. M. — To Bee Tree Hill over Fair Haven Pond.

For some time, or since the ground has been bare, I have noticed the spider-holes in the plowed land. We go over the Cliffs. Though a cold and strong wind, it is very warm in the sun, and we can sit in the sun where sheltered on these rocks with impunity. It is a genial warmth. The rustle of the dry leaves on the earth and in the crannies of the rocks, and gathered in deep windrows just under their edge, midleg deep, reminds me of fires in the woods. They are almost

ready to burn. I see a fly on the rock. The ice is so much rotted and softened by the sun that it looks white like snow now as I look down on the meadows. There is considerable snow on the north side of hills in the woods. At the Bee Hill-side, a striped squirrel, which quickly dives into his hole at our approach.¹ May not this season of springlike weather between the first decidedly springlike day and the first blue-bird, already fourteen days long, be called the *striped squirrel spring*? In which we go listening for the blue-bird, but hear him not.

Returning by the Andromeda Ponds, I am surprised to see the red ice visible still, half a dozen rods off. It is melted down to the red bubbles, and I can tinge my finger with it there by rubbing it in the rotted ice.

March 5. P. M. — To Beck Stow's.

A strong but warm southwesterly (?) wind, which has produced a remarkable haze. As I go along by Sleepy Hollow, this strong, warm wind, rustling the leaves on the hillsides, this blue haze, and the russet earth seen through it, remind me that a new season has come. There was the less thick, more remotely *blue*, haze of the 11th February, succeeded by a thaw, beginning on the 14th. Will not rain follow this much thicker haze?

March 6. To Second Division Brook.

Still stronger wind, shaking the house, and rather cool. This the third day of wind.

¹ *Vide* Mar. 7th.

Our woods are now so reduced that the chopping of this winter has been a cutting to the quick. At least we walkers feel it as such. There is hardly a woodlot of any consequence left but the chopper's axe has been heard in it this season. They have even infringed fatally on White Pond, on the south of Fair Haven Pond, shaved off the topknot of the Cliffs, the Colburn farm, Beck Stow's, etc., etc.

Observed a mouse or mole's nest in the Second Division Meadow, where it had been made under the snow, — a nice warm globular nest some five inches in diameter, amid the sphagnum and cranberry vines, etc., — made of dried grass and lined with a still finer grass. The hole was on one side, and the bottom was near two inches thick. There were many small paths or galleries in the meadow leading to this from the brook some rod or more distant.

The small gyrinus is circling in the brook. I see where much fur of a rabbit, which probably a fox was carrying, has caught on a moss rose twig as he leaped a ditch. It is much worse walking than it has been for ten days, the continual warmth of the sun melting the ice and snow by walls, etc., and reaching the deeper frost, unexpectedly after the surface had been dry. Pastures which look dry prove soft and full of water.

There is a peculiar redness in the western sky just after sunset. There are many great dark, slate-colored clouds floating there, seen against more distant and thin, wispy, bright-vermilion (?), almost blood-red ones. This in many places appears as the lining of the former.

It rained last evening, but not much. This the first rain or storm since February 18th inclusive, *i. e.* fifteen days. The weather began to be decidedly springlike, — air full of light, etc., — the 18th. The 20th was perfect March. The 21st and 22d were remarkably fair and warm; 23d to 28th inclusive remarkably clear and cold; March 1st and 2d remarkably clear and serene and pleasant. Since then colder, with increasing wind and some clouds, with last night some rain.

The sands are too dry and light-colored to show arrowheads so well now.

I see many places where after the late freshet the musquash made their paths under the ice, leading from the water, a rod or two, to a bed of grass above the water-level.

March 7. P. M. — To Red-Ice Pond.

A raw east wind and rather cloudy.

Methinks the buds of the early willows, the willows of the railroad bank, show more of the silvery down than ten days ago.

Did I not see crows flying northeasterly yesterday toward night?

The redness in the ice appears mostly to have evaporated, so that, melted, it does not color the water in a bottle.

Saw, about a hemlock stump on the hillside north of the largest Andromeda Pond, very abundant droppings of some kind of mice, on that common green moss (forming a firm bed about an inch high, like little pines, surmounted by a fine red stem with a green point, in

all three quarters of an inch high), which they had fed on to a great extent, evidently when it was covered with snow, shearing it off level. Their droppings could be collected by the hand probably,  a light brown above, green next the earth. There were apparently many of their holes in the earth about the stump. They must have fed very extensively on this moss the past winter.¹

It is now difficult getting on and off Walden. At Brister's Spring there are beautiful dense green beds of moss, which apparently has just risen above the surface of the water, tender and compact. I see many tadpoles of medium or full size in deep warm ditches in Hubbard's meadow. They may probably be seen as soon as the ditches are open, thus earlier than frogs. At his bridge over the brook it must have been a trout I saw glance, — rather dark, as big as my finger. To-day, as also three or four days ago, I saw a clear drop of maple sap on a broken red maple twig, which tasted very sweet. The *Pyrola secunda* is a perfect evergreen. It has lost none of its color or freshness, with its thin ovate finely serrate leaves, revealed now the snow is gone. It is more or less branched.

Picked up a very handsome white pine cone some six and a half inches long by two and three eighths near base and two near apex, perfectly blossomed. It is a very rich and wholesome brown color, of various shades as you turn it in your hand, — a light ash or gray brown, somewhat like unpainted wood, as you look down on it, or as if the lighter brown were cov-

¹ *Vide* Mar. 14th.

ered with a gray lichen, seeing only those parts of the scales always exposed, — with a few darker streaks or marks (W) and a drop of pitch at the point of each scale. Within, the scales are a dark brown above



(i. e. as it hangs) and a light brown beneath, very distinctly being marked beneath by the same darker brown, down the centre and near the apex somewhat anchorwise.

We were walking along the sunny hillside on the south of Fair Haven Pond (on the 4th), which the choppers had just laid bare, when, in a sheltered and warmer place, we heard a rustling amid the dry leaves on the hillside and saw a striped squirrel eyeing us from its resting-place on the bare ground. It sat still till we were within a rod, then suddenly dived into its hole, which was at its feet, and disappeared. The first pleasant days of spring come out like a squirrel and go in again.¹

March 8. P. M. — To old Carlisle road.

Another fair day with easterly wind.

This morning I got my boat out of the cellar and turned it up in the yard to let the seams open before I calk it. The blue river, now almost completely open (i. e. excepting a little ice in the recesses of the shore and a good deal over the meadows), admonishes me to be swift.

I see where many young trees and bushes have been broken down by the ice after the last freshet, many of

¹ [Channing, p. 285.]

Loring's young maples, for example. The cornel and other bushes along the walls are broken like young trees by snowdrifts, the ice, sinking with them in its embrace, weighing or dragging them down. In many places, where the water rose so high as to reach the ends of the lower branches of white maples and these were afterward frozen in, the ice, sinking with the ebb, breaks off or strips down the branch.¹ There appears to be a motion to the ice (even on meadows away from the current and at Walden shore) somewhat like that of a glacier, by which it tips over the trees, etc., standing in it without breaking up, — the result, one would say, of its swelling under the influence of the sun.

Was surprised to see a cluster of those large leek buds on a rock in Clark's (?) meadow between the oak and my house that was.

Daniel Clark tells me that on his part of the Great Meadows there is a hole just about the breadth and depth of a man, commonly full of water. He does not know what made it.

I crossed through the swamp south of Boulder Field toward the old dam. Stopping in a sunny and sheltered place on a hillock in the woods, — for it was raw in the wind, — I heard the hasty, shuffling, as if frightened, note of a *robin* from a dense birch wood, — a sort of *tche tche tche tche tche*, — and then probably it dashed through the birches; and so they fetch the year about. Just from the South Shore, perchance, it alighted not in the village street, but in this remote birch wood. This sound reminds me of rainy, misty

¹ *Vide* Mar. 14th.

April days in past years. Once or twice before, this afternoon, I thought I heard one and listened, but in vain.

I still see the bluish bloom on thimble-berry vines quite fresh. I walk these days along the brooks, looking for tortoises and trout, etc. They are full of a rust-colored water, as if they flowed out of an iron mine. As the ice melts in the swamps I see the horn-shaped buds of the skunk-cabbage, green with a bluish bloom, standing uninjured, ready to feel the influence of the sun, — the most prepared for spring — to look at — of any plant. I see of late more than before of the fuzzy caterpillars, both black and reddish-brown.

March 9. A cloudy, rain-threatening day, not windy and rather warmer than yesterday.

Painted the bottom of my boat.

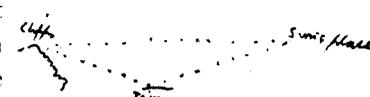
P. M. — To Andromeda Ponds.

Scare up a rabbit on the hillside by these ponds, which was gnawing a smooth sumach. See also where they have gnawed the red maple, sweet-fern, *Populus grandidentata*, white and other oaks (taking off considerable twigs at four or five cuts), amelanchier, and sallow; but they seem to prefer the smooth sumach to any of these. With this variety of cheap diet they are not likely to starve. I get a few drops of the sweet red maple juice which has run down the main stem where a rabbit had nibbled off close a twig. The rabbit, indeed, lives, but the sumach may be killed.

The heart-wood of the poison-dogwood, when I break it down with my hand, has a singular rotten, yellow look and a spirituous or apothecary odor.

As, on the 4th, I clambered over those great white pine masts which lay in all directions one upon another on the hillside south of Fair Haven, where the woods have been laid waste, I was struck, in favorable lights, with the jewel-like brilliancy of the sawed ends thickly bedewed with crystal drops of turpentine, thickly as a shield, as if the dryads (?), orcads (?), pine-wood nymphs had seasonably wept there the fall of the tree. The perfect sincerity of these terebinthine drops, each one reflecting the world, colorless as light, or like drops of dew heaven-distilled and trembling to their fall, is incredible when you remember how firm their consistency. And is this that pitch which you cannot touch without being defiled?

Looking from the Cliffs, the sun being as before invisible; I saw far more light in the reflected sky in the neighborhood of the sun than I could see in the heavens from my position, and it occurred to me that the reason was that there was reflected to me from the river the view I should have got if I had stood there on the water in a more favorable position.



I see that the mud in the road has crystallized as it dried (for it is not nearly cold enough to freeze), like the first crystals that shoot and set on water when freezing.

I see the minute seeds of the *Andromeda calyculata* scattered over the melting ice of the Andromeda Ponds.

C. says he saw yesterday the slate-colored hawk with a white bar across tail, — meadow hawk, *i. e.* frog hawk. Probably finds moles and mice.

An overcast and dark night.

March 10. Snowed in the night, a mere whitening. In the morning somewhat overcast still, cold and quite windy. The first clear snow to whiten the ground since February 9th.

I am not aware of growth in any plant yet, unless it be the further peeping out of willow catkins. They have crept out further from under their scales, and, looking closely into them, I detect a little redness along the twigs even now. You are always surprised by the sight of the first spring bird or insect; they seem premature, and there is no such evidence of spring as themselves, so that they literally *fetch* the year about. It is thus when I hear the first robin or bluebird or, looking along the brooks, see the first water-bugs out circling. But you think, They have come, and Nature cannot recede. Thus, when on the 6th I saw the gyrenid at Second Division Brook, I saw no peculiarity in the water or the air to remind me of them, but to-day they are here and yesterday they were not. I go looking deeper for tortoises, when suddenly my eye rests on these black circling apple-seeds in some smoother bay.

The red squirrel should be drawn with a pine cone. Those reddening leaves, as the checkerberry, lambkill, etc., etc., which at the beginning of winter were greenish, are now a deeper red, when the snow goes off. No more snow since last *night*, but a strong, cold northerly wind all day, with occasional gleams of sunshine. The whitening of snow consequently has not disappeared.

Miss Minott says that Dr. Spring told her that when the sap began to come up into the trees, *i. e.* about the middle of February (she says), then the diseases of the human body come out. The idea is that man's body sympathizes with the rest of nature, and his pent-up humors burst forth like the sap from wounded trees. This with the mass may be that languor or other weakness commonly called spring feelings.

Minott tells me that Henry Hosmer says he saw geese two or three days ago!

Jacob Farmer gave me to-day a part of the foot probably of a pine marten, which he found two or three days ago in a trap he had set in his brook for a mink, — under water, baited with a pickerel. It is clothed above with a glossy dark-brown hair, and contains but two toes (perhaps a third without the talon), armed with fine and very sharp talons, much curved. It had left thus much in the trap and departed.

Audubon and Bachman call my deer mouse "*Mus Leucopus*, Rafinesque," American White-Footed Mouse; call it "yellowish brown above" and give these synonyms: —

"*Mus Sylvaticus*, Forster, Phil. Trans., vol. lxii., p. 380.

Field-Rat, Penn., Hist. Quad., vol. ii., p. 185.

Field-Rat, Arctic Zoöl., vol. i., p. 131.

Musculus Leucopus, Rafinesque, Amer. Month. Review, Oct. 1818, p. 444.

Mus Leucopus, Desmar. Mamm., esp. 493.

Mus Sylvaticus, Harlan, Fauna, p. 151.

Mus Agrarius, Godm., Nat. Hist., vol. ii., p. 88.

Mus Leucopus, Richardson, F. B. A., p. 142.

Arvicola Nuttallii, Harlan, variety.

Arvicola Emmonsii, Emm., Mass. Report, p. 61.

Mus Leucopus, Dekay, Nat. Hist. N. Y., pl. 1, p. 82."

By fur he does not mean the short inner hair only. Says they are larger in Carolina than in the Eastern States, but he does not describe any larger than mine. "Next to the common mouse, this is the most abundant and widely diffused species of mouse in North America. We have received it . . . from every State in the Union, and from Labrador, Hudson's Bay, and the Columbia River." Has found it "taking up its abode in a deserted squirrel's nest, thirty feet from the earth."

"They have been known to take possession of deserted birds' nests — such as those of the cat-bird, red-winged starling, song thrush, or red-eyed fly-catcher." "We have also occasionally found their nests on bushes, from five to fifteen feet from the ground. They are in these cases constructed with nearly as much art and ingenuity as the nests of the Baltimore Oriole." Of some he has, says, "They are seven inches in length and four in breadth, the circumference measuring thirteen inches; they are of an oval shape and are outwardly composed of dried moss and a few slips of the inner bark of some wild grape-vine; other nests are more rounded, and are composed of dried leaves and moss." Thinks two pairs live in some very large ones. "The entrance in all the nests is from below, and about the size of the animal."

Female sometimes escapes with her young adhering to her teats. "Nocturnal in its habits." Only sound he has heard from them "a low squeak." Not so carniv-

orous as "most of its kindred species." Troubles trappers by getting their bait. Lays up "stores of grain and grass seeds," acorns, etc. In the North, wheat; in the South, rice. Eats out the heart of Indian corn kernels.

Thinks it produces two litters in a season in the North and three in the South. Foxes, owls, etc., destroy it. Thinks the ermine weasel its most formidable foe. Thinks it *sometimes* occupies a chipping squirrel's hole. Thinks that neither this nor the mole does much injury to garden or farm, but rather "the little pine-mouse (*Arvicola pinetorum*, Le Conte), or perhaps Wilson's meadow-mouse (*Arvicola Pennsylvanica*, Ord, *A. hirsutus*, Emmons, and Dekay)." Yet Northern farmers complain that the deer mouse gnaws young fruit trees, etc.; maybe so. Avoids houses, at least those where there are wharf rats and cats.

Observed this afternoon some celandine by Deacon Brown's fence, apparently grown about an inch. *Vide* if it is really springing.

March 11. P. M. — To Annurnsack.

Clear and rather pleasant; the ground again bare; wind northerly. I am surprised to see how rapidly that ice that covered the meadows on the 1st of March has disappeared under the influence of the sun alone. The greater part of what then lay on the meadows a foot thick has melted, — two thirds at least.

On Abel Hosmer's pasture, just southeast of the stone bridge, I see where the sod was lifted up over a great space in the flood of the 17th of February. There is one bare place there, showing only the fine

and now white roots of grass, seven rods long by two or three. There are other smaller ones about it. The sod carried off is from four to six inches thick commonly. Pieces of this crust, from a quarter to a third the size mentioned, are resting within ten or twenty rods. One has sunk against the causeway bridge, being too wide to go through. I see one piece of crust, twelve feet by six, turned completely topsyturvy with its ice beneath it. This has prevented the ice from melting, and on examining it I find that the ice did not settle down on to the grass after the water went down and then freeze to it, for the blades of grass penetrate one inch into the ice, showing that, the water being shallow, the whole froze, and the grass was frozen in, and thus, when the water rose again, was lifted up. The bared places I have noticed as yet were not in the low ground, but where the water was comparatively shallow, commonly at a distance from the river.¹

A bluebird day before yesterday in Stow.²

Saw a cake of recent ice very handsomely marked as it decayed, with darker marks for the original crystals centred with the original white. It would be a rare pattern for a carpet, because it contains a variety of figures agreeable to the eye without regularity.

Many of those dirty-white millers or ephemera in the air.

As I sit at the base of Annursnack the earth appears almost completely bare, but from the top I see considerable white ice here and there. This shows that what is left is only the whitened and rotting ice, which,

¹ *Vide* [p. 245].

² Next page.

being confined to the lowest hollows and meadows, is only observed from a height.

At this season, — before grass springs to conceal them, — I notice those pretty little roundish shells on the tops of hills; one to-day on Annursnack.

I see pitch pine needles looking as if whitewashed, thickly covered on each of the two slopes of the needle with narrow, white, oyster-shell-like latebræ or chrysalids of an insect.

March 12. 6.30 A. M. — To Andromeda Ponds.

Lesser redpolls still.¹

Elbridge Hayden and Poland affirm that they saw a brown thrasher sitting on the top of an apple tree by the road near Hubbard's and singing after his fashion on the 5th. I suggested the shrike, which they do not know, but they say it was a *brown* bird.

Hayden saw a bluebird yesterday.

P. M. — To Great Meadows.

Comes out pleasant after a raw forenoon with a flurry of snow, already gone.

Two ducks in river, good size, white beneath with black heads, as they go over.² They first rise some distance down-stream, and fly by on high, reconnoitring me, and I first see them on wing; then settle a quarter of a mile above by a long slanting flight, at last opposite the swimming-elm below Flint's. I come on up the bank with the sun in my face; start them again. Again they fly down-stream by me on high, turn and

¹ *Vide* forward.

² Sheldrakes?

come round back by me again with outstretched heads, and go up to the Battle-Ground before they alight. Thus the river is no sooner fairly open than they are back again, — before I have got my boat launched, and long before the river has worn through Fair Haven Pond. I think I heard a quack or two.

Audubon and Bachman say that Forster and Harlan refer the *Mus leucopus* "to *Mus sylvaticus* of Europe," — wrongly, for they differ in many respects. "They may always be distinguished from each other at a glance by the following mark: in more than twenty specimens we examined of *Mus sylvaticus* [in Europe]¹ we have always found a yellowish line edged with dark-brown, on the breast. In many hundred specimens of *Mus leucopus* we have without a single exception found this yellow line entirely wanting, all of them being pure white on the breast, as well as on the whole under surface. We have no hesitation in pronouncing the species distinct." Now I find that I had described my specimen of February 20th, before I had read Audubon and Bachman or heard of the *Mus sylvaticus*, as having "a very slight and delicate tinge of yellowish beneath, between the fore legs," though Emmons does not mention this color. The other differences they mention certainly are not of much importance, and probably equally great ones are to be found between different specimens of *Mus leucopus*.

March 13. Northern lights last night. Rainbow in east this morning.

¹ [The brackets are Thoreau's.]

Almost all the meadow-crust now (and for a week past) lies on a cake of ice where it lodged and which, being prevented from melting any further than its edge, is of the same size with it. The crust is frozen on to this, and, the ice which first froze to it and raised it having melted some time ago, most would not know how to account for its position.

6.30 A. M. — To Hill.

Still, but with some wrack here and there. The river is low, very low for the season. It has been falling ever since the freshet of February 18th. Now, about sunrise, it is nearly filled with the thin, half-cemented ice-crystals of the night, which the warmer temperature of day apparently has loosened. They grate against the bushes and wheel round in great fields with a slight crash and piling up.

I hear the rapid tapping of the woodpecker from over the water.

P. M. — To Hubbard's Close.

For a week the more stagnant brooks and ditches have been green with conferva, a kind of green veil that conceals their bottom and invests the bubbles on the surface.

I am surprised to see, not only many pollywogs through the thin ice of the warm ditches, but, in still warmer, stagnant, unfrozen holes in this meadow, half a dozen small frogs, probably *Rana palustris*.¹ Green spires of grass stand perfectly upright in these pools, rising above water.

¹ Is it not the croaker?

Coming through the stubble of Stow's rye-field in front of the Breed house, I meet with four mice-nests in going half a dozen rods. They lie flat on the ground amid the stubble; are flattened spheres, the horizontal diameter about five inches, the perpendicular considerably less, composed of grass or finer stubble, and on taking them up you do not at once detect the entrance with your eye, but rather feel it with your finger on the side; lined with the finest of the grass. These were undoubtedly — probably — made when the snow was on the ground, for their winter residence, while they gleaned the rye-field, and when the snow went off they scampered to the woods. I think they were made by the *Mus leucopus*, *i. e.* *Arvicola Emmonsii*. Similar to that of March 6th in meadow, except that was thicker against wet.

I look into many woodchucks' holes, but as yet they are choked with leaves and there is no sign of their having come abroad.

At evening the raw, overcast day concludes with snow and hail. Two pickerel caught in Flint's Pond to-day weighed on the Mill-Dam to-night $7\frac{3}{4}$ + or nearly 8 pounds.

March 14. Three inches of snow in the morning, and it snows a little more during the day, with occasional gleams of sunshine. Winter back again in prospect, and I see a few sparrows, probably tree sparrows, in the yard.

P. M. — To Andromeda Ponds.

At one of the holes under the stump of March 7th,

caught a *Mus leucopus* (deer mouse). So this was the kind, undoubtedly, that fed on the moss, and that colored their droppings. It is in very good condition; extreme length six and a half, tail three inches. It is a less *reddish* brown on the sides and cheeks than my whole skin, and a darker brown above, mixed with a little reddish; no yellow tinge on breast. Some whiskers, as usual, are white, others black, and I count the "six tubercles on each palm." There are no tracks about the stump, for they are not abroad by day, *i. e.* since the last of this snow, but probably there will be tracks to-morrow morning. Thus it is generally. If it ceases snowing in the morning, you see few, if any, tracks in your walk, but the next morning many.

It is the first and last snows — especially the last — which blind us most, when the sun is most powerful and our eyes are unused to them.

I observe the tracks of sparrows leading to every little sprig of blue-curls amid the other weeds which (its seemingly empty pitchers) rises above the snow. There seems, however, to be a little seed left in them. This, then, is reason enough why these withered stems still stand, — that they may raise these granaries above the snow for the use of the snowbirds.

That ice of February has destroyed almost the whole of Charles Hubbard's young red maple swamp in front of the Hollowell place. Full an acre of thrifty young maples, as well as alders and birches four to seven feet high, is completely destroyed, being pulled and broken down (broken near the ground) as the ice sank after the water went down. It is all flat, and

looks at a little distance as if one had gone through with a bush-whack and done his work faithfully. "They [are] from half an inch to one inch thick, broken thus wise:  He has apparently concluded to clear it. Only the taller birches, etc., are left. I thought, as I approached, seeing some clumps still standing, all the rest flat on the ground, that without a doubt some one had been clearing the swamp, though I stood within a rod of it. Just as a snow-drift breaks down young fruit-trees. R. Rice tells me that a great many young white pines in a swamp of his in Sudbury have been barked, the bark rubbed down several inches completely bare by the ice. Thus the river from time to time asserts its authority over its swamps to a great distance.¹

March 15. Jacob Farmer gave me to-day the foot of an otter, also of a fisher, — to put with my pine marten's foot. He cut them off of recent furs in Boston. He sells about a hundred mink skins in a year. Thinks not more than thirty or forty are caught in Concord in a year. He says (I think) a mink's skin is worth two dollars! They are sent to Europe to be worn there, not for hats.

Foul weather all day, — at first a fine snow, and finally rain. Now, at 9 P. M., a clear sky. And so the storm which began evening of 13th ends.

¹ The willows, alders, etc., all along the river where the water was deeper are commonly broken higher up, three or four feet from the ground. This Mar. 19th. *Vide* Mar. 20th.

As for the first half of this month, it began very pleasant and warm (the latter third of February had been very clear and pleasant but colder), the river opening and ice beginning to soften; then on the 4th it became windy (northerly, east, or southwest), sometimes very cold and raw, occasionally rocking the house; the 9th a little warmer, storm threatening; the 10th, ground whitened with snow; and so it goes on, more or less raw till the snow of the 14th.

Mr. Rice tells me that when he was getting mud out of the little swamp at the foot of Brister's Hill last [a blank space left for the day], he heard a squeaking and found that he was digging near the nest of what he called a "field mouse," — by his description probably the meadow mouse. It was made of grass, etc., and, while he stood over it, the mother, not regarding him, came and carried off the young, one by one, in her mouth, being gone some time in each case before she returned, and finally she took the nest itself.

He saw a bluebird about a week ago in Sudbury, and [was] surprised to observe that it had a worm in its mouth, but I am not, for the ice and snow have been sprinkled with caterpillars of several kinds all the past winter.

March 16. Cloudy in the forenoon. Sun comes out and it is rather pleasant in the afternoon.

P. M. — To Conantum End.

At the woodchuck's hole just beyond the cockspur thorn, I see several diverging and converging trails of

undoubtedly a woodchuck, or several, which must have come out at least as early as the 13th. The track is about one and three quarters inches wide by two long, the five toes very distinct and much spread, and, including the *scrape* of the snow before the foot came to its bearing, is somewhat hand-like.

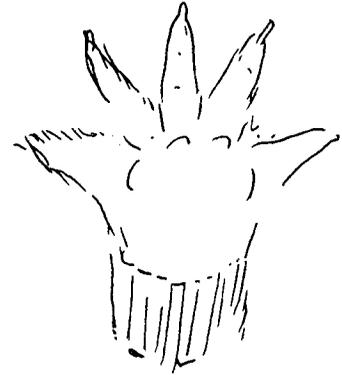
It is simple and alternate, thus:  commonly, but sometimes much like a rabbit's, and again like a mink's, somewhat thus:

 They had come out and run about directly from hole to hole, six in all, within a dozen rods or more. This appeared to have been all their travelling, as if they had run round a-visiting and waked each other up the first thing. At first they soiled the snow with their sandy feet. At one place they had been clearing out to-day the throats of two holes within a rod of each other, scattering the mud-like sand, made wet by the melting snow, over the pure snow around; and I saw where, between these holes, they had sat on a horizontal limb of a shrub oak (which it had tried its teeth on), about a foot from the ground, also on a rock, plainly to warm and dry themselves in the sun, having muddied it all over. I also saw where another had sunned itself on a stone at the foot of a small pitch pine and tried its teeth on a dead limb of the pine. They could not go in or out of these burrows without being completely covered with sandy mud. The path over the snow between these holes was quite covered with it.

The impression of the foot a little like this,

but not so much spread: They have but four toes on the fore feet, with rudiment of a thumb.

His first journey, then, appears to be to some neighboring hole which he remembers, a dozen or fifteen rods off, and, perchance, he goes as straight or unerringly to it as if he had not been asleep all winter. Apparently after a little gossiping there his first work is to clear out the entrance to his burrow, ejecting the leaves and sand which have there collected. None have travelled beyond these holes, except that one track leads into the swamp. But here are the tracks of foxes bound on longer journeys. They are generally ten or twelve inches apart by three to five, but are irregular, now two



 at the usual distance, then two close together, three or  four inches apart only. The foot is very shapely and much like a dog's.

The dirty-colored aspen down there projects an eighth of an inch, or nearly as much as the early willows.

As I stand here, some sixty rods from the river, at about 3.30 P. M., looking at the open river, toward which my shadow points at right angles with its current, that part which my shadow extended would

strike is a pale dull slate-color, but that part a dozen rods southerly from this is a distinct blue, which goes on increasing in depth southerly, till, looking at an angle of forty-five degrees from the first line, it is of a glorious, deep indigo blue. For some reason I must look much further north to see it blue.

River not yet worn through Fair Haven Pond.

You are pretty sure to see the tracks of squirrels, red ones, about the base of walnuts which they have ascended, and where they have probed the snow for a nut.

I think that a great many birds' nests are broken up in summer by weasels, minks, and skunks.

Returning, scared up two large ducks just above the bridge. One very large; white beneath, breast and neck; black head and wings and aft. The other much smaller and dark. Apparently male and female. They lit more than a hundred rods south of the bridge, and I viewed them with glass. The larger sailed about on the watch, while the smaller, dark one dived repeatedly.¹ I think there are but three ducks ever seen here anything like these, — the golden-eye or whistler, the goosander or sheldrake, and the red-breasted merganser.² This male I suspect was too large for the first, and, from its size and its great superiority in size to its companion, I think it the goosander or sheldrake. It did not scoot over the water as I think the red-breasted merganser³ does.

¹ *Vide* Apr. 1st.

² ["Red-breasted merganser" is crossed out with pencil, and "Is it not female goosander?" written over it.]

³ [Two interrogation-points in pencil here.]

March 17. Saturday. H. Hosmer says he has seen black ducks. Edmund Hosmer's meadow, *i. e.* the Hunt house meadow, is covered with great pieces of meadow, the largest thick and dense cranberry meadow. It is piled three or four feet high for several rods. Higher up on the North Branch I see where the trees, especially the swamp white oaks, have been chafed smooth and white by the ice (at that time), from the ground to three or four feet (six in some cases), as if scraped with a hoe, and the bushes all along the shore — willows, alders, etc., etc. (blueberry swamps in some places) — have been more or less broken down. I hear the lesser redpolls yet.¹ See now along the edge of the river, the ice being gone, many fresh heaps of clamshells, which were opened by the musquash when the water was higher, about some tree where the ground rises. And very many places you see where they formed new burrows into the bank, the sand being pushed out into the stream about the entrance, which is still below water, and you feel the ground undermined as you walk.

White maple blossom-buds look as if bursting; show a rusty, fusty space, perhaps a sixteenth of an inch in width, over and above the regular six scales.²

I see scraps of the evergreen ranunculus along the riverside.

March 18. Fair in the forenoon, but more or less cloudy and windy in the afternoon.

¹ The last.

² [There is an interrogation-point in the margin against this paragraph.]

P. M. — Round by Hollowell place *via* Clamshell.

I see with my glass as I go over the railroad bridge, sweeping the river, a great gull standing far away on the top of a muskrat-cabin which rises just above the water opposite the Hubbard Bath. When I get round within sixty rods of him, ten minutes later, he still stands on the same spot, constantly turning his head to every side, looking out for foes. Like a wooden image of a bird he stands there, heavy to look at; head, breast, beneath, and rump pure white; slate-colored wings tipped with black and extending beyond the tail, — the herring gull. I can see clear down to its webbed feet. But now I advance, and he rises easily, goes off northeastward over the river with a leisurely flight. At Clamshell Hill I sweep the river again, and see, standing midleg deep on the meadow where the water is very shallow with deeper around, another of these wooden images, which is harder to scare. I do not fairly distinguish black tips to its wings. It is ten or fifteen minutes before I get him to rise, and then he goes off in the same leisurely manner, stroking the air with his wings, and now making a great circle back on its course, so you cannot tell which way it is bound. By standing so long motionless in these places they may perchance accomplish two objects, *i. e.*, catch passing fish (suckers?) like a heron and escape the attention of man. Its utmost motion was to plume itself once and turn its head about. If it did not move its head, it would look like a decoy. Our river is quite low for the season, and yet it is here without freset

or easterly storm. It *seems* to take this course on its migrations without regard to the state of the waters.

Meanwhile a small dark-colored duck, all neck and wings, a winged rolling-pin, went over, — perhaps a teal.

For the last two or three days very wet and muddy walking, owing to the melting of the snow; which also has slightly swollen the small streams.

Some vigorous osiers about the trunk of some golden willows on the Hubbard Bridge causeway have all winter been a much brighter yellow than the rest of the trees. They cannot well be more brilliant any time.

Notwithstanding the water on the surface, it is easier crossing meadows and swamps than it will be a month hence, on account of the frost in the ground.

March 19. A fine clear and warm day for the season. Launched my boat.

P. M. — Paddled to Fair Haven Pond.

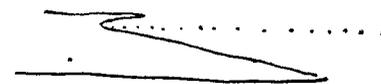
Very pleasant and warm, when the wind lulls and the water is perfectly smooth. I make the voyage without gloves. The snow of March 14th is about gone, and the landscape is once more russet. The thick ice of the meadows lies rotting on each side of the stream, white and almost soft as snow. In many places it extends still over the shallower parts of the river. As I paddle or pole up the side of the stream, the muddy bottom looks dark and dead, and no greenness is observed but on a close scrutiny. The unsightly dead leaf-stalks of the pontederia cover it in irregular whorls covered

with filth. The black stems of the polygonums here and there still rise above the surface. But on a closer scrutiny you detect here and there bits of the ever-green ranunculus (commonly floating), the cress, some reddish pads of nuphar expanded close to the bottom, and a few points of its closely rolled, unexpanded leaves, also some radical greenness in the pond-tederia. And what is that fresh green oblong, perhaps spatulate, leaf one and a half inches long, making little rosettes on a running root, in one place just this side the ash above the railroad? ¹ There is this radical greenness to correspond with that on the land. The muskrat-houses are for the most part flatted down, even below the present level of the water (at least five feet and more below the truss), probably by the water and ice a month ago. I see but three or four well repaired. One new one at least, however, on a piece of meadow lately lodged. It is to be inferred that they have not the same need of them as in the fall. Already Farrar is out with his boat looking for spring cranberries, and here comes, slowly paddling, the dark-faced trapper Melvin with his dog and gun.² I see a poor drowned gray rabbit floating, back up as in life, but three quarters submerged. I see a hawk circling over a small maple grove through this calm air, ready to pounce on the first migrating sparrow that may have arrived. As I paddle or push along by the edge of the thick ice which lines the shore, sometimes pushing against it, I observe that it is curiously worn by the

¹ It is forget-me-not.

² See him out here the first boating day next year also.

water into this form:
the dotted line being
the water's edge. The



water has eaten into the edge of the ice just where its surface meets it (which may be one and a half inches beneath the top), four or five inches or more, leaving a sharp projecting eave above, while the lower part, five or six inches thick, being preserved hard by the water, slopes off to a very sharp edge from one to even four feet from the upper. The undulations made by my boat and paddle, striking under this eave, make a constant sound as I pass. I am surprised to find that the river has not yet worn through Fair Haven Pond. Getting up a weed with the paddle close to the shore under water, where five or six inches deep, I found a fishworm in the mud. Here and there, floating or on the edge of the ice, I see small pieces of nuphar root, with a few rolled, pointed leaf-buds, probably gnawed off by the muskrats. The greater part of the Wood meadow this side Clamshell has been lifted up and settled again, and it now sounds hollow and sinks under my steps.

The wind has got round more to the east now, at 5 p. m., and is raw and disagreeable, and produces a bluish haze or mist at once in the air. It is early for such a phenomenon. *Smelled* muskrats in two places, and saw two. Saw, by their white droppings on the bottom, where ducks had fed. I hear at last the *tchuck tchuck* of a blackbird and, looking up, see him flying high over the river southwesterly, — the wrong way, — in great haste to reach somewhere; and when I reach my landing I hear my first bluebird, somewhere

about Chency's trees by the river. I hear him out of the blue deeps, but do not yet see his blue body. He comes with a warble. Now first generally heard in the village. Not a duck do I see. It is perhaps too bright and serene a day for them.

March 20. A flurry of snow at 7 A. M. I go to turn my boat up. Four or five song sparrows are flitting along amid the willows by the waterside. Probably they came yesterday with the bluebirds. From distant trees and bushes I hear a faint tinkling *te te te té* and at last a full strain whose rhythm is *whit whit whit, ter tche, tcheartche*, deliberately sung, or measuredly, while the falling snow is beginning to whiten the ground, — not discouraged by such a reception. The bluebird, too, is in the air, and I detect its blue back for a moment upon a picket.

It is remarkable by what a gradation of days which we *call* pleasant and warm, beginning in the last of February, we come at last to real summer warmth. At first a sunny, calm, serene winter day is pronounced spring, or reminds us of it; and even the first pleasant spring day perhaps we walk with our greatcoat buttoned up and gloves on.

Trying the other day to imitate the honking of geese, I found myself flapping my sides with my elbows, as with wings, and uttering something like the syllables *mow-ack* with a nasal twang and twist in my head; and I produced their note so perfectly in the opinion of the hearers that I thought I might possibly draw a flock down.

P. M. — Up Assabet.

It soon cleared off in the morning, and proved a fair but windy day. I see a willow six inches in diameter which was broken down by the ice, and some birches up the Assabet, which had previously been bent over the stream, were broken off ten feet from the ground. I notice this havoc along the stream on making my first voyages on it. The ice either freezes to the alders, etc., one half to two thirds up them, and settling, breaks them lower down, settling upon them, or else freezes to drooping limbs and so pulls them down. As I look into the low woods or swamp on each side, I see the trees, especially rough-barked ones like the black willow, swamp white oak, and elm, chafed white to the height of three or four feet, sometimes the bark worn off, and, the maples, birches, etc., being also divested of their lichens, you see exactly the height at which the water stood when it froze. The lower twigs of swamp white oaks over the water are, as it were, nibbled off by the ice. Were those rocks by the shore this side the Leaning Hemlocks placed there by the ice?

Some willow catkins, whose limb was bent down and held in the ice, are three eighths of an inch long, *i. e.* the down beyond the scale. I see maple sap flowing and taste it sweet in many places where the branches have been stripped down. In the meadow near the stone-heaps I pace a space laid bare by the ice, — fourteen rods by one to four, nearly a quarter of an acre. The crust raised is commonly only four or five inches thick, or down to where the grass roots break; and it is taken principally from the higher parts of

a meadow, covered at the time of the freezing frequently from a longitudinal swell. We notice the color of the water especially at this season when it is recently revealed (*vide* 16th), and in the fall, because there is little color elsewhere, — when it is seen in contrast with the ice or snow or russet landscape. It shows best in a clear air contrasting with the russet shores. At my landing I hear the peculiar *tche tche, tche tche* — or somewhat like that — of the *F. hyemalis*, in company with a few tree sparrows. They take refuge from the cold wind, half a dozen in all, behind an arbor-vitæ hedge, and there plume themselves with puffed-up feathers.

March 21. 6.30 A. M. — To Swamp Bridge Brook.

Clear, but a very cold westerly wind this morning. Ground frozen very hard. Yet the song sparrows are heard from the willow and alder rows. Hear a lark far off in the meadow.

P. M. — To Bare Hill by railroad.

Early willow and aspen catkins are very conspicuous now. The silvery down of the former has in some places crept forth from beneath its scales a third of an inch at least. This increased silveriness was obvious, I think, about the first of March, perhaps earlier. It appears to be a very gradual expansion, which begins in the warm days of winter. It would be well to observe them once a fortnight through the winter. It is the first decided growth I have noticed, and is probably a month old.

The song sparrow is now seen dodging behind the wall, with a quirk of its tail, or flitting along the alders or other bushes by the side of the road, especially in low ground, and its pleasant strain is heard at intervals in spite of the cold and blustering wind. It is the most steady and resolute singer as yet, its strain being heard at intervals throughout the day, more than any as yet *peopling* the hedgerows.

There is no opening in Flint's Pond except a very little around the boat-house. The tree sparrow, flitting song-sparrow-like through the alders, utters a sharp metallic *tcheep*. In the hollow behind Britton's Camp, I see seven mouse-holes — probably *Mus leucopus* — around an old oak stump, all within a foot of it, and many of their droppings at each hole and where they have gnawed off the grass, and indistinct galleries in the grass, extending three or four feet on every side. I see red maple sap oozing out and wetting the young trees where there is no obvious wound. Crossed Goose Pond on ice.

March 22. 6.30 A. M. — To Hill.

Overcast and cold. Yet there is quite a concert of birds along the river; the song sparrows are very lively and musical, and the blackbirds already sing *o-gurgle-ee-e-e* from time to time on the top of a willow or elm or maple, but oftener a sharp, shrill whistle or a *tchuck*. I also hear a short, regular robin song, though many are flitting about with hurried note. The bluebird faintly warbles, with such ventriloquism that I thought him further off. He requires a warmer air. The jays

scream. I hear the downy woodpecker's rapid tapping and *my* first distinct spring note (*phe-be*) of the chickadee.

The river has skimmed over a rod in breadth along the sides. Saw a heavy-flapping, bittern-like bird flying northeast. It was small for a fish hawk. Can it be the stake-driver?? or a gull?

A (probably meadow) mouse nest in the low meadow by stone bridge, where it must have been covered with water a month ago; probably made in fall. Low in the grass, a little dome four inches in diameter, with no sign of entrance, it being *very* low on one side. Made of fine meadow-grass.

Though there was a clear strip in the west only about three times the height of the mountains, and much less in the east, I saw the sun shining on the Peterboro mountains while we had not had a ray from him. Did the rays at this hour (seven) pass over the clouds which shaded us? They may have passed further north than the clouds reached, for there seemed a lifting in the horizon there.

P. M. — Fair Haven Pond *via* Conantum.

Caught a salamander in the spring-hole in the brook behind Hubbard's. It was lying on the mud in water as if basking. I have not yet identified it. It has no bright spots, being uniformly dark above, except to a microscope, beneath bluish-slate, beneath and sides of tail dull-golden. Three and a quarter inches long; tail alone one and a half plus; a dozen or more marks as of ribs on each side. Under microscope all above

very finely sprinkled black and light brown, — hard to tell which the ground. Somewhat like *Salamandra dorsalis*, but not granulated nor ocellated with vermilion spots. Irides dull-golden. Last five-eighths inch of tail lighter-colored.

I have noticed crows in the meadows ever since they were first partially bare, three weeks ago.

I hear a song sparrow on an alder-top sing *ozit ozit oze-e-e* | (quick) *tchip tchip tchip tchip tchay* | *te tchip ter che ter tchay*; also the same shortened and *very much* varied. Heard one sing uninterruptedly, *i. e.* without a pause, almost a minute. I crossed Fair Haven Pond, including the river, on the ice, and probably can for three or four days yet.

C. says he has already seen a little dipper. How long?

Going [along] the steep side-hill on the south of the pond about 4 p. m., on the edge of the little patch of wood which the choppers have not yet levelled, — though they have felled many an acre around it this winter, — I observed a rotten and hollow hemlock stump about two feet high and six inches in diameter, and instinctively approached with my right hand ready to cover it. I found a flying squirrel in it, which, as my left hand had covered a small hole at the bottom, ran directly into my right hand. It struggled and bit not a little, but my cotton glove protected me, and I felt its teeth only once or twice. It also uttered three or four dry shrieks at first, something like *cr-r-rack cr-r-r-ack cr-r-r-ack*. I rolled it up in my handkerchief and, holding the ends tight, carried it home in my hand,

some three miles. It struggled more or less all the way, especially when my feet made any unusual or louder noise going through leaves or bushes. I could count its claws as they appeared through the handkerchief, and once it got its head out a hole. It even bit through the handkerchief.

Color, as I remember, above a chestnut ash, inclining to fawn or cream color (?), slightly browned; beneath white, the under edge of its wings (?) tinged yellow, the upper dark, perhaps black, making a dark stripe. Audubon and Bachman do not speak of any such stripe! It was a very cunning little animal, reminding me of a mouse in the room. Its very large and prominent black eyes gave it an interesting innocent look. Its very neat flat, fawn-colored, distichous tail was a great ornament. Its "sails" were not very obvious when it was at rest, merely giving it a flat appearance beneath. It would leap off and upward into the air two or three feet from a table, spreading its "sails," and fall to the floor in vain; perhaps strike the side of the room in its upward spring and endeavor to cling to it. It would run up the window by the sash, but evidently found the furniture and walls and floor too hard and smooth for it and after some falls became quiet. In a few moments it allowed me to stroke it, though far from confident.

I put it in a barrel and covered it for the night. It was quite busy all the evening gnawing out, clinging for this purpose and gnawing at the upper edge of a sound oak barrel, and then dropping to rest from time to time. It had defaced the barrel considerably by morn-

ing, and would probably have escaped if I had not placed a piece of iron against the gnawed part. I had left in the barrel some bread, apple, shagbarks, and cheese. It ate some of the apple and one shagbark, cutting it quite in two transversely.

In the morning it was quiet, and *squatted* somewhat curled up amid the straw, with its tail passing under it and the end curled over its head very prettily, as if to shield it from the light and keep it warm. I always found it in this position by day when I raised the lid.

March 23. P. M. — To Fair Haven Pond.

Carried my flying squirrel back to the woods in my handkerchief. I placed it, about 3.30 p. m., on the very stump I had taken it from. It immediately ran about a rod over the leaves and up a slender maple sapling about ten feet, then after a moment's pause sprang off and skimmed downward toward a large maple nine feet distant, whose trunk it struck three or four feet from the ground. This it rapidly ascended, on the opposite side from me, nearly thirty feet, and there clung to the main stem with its head downward, eyeing me. After two or three minutes' pause I saw that it was preparing for another spring by raising its head and looking off, and away it went in admirable style, more like a bird than any quadruped I had dreamed of and far surpassing the impression I had received from naturalists' accounts.¹ I marked the spot it started from and the place where it struck, and mea-

¹ *Vide* next page.

sured the height and distance carefully. It sprang off from the maple at the height of twenty-eight and a half feet, and struck the ground at the foot of a tree fifty and a half feet distant, measured horizontally. Its flight was not a *regular* descent; it varied from a direct line both horizontally and vertically. Indeed it skimmed much like a hawk and part of its flight was nearly horizontal, and it diverged from a right line eight or ten feet to the right, making a curve in that direction. There were six trees from six inches to a foot in diameter, one a hemlock, in a direct line between the two termini, and these it skimmed partly round, and passed through their thinner limbs; did not as I could perceive touch a twig. It skimmed its way like a hawk between and around the trees. Though it was a windy day, this was on a steep hillside away from the wind and covered with wood, so it was not aided by that. As the ground rose about two feet, the distance was to the absolute height as fifty and a half to twenty-six and a half, or it advanced about two feet for every one foot of descent. After its vain attempts in the house, I was not prepared for this exhibition. It did not fall heavily as in the house, but struck the ground gently enough, and I cannot believe that the mere extension of the skin enabled it to skim so far. It must be still further aided by its organization. Perhaps it fills itself with air first. Perhaps I had a fairer view than common of its flight, now at 3.30 p. m. Audubon and Bachman say *he* saw it skim "about fifty yards," curving upwards at the end and alighting on the trunk of a tree. This in a meadow

in which were scattered oaks and beeches. This near Philadelphia. Wesson [?] says he has seen them fly five or six rods.

Kicking over the hemlock stump, which was a mere shell with holes below, and a poor refuge, I was surprised to find a little nest at the bottom, open above just like a bird's nest, a mere bed. It was composed of leaves, shreds of bark, and dead pine-needles. As I remember, it was not more than an inch and a half broad when at rest, but when skimming through the air I should say it was four inches broad. This is the impression I now have. Captain John Smith says it is said to fly thirty or forty yards. Audubon and Bachman quote one Gideon B. Smith, M. D., of Baltimore, who has had much to do with these squirrels and speaks of their curving upward at the end of their flight to alight on a tree-trunk and of their "flying" into his windows. In order to perform all these flights, — to strike a tree at such a distance, etc., etc., — it is evident it must be able to steer. I should say that mine steered as a hawk that moves without flapping its wings, never being able, however, to get a new impetus after the first spring.

C. saw geese to-night.

March 24. I think that the celandine *started* as early as the 10th of March and has since been nibbled off by hens, etc., for it shows more green but [is] not longer.

P. M. — Up Assabet by boat.

A cold and blustering afternoon after a flurry of

snow which has not fairly whitened the ground. I see a painted tortoise at the bottom moving slowly over the meadow. They do not yet put their heads out, but merely begin to venture forth into their calmer element. It is almost as stationary, as inert, as the pads as yet.

Passing up the Assabet, by the Hemlocks, where there has been a slide and some rocks have slid down into the river, I think I see how rocks come to be found in the midst of rivers. Rivers are continually changing their channels, — eating into one bank and adding their sediment to the other, — so that frequently where there is a great bend you see a high and steep bank or hill on one side, which the river washes, and a broad meadow on the other. As the river eats into the hill, especially in freshets, it undermines the rocks, large and small, and they slide down, alone or with the sand and soil, to the water's edge. The river continues to eat into the hill, carrying away all the lighter parts [of] the sand and soil, to add to its meadows or islands somewhere, but leaves the rocks where they rested, and thus in course of time they occupy the middle of the stream and, later still, the middle of the meadow, perchance, though it may be buried under the mud. But this does not explain how so many rocks lying in streams have been split in the direction of the current. Again, rivers appear to have travelled back and worn into the meadows of their creating, and then they become more meandering than ever. Thus in the course of ages the rivers wriggle in their beds, till it feels comfortable under them. Time is cheap and rather insignificant.

It matters not whether it is a river which changes from side to side in a geological period or an eel that wriggles past in an instant.

The scales of alders which have been broken by the ice and are lying in the water are now visibly loosened, as you look endwise at the catkins, and the catkins are much lengthened and enlarged. The white maple buds, too, show some further expansion methinks (?).

The last four days, including this, have been very cold and blustering. The ice on the ponds, which was rapidly rotting, has somewhat hardened again, so that you make no impression on it as you walk. I crossed Fair Haven Pond yesterday, and could have crossed the channel there again. The wind has been for the most part northwesterly, but yesterday was strong southwesterly yet cold. The northwesterly comes from a snow-clad country still, and cannot but be chilling. We have had several flurries of snow, when we hoped it would snow in earnest and the weather be warmer for it. It is too cold to think of those signs of spring which I find recorded under this date last year. The earliest signs of spring in vegetation noticed thus far are the maple sap, the willow catkins (and poplars? not examined early), the celandine (?), grass on south banks, and *perhaps* cowslip in sheltered places. Alder catkins loosened, and also white maple buds loosened (?).

I am not sure that the osiers are decidedly brighter yet.

March 25. P. M. — To Ministerial Lot.

Still cold and blustering. The ditches where I have seen salamanders last year before this are still frozen up. Was it not a sucker I saw dart along the brook beyond Jenny's? I see where the squirrels have fed extensively on the acorns now exposed on the melting of the snow. The ground is strewn with the freshly torn shells and nibbled meat in some places.

March 26. 6 A. M. — Still cold and blustering; wind southwest, but clear.

I see a muskrat-house just erected, two feet or more above the water and sharp; and, at the Hubbard Bath, a mink comes teetering along the ice by the side of the river. I am between him and the sun, and he does not notice me. He runs daintily, lifting his feet with a jerk as if his toes were sore. They seem to go a-hunting at night along the edge of the river; perhaps I notice them more at this season, when the shallow water freezes at night and there is no vegetation along the shore to conceal them.

The lark sings, perched on the top of an apple tree, *seel-yah seel-yah*, and then perhaps *seel-yah-see-e*, and several other strains, quite sweet and plaintive, contrasting with the cheerless season and the bleak meadow. Further off I hear one like *ah-tick-seel-yah*.

P. M. — Sail down to the Great Meadows.

A strong wind with snow driving from the west and thickening the air. The farmers pause to see me scud before it. At last I land and walk further down on the meadow-bank. I scare up several flocks of ducks. There is but little water on the meadow,

and that far down and partly frozen, but a great many acres of the meadow-crust have there been lifted and broken up by the ice and now make hundreds of slanting isles amid the shallow water, looking like waves of earth, and amid these the ducks are sailing and feeding. The nearest are two, apparently middle-sized with black heads, white breast and wings and apparently all above but the tail or tips of wings, which are black.¹ A third with them is apparently all dark. I do not know what to call them. You are much more sure to see ducks in a stormy afternoon like this than in a bright and pleasant one. Returning, I see, near the Island, two ducks which have the marks (one of them) of the wood duck (*i. e.* one or two longitudinal white stripes down the head and neck), but when they go over I hear distinctly and for a long time the whistling of their wings, fine and sharp. Are they golden-eyes, or whistlers?²

For several weeks, or since the ice has melted, I notice the paths made by the muskrats when the water was high in the winter, leading from the river up the bank to a bed of grass above or below the surface. When it runs under the surface I frequently slump into it and can trace it to the bed by the hollow sound when I stamp on the frozen ground. They have disfigured the banks very much in some places, only the past winter. Clams have been carried into these galleries a rod or more under the earth. The galleries kept on

¹ Probably sheldrakes.

² [Later:] Were they the harlequin duck? [Later still:] Probably male and female wood duck.

the surface and terminated perhaps at some stump where the earth was a little raised, where the ice still remained thick over them after the water had gone down.

I was surprised to find fishworms only four inches beneath the surface in the meadow, close against the frozen portion of the crust. A few may also be found on the bottom of brooks and ditches in the water, where they are probably food for the earliest fishes. Is that little flat moss-like or jungermannia-like plant on Cheney's shore the *Selaginella apus*? It reminds me of the finest lace-work.

March 27. 6.30 A. M. — To Island.

The ducks sleep these nights in the shallowest water which does not freeze, and there may be found early in the morning. I think that they prefer that part of the shore which is permanently covered.

Snow last evening, about one inch deep, and now it [is] fair and somewhat warmer. Again I see the tracks of rabbits, squirrels, etc. It would be a good time this forenoon to examine the tracks of woodchucks and see what they are about.

P. M. — To Hubbard's Close and down brook.

Measured a black oak just sawed down. Twenty-three inches in diameter on the ground, and fifty-four rings. It had grown twice as much on the east side as on the west. The *Fringilla linaria* still here. Saw a wood tortoise in the brook. Am surprised to see the cowslip so forward, showing so much green, in

E. Hubbard's Swamp, in the brook, where it is sheltered from the winds. The already expanded leaves rise above the water. If this is a spring growth,¹ it is the most forward herb I have seen, as forward as the celandine.

Saw my frog hawk. (C. saw it about a week ago.) Probably *Falco fuscus*, or sharp-shinned, though not well described by Wilson. Slate-colored; beating the bush; black tips to wings and white rump.²

March 28. P. M. — To Cliffs, along river.

It is colder than yesterday; wind strong from northwest. The mountains are still covered with snow. They have not once been bare. I go looking for meadow mice nests, but the ground is frozen so hard, except in the meadow below the banks, that I cannot come at them. That portion of the meadow next the upland, which is now thawed, has already many earthworms in it. I can dig a quantity of them, — I suspect more than in summer. Moles might already get their living there. A yellow-spotted tortoise in a still ditch, which has a little ice also. It at first glance reminds me of a bright freckled leaf, skunk-cabbage scape, perhaps. They are generally quite still at this season, or only slowly put their heads out (of their shells). I see where a skunk (apparently) has been probing the sod, though it is thawed but a few inches, and all around this spot frozen hard still. I dig up there a frozen and dead white grub, the large potato grub; this I think he was after. The skunk's nose has made

¹ Yes. ² No, it is the hen-harrier [*i. e.* marsh hawk], male.

small round holes such as a stick or cane would make. The river has not yet quite worn its way through Fair Haven Pond, but probably will to-morrow.

I run about these cold and blustering days, on the whole perhaps the worst to bear in the year, — partly because they disappoint expectation, — looking almost in vain for some animal or vegetable life stirring. The warmest springs hardly allow me the glimpse of a frog's heel as he settles himself in the mud, and I think I am lucky if I see one winter-defying hawk or a hardy duck or two at a distance on the water. As for the singing of birds, — the few that have come to us, — it is too cold for them to sing and for me to hear. The bluebird's warble comes feeble and frozen to my ear. We still walk on frozen ground, though in the garden I can thrust a spade in about six inches.

Over a great many acres, the meadows have been cut up into great squares and other figures by the ice of February, as if ready to be removed, sometimes separated by narrow and deep channels like muskrat-paths, but oftener the edges have been raised and apparently stretched and, settling, have not fallen into their places exactly but lodged on their neighbors.

Even yet you see cakes of ice surmounted by a shell of meadow-crust, which has preserved it, while all around is bare meadow.

March 29. P. M. — To Flint's Pond.

Flint's Pond is entirely open: may have been a day or two. There was only a slight opening about the

boat-house on the 21st, and the weather has been very cold ever since.

Walden is more than half open, Goose Pond only a little about the shores, and Fair Haven Pond only *just* open over the channel of the river. There is washed up on the shore of Flint's some pretty little whorls of the radical leaves of the *Lobelia Dortmanna*, with its white root-fibres.

As I stand on Heywood's Peak, looking over Walden, more than half its surface already sparkling blue water, I inhale with pleasure the cold but wholesome air like a draught of cold water, contrasting it in my memory with the wind of summer, which I do not thus eagerly swallow. This, which is a chilling wind to my fellow, is decidedly refreshing to me, and I swallow it with eagerness as a panacea. I feel an impulse, also, already, to jump into the half-melted pond. This cold wind is refreshing to my palate, as the warm air of summer is not, methinks. I love to stand there and be blown on as much as a horse in July. A field of ice nearly half as big as the pond has drifted against the eastern shore and crumbled up against it, forming a shining white wall of its fragments.

March 30. 6.30 A. M. — To Island.

It is a *little* warmer than of late, though still the shallows are skimmed over.

The pickerel begin to dart from the shallowest parts not frozen. I hear many *phe-be* notes from the chickadees, as if they appreciated this slightly warmer and sunny morning.

A fine day. As I look through the window, I actually *see* a warmer atmosphere with its fine shimmer against the russet hills and the dry leaves, though the warmth has not got into the house and it is no more bright nor less windy than yesterday, or many days past. I find that the difference to the eye is a slight haze, though it is but very little warmer than yesterday.

To-day and yesterday have been bright, windy days, — west wind, cool, yet, compared with the previous colder ones, pleasantly, gratefully cool to me on my cheek. There is a very perceptible greenness on our south bank now, but I cannot detect the slightest greenness on the south side of Lee's Hill as I sail by it. It is a perfectly dead russet.

The river is but about a foot above the lowest summer level.

I have seen a few *F. hyemalis* about the house in the morning the last few days. You see a few blackbirds, robins, bluebirds, tree sparrows, larks, etc., but the song sparrow chiefly is heard these days.

He must have a great deal of life in him to draw upon, who can pick up a subsistence in November and March. Man comes out of his winter quarters this month as lean as a woodchuck. Not till late could the skunk find a place where the ground was thawed on the surface. Except for science, do not travel in such a climate as this in November and March. I tried if a fish would take the bait to-day; but in vain; I did not get a nibble. Where are they? I read that a great many bass were taken in the Merri-

mack last week. Do not the suckers move at the same time?

March 31. I see through the window that it is a very fine day, the first really warm one. I did not know the whole till I came out at 3 p. m. and walked to the Cliffs.

The slight haze of yesterday has become very thick, with a southwest wind, concealing the mountains. I can see it in the air within two or three rods, as I look against the bushes. The fuzzy gnats are in the air, and bluebirds, whose warble is thawed out. I am uncomfortably warm, gradually unbutton both my coats, and wish that I had left the outside one at home. I go listening for the croak of the first frog, or peep of a hylodes.

It is suddenly warm, and this amelioration of the weather is incomparably the most important fact in this vicinity. It is incredible what a revolution in our feelings and in the aspect of nature this warmer air alone has produced. Yesterday the earth was simple to barrenness, and dead, — *bound out*. Out-of-doors there was nothing but the wind and the withered grass and the cold though sparkling blue water, and you were driven in upon yourself. Now you would think that there was a sudden awakening in the very crust of the earth, as if flowers were expanding and leaves putting forth; but not so; I listen in vain to hear a frog or a new bird as yet; only the frozen ground is melting a little deeper, and the water is trickling down the hills in some places. No, the change is

mainly in us. We feel as if we had obtained a new lease of life. Some juniper (*repens*) berries are blue now. Looking from the Cliffs I see that Walden is open to-day first, and Fair Haven Pond will open by day after to-morrow.¹

¹ No. *Vide* Apr. 4th.