VII

JANUARY, 1859

(ÆT. 41)

Jan. 2. P. M. — To Cliffs and Walden.

Going up the hill through Stow's young oak woodland, I listen to the sharp, dry rustle of the withered oak leaves. This is the voice of the wood now. It would be comparatively still and more dreary here in other respects, if it were not for these leaves that hold on. It sounds like the roar of the sea, and is enlivening and inspiriting like that, suggesting how all the land is seacoast to the aerial ocean. It is the sound of the surf, the rut of an unseen ocean, billows of air breaking on the forest like water on itself or on sand and rocks. It rises and falls, wells and dies away, with agreeable alternation as the sea surf does. Perhaps the landsman can foretell a storm by it. It is remarkable how universal these grand murmurs are, these backgrounds of sound, — the surf, the wind in the forest, waterfalls, etc., — which yet to the ear and in their origin are essentially one voice, the earth-voice, the breathing or snoring of the creature. The earth is our ship, and this is the sound of the wind in her rigging as we sail. Just as the inhabitant of Cape Cod hears the surf ever breaking on its shores, so we countrymen hear this kindred surf on the leaves of the forest. Regarded as a voice, — though it is not articulate, —

as our articulate sounds are divided into vowels (but this is nearer a consonant sound), labials, dentals, palatals, sibilants, mutes, aspirate, etc., so this may be called *folial* or *frondal*, produced by air driven against the leaves, and comes nearest to our sibilants or aspirate.

The color of young oaks of different species is still distinct, but more faded and blended, becoming a more uniform brown. Michaux said that white oaks would be distinguished by their retaining their leaves in the winter, but as far as my observation goes they cannot be so distinguished. All our large oaks may retain a few leaves at the base of the lower limbs and about the trunks, though only a few, and the white oak scarcely more than the others, while the same trees when young are all alike thickly clothed in the winter, but the leaves of the white oaks are the most withered and shrivelled of them all.

Why do young oaks retain their leaves while old ones shed them? Why do they die on the stem, having some life at the base in the one case, while they wither through at the base in the other case? Is it because in the former case they have more sap and vigor?

There being some snow on the ground, I can easily distinguish the forest on the mountains (the Peterboro Hills, etc.) and tell which are forested, those parts and those mountains being dark like a shadow. I cannot distinguish the forest thus far in the summer.

The white pines, etc., as I look down on them from this hill, are now darker, as becomes the sterner season, like a frost-bitten apple, — a sombre green.

When I hear the hypercritical quarrelling about grammar and style, the position of the particles, etc., etc., stretching or contracting every speaker to certain rules of theirs, — Mr. Webster, perhaps, not having spoken according to Mr. Kirkham's rule, — I see that they forget that the first requisite and rule is that expression shall be vital and natural, as much as the voice of a brute or an interjection: first of all, mother tongue; and last of all, artificial or father tongue. Essentially your truest poetic sentence is as free and lawless as a lamb's bleat. The grammarian is often one who can neither cry nor laugh, yet thinks that he can express human emotions. So the posture-masters tell you how you shall walk, — turning your toes out, perhaps, excessively, — but so the beautiful walkers are not made.

Mediæval, or law, Latin seems to have invented the word "forest," not being satisfied with *silva*, *nemus*, etc. Webster makes it from the same root with "L. *foris*, Fr. *hors*, and the Saxon *faran*, to go, to depart." The allied words "all express distance from cities and civilization, and are from roots expressing departure or wandering," — as if this newer term were needed to describe those strange, wild woods furthest from the centres of civilization.

The earth, where quite bare, is now, and for five or six weeks, russet without any lively red, — not golden-russet.

I notice on the top of the Cliffs that the extremities of the smooth sumach are generally dead and withered, while those of the staghorn, which are so downy, are

alive. Is this a prevailing difference? Which extends furthest north?

The outside bark-scales of some large pitch pines in the midst of the woods having dropped off gives a peculiar flatness to the ridges, as if it had been shaved or scraped.

Minott says that a fox will lead a dog on to thin ice in order that he may get in. Tells of Jake Lakin losing a hound so, which went under the ice and was drowned below the Holt; was found afterward by Sted. Buttrick, his collar taken off and given to Lakin. They used to cross the river there on the ice, going to market, formerly.

Looking from the southwest side of Walden toward Heywood's Peak before sunset, the brown light on the oak leaves is almost dazzling.

Jan. 3. Having had rain within a few days on the four or five inches of snow there was, making slosh of it without melting the hard frozen ground, the slosh and surface water have now frozen, making it pretty good skating in the roads generally. I walked to Acton, but might have skated well half or two thirds the way.

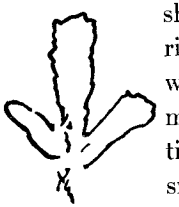
Many of the clusters of the smooth sumach are now a very dark crimson.

Jan. 4. A northeast snow-storm, or rather a north snow-storm, very hard to face. P. M. to Walden in it. It snows very hard, driving along almost horizontally, falling but a foot or two in a rod. Nobody is in the

street, or thinks of going out far except on important business. Most roads are trackless. The snow may be now fifteen to eighteen inches deep. As I go along the causeway, I find it is one thing to go south, or from the wind, another to face it. I can see through the storm a house or large tree only a quarter of a mile; beyond all is white falling snow. Woods and single trees seen through this air are all dark or black. The surface of the snow is in great waves whose ridges run from east to west, about a rod apart, or generally less, — say ten feet, — low and gentle swells. The small white pines stand thus, the lower branches loaded and bent down the ground, while the upper are commonly free and erect: —

But the pitch pines near Thrush Alley are the most interesting objects, for they hold much more snow. The snow lodges on their plumes, and, bending them down, it accumulates more and more on the angle generally at the base of the several plumes, in little conical heaps shaped somewhat like this: —

differing according to the number and position of the plumes. They look as if a child had stuck up its elbow under a white sheet. Some small ones stand stiffly upright like a soldier's plume. Several trees will be so fallen together and intermingled that you do not see them distinctly. At the same time the lowermost small black and dead horizontal limbs near the ground, where there is least wind and jar, — these almost exclusively, — say for six or eight feet up, are covered with upright walls of snow five or six times their own height and zigzagging with them like the Wall of China; or like great white caterpillars they lie along them, these snowy sloths; or rather it is a labyrinth, a sort of cobweb, of broad white belts in the air. Only a dim twilight struggles through to this lower region, and the sight of these snowy walls or labyrinths suggests a rare stillness, freedom from wind and jar. If you try to stoop and wind your way there, you get your neck and ears full of snow.



I can't draw it. That is, for each dead pine branch you have a thin flat branch of snow resting on it, an exaggeration of the former. It is a still white labyrinth of snowy purity, and you can look far into its recesses under the green and snowy canopy, — a labyrinth of which, perchance, a rabbit may have the clue. I noticed one pitch pine about three feet high so snowed up, and its branches all drooping, it looked like a draped statue or a white-ant hill.

In the woods the snow is often two feet deep, and you must walk at a very deliberate pace if you would keep it up. Still the withered hoary goldenrods (chiefly *S. nemoralis*) and asters (perhaps oftenest *A. dumosus*) rise above the snow here and there, — gray weeds, sufficiently dry and everlasting. The oak leaves, especially the black oak leaves, are very agreeable and wholesome colors. The deeper the snow, the more universal the whiteness, the more agreeable is this color.

Your breath causes the snow to turn to ice in your beard; a shaggy mass of icicles it becomes, which makes you look like a man from the extreme north.

When it grew late, the air being thick and unelastic in this storm, I mistook the distant sound of the locomotive whistle for the hoot of an owl. It was quite like it. I see, nevertheless, a few tree sparrows about, looking chubbier than ever, their feathers being puffed up, and flitting and twittering merrily along the fence.

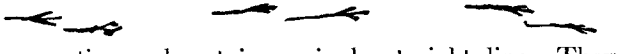
Turning north, the large rather moist flakes actually put out your eyes, and you must manage to look through the merest crack. Even in the midst of the storm I see where great clouds of fine snow roll down the wood-side,

the wind shaking the snow from the trees. It looks like the vapor from the locomotive.

Jan. 5. As I go over the causeway, near the railroad bridge, I hear a fine busy twitter, and, looking up, see a nuthatch hopping along and about a swamp white oak branch, inspecting every side of it, as readily hanging head-downwards as standing upright, and then it utters a distinct *gnah*, as if to attract a companion. Indeed, that other, finer twitter seemed designed to keep some companion in tow, or else it was like a very busy man talking to himself. The companion was a single chickadee, which lisped six or eight feet off. There were, perhaps, no other birds than these two within a quarter of a mile. And when the nuthatch flitted to another tree two rods off, the chickadee unfailingly followed.

Jan. 6. P. M. — To M. Miles's.

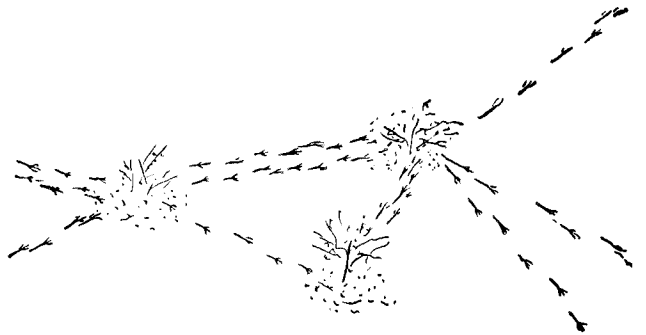
Near Nut Meadow Brook, on the Jimmy Miles road, I see a flock of snow buntings. They are feeding exclusively on that ragged weed which I take to be Roman wormwood.[1] Their tracks where they sink in the snow are very long, *i. e.*, have a very long heel, thus:



or sometimes almost in a single straight line. They made notes when they went, — sharp, rippling, like a vibrating spring. They had run about to every such such [*sic*], leaving distinct tracks raying from and to them, while the snow immediately about the weed was

[1] ["Which I take to be" is crossed out in pencil.]

so tracked and pecked where the seeds fell that no track was distinct.



And much more tracked up

Miles had hanging in his barn a little owl (*Strix Acadica*) which he caught alive with his hands about a week ago. He had forced it to eat, but it died. It was a funny little brown bird, spotted with white, seven and a half inches long to the end of the tail, or eight to the end of the claws, by nineteen in alar extent, — not so long by considerable as a robin, though much stouter. This one had three (not two)[1] *white* bars on its tail, but no noticeable white at the tip. Its cunning feet were feathered quite to the extremity of the toes, looking like whitish (or tawny-white) mice, or as when one pulls stockings over his boots. As usual, the white spots on the upper sides of the wings are smaller and a more distinct white, while those beneath are much larger, but a subdued, satiny white. Even a bird's wing has an upper and under side, and the last admits only of more subdued and tender colors.

[1] Nuttall says three.

Jan. 9. At sundown to Walden.

Standing on the middle of Walden I see with perfect distinctness the form and outlines of the low hills which surround it, though they are wooded, because they are quite white, being covered with snow, while the woods are for the most part bare or very thin-leaved. I see thus the outline of the hills eight or ten rods back through the trees. This I can never do in the summer,

when the leaves are thick and the ground is nearly the same color with them. These white hills are now seen as through a veil of stems. Immediately after the wood was cut off, this outline, of course, was visible at all seasons, but the wood, springing up again, concealed it, and now the snow has come to reveal the lost outline.

The sun has been set some minutes, and as I stand on the pond looking westward toward the twilight sky, a soft, satiny light is reflected from the ice in flakes here and there, like the light from the under side of a bird's wing. It is worth the while to stand here at this hour and look into the soft western sky, over the pines whose outlines are so rich and distinct against the clear sky. I am inclined to measure the angle at which [a] pine bough meets the stem. That soft, still, cream-colored sky seems the scene, the stage or field, for some rare drama to be acted on.

C. says the winter is the sabbath of the year. The perfect winter days are cold, but clear and bright.

Jan. 10. P. M. — Up Assabet to Sam Barrett's Pond.

Cold weather at last; − 8° this forenoon. This is much the coldest afternoon to bear as yet, but, cold as it is, — four or five below at 3 P. M., — I see, as I go round the Island, much vapor blowing from a bare space in the river just below, twenty rods off. I see, in the Island wood, where squirrels have dug up acorns in the snow, and frequently where they have eaten them on the trees and dropped the shells about on the snow.

Hemlock is still falling on the snow, like the pitch pine. The swamp white oaks apparently have fewer leaves — are less likely to have any leaves, even the small ones — than any oaks except the chinquapin, methinks. Here is a whole wood of them above Pinxter Swamp, which you may call bare.

Even the tawny (?) recent shoots of the black willow, when seen thickly and in the sun along the river, are a warm and interesting sight. These gleaming birch and alder and other twigs are a phenomenon still perfect, — that gossamer or cobweb-like reflection.

The middle of the river where narrow, as south side Willow Island, is lifted up into a ridge considerably higher than on the sides and cracked broadly.

The alder is one of the prettiest of trees and shrubs in the winter, it is evidently so full of life, with its conspicuous pretty red catkins dangling from it on all sides. It seems to dread the winter less than other plants. It has a certain heyday and cheery look, and less stiff than most, with more of the flexible grace of summer. With those dangling clusters of red catkins which it switches in

the face of winter, it brags for all vegetation. It is not daunted by the cold, but hangs gracefully still over the frozen stream.

At Sam Barrett's Pond, where Joe Brown is now getting his ice, I think I see about ten different freezings in ice some fifteen or more inches thick. Perhaps the successive cold nights might be discovered recorded in each cake of ice.

See, returning, amid the Roman wormwood in front of the Monroe place by the river, half a dozen goldfinches feeding just like the sparrows. How warm their yellow breasts look! They utter the goldfinches' watery twitter still.

I come across to the road south of the hill to see the pink on the snow-clad hill at sunset.

About half an hour before sunset this intensely clear cold evening (thermometer at five − 6°), I observe all the sheets of ice (and they abound everywhere now in the fields), when I look from one side about at right angles with the sun's rays, reflect a green light. This is the case even when they are in the shade. I walk back and forth in the road waiting to see the pink. The windows on the skirts of the village reflect the setting sun with intense brilliancy, a dazzling glitter, it is so cold. Standing thus on one side of the hill, I begin to see a pink light reflected from the snow there about fifteen minutes before the sun sets. This gradually deepens to purple and violet in some places, and the pink is very distinct, especially when, after looking at the simply white snow on other sides, you turn your eyes to the hill. Even after all direct sunlight is withdrawn from the hill-

top, as well as from the valley in which you stand, you see, if you are prepared to discern it, a faint and delicate tinge of purple or violet there. This was in a very clear and cold evening when the thermometer was – 6°. This is one of the phenomena of the winter sunset, this distinct pink light reflected from the brows of snow-clad hills on one side of you as you are facing the sun.

The cold rapidly increases; it is – 14° in the evening.

I hear the ground crack with a very loud sound and a great jar in the evening and in the course of the night several times. It is once as loud and heavy as the explosion of the Acton powder-mills. This cracking is heard all over New England, at least, this night.

Jan. 11. At 6 A. M. – 22° and how much more I know not, ours having gone into the bulb; but that is said to be the lowest.

Going to Boston to-day, I find that the cracking of the ground last night is the subject of conversation in the cars, and that it was quite general. I see many cracks in Cambridge and Concord. It would appear then that the ground cracks on the advent of very severe cold weather. I had not heard it before, this winter. It was so when I went to Amherst a winter or two ago.

Jan. 12. Mr. Farmer brings me a hawk which he thinks has caught thirty or forty of his chickens since summer, for he has lost so many, and he has seen a hawk *like* this catch some of them. Thinks he has seen this same one sitting a long time upright on a tree, high

or low, about his premises, and when at length a hen or this year's chicken had strayed far from the rest, it skimmed along and picked her up without pausing, and bore her off, the chicken not having seen him approaching. He found this, caught by one leg and frozen to death, in a trap which he had set for mink by a spring and baited with fish.

This measures nineteen by forty-two inches and is, according to Wilson and Nuttall, a young *Falco lineatus*, or red-shouldered hawk. It might as well be called red or rusty breasted hawk.[1] Nuttall says it lives on frogs, crayfish, etc., and does not go far north, — not even to Massachusetts, he thought. Its note, *kee-oo*. He never saw one soar, at least in winter. According to all accounts Wilson's *Falco hyemalis* is the old of this bird, for there is a remarkable difference between old and young.

Mine agrees with Wilson's *F. lineatus*, or the young, except that the greater wing-coverts and secondaries are hardly what I should call "pale olive brown thickly spotted," etc., but rather dusky-brown, somewhat indistinctly barred with whitish (which is pure white on each edge of the feathers) and edged with rusty; that the shafts of the breast-feathers are only dark-brown; that the tail is not quite black, but very dark brown, and is not "broadly tipped" with white, but only with a quarter of an inch of it; vent not "pale ochre," but white; legs and feet hardly fine yellow, but dull greenish-yellow; femorals as bright rusty as the breast. It differs from Wilson's winter falcon, which is considered by Audubon and Brewer the same as the *lineatus*,

[1] According to *Birds of Long Island*, mine is the old bird (??).

in not having what I should call a "tooth in the upper mandible;" head, sides of neck, etc., hardly "streaked with white;" above, all primaries and exterior tail-feathers not "brownish orange," and tail not "barred alternately with dark and pale brown," its inner veins and coverts not "white;" and what is very important, the breast and beneath is not "white."

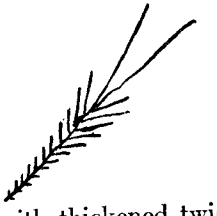
Since Nuttall makes it a southern bird, and it is not likely to come north in the winter, it would seem that it breeds here.

Farmer says that he saw what he calls the common hen-hawk, one soaring high with apparently a chicken in its claws, while a young hawk circled beneath, when former suddenly let drop the chicken, but the young failing to catch, he shot down like lightning and caught and bore off the falling chicken before it reached the earth.

Jan. 13. The cold spell is over, and here this morning is a fog or mist; the wind, if there is any, I think, northerly; and there is built out horizontally on the north side of every twig and other surface a very remarkable sort of hoar frost, the crystallized fog, which is still increasing. Mr. Edwin Morton was telling me night before last of a similar phenomenon witnessed in central New York, the fog of highlands or mountains crystallizing in this way and forming a white fringe or frost on the trees even to an inch and a half. This is already full an inch deep on many trees, and gets to be much more, perhaps an inch and a half even, on some in the course of the day. It is quite rare here, at least on

this scale. The mist lasts all this day, though it is far from warm (+ 11° at 8 A. M.), and till noon of the 14th, when it becomes rain, and all this time there is exceedingly little if any wind.

I go to the river this morning and walk up it to see the trees and bushes along it. As the frostwork (which is not thin and transparent like ice, but white and snow-like, or between the distinctly leaf with veins and a mere aggregation of snow, though you easily distinguish the distinct leaves) is built out northward from each surface, spreading at an angle of about forty-five degrees, *i.e.* some twenty-odd each side of the north, you must stand on the north side and look south at the trees, etc., when they appear, except the large limbs and trunk, wholly of snow or frostwork, mere ghosts of trees, seen softly against the mist for a background. It is mist on mist. The outline and character of each tree is more distinctly exhibited, being exaggerated, and you notice any peculiarity in the disposition of the twigs. Some elm twigs, thus enlarged into snowy fingers, are strikingly regular and handsome, thus:



In the case of most evergreens, it amounts to a very rich sugaring, being so firmly attached. The weeping willow seems to weep with more remarkable and regular curve than ever, and stands still and white with thickened twigs, as if carved in white marble or alabaster. Those trees, like alders, which have not

grown much the past year — which have short and angular twigs — are the richest in effect. The end of each alder twig is recurved where the drooping catkin is concealed. On one side you see the dark-brown fruit, but on the north that too is concealed.

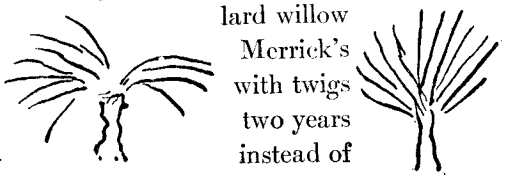
I can see about a quarter of a mile through the mist, and when, later, it is somewhat thinner, the woods, the pine woods, at a distance are a dark-blue color.

Jan. 14. The fog-frosts and the fog continue, though considerable of the frostwork has fallen.

This forenoon I walk up the Assabet to see it. The hemlocks are perhaps a richer sight than any tree, — such Christmas trees, thus sugared, as were never seen. On [*sic*] side you see more or less greenness, but when you stand due north they are unexpectedly white and rich, so beautifully still, and when you look under them you see some great rock, or rocks, all hoary with the same, and a finer frost on the very fine dead hemlock twigs there and on hanging roots and twigs, quite like the cobwebs in a grist-mill covered with meal, — and it implies a stillness like that; or it is like the lightest down glued on. The birch, from its outline and its numerous twigs, is also one of the prettiest trees in this dress.

The fog turns to a fine rain at noon, and in the evening and night it produces a glaze, which this morning, —

Jan. 15, — is quite handsome. Instead of that soft, white, faery-like mantle of down with which the trees

were thickly powdered, they are now cased in a coat of mail, of icy mail, built out in many cases about as far from the twig with icy prominences. Birches, tree-tops, and especially slender-twigged willows or osiers are bent over by it, as they were not by the snow-white and light frost of yesterday and the day before, so that the character or expression of many trees and shrubs is wholly altered. I might not guess what the pollard willow row at Merrick's shore, with twigs one or two years old, was, —  instead of

The fog still continues through, and succeeding to, the rain. The third day of fog. The thermometer at 7.30 or 8 A. M. is at 33°.

Jan. 16. P. M. — To Walden and thence *via* Cassandra Ponds to Fair Haven and down river.

There is still a good deal of ice on the north sides of woods and in and about the sheltered swamps. As we go southwestward through the cassandra hollows toward the declining sun,[1] they look successively, both by their form and color, like burnished silvery shields in the midst of which we walked, looking toward the sun. The whole surface of the snow the country over, and of the ice, as yesterday, is rough, as if composed of hailstones half melted together. This being the case, I noticed yesterday, when walking on the river, that where there was little or no snow and this rough sur-

[1] [Channing, p. 111.]

face was accordingly dark, you might have thought that the ice was covered with cinders, from the innumerable black points reflecting the dark water. My companion thought that cinders had fallen on that part of the ice.

The snow which three-quarters conceals the cassandra in these ponds, and every twig and trunk and blade of withered sedge, is thus covered or cased with ice, and accordingly, as I have said, when you go facing the sun, the hollows look like a glittering shield set round with brilliants.[1] That bent sedge in the midst of the shield, each particular blade of it being married to an icy wire twenty times its size at least, shines like polished silver rings or semicircles. It must have been far more splendid here yesterday, before any of the ice fell off. No wonder my English companion[2] says that our scenery is more spirited than that of England. The snow-crust is rough with the wreck of brilliants under the trees, — an inch or two thick with them under many trees, where they last several days.

When, this evening, I took a split hickory stick which was very slightly charred or scorched, but quite hot, out of my stove, I perceived a strong scent precisely like that of a burnt or roasted walnut, — as was natural enough.

Jan. 18. That wonderful frostwork of the 13th and 14th was too rare to be neglected, — succeeded as it

[1] [Channing, p. 111.]

[2] [Thomas Cholmondeley. In his letter of Jan. 19, 1859, to Mr. Blake, Thoreau says "Cholmondeley has been here again," etc. (*Familiar Letters*, p. 349; Riv. 406).]

was, also, by two days of glaze, — but, having company, I lost half the advantage of it. It was remarkable to have a fog for four days in midwinter without wind. We had just had sudden severe cold weather, and I suspect that the fog was occasioned by a warmer air, probably from the sea, coming into contact with our cold ice-and-snow-clad earth. The hoar frost formed of the fog was such a one as I do not remember on such a scale. Apparently as the fog was coarser and far more abundant, it was whiter, less delicate to examine, and of far greater depth than a frostwork formed of dew. We did not have an opportunity to see how it would look in the sun, but seen against the mist or fog it was too fair to be remembered. The trees were the ghosts of trees appearing in their winding-sheets, an intenser white against the comparatively dusky ground of the fog. I rode to Acton in the afternoon of the 13th, and I remember the wonderful avenue of these faery trees which everywhere overarched my road. The elms, from their form and size, were particularly beautiful. As far as I observed, the frostwork was deepest in the low grounds, especially on the *Salix alba* there. I learn from the papers that this phenomenon prevailed all over this part of the country and attracted the admiration of all. The trees on Boston Common were clad in the same snow-white livery with our Musketaquid trees.

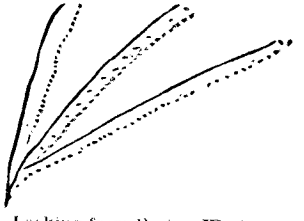
Perhaps the most unusual thing about this phenomenon was its duration. The air seemed almost perfectly still the first day, and I did not perceive that the frosting lost anything; nay, it evidently grew during the first

half of the day at least, for it was cold at the same time that it was foggy.

Every one, no doubt, has looked with delight, holding his face low, at that beautiful frostwork which so frequently in winter mornings is seen bristling about the throat of every breathing-hole in the earth's surface. In this case the fog, the earth's breath made visible, was in such abundance that it invested all our vales and hills, and the frostwork, accordingly, instead of being confined to the chinks and crannies of the earth, covered the mightiest trees, so that we, walking beneath them, had the same wonderful prospect and environment that an insect would have in the former case. We, going along our roads, had such a prospect as an insect would have making its way through a chink in the earth which was bristling with hoar frost.

That glaze! I know what it was by my own experience; it was the frozen breath of the earth upon its beard.

But to remember still that frostwork, I do not know why it should build out northward alone, while the twig is perfectly bare on the south side. Is not the phenomenon electrical? You might have guided yourself night or day by observing on which side the twigs it was. Closely examined, it is a coarse aggregation of thin flakes or leafets.



Cross-Section of a Twig

Looking from East or West

Standing a little east or west of an evergreen, you saw considerable of its greenness, especially the second day, when much had fallen; but in each case successively you were agreeably disappointed when you arrived exactly north of the tree and saw it to best advantage.

Take the most rigid tree, the whole effect is peculiarly soft and spirit-like, for there is no marked edge or outline. How could you draw the outline of these snowy fingers seen against the fog, without exaggeration? There is no more a boundary-line or circumference that can be drawn, than a diameter. Hardly could the New England farmer drive to market under these trees without feeling that his sense of beauty was addressed. He would be aware that the phenomenon called beauty was become visible, if one were at leisure or had had the right culture to appreciate it. A miller with whom I rode actually remarked on the beauty of the trees; and a farmer told me in all sincerity that, having occasion to go into Walden Woods in his sleigh, he thought he never saw anything so beautiful in all his life, and if there had been men there who knew how to write about it, it would have been a great occasion for them.

Many times I thought that if the particular tree, commonly an elm, under which I was walking or riding were the only one like it in the country, it would [be] worth a journey across the continent to see it. Indeed, I have no doubt that such journeys would be undertaken on hearing a true account of it. But, instead of being confined to a single tree, this wonder was as

cheap and common as the air itself. Every man's wood-lot was a miracle and surprise to him, and for those who could not go so far there were the trees in the street and the weeds in the yard. It was much like (in effect) that snow that lodges on the fine dead twigs on the lower part of a pine wood, resting there in the twilight commonly only till it has done snowing and the wind arises. But in this case it did not rest *on* the twig, but grew out from it horizontally, and it was not confined to the lowest twigs, but covered the whole forest and every surface.

Looking down the street, you might say that the scene differed from the ordinary one as frosted cake differs from plain bread. In some moods you might suspect that it was the work of enchantment. Some magician had put your village into a crucible and it had crystallized thus. The weeping willow, with its thickened twigs, seemed more precise and regularly curved than ever, and as still as if it were carved of alabaster. The maples, with their few long shoots, were rather set and still. It was remarkable that when the fog was a little thinner, so that you could see the pine woods a mile or more off, they were a distinct dark blue. If any tree is set and stiff, it was now more stiff, if airy and graceful, it was now more graceful. The birches especially were a great ornament. As usual in the winter, where a rock rises above the ice it was a mere hillock covered with a white counterpane, and often where one end, perhaps the higher, of the rock was bare on one side it looked like a seal or walrus slowly lifting itself above the surface, or resting there. One

suggested a bonfire under the elms in the street at night.

P. M. — Up Assabet to bridge.

Two or more inches of snow fell last night. In the expanse this side Mantatuket Rock I see the tracks of a crow or crows in and about the button-bushes and willows. They have trampled and pecked much in some spots under the button-bushes where these seeds are still left and dibbled into the snow by them. It would seem, then, that they eat them. The only other seeds there can be there are those of the mikania, for I look for them. You will see a crow's track beginning in the middle of the river, where one alighted. I notice such a track as this, where one alighted, and apparently struck its spread tail into the snow at the same time with its feet. I see afterward where a wing's

quills have marked the snow much like a partridge's. The snow is very light, so that the tracks are rarely distinct, and as they often advance by hops some might mistake it for a squirrel's or mink's track. I suspect that they came here yesterday after minnows when the fishermen were gone, and that has brought them here to-day in spite of the snow. They evidently look out sharp for a morsel of fish. I see where, by the red maple above Pinxter Swamp, they have picked over the fine dark-greenish moss from button-bush, and the leaves which had formed a squirrel's nest, knocking it down on to the river and there

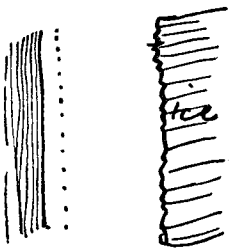
treading about and pecking a small piece, apparently for some worms or insects that were in it, as if they were hard pushed.

I am pretty sure to find tracks under the last-named bank, in the edge of the low swamp white oak wood, either of rabbits or mice, crows or fox. The two former generally keep close under the bank, as the safest beat for them, but sometimes I see where they hopped across the river several times last night, and I can imagine how shyly they looked back from the opposite side. The mice occasionally hop out a rod and back, making a semicircle; more rarely quite across.

In my walk of the 16th, I noticed that almost all the way after leaving the railroad till I reached the highway near Hubbard's Bridge I was on the track of a fox. My beat was nearly identical with its (or there may have been several), — lengthwise through the Cassandra Ponds and Hollows by the lowest and most open path, along the narrow grown-up hillside path to Pleasant Meadow, and just along the edge of the button-bushes, visiting every musquash-house, and crossing the river from time to time.

I notice in midstream, opposite the cooper's shore, where an opening has been made for ice, some eighteen feet square, and has not frozen over again, but the water is seen passing with a swift current and disappearing quickly under the thin edge of the newly formed ice. I notice one of those fine unaccountable cobweb-like lines, nearly straight though undulating, stretched from side to side of this opening, about eight inches from the edge of the ice on the lower side. It looked

at first as if the water, compared with the ice, was higher, in fact heaped up at that point on account of the obstruction which the lower side offered, and that it then suddenly descended and passed under the thin edge of the newly formed ice! The ridge of the watery dam was a narrow light line, and there were on the upper side, parallel with it, eight or ten other light lines or ripples alternating with dark within the breadth of three or four inches, growing less and less distinct; and on the lower side there was a sudden slope (apparently to the level of the water below) about one inch wide. It was remarkable that the current and all that it carried with it passed incessantly through and over these lines without in the least disturbing them, or rather breaking them, only producing that slight undulation. I describe it as it appears.



Of the large black oaks on the north bank near Prescott Barrett's, some are quite bare, others have about as many leaves on their lower parts as a white oak. The swamp white oaks opposite are all bare. I notice in two places where a musquash has been out on the snow-covered ice, and has travelled about a rod or less, leaving the sharp mark of its tail.

To-day, an average winter day, I notice no vapor over the open part of the river below the Island, as I did the very cold afternoon of the 10th. The air and water are probably now too nearly of the same temperature. That, then, in the winter, is a phenomenon of very cold weather.

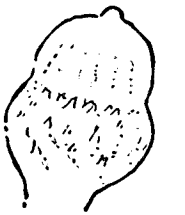
Jan. 19. *Wednesday.* P. M. — To Great Meadows *via* Sleepy Hollow.

It is a remarkably warm, still, and pleasant afternoon for winter, and the wind, as I discover by my handkerchief, southwesterly. I noticed last night, just after sunset, a sheet of mackerel sky far in the west horizon, very finely imbricated and reflecting a coppery glow, and again I saw still more of it in the east this morning at sunrise, and now, at 3.30 P. M., looking up, I perceive that almost the entire heavens are covered with a very beautiful mackerel sky. This indicates a peculiar state of the atmosphere. The sky is most wonderfully and beautifully mottled with evenly distributed cloudlets, of indescribable variety yet regularity in their form, suggesting fishes' scales, with perhaps small fish-bones thrown in here and there. It is white in the midst, or most prominent part, of the scales, passing into blue in the crannies. Something like this blue and white mottling, methinks, is seen on a mackerel, and has suggested the name.[1] Is not the peculiar propriety of this term lost sight of by the meteorologists? It is a luxury for the eye to rest on it. What curtains, what tapestry to our halls! Directly overhead, of course, the scales or cloudlets appear large and coarse, while far on one side toward the horizon they appear very fine. It is as if we were marching to battle with a shield, a testudo, over our heads. I thus see a *flock* of small clouds, like sheep, some twenty miles in diameter, distributed with wonderful regularity. But they are being steadily driven to

[1] *Vide* Feb. 28, 1859.

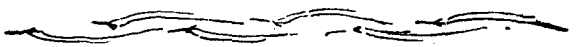
some new pasture, for when I look up an hour afterward not one is to be seen and [the] sky is beautifully clear. The form of these cloudlets is, by the way, like or akin to that of waves, of ripple-marks on sand, of small drifts, wave-like, on the surface of snow, and to the first small openings in the ice of the midstream.

I look at a few scarlet and black oaks this afternoon. Our largest scarlet oak (by the Hollow), some three feet [in] diameter at three feet from ground, has more leaves than the large white oak close by (which has more than white oaks generally). As far as I observe to-day, the scarlet oak has more leaves now than the black oak. Gathered a scarlet oak acorn of this form, and with distinct fine dark stripes or rays, such as a *Quercus ilicifolia* has.



By the swamp between the Hollow and Peter's I see the tracks of a crow or crows, chiefly in the snow, two or more inches deep, on a broad frozen ditch where mud has been taken out. The perpendicular sides of the ditch expose a foot or two of dark, sooty mud which had attracted the crows, and I see where they have walked along beneath it and pecked it. Even here also they have alighted on any bare spot where a foot of stubble was visible, or even a rock. Where one walked yesterday, I see, notwithstanding the effect of the sun on it, not only the foot-tracks, but the distinct impression of its tail where it alighted, counting distinctly eleven (of probably twelve) feathers, — about four inches of each, — the whole mark being some ten inches wide and six deep, or more like a semicircle than that of yester-

day. The same crow, or one of the same, has come again to-day, and, the snow being sticky this warm weather, has left a very distinct track. The width of the whole track is about two and three quarters inches, length of pace about seven inches, length of true track some two inches (not including the nails), but the mark made in setting down the foot and withdrawing it is in each case some fifteen or eighteen inches long, for its hind toe makes a sharp scratch four or five inches long before it settles, and when it lifts its foot again, it makes two other fine scratches with its middle and outer toe on each side, the first some nine inches long, the second six. The inner toe is commonly close to the middle one. It makes a peculiar curving track (or succession of curves), stepping round the planted foot each time with a sweep, thus:—



You would say that it toed in decidedly and walked feebly. It must be that they require but little and glean that very assiduously.

The sweet-fern retains its serrate terminal leaves.

Walking along the river eastward, I notice that the twigs of the black willow, many of which were broken off by the late glaze, only break at base, and only an inch higher up bend without breaking.

I look down the whole length of the meadows to Ball's Hill, etc. In a still, warm winter day like this, what warmth in the withered oak leaves, thus far away, mingled with pines! They are the redder for the warmth and the sun. At this season we do not want any more color.

A mile off I see the pickerel-fisher returning from the Holt, taking his way across the frozen meadows before sunset toward his hut on the distant bank. I know him (looking with my glass) by the axe over his shoulder, with his basket of fish and fish-lines hung on it, and the tin pail of minnows in his hand. The pail shines brightly more than a mile off, reflecting the setting sun. He starts early, knowing how quickly the sun goes down.

To-night I notice, this warm evening, that there is most green in the ice when I go directly from the sun. There is also considerable when I go directly toward it, but more than that a little one side; but when I look at right angles with the sun, I see none at all. The water (where open) is also green. I see a rosy tinge like dust on the snow when I look directly toward the setting sun, but very little on the hills. Methinks this pink on snow (as well as blue shadows) requires a clear, cold evening. At least such were the two evenings on which I saw it this winter.

Coming up the street in the twilight, it occurs to me that I know of no more agreeable object to bound our view, looking outward through the vista of our elm-lined streets, than the pyramidal tops of a white pine forest in the horizon. Let them stand so near at least.

Jan. 20. A second remarkably pleasant day like the last.

P. M. — Up river.

I see a large white oak perfectly bare.

Among four or five pickerel in a "well" on the river,

I see one with distinct transverse bars as I look down on its back, — not quite across the back, but plain as they spring from the side of the back, — while all the others are uniformly dark above. Is not the former *Esox fasciatus?* There is no marked difference when I look at them on their sides.

I see in various places on the ice and snow, this very warm and pleasant afternoon, a kind of mosquito perhaps, a feeble flyer, commonly resting on the ice.

The green of the ice and water begins to be visible about half an hour before sunset. Is it produced by the reflected blue of the sky mingling with the yellow or pink of the setting sun?

What a singular element is this water! I go shaking the river from side to side at each step, as I see by its motion at the few holes.

I learn from J. Farmer that he saw to-day in his woodlot, on removing the bark of a dead white pine, an immense quantity of mosquitoes, moving but little, in a cavity between the bark and the wood made probably by some other insect. These were probably like mine. There were also wasps and what he calls lightning-bugs there.

Jan. 21. A January thaw, with some fog, occasioned as yet wholly by warm weather, without rain; high wind in the night; wind still south. The last two days have been remarkably pleasant and warm, with a southerly wind, and last night was apparently warmer yet (I think it was 46° this morning); and this morning I am surprised to see much bare ground and ice where

was snow last evening, and though last evening it was good sleighing and the street was not wet at all, — though the snow was moist, — now it is almost entirely bare ice except for the water. The sluices are more than full, rushing like mill-streams on each side the way and often stretching in broad lakes across the street. It is the worst or wettest of walking, requiring india-rubber boots. Great channels, eight inches deep and a foot or more wide, are worn in the ice across the street, revealing a pure, clear ice on the sides, contrasting with the dirty surface. I do not remember so sudden a change, the effect of warmth without rain. Yesterday afternoon it was safe sledding wood along the riverside on the ice, — Hubbard was doing so, — and I saw at the bridges that the river was some eight inches lower than it had been when it froze, the ice adhering to the piers, and all held up there so much higher than the surrounding surface; and now it is rapidly rising, and the river is forbidden ground.

It is surprising how suddenly the slumbering snow has been melted, and with what a rush it now seeks the lowest ground on all sides. Yesterday, in the streets and fields, it was all snow and ice and rest; now it is chiefly water and motion. Yesterday afternoon I walked in the merely moist snow-track of sleds and sleighs, while all the sides of the road and the ditches rested under a white mantle of snow. This morning I go picking my way in rubbers through broad puddles on a slippery icy bottom, stepping over small torrents which have worn channels six or eight inches deep, and on each side rushes past with a loud murmur a stream large enough

to turn a mill, occasionally spreading out into a sizable mill-pond.

It begins to rain by afternoon, and rains more or less during the night. Before night I heard of the river being over the road in one place, though it was rather low before. Saw Melvin buying an extra quantity of shot in anticipation of the freshet and musquash-shooting tomorrow.

Jan. 22. Apparently the wind south two or three days or thermometer so long above 40° will make a freshet, if there is snow enough on the ground.

8.30 A. M. — Go to the riverside.

It is over the meadows. Hear Melvin's gun. The thick white ice is seen lifted up and resting over the channel several rods from the present shore on the high bank side.

As I stand there looking out to that white ice, about four rods distant (at my boat's place), I notice countless narrow light lines, a third of an inch wide, in or on the very thin, dark, half-cemented ice (hardly so thick as pasteboard) which has formed since midnight on the surface of the risen water between the old ice and the shore. At first I thought that these light lines were cracks in that thin ice or crystallization (it is now 34°), occasioned, perhaps, by the mere rising of the water. But observing that some of them were peculiarly meandering, returning on themselves loopwise, I looked at them more attentively, and at length I detected at the inner end of one such line a small black speck about a rod from me. Suspecting this to be a caterpillar, I took steps to ascertain if it were, at any rate, a living creature, by discovering if it were in motion. It appeared to me to move, but it was so slowly that I could not be certain until I set up a stick on the shore or referred it to a fixed point on the ice, when I was convinced that it was a caterpillar slowly crawling toward the shore, or rather to the willows. Following its trail back with my eye, I found that it came pretty directly from the edge of the old or thick white ice (*i. e.* from where the surface of the flood touched its sloping surface) toward the willows, from northeast to southwest, and had come about three rods. Looking more sharply still, I detected seven or eight such caterpillars within a couple of square rods on this crystallization, each at the end of its trail and headed toward the willows in exactly the same direction. And there were the distinct trails of a great many more which had reached the willows or disappeared elsewhere. These trails were particularly distinct when I squatted low and looked over the ice, reflecting more light then. They were generally pretty direct toward the shore, or toward any clump of willows if within four or five rods. I saw one which led to the willows from the old ice some six rods off. Slowly as they crawled, this journey must have been made within a few hours, for undoubtedly this ice was formed since midnight. Many of the lines were very meandering, like this: —

and apparently began and ended within the thin ice. There was not enough ice to support even a caterpillar

within three or four feet of the shore, for the water was still rapidly rising and not now freezing, and I noticed no caterpillars on the ice within several feet, but with a long stick I obtained quite a number. Among them were three kinds. Probably the commonest were, first, a small flat (beneath) black one with a dark shell head and body consisting of numerous rings, like dark velvet, four or five eighths of an inch long;[1] second, a black caterpillar about same length, covered with hairy points or tufts, (remind me somewhat of that kind I see on the black willows, which is larger and partly yellow); thirdly, one all brown fuzzy and six or seven eighths of an inch long. The last lay at the bottom, but was alive. All curled up when I rescued them.

There were also many small brown grasshoppers (not to mention spiders of various sizes and snow-fleas) on the ice, but none of these left any perceptible track.

These tracks, thus distinct, were quite innumerable, — there was certainly one for each foot of shore, — many thousands (?) within half a dozen rods, — leading commonly from the channel ice to or toward the shore or a tree, but sometimes wandering parallel to the shore. Yet comparatively few of the caterpillars were now to be seen. You would hardly believe that there had been caterpillars enough there to leave all these trails within so short a time.

It may be a question how did they come on the channel ice. I answer that they were evidently drowned out of the meadow-grass by the rise of the water, *i. e.*, if

[1] *Vide* [p. 442].

there is sufficient thaw to lay the ground bare (as the musquash are, which I now hear one shooting from a boat), and that they either swam or were washed on to that channel ice by the rising water (while probably others were washed yet higher up the bank or meadow and were not obliged to make this journey?), and so, as soon as the water froze hard enough to bear, they commenced their slow journey toward the shore, or any other dark terrestrial-looking object, like a tree, within half a dozen rods. At first I thought they left a trail because the ice was so very thin and watery, but perhaps the very slight snow that whitened the ground a little had melted on it. Possibly some were washed from adjacent fields and meadows into the river, for there has been a great wash, a torrent of water has rushed downward over these fields to the river. There was, perhaps, a current setting from the shore toward the middle, which floated them out. How is it when a river is rising?

At any rate, within twenty-four hours this freshet has invaded the Broadways or lower streets of the caterpillar towns, and, within some six hours probably, these innumerable journeys have been performed by wrecked caterpillars over a newly formed ice-bridge, — more such adventurers in our town alone than there are human beings in the United States, — and their trails are there to be seen, every one of them. Undespairing caterpillars, determined to reach the shore. What risks they run who go to sleep for the winter in our river meadows!

Perhaps the insects come up from their winter re-

treats in the roots of the grass in such warm and sunny days as we have had, and so are the more washed away, and also become food for crows, which, as I noticed, explore the smallest bare tufts in the fields.

I notice where a musquash has lately swam under this thin ice, breaking it here and there, and his course for many rods is betrayed by a continuous row of numerous white bubbles as big as a ninepence under the ice. J. Farmer tells me that he once saw a musquash rest three or four minutes under the ice with his nose against the ice in a bubble of air about an inch in diameter, and he thinks that they can draw air through the ice, and that one could swim across Nagog Pond under the ice.

I think that the greater part of the caterpillars reaching the few feet of open water next the shore must sink to the bottom, and perhaps they survive in the grass there. A few may crawl up the trees. One which I took off the bottom was alive.

A freshet, then, even in midwinter, is a most momentous event to the insect world.

Perhaps the caterpillars, being in the water, are not frozen in, but crawl out on the ice and steer for the land from wherever they may be. Apparently those which started from the edge of the channel ice must have been drifted there either by the current or wind, because they could not have risen directly up to it from the bottom, since it slopes toward the shore for a rod under water. It is remarkable that the caterpillars know enough to steer for the shore, though four or five rods off.

I notice that, the river thus breaking up in this freshet, this body of ice over the channel cracks on each side near the line of the willows, a little outside of them, two great rents showing the edge and thickness of the ice, making many a jounce or thankee-marm for the skater when all is frozen again, while between them the ice of the channel is lifted up level, while outside these rents the ice slopes downward for a rod, the shore edge still fastened to the bottom; *i. e.*, the fuller tide, rushing downward, lifts up the main body of the ice, cracking it on each side of the channel, the outside strips remaining attached to the bottom by their shore edges and sloping upward to the rents, so that the freshet runs through, and nearly overflows these two strips, creeping far up the bank or over the meadows on each side.

P. M. — I see many caterpillars on the ice still, and those glow-worm-like ones. I see several of the black fuzzy (with distinct tufts) caterpillars described above, on the open water next the shore, but none of them is moving; also, in the water, common small black crickets (one alive) and other bugs (commonly alive), which have been washed out of their winter quarters. And in the fields generally, exposed on bare, hard ice, the snow being gone and more than half the earth bare, are a great many caterpillars (still two other kinds than yet described), many naked and fishworm-color, four to six inches long, and those glow-worm-like ones (some more brown). They have evidently been washed out of their retreats in the grass by the great flow of water, and left on the ice. They must afford abundant food [for] birds.

Crows which fared hard ten days ago must fare sumptuously now. This will account for their tracks which I saw the other day leading to every little bare strip [?] or exposed tuft of grass, — those warm days. Perhaps the caterpillars, etc., crawl forth in sunny and warm days in midwinter when the earth is bare, and so supply the birds, and are ready to be washed away by a flow of water! I find thus a great variety of living insects now washed out. Four kinds of caterpillars, and also the glow-worm-like creature so common, grasshoppers, crickets, and many bugs, not to mention the mosquito-like insects which the warm weather has called forth (flying feebly just over the ice and snow a foot or two), spiders, and snow-fleas. A sudden thaw is, then, a great relief to crows and other birds that may have been put to it for food. Their larders are now overstocked.

Can that glow-worm-like creature, so common on the ice by the riverside and in the fields now, be the female of the lightning-bug? It is about half an inch long by one eleventh of an inch wide, dusky reddish-brown above, lighter beneath, with a small black flattish head and about four short antennæ, six legs under the forward part of the body, which last consists of twelve ring-like segments. There is one row of minute light-colored dots down the middle of the back, and perhaps (?) others, fainter, on the side.

Many are out in boats, steering outside the ice of the river over the newly flooded meadows, shooting musquash. Cocks crow as in spring.

The energy and excitement of the musquash-hunter even, not despairing of life, but keeping the same rank

and savage hold on it that his predecessors have for so many generations, while so many are sick and despairing, even this is inspiriting to me. Even these deeds of death are interesting as evidences of life, for life will still prevail in spite of all accidents. I have a certain faith that even musquash are immortal and not born to be killed by Melvin's double-B (?) shot.

Methinks the breadth of waves, whether in water or snow or sand or vapor (in the mackerel sky), is determined generally by the force of the wind or other current striking the water, etc. It depends on how much water, etc., the wind has power to displace.

The musquash-hunter (last night), with his increased supply of powder and shot and boat turned up somewhere on the bank, now that the river is rapidly rising, dreaming of his exploits to-day in shooting musquash, of the great pile of dead rats that will weigh down his boat before night, when he will return wet and weary and weather-beaten to his hut with an appetite for his supper and for much sluggish (punky) social intercourse with his fellows, — even he, dark, dull, and battered flint as he is, is an inspired man to his extent now, perhaps the most inspired by this freshet of any, and the Musketaquid Meadows cannot spare him. There are poets of all kinds and degrees, little known to each other. The Lake School is not the only or the principal one. They love various things. Some love beauty, and some love rum. Some go to Rome, and some go a-fishing, and are sent to the house of correction once a month. They keep up their fires by means unknown to me. I know not their comings and goings.

How can I tell what violets they watch for? I know them wild and ready to risk all when their muse invites. The most sluggish will be up early enough then, and face any amount of wet and cold. I meet these gods of the river and woods with sparkling faces (like Apollo's) late from the house of correction, it may be carrying whatever mystic and forbidden bottles or other vessels concealed, while the dull regular priests are steering their parish rafts in a prose mood. What care I to see galleries full of representatives of heathen gods, when I can see natural living ones by an infinitely superior artist, without perspective tube? If you read the Rig Veda, oldest of books, as it were, describing a very primitive people and condition of things, you hear in their prayers of a still older, more primitive and aboriginal race in their midst and round about, warring on them and seizing their flocks and herds, infesting their pastures. Thus is it in another sense in all communities, and hence the prisons and police.

I hear these guns going to-day, and I must confess they are to me a springlike and exhilarating sound, like the cock-crowing, though each one may report the death of a musquash. This, methinks, or the like of this, with whatever mixture of dross, is the real morning or evening hymn that goes up from these vales to-day, and which the stars echo. This is the best sort of glorifying of God and enjoying him that at all prevails here to-day, without any clarified butter or sacred ladles.

As a mother loves to see her child imbibe nourishment and expand, so God loves to see his children thrive on the nutriment he has furnished them. In the

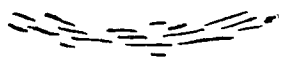
musquash-hunters I see the Almouchicois still pushing swiftly over the dark stream in their canoes. These aboriginal men cannot be repressed, but under some guise or other they survive and reappear continually. Just as simply as the crow picks up the worms which all over the fields have been washed out by the thaw, these men pick up the musquash that have been washed out the banks. And to serve such ends men plow and sail, and powder and shot are made, and the grocer exists to retail them, though he may think himself much more the deacon of some church.

From year to year the snow has its regular retreat and lurking-places when a thaw comes (laying bare the earth), under the southeastward banks. I see it now resting there in broad white lines and deep drifts (from my window), as I have seen it for many years, — as it lay when the Indian was the only man here to see it.

Jan. 23. The freshet is now frozen over, but not thick enough to bear without cracking, and that peculiar whitish ice like bread or mortar that has run over is seen four to six feet in width all along the shore and about trees, posts, rocks, etc. It is produced by the water, probably, still rising after the freezing in the night and flowing back over the ice in a semiliquid state, or like soft solder, — a rough or wrinkled or rippled dirty-white surface, often stained with the bank, yellowish or brown.

There is a cold northwest wind, and I notice that the snow-fleas which were so abundant on this water

yesterday have hopped to some lee, *i. e.*, are collected like powder under the southeast side of posts or trees or sticks or ridges in the ice. You are surprised to see that they manage to get out of the wind. On the southeast side of every such barrier along the shore there is a dark line or heap of them. I see one of those glow-worm-like creatures frozen in, sticking up perpendicular, half above the ice.

Going over the Hosmer pasture this side Clamshell southwestward, I thought I saw much gossamer on the grass, but was surprised to find that it was the light reflected from the withered grass stems which had been bent or broken by the snow (now melted). It looked just like gossamer even within ten [?] feet, — most would have taken it for that, — also these fine gleaming lines (like those of the alders and birch twigs, etc.) were very distinctly parts of an arc of a large circle, — the lower side of it, — as you looked toward the sun, the light being necessarily so reflected. 
This is a remarkable instance of the November, or rather winter, light reflected from twigs and stubble. The grass stood thus: —

It was just like an abundant gossamer.

The earth being generally bare, I notice on the ice where it slopes up eastward a little, a distinct rosy light (or pink) reflected from it generally, half an hour before sunset. This is a colder evening than of late, and there is so much the more of it.

Jan. 24. An abundance of excellent skating, the freshet that covered the meadows being frozen. Many boys and girls are skating on Mantatuket Meadow and on Merrick's. Looking from this shore, they appear decidedly elevated, — not by their skates merely. What is the cause? Do we take the ice to be air?

I see an abundance of caterpillars of various kinds on the ice of the meadows, many of those large, dark, hairy, with longitudinal light stripes, somewhat like the common apple one. Many of them are frozen in yet, some for two thirds their length, yet all are alive. Yet it has been so cold since the rise that you can now cross the channel almost anywhere. I also see a great many of those little brown grasshoppers and one perfectly green one, some of them frozen in, but generally on the surface, showing no signs of life; yet when I brought them home to experiment on, I found them all alive and kicking in my pocket. There were also a small kind of reddish wasp, quite lively, on the ice, and other insects; those naked, or smooth, worms or caterpillars. This shows what insects have their winter quarters in the meadow-grass. This ice is a good field for an entomologist.

I experimented on the large bubbles under the ice. Some, the oldest and nearest the surface, were white; others, the newest and against the present under surface, were of a bluish or slate color, more transparent. I found that the whiteness of the first was owing to the great quantity of little bubbles above and below the great one produced by the heat of this "burning-glass," while those of recent formation have not had time to

accomplish this. When I cut through with my knife an inch or two to one of the latter kind, making a very slight opening, the confined air, pressed by the water, burst up with a considerable hissing sound, sometimes spurting a little water with it, and thus the bubble was contracted, almost annihilated; but frequently, when I cut into one of the old or white ones, there was no sound, the air did not rush out because there was no pressure, there being ice below as well as above it; but when I also pierced the lower ice it did rush out with a sound like the others.

My object at first was to ascertain if both kinds of bubbles contained air. But that was plain enough, for when the water rushed in the bluish, or new, ones wholly beneath the ice wholly or nearly disappeared, while the white ones, giving place to water, were no longer white. It would seem, then, that a considerable pressure, such as the water exerts on an air-bubble under the ice, does not force it through the ice, certainly not for a considerable time. How, then, can the musquash draw air through the ice as is asserted? He might, however, come to breathe in such a bubble as this already existing.

The larger spiders generally rest on the ice with all their legs spread, but on being touched they gather them up.

Jan. 25. The river has gone down about eight inches, and the ice still adhering to the shore all about the meadows slants downward for some four or five feet till it meets the water, and it is there cracked, often

letting the water up to overflow it, so that it is hard to get off and on in some places.

That channel ice of the 22d (*q. v.*), lifted up, looks thin, thus:—

The edges of the outside portions are more lifted up now, apparently by the weight of the water on them.

Jan. 26. P. M. — Over Cyanean Meadow on ice. These are remarkably warm and pleasant days. The water is going down, and the ice is rotting. I see some insects — those glow-worm-like ones — sunk half an inch or more into the ice by absorbed heat and yet quite alive in these little holes, in which they alternately freeze and thaw. At Willow Bay I see for many rods black soil a quarter of an inch deep, covering and concealing the ice (for several rods). This, I find, was blown some time ago from a plowed field twenty or more rods distant. This shows how much the sediment of the river may be increased by dust blown into it from the neighboring fields. Any ice begins immediately after it is formed to look dusty in the sun anywhere. This black soil is rapidly sinking to the bottom through the ice, by absorbing heat, and, water overflowing and freezing, it is left deep within thick ice. Or else, lying in wavelets on the ice, the surface becomes at last full of dark-bottomed holes alternating with clear ice.

The ice, having fairly begun to decompose, is very

handsomely marked, more or less internally as it appears, with a sort of graphic character, or bird-tracks, very agreeable and varied. It appears to be the skeleton of the ice revealed, the original crystals (such as we see shoot on very thin ice just beginning) revealed by the rotting. Thus the peculiar knotty grain or knurliness of the ice is shown, — white marks on dark. These white waving lines within it look sometimes just like some white, shaggy wolf-skin.

The meadow which makes up between Hubbard's mainland and his swamp wood is very handsomely marked, or marbled, with alternate white and dark ice. The upper surface appears to be of one color and consistency, like a hard enamel, but very interesting white figures are seen through it.

What various kinds of ice there are! This which lately formed so suddenly on the flooded meadows, from beneath which the water has in a great measure run out, letting it down, while a warm sun has shone on it, is perhaps the most interesting of any. It might be called graphic ice.

It is a very pleasant and warm day, and when I came down to the river and looked off to Merrick's pasture, the osiers there shone as brightly as in spring, showing that their brightness depends on the sun and air rather than the season.

Jan. 27. I see some of those little cells, perhaps, of a wasp or bee, made of clay or clayey mud. It suggests that these insects were the first potters. They look somewhat like small stone jugs.

Jan. 28. Melvin tells me that one with whom he deals below says that the best musquash skins come from Concord River, and it is because our musquash are so fat. M. says that they eat apples, and he has seen where they have eaten acorns, and Isaiah Green told him and convinced him that they ate his seed-corn in the hill. He weighed a very large one the other day, and it weighed five pounds. Thinks they would not commonly weigh more than three.

When you have been deprived of your usual quantity of sleep for several nights, you sleep much more soundly for it, and wake up suddenly like a bullet that strikes a wall.

Jan. 30. How peculiar the hooting of an owl! It is not shrill and sharp like the scream of a hawk, but full, round, and sonorous, waking the echoes of the wood.

The surface of the snow, especially on hillsides, has a peculiarly combed or worn appearance where water has run in a thaw; *i. e.*, the whole surface shows regular furrows at a distance, as if it had been scraped with an immense comb.

Jan. 31. P. M. — Up river across Cyanean Meadow.

Now we have quite another kind of ice. It has rained hard, converting into a very thin liquid the snow which had fallen on the old ice, and this, having frozen, has made a perfectly smooth but white snow ice. It is white like polished marble (I call it marble ice), and the trees and hill are reflected in it, as not in the other. It is far

less varied than the other, but still is very peculiar and interesting. You notice the polished surface much more, as if it were the marble floor of some stupendous hall. Yet such is its composition it is not quite so hard and metallic, I think. The skater probably makes more of a scratch. The other was hard and crystalline.

As I look south just before sunset, over this fresh and shining ice, I notice that its surface is divided, as it were, into a great many contiguous tables in different planes, somewhat like so many different facets of a polyhedron as large as the earth itself. These tables or planes are bounded by cracks, though without any appreciable opening, and the different levels are betrayed by the reflections of the light or sky being interrupted at the cracks. The ice formed last night is a day old, and these cracks, as I find, run generally from northeast to southwest across the entire meadow, some twenty-five or thirty rods, nearly at right angles with the river, and are from five to fifteen feet apart, while there are comparatively few cracks crossing them in the other direction. You notice this phenomenon looking over the ice some rods before you; otherwise might not observe the cracks when upon them. It is as if the very globe itself were a crystal with a certain number of facets.

When I look westward now to the flat snow-crusted shore, it reflects a strong violet color. Also the pink light reflected from the low, flat snowy surfaces amid the ice on the meadows, just before sunset, is a constant phenomenon these clear winter days. Whole fields and sides of hills are often the same, but it is more distinct on

these flat islands of snow scattered here and there over the meadow ice. I also see this pink in the dust made by the skaters. Perhaps the green seen at the same time in ice and water is produced by the general yellow or amber light of this hour, mingled with the blue of the reflected sky??

Surely the ice is a great and absorbing phenomenon. Consider how much of the surface of the town it occupies, how much attention it monopolizes! We do not commonly distinguish more than one kind of water in the river, but what various kinds of ice there are!

Young Heywood told me that the trout which he caught in Walden was twenty-seven inches long and weighed five pounds, but was thin, not in good condition. (He saw another.) It was in the little cove between the deep one and the railroad.