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I

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July 2. A. M. — Start for White Mountains in a private carriage with Edward Hoar.

Notice in a shallow pool on a rock on a hilltop, in road in North Chelmsford, a rather peculiar-looking *Alisma Plantago*, with long reddish petioles, just budded.

Spent the noon close by the old Dunstable graveyard, by a small stream north of it. Red lilies were abundantly in bloom in the burying-ground and by the river. Mr. Weld's monument is a large, thick, naturally flat rock, lying flat over the grave. Noticed the monument of Josiah Willard, Esq., "Captain of Fort Dummer." Died 1750, aged 58.

Walked to and along the river and bathed in it. There were harebells, well out, and much *Apocynum cannabinum*, well out, apparently like ours, prevailing along the steep sandy and stony shore. A marked peculiarity in this species is that the upper branches rise above the flowers. Also get the *A. androsæmifolium*, quite downy beneath. The *Smilacina stellata* going to seed, quite common in the copse on top of the bank.

What a relief and expansion of my thoughts when I come out from that inland position by the graveyard to this broad river's shore! This vista was incredible there. Suddenly I see a broad reach of blue beneath, with its curves and headlands, liberating me from the more terrene earth. What a difference it makes whether I spend my four hours' nooning between the hills by yonder roadside, or on the brink of this fair river, within a quarter of a mile of that! Here the earth is fluid to my thought, the sky is reflected from beneath, and around yonder cape is the highway to other continents. This current allies me to all the world. Be careful to sit in an elevating and inspiring place. There my thoughts were confined and trivial, and I hid myself from the gaze of travellers. Here they are expanded and elevated, and I am charmed by the beautiful river-reach. It is equal to a different season and country and creates a different mood. As you travel northward from Concord, probably the reaches of the Merrimack River, looking up or down them from the bank, will be the first inspiring sight. There is something in the scenery of a broad river equivalent to culture and civilization. Its channel conducts our thoughts as well as bodies to classic and famous ports, and allies us to all that is fair and great. I like to remember that at the end of half a day's walk I can stand on the bank of the Merrimack. It is just wide enough to interrupt the land and lead my eye and thoughts down its channel to the sea. A river is superior to a lake in its liberating influence. It has motion and indefinite length. A river touching the back of a town is like a wing, it may be unused as yet, but

ready to waft it over the world. With its rapid current it is a slightly fluttering wing. River towns are winged towns.

I returned through the grass up the winding channel of our little brook to the camp again. Along the brook, in the rank grass and weeds, grew abundantly a slender umbelliferous plant mostly just out of bloom, one and a half to four feet high. Either *Thaspium aureum* or *Cryptotenia Canadensis* (Sison).¹ Saw also the scouring-rush, apparently just beginning to bloom!

In the southern part of Merrimack, passed a singular "Horseshoe Pond" between the road and the river on the interval. Belknap says in his History, speaking of the changes in river-courses, "In some places these ancient channels are converted into ponds, which, from their curved form, are called horseshoe ponds."

Put up at tavern in Merrimack, some miles after passing over a pretty high, flat-topped hill in road, whence we saw the mountains (with a steep descent to the interval on right).

7 P. M. — I walked by a path through the wood northeast to the Merrimack, crossing two branches of Babboosuck Brook, on which were handsome rocky falls in the woods.

The wood thrush sings almost wherever I go, eternally reconsecrating the world, morning and evening, for us. And again it seems habitable and more than habitable to us.²

¹ Vide June 3d, 1852, and May 11th, 1859.

² Vide next page.

July 3. Continued along in a slight rain through Bedford, crossing to Manchester, and driving by a brook in Hookset just above Pinnacle. Then through Allenstown and Pembroke, with its long street, to Loudon, leaving Concord on the left. Along the sandy roadside in a pitch pine wood in Loudon, much apparent *Calystegia spithamea* in bloom, but I think with reddish flowers. Probably same with my New Bedford plant.

July 4. Sunday. A. M. — Clears up after a rainy night. Get our breakfast apparently in the northern part of Loudon, where we find, in a beech and maple wood, *Panax quinquefolium*, apparently not quite out, *Osmorrhiza brevistylis* (or hairy uraspermum), gone to seed, which Bigelow refers to woods on Concord Turnpike, *i. e.* hairy sweet cicely. Also ternate polypody (?). Saw a chestnut tree in Loudon.

Leaving Loudon Ridge on the right we continued on by the Hollow Road — a long way through the forest without houses — through a part of Canterbury into Gilmanton Factory village. I see the *Ribes prostratum*, or fetid currant, by roadside, already red, as also the red elder-berries, ripe or red.¹ Strawberries were abundant by the roadside and in the grass on hillsides everywhere, with the seeds conspicuous, sunk in pits on the surface. (*Vide* a leaf of same kind pressed.)

The Merrimack at Merrimack, where I walked, — half a mile or more below my last camp on it in '39, — had gone down two or three feet within a few days, and the muddy and slimy shore was covered with the tracks

¹ This only in the northern part of New Hampshire.

of many small animals, apparently three-toed sand-pipers, minks, turtles, squirrels, perhaps mice, and some much larger quadrupeds. The *Solidago lanceolata*, not out, was common along the shore. Wool-grass without black sheaths, and a very slender variety with it; also *Carex crinita*.

We continue along through Gilmanton to Meredith Bridge, passing the Suncook Mountain on our right, a long, barren rocky range overlooking Lake Winnepiseogee. Turn down a lane five or six miles beyond the bridge and spend the midday near a bay of the lake. *Polygonum cilinode*, apparently not long. I hear song sparrows there among the rocks, with a totally new strain, ending *whit whit, whit whit, whit whit whit*. They had also the common strain. We had begun to see from Gilmanton, from high hills in the road, the sharp rocky peak of Chocorua in the north, to the right of the lower Red Hill. It was of a pale-buff color, with apparently the Sandwich Mountains west of it and Ossipee Mountain on the right. The goldfinch was more common than at home, and the fragrant fern was perceived oftener. The evergreen-forest note frequently heard.

It is far more independent to travel on foot. You have to sacrifice so much to the horse. You cannot choose the most agreeable places in which to spend the noon, commanding the finest views, because commonly there is no water there, or you cannot get there with your horse. New Hampshire being a more hilly and newer State than Massachusetts, it is very difficult to find a suitable place to camp near the road, affording water, a good prospect and retirement. We several

times rode on as much as ten miles with a tired horse, looking in vain for such a spot, and then almost invariably camped in some low, unpleasant spot. There are very few, scarcely any, lanes, or even paths and bars along the road. Having got beyond the range of the chestnut, the few bars that might be taken down are long and heavy planks or slabs, intended to confine sheep, and there is no passable road behind. And beside, when you have chosen a place one must stay behind to watch your effects, while the other looks about. I frequently envied the independence of the walker, who can spend the midday hours and take his lunch in the most agreeable spot on his route. The only alternative is to spend your noon at some trivial inn, pestered by flies and tavern loungers.

Camped within a mile south of Senter Harbor, in a birch wood on the right near the lake. Heard in the night a loon, screech owl, and cuckoo, and our horse, tied to a slender birch close by, restlessly pawing the ground all night and whinnying to us whenever we showed ourselves, asking for something more than meat to fill his belly with.

July 5. Monday. Continue on through Senter Harbor and ascend Red Hill in Moultonboro. On this ascent I notice the *Erigeron annuus*, which we have not, methinks, *i. e.* purple fleabane (for it is commonly purplish), hairy with thin leaves and broader than the *strigosus*. Notice the *Comandra umbellata*, with leaves in three very regular spiral lines. Dr. Jackson says that Red Hill is so called from the uva-ursi on it turning red in

the fall. On the top we boil a dipper of tea for our dinner and spend some hours, having carried up water the last half-mile.

Enjoyed the famous view of Winnepiseogee and its islands southeasterly and Squam Lake on the west, but I was as much attracted at this hour by the wild mountain view on the northward. Chocorua and the Sandwich Mountains a dozen miles off seemed the boundary of cultivation on that side, as indeed they are. They are, as it were, the impassable southern barrier of the mountain region, themselves lofty and bare, and filling the whole northerly horizon, with the broad vale or valley of Sandwich between you and them; and over their ridges, in one or two places, you detected a narrow, blue edging or a peak of the loftier White Mountains proper (or so called). Ossipee Mountain is on the east, near by; Chocorua (which the inhabitants pronounce She-corway or Corway), in some respects the wildest and most imposing of all the White Mountain peaks, north of northeast, bare rocks, slightly flesh-colored; some large mountains, perhaps the Franconia, far northwesterly; Ragged (??) Mountain, south of west; Kearsarge, southwest; Monadnock (?), dim and distant blue, and some other mountains as distant, more easterly; Suncook Mountain, south-southeast, and, beyond the lake, south of southeast, Copple-Crown Mountain (?). When I looked at the near Ossipee Mountain (and some others), I saw first smooth pastures around the base or extending part way up, then the light green of deciduous trees (probably oak, birch, maple, etc.), looking dense and shrubby, and above all the rest, looking like

permanent shadows, dark saddles of spruce or fir or both on the summits. Jackson says larch, spruce, and birch reach to the summit of Ossipee Mountain. The landscape is spotted, like a leopard-skin, with large squarish patches of light-green and darker forests and blue lakes, etc., etc.

On the top I found *Potentilla tridentata*, out a good while, choke-berry, red lily, dwarfish red oaks, *Carex Novæ-Angliæ* (?), and a *Carex scoparia*-like. Apparently the common *Vaccinium Pennsylvanicum*, and just below, in the shrubbery, the *Vaccinium Canadense* was the prevailing one. Just below top, a clematis, and, as you descended, the red oak, growing larger, canoe birch, some small white birch, red maple, rock maple, *Populus tremuliformis*,¹ diervilla (very common), etc., etc.²

Heard the chewink on the summit, and saw an ant-hill there, within six rods of apex, about seven by six feet in diameter and sixteen inches high, with grass growing on all sides of it. This reminded me of the great ant-hills I saw on Chesterfield Mountain, opposite Brattleboro.

Descended, and rode along the west and northwest side of Ossipee Mountain. Sandwich, in a large level space surrounded by mountains, lay on our left. Here first, in Moultonboro, I heard the *tea-lee* of the white-throated sparrow. We were all the afternoon riding along under Ossipee Mountain, which would not be left

¹ The common species afterward on sides and about the mountains.

² Diervilla and checkerberry common after on mountainsides.

behind, unexpectedly large still, louring over your path. Crossed Bearcamp River, a shallow but unexpectedly sluggish stream, which empties into Ossipee Lake. Have new and memorable views of Chocorua, as we get round it eastward. Stop at Tamworth village for the night.

We are now near the edge of a wild and unsettlable mountain region, lying northwest, apparently including parts of Albany and Waterville. The landlord said that bears were plenty in it; that there was a little interval on Swift River that might be occupied, and that was all. Norcross gets his lumber in that region, on Mad and Swift Rivers, as I understood; and on Swift River, as near as I could learn, was the only road leading into it.

July 6. Tuesday. 5.35 A. M. — Keep on through North Tamworth, and breakfast by shore of one of the Ossipee Lakes. Chocorua north-northwest. Hear and see loons and see a peetweet's egg washed up. A shallow-shored pond, too shallow for fishing, with a few breams seen near shore; some pontederia and target-weed in it.

Travelling thus toward the White Mountains, the mountains fairly begin with Red Hill and Ossipee Mountain, but the White Mountain scenery proper on the high hillside road in Madison before entering Conway, where you see Chocorua on the left, Mote Mountain ahead, Doublehead, and some of the White Mountains proper beyond, *i. e.* a sharp peak.

We fished in vain in a small clear pond by the roadside in Madison.

Chocorua is as interesting a peak as any to remember. You may be jogging along steadily for a day before you get round it and leave it behind, first seeing it on the north, then northwest, then west, and at last southwesterly, ever stern, rugged and inaccessible, and omnipresent. It was seen from Gilmanton to Conway, and from Moultonboro was the ruling feature.

The scenery in Conway and onward to North Conway is surprisingly grand. You are steadily advancing into an amphitheatre of mountains. I do not know exactly how long we had seen one of the highest peaks before us in the extreme northwest, with snow on its side just below the summit, but a little beyond Conway a boy called it Mt. Washington. I think it was visible just before entering Conway village. If Mt. Washington, the snow must have been in Tuckerman's Ravine, which, methinks, is rather too low. Perhaps it was that we afterward saw on Mt. Adams. There was the regular dark pyramid of Kearsarge at first in front, then, as you proceed to North Conway, on our right, with its deserted hotel on the summit, and Mote Mountain accompanying you on the left, and high, bare rocky precipices at last on the same side. The road, which is for the most part level, winds along the Saco through groves of maples, etc., on the level intervals, with so little of rugged New Hampshire under your feet, often soft and sandy road. The scenery is remarkable for this contrast of level interval with soft and shady groves, with mountain grandeur and ruggedness. Often from the midst of level maple groves, which remind you only of classic lowlands, you look out through a vista to the most

rugged scenery of New England. It is quite unlike New Hampshire generally, quite unexpected by me, and suggests a superior culture. We at length crossed the Saco from the left to the right side of the valley, going over or through three channels. After leaving North Conway, the higher White Mountains were less seen, if at all. They had not appeared in pinnacles, as sometimes described, but broad and massive. Only one of the higher peaks or summits (called by the boy Mt. Washington) was conspicuous. The snow near the top was conspicuous here thirty miles off. The summit appeared dark, the rocks just beneath pale-brown (forenoon) (not flesh-colored like Chocorua), and below, green, wooded.

The road to-day from Tamworth almost to the base of Mt. Washington was better on the whole, less hilly, than through Gilmanton to Tamworth; *i. e.*, the hills were not so long and tedious.

At Bartlett Corner we turned up the Ellis River and took our nooning on the bank of the river, by the bridge just this side of Jackson Centre, in a rock maple grove. Saw snow on Mt. Carter (?) from this road. There are but few *narrow* intervals on this road, — two or three only after passing Jackson, — and each is improved by a settler. We see the handsome *Malva sylvestris*, an introduced flower, by roadside, apparently in prime, and also in Conway, and hear the night-warbler all along thus far.

Saw the bones of a bear at Wentworth's house, and camped, rather late, on right-hand side of road just beyond, or a little more than four miles from Jackson.

The wood was canoe birch and some yellow (see little of the small white birch as far as to the neighborhood of the mountains), rock maple, spruce, fir, *Populus tremuliformis*, and one *grandidentata*, etc. In this deep vale between the mountains, the sun set very early to us, but we saw it on the mountains long after. Heard at evening the wood thrush, veery, white-throated sparrow, etc., and I found a fresh nest in a fir, made of hemlock twigs, etc., when I was getting twigs for a bed. The mosquitoes troubled us in the evening and just before dawn, but not seriously in the middle of the night. This, I find, is the way with them generally.

Wentworth said he was much troubled by the bears. They killed his sheep and calves and destroyed his corn when in the milk, close by his house. He has trapped and killed many of them and brought home and reared the young. When we looked up in the night we saw that the stars were bright as in winter, owing to the clear cold air.

July 7. Wednesday. Having engaged the services of Wentworth to carry up some of our baggage and to keep our camp, we rode onward to the Glen House, eight miles further, sending back our horse and wagon to his house. This road passes through what is called the Pinkham Notch, in Pinkham's Grant, the land, a large tract, having been given away to Pinkham for making the road a good while since. Wentworth has lived here thirty years and is a native. Have occasional views of Mt. Washington or a spur of it, etc.

Get by roadside, in bloom some time, *Geum macrophyllum*; also, in a damp place, *Platanthera dilatata*, a narrow white spike. Turned off a little to the right to see Glen Ellis Falls.

Began the ascent by the mountain road at 11.30 A. M.

For about the first three quarters of a mile of steady (winding) ascent the wood was spruce, yellow birch (some, generally the largest, with a very rough, coarse, scaly bark, but other trees equally large had a beautifully smooth bark, and Wentworth called these "silver birch;" it appeared not to depend on age merely), hemlock, beech, canoe birch (according to Willey, "most abundant in the districts formerly burnt"), rock maple, fir, mountain maple (called by Wentworth bastard maple), northern wild cherry, striped maple, etc. At about a mile and three quarters spruce prevails, and rock maple, beech, and hemlock, etc., disappear. At three miles, or near the limit of trees, fir (increasing) and spruce chiefly prevail. And near by was the foot of the ledge and limit of trees, only their dead trunks standing, probably fir and spruce, about the shanty where we spent the night with the colliers.

I went on nearly a mile and a half further, and found many new alpine plants and returned to this shanty. A merry collier and his assistant, who had been making coal for the summit and were preparing to leave the next morning, made us welcome to this shanty and entertained us with their talk. We here boiled some of our beef-tongues, a very strong wind pouring in gusts down the funnel and scattering the fire about through the cracked stove. This man, named Page, had im-

ported goats on to the mountain, and milked them to supply us with milk for our coffee. The road here ran north and south to get round the ledge. The wind, blowing down the funnel, set fire to a pile of dirty bed-quilts when I was out, and came near burning up the building. There were many barrels of spoiled beef in the cellar, and he said that a person coming down the mountain some time ago looked into the cellar and saw five wildcats (*loups-cerviers*) there. Page had heard two fighting like cats near by a few nights before. The wind blew very strong and in gusts this night, but he said it was nothing to what it was sometimes, when the building rocked four inches.

July 8. Though a fair day, the sun did not rise clear. I started before my companions, wishing to secure a clear view from the summit, while they accompanied the collier and his assistant, who were conducting up to the summit for the first time his goats. He led the old one, and the rest followed.

I noticed these plants this morning and the night before at and above the limit of trees: *Oxalis Acetosella*, abundant and in bloom near the shanty and further down the mountain, all over the woods; *Cornus Canadensis*, also abundantly in bloom about the shanty and far above and below it. At shanty, or limit of trees, began to find *Alsine Grœnlandica* abundant and in prime, the first mountain flower.¹ Noticed one returning, in carriage-road more than half-way down the mountain. It extended to within a mile of summit

¹ Durand in Kane puts it at 73° + in Greenland.

along path,¹ and grew about our camp at Hermit Lake. The second mountain plant I noticed was the ledum,² growing in dense continuous patches or fields, filling broad spaces between the rocks, but dwarfish compared with ours in Concord. It was still in bloom. It prevailed about two miles below the summit. At the same elevation I noticed the *Vaccinium uliginosum*, a prevailing plant from the ledge to perhaps one mile or more below summit, almost entirely out of bloom, a procumbent bilberry, growing well, not dwarfish, with peculiar glaucous roundish-obovate leaves.³ About the same time and locality, *Salix Uva-ursi*, the prevailing willow of the alpine region, completely out of bloom and going or gone to seed, a flat, trailing, glossy-leaved willow with the habit of the bearberry, spreading in a close mat over the rocks or rocky surface. I saw one spreading flat for three or four feet over a rock in the ravine (as low as I saw it).⁴ *Diapensia Lapponica* (*Menziesia cœrulea*),⁵ beginning about same time, or just over the ledge, reached yet higher, or to within last mile. Quite out of bloom; only one flower seen. It grows in close, firm, and dense rounded tufts, just like a moss but harder, between the rocks, the flowers con-

¹ Aye, to summit.

² Loudon makes three (!) species, and says bees are very fond of the flower.

³ According to Durand at 78° N. in Smith's Sound.

⁴ Durand in Kane places this at 65° N. in Greenland, but Kane (vol. i, p. 462) says that Morton and Hans saw it along the shore of Kennedy Channel, the furthest coast reached, and that with the southern Esquimaux it is reputed to cure scurvy.

⁵ According to Durand, at 73° in Greenland.

siderably elevated above its surface. *Empetrum nigrum*, growing somewhat like *Corema*, with berries green and some turning black.¹ Mountain cranberry was abundant and in bloom, a very pretty flower, with, say, the *Vaccinium uliginosum* and to within last mile. Gold-thread in bloom, was abundant to within last mile. As high as the above, on this side or that extended dwarf shrubby canoe birches and almost impassable thickets of dwarf fir and spruce. The latter when dead exhibited the appearance of deer's horns, their hard, gnarled, slow-grown branches being twisted in every direction. Their roots were singularly knotted and swollen from time to time, from the size of the finger into oval masses like a ship's block, or a rabbit made of a handkerchief. Epigæa.² At this height, too, was a *Lycopodium annotinum*, a variety; and, probably, there, too, *L. Selago*, as at edge of ravine;³ sedges, sorrel, moss, and lichens. Was surprised not to notice the *Potentilla tridentata* in bloom till quite high, though common on low mountains southward.⁴ Here it was above the trailing spruce, answering to top of Monadnock, and with it came more sedge, *i. e.* a more grassy surface without many larger plants. (George Bradford says he has found this potentilla on Cape Ann, at Eastern Point, east side Gloucester Harbor.⁵) About a mile below top, *Geum radiatum* var. *Peckii* in prime, and

¹ According to Durand, as far as Disco Island, 70° N.; "the ordinary food of deer and rabbits."

² And after pretty high on Lafayette.

³ Both, according to Durand, at 64° N. in Greenland.

⁴ According to Durand at 79° N.

⁵ And Russell says in the college yard at Amherst.

a little *Silene acaulis* (moss campion), still in bloom, a pretty little purplish flower growing like a moss in dense, hard tufts.¹

The rocks of the alpine portion are of about uniform size, not large nor precipitous. Generally there is nothing to prevent ascending in any direction, and there is no climbing necessary on the summit. For the last mile the rocks are generally smaller and more bare and the ascent easier, and there are some rather large level grassy spaces. The rocks are not large and flat enough to hold water, as on Monadnock. I saw but little water on this summit, though in many places, commonly in small holes on the grassy flats, and I think the rocky portion under your feet is less interesting than at Monadnock. I sweated in a thick coat as I ascended. About half a mile below top I noticed dew on the mossy, tufted surface, with mountain cranberry in the sedge.

On the very summit I noticed moss, sedge (the kind I have tied together),² forming what is now to be called the Great Pasture there, they say; a little alsine and diapensia; a bright-green crustaceous lichen;³ and that small dark-brown umbilicaria-like one (of Monadnock), of which I have a specimen. The rocks, being small and not precipitous, have no such lichen-clad angles as at Monadnock, yet the general aspect of the rocks about you is dark-brown. All over the summit there is

¹ Durand says at 73° + in Greenland.

² *Carex rigida*, with a black spike.

³ Is this *Lecida geographica*? Oakes (in "Scenery," etc.) speaks of the geographic lichen as found on the summit; *viz.* "the yellow of the beautiful geographic lichen."

a great deal of that sedge grass, especially southeast and east amid the smallish rocks. There was a solidago (or aster) quite near summit (not out), perhaps *S. Virgaurea*.

The only bird I had seen on the way up, above the limit of trees, was the *Fringilla hyemalis*. Willey says the swallow flies over the summit and that a bear has been seen there.

I got up about half an hour before my party and enjoyed a good view, though it was hazy, but by the time the rest arrived a cloud invested us all, a cool driving mist, which wet you considerably, as you squatted behind a rock. As I looked downward over the rock surface, I saw tinges of blue sky and a light as of breaking away close to the rocky edge of the mountain far below me instead of above, showing that there was the edge of the cloud. It was surprising to look down thus under the cloud at an angle of thirty or forty degrees for the only evidences of a clear sky and breaking away. There was a ring of light encircling the summit, thus close to the rocks under the thick cloud, and the evidences of a blue sky in that direction were just as strong as ordinarily when you look upward.

On our way up we had seen all the time, before us on the right, a large patch of snow on the southeast side of Mt. Adams, the first large summit north of Washington. I observed that the enduring snow-drifts were such as had lodged under the southeast cliffs, having been blown over the summit by the northwest wind. They lie up under such cliffs and at the head of the ravines on the southeast slopes.

A Mr. White, an artist taking views from the summit, had just returned from the Gulf of Mexico with the pretty purple-flowered *Phyllodoce taxifolia* and *Cassiope hypnoides*.

The landlords of the Tiptop and Summit Houses, Spaulding and Hall, assured me that my (Willey's) map was wrong, both in the names and height of Adams and Jefferson, — that the order should be reversed, Adams being the sharp peak, the second large one north of Washington, — but Boardman's map also calls this Jefferson.

About 8.15 A.M., being still in a dense fog, we started direct for Tuckerman's Ravine, I having taken the bearing of it before the fog, but Spaulding also went some ten rods with us and pointed toward the head of the ravine, which was about S. 15° W. Hoar tried to hire Page to go with us, carrying part of our baggage, — as he had already brought it up from the shanty, — and he professed to be acquainted with the mountain; but his brother, who lived at the summit, warned him not to go, lest he should not be able to find his way back again, and he declined. The landlords were rather anxious about us. I looked at my compass every four or five rods and then walked toward some rock in our course, but frequently after taking three or four steps, though the fog was no more dense, I would lose the rock I steered for. The fog was very bewildering. You would think that the rock you steered for was some large boulder twenty rods off, or perchance it looked like the brow of a distant spur, but a dozen steps would take you to it, and it would suddenly have sunk into the

ground. I discovered this illusion. I said to my companions, "You see that boulder of a peculiar form, slanting over another. Well, that is in our course. How large do you think it is, and how far?" To my surprise, one answered three rods, but the other said nine. I guessed four, and we all thought it about eight feet high. We could not see beyond it, and it looked like the highest part of a ridge before us. At the end of twenty-one paces or three and a half rods, I stepped upon it, — less than two feet high, — and I could not have distinguished it from the hundred similar ones around it, if I had not kept my eye on it all the while.

It is unwise for one to ramble over these mountains at any time, unless he is prepared to move with as much certainty as if he were solving a geometrical problem. A cloud may at any moment settle around him, and unless he has a compass and knows which way to go, he will be lost at once. One lost on the summit of these mountains should remember that if he will travel due east or west eight or nine miles, or commonly much less, he will strike a public road. Or whatever direction he might take, the average distance would not be more than eight miles and the extreme distance twenty. Follow some water-course running easterly or westerly. If the weather were severe on the summit, so as to prevent searching for the summit houses or the path, I should at once take a westward course from the southern part of the range or an eastward one from the northern part. To travel there with security, a person must know his bearings at every step, be it fair weather or foul. An ordinary rock in a fog, being in the apparent horizon,

is exaggerated to, perhaps, at least ten times its size and distance. You will think you have gone further than you have to get to it.

Descending straight by compass through the cloud, toward the head of Tuckerman's Ravine, we found it an easy descent over, for the most part, bare rocks, not very large, with at length moist springy places, green with sedge, etc., between little sloping shelves of green meadow, where the hellebore grew, within half a mile of top, and the *Oldenlandia cœrulea* was abundantly out (!) and very large and fresh, surpassing ours in the spring. And here, I think, *Juncus trifidus* (?),¹ and *Lycopodium Selago*, and *Lonicera cœrulea*, or mountain fly-honeysuckle, in bloom, only two specimens; it is found in the western part of Massachusetts.² Saw a few little ferns of a narrow triangular form, somewhat like the *Woodsia Ilvensis*, but less hairy and taller; small clintonias in bloom, and *Viola palustris*, in prime, from three quarters of a mile below summit down to snow; and a fine juncus or scirpus, *cœspitosus*-like, *i. e.* a single-headed or spiked rush; and trientalis, still in bloom, rather depauperate; and, I think, a few small narrow-leaved blueberry bushes; at least one minute mountain-ash. Also the *Geum radiatum* var. *Peckii* was conspicuous in prime hence down to the snow in the ravine. These chiefly in those peculiar moist and mossy sloping shelves on the mountain-side, on way to the ravine, or within a mile of the summit.

¹ Yes.

² Oakes makes the plain above the ravine twelve hundred feet or more below summit.

Some twenty or thirty rods above the edge of the ravine, where it was more level and wet and grassy under low cliffs, grew the *Phyllodoce taxifolia*, not in tufts, under the jutting rocks and in moss, somewhat past prime.¹ The *Uvularia grandiflora* apparently in prime, and, part way down into ravine, *Loiseleuria* (*Azalea*) *procumbens*, on rocks, still in bloom,² and *Cassiope hypnoides*, about done. These four on a moist southeast slope. Also *Rubus triflorus*, reaching to camp, in prime.

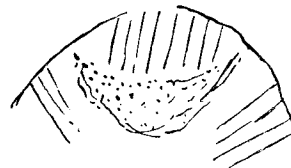
Just on the edge of the ravine I began to see the *Heracleum lanatum* in prime, and the common archangelica, not out; and as I descended into the ravine on the steep side moist with melted snows, *Veronica alpina*, apparently in prime, and *Nabalus Boottii* (?) budded, down to snow, and *Epilobium alpinum* in prime, and *Platanthera dilatata* in prime, and the common rue and the first *Castilleja septentrionalis* (*Bartsia pallida*), apparently not long, which was more common about our camp. I recollect seeing all the last eight (except the rue and veronica and nabalus, which I do not remember) about our camp and yet more flourishing there and *Solidago Virgaurea* var. *alpina*, not quite out, edge of ravine. Should have included *Arnica mollis* among those on side of ravine reaching to camp, and, according to Hoar, raspberry and linnaea.

We crossed a narrow portion of the snow, but found it unexpectedly hard and dangerous to traverse. I tore up my nails in my efforts to save myself from sliding

¹ According to Durand, at Disco, 70° N.

² According to Durand, at 69° in Greenland.

down its steep surface. The snow-field now formed an irregular crescent on the steep slope at the head of the ravine, some sixty rods wide horizontally, or from north to south, and twenty-five rods wide from upper to lower side. It may have been half a dozen feet thick



in some places, but it diminished sensibly in the rain while we were there. Is said to be all gone commonly by end of August. The surface was hard, difficult to work your heels into, and a perfectly regular steep slope, steeper than an ordinary roof from top to bottom. A considerable stream, a source of the Saco, was flowing out from beneath it, where it had worn a low arch a rod or more wide. Here were the phenomena of winter and earliest spring, contrasted with summer. On the edge of and beneath the overarching snow, many plants were just pushing up as in our spring. The great plaited elliptical buds of the hellebore had just pushed up there, even under the edge of the snow, and also bluets. Also, close to edge of snow, the bare upright twigs of a willow, with small silvery buds not yet expanded, of a satiny lustre, one to two feet high (apparently *Salix repens*),¹ but not, as I noticed, procumbent, while a rod off on each side, where it had been melted some time, it was going to seed and fully leaved out. The surface of the snow was dirty, being covered with cinder-like rubbish of vegetation, which had blown on to it. Yet from the camp it looked quite white and pure. For thirty or forty rods, at least,

¹ Also apparently *S. phylicifolia*. Vide Sept. 21.

down the stream, you could see the point where the snow had recently melted. It was a dirty-brown flattened stubble, not yet at all greened, covered with a blackish slimy dirt, the dust of the snow-crust. Looking closely, I saw that it was composed in great part of the stems and flowers apparently of last year's goldenrods (if not asters), — perhaps large *thyrsoides*, for they grew there on the slides, — now quite flattened, with other plants. A pretty large dense-catkined willow grew in the upper part of the ravine, *q. v.* Also, near edge of snow, vanilla grass, a *vaccinium*,¹ budded, with broad obovate leaves (*q. v.*), *Spiraea salicifolia* (and on slides), and *nabalus* (*Boottii*?) leaves.

From the edge of the ravine, I should have said that, having reached the lower edge of the cloud, we came into the sun again, much to our satisfaction, and discerned a little lake called Hermit Lake, about a mile off, at the bottom of the ravine, just within the limit of the trees. For this we steered, in order to camp by it for the sake of the protection of the wood. But following down the edge of the stream, the source of Ellis River, which was quite a brook within a stone's throw of its head, we soon found it very bad walking in the scrubby fir and spruce, and therefore, when we had gone about two thirds the way to the lake, decided to camp in the midst of the dwarf firs, clearing away a space with our hatchets.

¹ This is apparently *V. cæspitosum*, for the anthers are two-awned, though I count but ten stamens in the flower I open, and I did not notice that the plant was tufted. Apparently the same, with thinner leaves, by Peabody River at base, but noticed no flowers there. Yet Gray refers it only to the alpine region!

Having cleared a space with some difficulty where the trees were seven or eight feet high, Wentworth kindled a fire on the lee side, without — against my advice — removing the moss, which was especially dry on the rocks and directly ignited and set fire to the fir leaves, spreading off with great violence and crackling over the mountain, and making us jump for our baggage; but fortunately it did not burn a foot toward us, for we could not have run in that thicket. It spread particularly fast in the procumbent creeping spruce, scarcely a foot deep, and made a few acres of deer's horns, thus leaving our mark on the mountainside. We thought at first it would run for miles, and W. said that it would do no harm, the more there was burned the better; but such was the direction of the wind that it soon reached the brow of a ridge east of us and then burned very slowly down its east side. Yet Willey says (page 23), speaking of the dead trees or "buck's horns," "Fire could not have caused the death of these trees; for fire will not spread here, in consequence of the humidity of the whole region at this elevation;" and he attributes their death to the cold of 1816. Yet it did spread above the limit of trees in the ravine.

Finally we kept on, leaving the fire raging, down to the first little lake, walking in the stream, jumping from rock to rock with it. It may have fallen a thousand feet within a mile below the snow, and we camped on a slight rising ground between that first little lake and the stream, in a dense fir and spruce wood thirty feet high, though it was but the limit of trees there. On our way we found the *Arnica mollis* (recently begun to bloom),

a very fragrant yellow-rayed flower, by the side of the brook (also half-way up the ravine). The *Alnus viridis* was a prevailing shrub all along this stream, seven or eight feet high near our camp near the snow. It was dwarfish and still in flower, but in fruit only below; had a glossy, roundish, wrinkled, green, sticky leaf. Also a little *Ranunculus abortivus* by the brook, in bloom.

Close by our camp, the *Heracleum lanatum*, or cow-parsnip, masterwort, grew quite rankly, its great leaves eighteen inches wide and umbels eight or nine inches wide; the petioles had inflated sheaths. I afterward saw it, I think in Campton, as much as seven feet high. It was quite common and conspicuous in the neighborhood of the mountains, especially in Franconia Notch. Our camp was opposite a great slide on the south, apparently a quarter of a mile wide, with the stream between us and it, and I resolved if a great storm should occur that we would flee to higher ground northeast. The little pond by our side was perfectly clear and cool, without weeds, and the meadow by it was dry enough to sit down in. When I looked up casually toward the crescent of snow I would mistake it for the sky, a white glowing sky or cloud, it was so high, while the dark earth on [the] mountainside above it passed for a dark cloud.

In the course of the afternoon we heard, as we thought, a faint shout, and it occurred to me that Blake, for whom I had left a note at the Glen House, might possibly be looking for me; but soon Wentworth decided that it must be a bear, for they make a noise like a woman in distress. He has caught many of them.

Nevertheless, we shouted in return and waved a light coat on the meadow. After an hour or two had elapsed, we heard the voice again, nearer, and saw two men, and I went up the stream to meet Blake and Brown, wet, ragged, and bloody with black flies. I had told Blake to look out for a smoke and a white tent, and we had made a smoke sure enough. They were on the edge of the ravine when they shouted and heard us answer, or about a mile distant, — heard over all the roar of the stream!! You could hear one shout from Hermit Lake to the top of the ravine above snow, back and forth, which I should think was a mile. They also saw our coat waved and ourselves. We slept five in the tent that night, and it rained, putting out the fire we had set. It was quite warm at night in our tent.

The wood thrush, which Wentworth called the night-ingle, sang at evening and in the morning, and the same bird which I heard on Monadnock, I think, and then thought might be the Blackburnian warbler; also the veery.¹

July 9. Friday. Walked to the Hermit Lake, some forty rods northeast. *Listera cordata* abundant and in prime in the woods, with a little *Platanthera obtusata*, also apparently in prime. (The last also as far up as the head of the ravine sparingly.) This was a cold, clear lake with scarcely a plant in it, of perhaps half an acre, and from a low ridge east of it was a fine view up the ravine. Hoar tried in vain for trout here. The *Vaccinium Canadense* was the prevailing one here and by our

¹ Vide Apr. 15th, 1859, about going up a mountain.

camp. Heard a bullfrog in the lake, and afterward saw a large toad part way up the ravine. Our camp was about on the limit of trees here, and may have been from twenty-five hundred to three thousand feet below the summit.

I was here surprised to discover, looking down through the fir-tops, a large, bright, downy fair-weather cloud covering the lower world far beneath us, and there it was the greater part of the time we were there, like a lake, while the snow and alpine summit were to be seen above us on the other side, at about the same angle. The pure white crescent of snow was our sky, and the dark mountainside above, our permanent cloud.

We had the *Fringilla hyemalis* with its usual note about our camp, and Wentworth said it was common and bred about his house. I afterward saw it in the valleys about the mountains. I had seen the white-throated sparrow near his house. This also, he said, commonly bred there, on the ground.

The wood we were in was fir and spruce. Along the brook grew the *Alnus viridis*, *Salix Torreyana* (?), canoe birch, red cherry, mountain-ash, etc., and prominent among lesser plants, *Heracleum lanatum*, *Castilleja septentrionalis*, the swamp gooseberry in flower and in green fruit, and a sort of *Ribes floridum* without resinous-dotted leaves! The *Hedyotis cœrulea* was surprisingly large and fresh, in bloom, looking as much whiter than usual as late snows do. I thought they must be a variety. And on a sand-bar by the brook, *Oxyria digyna*, the very pretty mountain sorrel, apparently in

prime.¹ Apparently *Viola blanda*, as well as wool-grass, in the meadow, and apparently *Aster prenanthes* and *Juncus filiformis*; also rhodora, fetid currant, amelanchier (variety *oligocarpa*), trientalis, mountain maple, tree-cranberry with green fruit, *Aster acuminatus*, and *Aralia nudicaulis* a *salix humilis*-like, and *Polystichum aculeatum* (?), and *Lycopodium annotinum* (variety).

I ascended the stream in the afternoon and got out of the ravine at its head, after dining on chiogenes tea, which plant I could gather without moving from my log seat. We liked it so well that Blake gathered a parcel to carry home. In most places it was scarcely practicable to get out of the ravine on either side on account of precipices. I judged it to be one thousand or fifteen hundred feet deep, but with care you could ascend by some slides. I found that we might have camped in the scrub firs above the edge of the ravine, though it would have been cold and windy and comparatively unpleasant there, for we should have been most of the time in a cloud.

The dense patches of dwarf fir and spruce scarcely rose above the rocks which they concealed, and you would often think the trees not more than a foot or two deep, — as, indeed, they might not be generally, — but, searching within, you would find hollow places six or eight feet deep between the rocks, where they filled up all level, and by clearing a space here with your hatchet you could find a shelter for your tent, and also fuel, and water was close by above the head of the ravine. Nevertheless, at a glance, looking over, or even walking

¹ Seen in Kane's expedition by Hans, etc., at the furthest north point, or 80°+.

over, this dense shrubbery, you would have thought it nowhere more than a foot or two deep, and the trees at most only an inch or two in diameter; but by searching you would find deep hollow places in it, as I have said, where the firs were from six to ten inches in diameter. The strong wind and the snow are said to flatten these trees down thus. Such a shrubbery would begin with a thin and shallow but dense edge of spruce, not more than a foot thick, like moss upon a rock, on which you could walk, but in many places in the middle of it, though its surface was of a uniform slope, it would be found to be six or eight feet deep. So that these very thickets of which the traveller complains afford at the same time an indispensable shelter. I noticed that this shrubbery just above the ravine, as well as in it, was principally fir, while the yet more dwarfish and prostrate portion on the edge was spruce.

Returning, I sprained my ankle in jumping down the brook, so that I could not sleep that night, nor walk the next day.¹ We had commonly clouds above and below us, though it was clear where we were. These clouds commonly reached about down to the edge of the ravine.

The black flies, which pestered us till into evening, were of various sizes, the largest more than an eighth of an inch long. There were scarcely any mosquitoes here, it was so cool.

¹ [He had found the *Arnica mollis* the day before (*see ante*, pp. 24 and 27), not at the time of spraining his foot, as Emerson has it in his Biographical Sketch. Channing's account of the incident (p. 44) is correct.]

A small owl came in the evening and sat within twelve feet of us, turning its head this way and that and peering at us inquisitively. It was apparently a screech owl.¹

July 10. Saturday. Wentworth says he once collected one hundred pounds of spruce gum and sold it at Biddeford for forty cents per pound. Says there are "sable lines" about here. They trap them, but rarely see them. His neighbor, who lives on the hill behind where we camped on the 6th, has four hours more sun than he. He can, accordingly, make hay better, but W. beats him in corn. The days are about forty minutes longer on top of Mt. Washington than at seashore, according to guide-book. The sun set to us here at least an hour earlier than usual.

This ravine at the bottom of which we were, looking westward up it, had a rim somewhat like that of the crater of a volcano. The head of it bore from camp about N. 65° W., looking nearer than it was; the highest rock, with the outline of a face on it on the south rim, S. 32° W.; a very steep cliff on the opposite side, N. 20° W.; and over the last we judged was the summit of Mt. Washington. As I understood Wentworth, this was in Pingree's Grant; the Glen House in Pinkham's Grant. To-day and yesterday clouds were continually drifting over the summit, commonly extending about down to the edge of the ravine. When we looked up that way, the black patch made by our fire looked like a shadow on the mountainside.

¹ Or *Acadica* ?? Saw-whet?

When I tasted the water under the snow arch the day before, I was disappointed at its warmth, though it was in fact melted snow; but half a mile lower it tasted colder. Probably, the ice being cooled by the neighborhood of the snow, it seemed thus warmer by contrast.

The only animals we saw about our camp were a few red squirrels. W. said there were striped ones about the mountains. The *Fringilla hyemalis* was most common in the upper part of the ravine, and I saw a large bird of prey, perhaps an eagle, sailing over the head of the ravine. The wood thrush and veery sang regularly, especially morning and evening. But, above all, the peculiar and memorable songster was that Monadnock-like one, keeping up an exceedingly brisk and lively strain. It was remarkable for its incessant twittering flow. Yet we never got sight of the bird, at least while singing, so that I could not identify it, and my lameness prevented my pursuing it. I heard it afterward, even in the Franconia Notch. It was surprising for its steady and uninterrupted flow, for when one stopped, another appeared to take up the strain. It reminded me of a fine corkscrew stream issuing with incessant lisp-tinkle from a cork, flowing rapidly, and I said that he had pulled out the spile and left it running.¹ That was the rhythm, but with a sharper tinkle of course. It had no more variety than that, but it was more remarkable for its continuance and monotonousness than any bird's note I ever heard. It evidently belongs only to cool mountainsides, high up amid the fir and spruce. I saw once flitting through the fir-tops restlessly a small white

¹ [He seems to be describing the song of the winter wren.]

and dark bird, sylvia-like, which may have been it. Sometimes they appeared to be attracted by our smoke. The note was so incessant that at length you only noticed when it ceased.

The black flies were of various sizes here, much larger than I noticed in Maine. They compelled me most of the time to sit in the smoke, which I preferred to wearing a veil. They lie along your forehead in a line, where your hat touches it, or behind your ears, or about your throat (if not protected by a beard), or into the rims of the eyes, or between the knuckles, and there suck till they are crushed. But fortunately they do not last far into the evening, and a wind or a fog disperses them. I did not mind them much, but I noticed that men working on the highway made a fire to keep them off. I find many of them accidentally pressed in my botany and plant book. A botanist's books, if he has ever visited the primitive northern woods, will be pretty sure to contain these specimens of the black fly. Anything but mosquitoes by night. Plenty of fly-blowing flies, but I saw no ants in the dead wood; some spiders.

In the afternoon, Hoar, Blake, and Brown ascended the slide on the south to the highest rock. They were more than an hour getting up, but we heard them shout distinctly from the top. Hoar found near the edge of the ravine there, between the snow there and edge, *Rhododendron Lapponicum*, some time out of bloom,¹ growing in the midst of *Empetrum* and moss; *Arctostaphylos alpina*, going to seed; *Polygonum viviparum*, in prime;²

¹ According to Durand, at 68° in Greenland.

² According to Durand, at all Kane's stations.

and *Salix herbacea*,¹ a pretty, trailing, roundish-leaved willow, going to seed, but apparently not so early as the *S. Uva-ursi*.

July 11. Sunday. Mizzling weather. Were visited by three men from Glen House, who thought it was well named "Tucker's Ravine," because it tuckered a man out to get to it!

It rained hard all Sunday night, wetting us but little, however. One of the slender spruce trees by our camp, which we cut down, though it looked young and thrifty, being twenty-eight feet high and only six and a half inches in diameter, had about eighty rings, and the firs were at least as old.

Wentworth said that he had five hundred acres, and would sell the whole with buildings for \$2000. He knew a dead log on the fire to be spruce, and not fir, because the stubs of the lower part slanted downward, and also by its "straight rift." He called a rotten cane "dozy." After some observation I concluded that it was true that the base of the lower limbs of the spruce slanted downward more generally than those of the fir.

July 12. Monday. It having cleared up, we shouldered our packs and commenced our descent, by a path about two and a half or three miles to carriage-road, not descending a great deal.

The prevailing under-plants at first, as we descended, were *Oxalis Acetosella* (abundantly in bloom), *Cornus Canadensis*, *Clintonia borealis*, *chiogenes*, *Vaccinium*

¹ According to Durand, at 73° in Greenland.

Canadense, gold-thread, *Listera cordata*, *Smilacina bifolia*. *Solidago thyrsoides*, large and prevalent, on more open and grassy parts, from top of ravine to base of mountain, where it was in prime, three feet high and spikes eighteen inches long. Trees, at first, fir and spruce; then canoe birches¹ increased, and after two miles yellow birch began. Half-way down the mountain, on the road, saw a whiteweed and one *Alsine Grænlandica*. It [is] surprising how much of that white froth, the nidus of an insect, there was on the grass and weeds on and about the mountains. They were white with it. *Carex trisperma* (?), three-quarters down. Hear the oven-bird near base. Dined by Peabody River, three quarters of a mile south of Glen House. Found *Lonicera ciliata* in fruit there² and saw a little white pine, and *Alnus incana* was common, and that large, fragrant *Aster macrophyllus* (?) was budded.

I had noticed that the trees at the ravine camp — fir and spruce — did not stand firmly. Two or three of us could have pulled over one thirty feet high and six or seven inches thick. They were easily rocked, lifting the horizontal roots each time, which reminded me of what is said about the Indians sometimes bending over a young tree, burying a chief under its roots, and letting it spring back for his monument and protection. W. said they had found the fir the best material for bridge plank-ing in his town, outlasting other woods!

In the afternoon we rode along, three of us, northward

¹ Oakes says the white birch (here, meaning the canoe) come in after a burning.

² Found in Essex woods.

and northwestward on our way round the mountains, going through Gorham. We camped about a mile and a half west of Gorham, by the roadside, on the bank of Moose River.

July 13. Tuesday. This morning it rained, keeping us in camp till near noon, for we did not wish to lose the view of the mountains as we rode along.

We dined at Wood's tavern in Randolph, just over Randolph Hill, and here had a pretty good view of Madison and Jefferson, which rose from just south the stream there, but a cloud rested on the summits most of the time.

As we rode along in the afternoon, I noticed that when finally it began to rain hard, the clouds settling down, we had our first distinct view of the mountain outline for a short time.

Wood said they had no spruce but white spruce there, though I called it black, and that they had no white pine nor oak.

It rained steadily and soakingly the rest of the afternoon, as we kept on through Randolph and Kilkenny and Jefferson Hill, so that we had no clear view of the mountains.

We put up at a store just opposite the town hall on Jefferson Hill. It here cleared up at sunset, after two days' rain, and we had a fine view of the mountains, repaying us for our journey and wetting, Mt. Washington being some thirteen miles distant southeasterly. Southwestward we looked down over a very extensive, uninterrupted, and level-looking forest, which our host said

was very valuable on account of its white pine, their most valuable land, indeed. Over this the fog clouds were rolling beneath us, and a splendid but cloudy sunset was preparing for us in the west. By going still higher up the hill, in the wet grass north of the town house, we could see the whole White Mountain range from Madison to Lafayette.

The alpine, or rocky, portion of Mt. Washington and its neighbors was a dark chocolate-brown, the extreme summits being dark topped or edged, — almost invariably this dark saddle on the top, — and, as the sun got lower, a very distinct brilliant and beautiful green, as of a thick mantle, was reflected from the vegetation in the ravines, as from the fold of a mantle, and on the lower parts of the mountains. They were chiefly Washington and the high northern peaks that we attended to. The waifs of fog-like cloud skirting the sides of Cherry Mountain and Mt. Deception in the south had the appearance of rocks, and gave to the mountainsides a precipitous look. I saw a bright streak looking like snow, a narrow bright ribbon where the source of the Ammonoosuc, swollen by the rain, leaped down the side of Mt. Washington from the Lake of the Clouds. The shadows on Lafayette betrayed ridges running toward us. That brilliant green on the northern mountains was reflected but a moment or two, for the atmosphere at once became too misty. It several times disappeared and was then brought out again with wonderful brilliancy, as it were an invisible writing, or a fluid which required to be held to the sun to be brought out.

After the sun set to us, the bare summits were of a

delicate rosaceous color, passing through violet into the deep dark-blue or purple of the night which already invested their lower parts, for this night-shadow was wonderfully blue, reminding me of the blue shadows on snow. There was an afterglow in which these tints and variations were repeated. It was the grandest mountain view I ever got. In the meanwhile, white clouds were gathering again about the summits, first about the highest, appearing to form there, but sometimes to send off an emissary to initiate a cloud upon a neighboring peak. You could tell little about the comparative distance of a cloud and a peak till you saw that the former actually impinged on the latter. First Washington, then Adams, then Jefferson put on their caps, and you saw the latter, as it were, send off one small nucleus to gather round the head of Madison.

This was the best point from which to observe these effects that we *saw* in our journey, but it appeared to me that from a hill a few miles further westward, perhaps in Whitefield, the view might be even finer. I made the accompanying two sketches of the mountain outline here, as far south only as what the landlord called Mt. Pleasant, the route from the Notch house being visible no further.



View of White Mountains *proper* from town house and store in Jefferson. Other mountains and Franconia Mountains further to the right. N. B. — Oakes puts Jefferson next to Washington, but makes it lower than the third.

This was said to be a fine farming town. I heard the ring of toads and saw a remarkable abundance of butter-

cup (the tall) yellowing the fields in this town and the next, somewhat springlike.

July 14. Wednesday. This forenoon we rode on through Whitefield to Bethlehem, clouds for the most part concealing the higher mountains. Found the *Geum strictum* in bloom in Whitefield; also common flax by a house. Got another fine view of the mountains — the higher ones much more distant than before — from a hill just south of the public house in Bethlehem, but might have got a better view from a higher hill a little more east, which one said was the highest land between the Green and the White Mountains, of course on that line. Saw the Stratford Peaks, thirty or forty miles north, and many mountains east of them. Climbed the long hill from Franconia to the Notch, passed the Profile House, and camped half a mile up the side of Lafayette.

Loudon says of the *Vaccinium uliginosum* that it is "taller than the common bilberry," *i. e.* *Vaccinium Myrtillus*, and is "a shrub about 2 ft. high; a native of Sweden, Germany, Siberia, Switzerland, Savoy, Scotland, and the north of England; as well as in the more northern parts of America, and on its west coast; and on the island of Sitcha, and in the north of Asia, in marshy mountain heaths and alpine bogs." High on the mountains in Scotland. "It is said to cover extensive tracts of land on the west coast of Greenland, along with *Andromeda tetragona*. . . . The berries are agreeable, but inferior in flavor to those of *V. Myrtillus*: eaten in large quantities, they occasion giddiness, and a slight headache." Called "the bog Whortleberry, or great Bilberry."

Vaccinium angustifolium Ait. "Berries large, and known by the name of bluets. . . . A shrub, nearly 2 ft. high; a native of Canada, about Hudson's Bay and Labrador; and of the high alpine woods of the Rocky Mountains, from the Atlantic to the Pacific. . . . The fruit is large, globose, blackish purple," highly esteemed.

Vaccinium Vitis-Idæa. "The berries of this plant form an important article of commerce in the seaports bordering the Gulf of Bothnia, whence they are sent to the south of Europe along with cranberries." "Mount Ida Whortleberry, or Cowberry."

Vaccinium Oxycoccus. Bankers in Russia whiten silver money by boiling it in their juice. "In Russia, and in some parts of Sweden, the long filiform shoots of the oxycoccus are collected in spring, after most of the leaves have dropped off, and are dried, and twisted into ropes, which are used to tie on the thatch of houses, and even for harnessing horses."

Cassiope hypnoides. "A native of Lapland, Denmark, and Siberia, on the mountains, where it covers whole tracts of land; and on the northwest coast of North America."

Phyllodoce taxifolia. "A native of Europe, North America, and Asia. In Europe: in Scotland on dry heathy moors, rare;" etc., etc. Cultivated in British gardens.

Arctostaphylos Uva-Ursi. "In Sweden, Russia, and America, they [the berries] form a principal part of the food of bears."

Arctostaphylos alpina. "Native of Denmark, Switzerland, Dauphiné, Savoy, Siberia, etc." Berries scarcely

edible. According to Linnæus very common about the White Sea.

(Pursh says of the *Chiogenes hispidulum* that it is growing always amidst sphagnum.)

Rhododendron Lapponicum. "A native of the arctic regions of Europe, Asia, and North America, where it forms a procumbent shrub, flowering in July."

Salix Urva-ursi Pursh. "A native of Labrador." His (Loudon's) leaves are blunt-obovate!

S. herbacea L. "A native of Britain on the Welsh and Highland Mountains." "In the *Companion to the Botanical Magazine*, it is stated that *S. herbacea* exceeds in the elevation of its habitat every other shrub in Britain." "*S. herbacea* is the least of British willows, and according to Sir J. E. Smith, the least of all shrubs. Dr. Clarke, in his *Scandinavia*, calls it a perfect tree in miniature; so small that it may be taken up, and root, trunk, and branches, spread out in a small pocket-book." But it has a considerable prostrate stem and root. Leaves used for tanning in Iceland.

S. repens (of Linnæus) has in plate pointed (!) lanceolate leaves, which Loudon says are from one quarter to three quarters of an inch long, while the plant rises "only a finger's length"! Can it be mine?

Loiseleuria procumbens. "Plentiful on the tops of mountains in Scotland."

Alnus viridis D. C. Belongs to the continent of Europe.

Empetrum nigrum. The north of Europe and of Asia, abundant in Scotland. "The Scotch Highlanders and Russian peasants eat the berries." One of the

plants that would prevail in England with ling, etc., if let alone, or ground not cultivated.

Wiley says of Jackson, "The great number of sheep scattered upon the mountains make it the principal place of resort for what bears and wolves are yet left among these hills." Wentworth said that he had trapped and killed a number of them. They killed many of his sheep and calves, and destroyed much of his corn when in the milk, close to his house. A sheep could run faster than a bear, but was not so long-winded, especially going up a mountainside. The bear, when pursued, would take directly to some distant and impenetrable thicket, as these dark fir thickets on the mountainside. He once found some young bears on a nest made of small dry sticks collected under a ledge, and raising them five or six inches from the ground. He carried home the young and reared them. The voice of a bear was like that of a woman in distress. It was in Gilead, the first town (in Maine) northeast from Jackson, that Bean killed his bear, thrusting his arm down her throat.

July 15. Thursday. Continued the ascent of Lafayette, also called the Great Haystack. It is perhaps three and a half miles from the road to the top by path along winding ridge.

At about a mile and a half up by path, the spruce began to be small. Saw there a silent bird, dark slate and blackish above, especially head, with a white line over the brows, then dark slate next beneath, white

throat and reddish belly, black bill. A little like a nut-hatch. Also saw an *F. hyemalis* on top of a dead tree. The wood was about all spruce here, twenty feet high, together with *Vaccinium Canadense*, lambkill in bloom, mountain-ash, *Viburnum nudum*, rhodora, *Amelanchier oligocarpa*, nemopanthus. As I looked down into some very broad and deep ravines from this point, their sides appeared to be covered chiefly with spruce, with a few bodkin points of fir here and there (had seen two days before some very handsome firs on low ground which were actually concave on sides of cone), while the narrow bottom or middle of the ravine, as far up and down as trees reached, where, of course, there was most water, was almost exclusively hardwood, apparently birch chiefly.



As we proceeded, the number of firs began to increase, and the spruce to diminish, till, at about two miles perhaps, the wood was almost pure fir about fourteen feet high; but this suddenly ceased at about half a mile further and gave place to a very dwarfish fir, and to spruce again, the latter of a very dwarfish, procumbent form, dense and flat, one to two feet high, which crept yet higher up the mountain than the fir, — over the rocks beyond the edge of the fir, — and with this spruce was mixed *Empetrum nigrum*, dense and matted on the rocks, partly dead, with berries already blackening, also *Vaccinium uliginosum*. Though the edges all around and the greater part of such a thicket high up the otherwise bare rocks might be spruce, yet the deeper hollows between the rocks, in the midst, would invariably be

filled with fir, rising only to the same level, but much larger round. These firs especially made the stag-horns when dead.



The spruce was mostly procumbent at that height, but the fir upright, though flat-topped. In short, spruce gave place to fir from a mile and a half to a mile below the top, — so you may say firs were the highest trees, — and then succeeded to it in a very dwarfish and procumbent form yet higher up.

At about one mile or three quarters below the summit, just above the limit of trees, we came to a little pond, maybe of a quarter of an acre (with a yet smaller one near by), the source of one head of the Pemigewasset, in which grew a great many yellow lilies (*Nuphar advena*) and I think a potamogeton. In the flat, dryish bog by its shore, I noticed the *Empetrum nigrum* (1), ledum (2), *Vaccinium Oxycoccus*, *Smilacina trifolia*, *Kalmia glauca* (3) (in bloom still), *Andromeda calyculata* (4) (and I think *Polifolia*??), *Eriophorum vaginatum*, *Vaccinium uliginosum* (5), *Juncus filiformis*, four kinds of sedge (e. g. *Carex pauciflora*?), *C. irrigua* with dangling spikes, and a *C. lupulina*-like, and the *Scirpus cespitosus* (?) of Mt. Washington, brown lichens (*q. v.*), and cladonias, all low and in a moss-like bed in the moss of the bog; also rhodora of good size. 1, 2, 3, 4, and 5 were quite dwarfish. The outlet of the pond was considerable, but soon lost beneath the rocks. A willow, *rostrata*-like but not downy, grew there. In the dwarf

fir thickets above and below this pond, I saw the most beautiful linnæas that I ever saw. They grew quite densely, full of rose-purple flowers, — deeper reddish-purple than ours, which are pale, — perhaps nodding over the brink of a spring, altogether the fairest mountain flowers I saw, lining the side of the narrow horse-track through the fir scrub. As you walk, you overlook the top of this thicket on each side. There also grew near that pond red cherry, *Aster prenanthes* (??) and common rue.

We saw a line of fog over the Connecticut Valley. Found near summit apparently the *Vaccinium angustifolium* of Aitman (variety of *Vaccinium Pennsylvanicum*, Gray), bluets, and a broad-leaved vaccinium lower down (*q. v.*). Just below top, reclined on a dense bed of *Salix Uva-ursi*, five feet in diameter by four or five inches deep, a good spot to sit on, mixed with a rush, amid rocks. This willow was generally showing its down.

We had fine weather on this mountain, and from the summit a good view of Mt. Washington and the rest, though it was a little hazy in the horizon. It was a wild mountain and forest scene from south-southeast round easterwardly to north-northeast. On the northwest the country was half cleared, as from Monadnock, — the leopard-spotted land. I saw, about west-northwest, a large Green Mountain, perhaps Mansfield Mountain, though the compass was affected here.

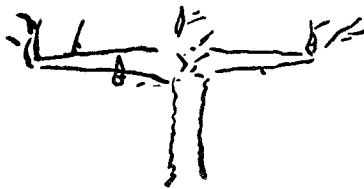
The *Carex scirpoidea* (?) grew at top, and it was surprising how many large bees, wasps, butterflies, and other insects were hovering and fluttering about the very

apex, though not particularly below. What attracts them to such a locality¹

Heard one white-throated sparrow above the trees, and also saw a little bird by the pond. Think I heard a song sparrow about latter place. Saw a toad near limit of trees, and many pollywogs in the pond above trees.

Boiled tea for our dinner by the little pond, the head of the Pemigewasset. Saw tracks in the muddy bog by the pond-side, shaped somewhat like a small human foot *sometimes*, perhaps made by a bear.

We made our fire on the moss and lichens, by a rock, amid the shallow fir and spruce, burning the dead fir twigs, or "deer's-horns." I cut off a flourishing fir three feet high and not flattened at top yet. This was one and a quarter inches in diameter and had thirty-four rings. One, also flourishing, fifteen inches high, had twelve rings at ground. One, a dead one, was twenty-nine inches in circumference, and at four feet from ground branched horizontally as much as five feet each way, making a flat top, curving upward again into stag-horns, with branches very large and stout at base, thus:



Another fir, close by and dead, was thirty inches in circumference at ground and only half an inch in diameter at four and a half feet. Another

fir, three feet high, fresh and vigorous, without a flat

¹ In an account of C. Piazza Smyth's scientific mission under the English Government to the Peak of Teneriffe, in 1856, it is said,

top as yet, had its woody part an inch and an eighth thick (or diameter) at base (the bark being one eighth inch thick) and sixty-one rings. There was no sign of decay, though it was, as usual, mossy, or covered with lichens.

I cut off at ground one of the little procumbent spruce trees, which spread much like a juniper, but not curving upward. This rose about nine inches above the ground, but I could not count the rings, they were so fine. (*Vide piece.*) The smallest diameter of the *wood* is forty-one eightieths of an inch. The number of rings, as near as I can count with a microscope, taking much pains, is about seventy, and on one side these are included within a radius of nine fortieths of an inch, of which a little more than half is heart-wood, or each layer on this side is less than one three-hundredth of an inch thick. The bark was three fortieths of an inch thick. It was quite round and easy to cut, it was so fresh.

If the fir thirty inches in circumference grew no faster than that an inch and an eighth in diameter, then it was about five hundred and forty-nine years old. If as fast as the *little* spruce, it would be nearly fourteen hundred years old.

When half-way down the mountain, amid the spruce, "In the hollow of this crater [the topmost] 12,200 feet above the sea level, though at a lesser altitude they had left all signs of animal life, they found a population of bees, flies, spiders, as well as swallows and linnets — the birds and insects flying about in numbers."

And of a lower altitude, speaking of the flowers, it is said that during the early summer "the townspeople [of Orotava] find it worth their while to pack their hives of bees on mules and bring them to these upper regions to gather honey from the myriads of mountain flowers."

we saw two pine grosbeaks, male and female, close by the path, and looked for a nest, but in vain. They were remarkably tame, and the male a brilliant red orange, — neck, head, breast beneath, and rump, — blackish wings and tail, with two white bars on wings. (Female, yellowish.) The male flew nearer inquisitively, uttering a low twitter, and perched fearlessly within four feet of us, eyeing us and pluming himself and plucking and eating the leaves of the *Amelanchier oligocarpa* on which he sat, for several minutes. The female, meanwhile, was a rod off. They were evidently breeding there. Yet neither Wilson nor Nuttall speak of their breeding in the United States.

At the base of the mountain, over the road, heard (and saw), at the same place where I heard him the evening before, a splendid rose-breasted grosbeak singing. I had before mistaken him at first for a tanager, then for a red-eye, but was not satisfied; but now, with my glass, I distinguished him sitting quite still, high above the road at the entrance of the mountain-path in the deep woods, and singing steadily for twenty minutes. It was remarkable for sitting so still and where yesterday. It was much richer and sweeter and, I think, more powerful than the note of the tanager or red-eye. It had not the hoarseness of the tanager, and more sweetness and fullness than the red-eye. Wilson does not give their breeding-place. Nuttall quotes Pennant as saying that some breed in New York but most further north. They, too, appear to breed about the White Mountains.

Heard the evergreen-forest note on the sides of the

mountains often. Heard no robins in the White Mountains.

Rode on and stopped at Morrison's (once Tilton's) Inn in West Thornton. *Heracleum lanatum* in Notch and near, very large, some seven feet high. Observed, as we rode south through Lincoln, that the face of cliffs on the hills and mountains east of the river, and even the stems of the spruce, reflected a pink light at sunset.

July 16 Friday. Continue on through Thornton and Campton. The butternut is first noticed in these towns, a common tree. *Urtica Canadensis* in Campton.

About the mountains were wilder and rarer birds, more or less arctic, like the vegetation. I did not even hear the robin on them, and when I had left them a few miles behind, it was a great change and surprise to hear the lark, the wood pewee, the robin, and the bobolink (for the last had not done singing). On the mountains, especially at Tuckerman's Ravine, the notes even of familiar birds sounded strange to me. I hardly knew the wood thrush and veery and oven-bird at first. They sing differently there.¹ In two instances, — going down the Mt. Jefferson road and along the road in the Franconia Notch, — I started an *F. hyemalis* within two feet, close to the roadside, but looked in vain for a nest. They alight and sit thus close. I doubt if the chipping sparrow is found about the mountains.

We were not troubled at all by black flies after leaving the Franconia Notch. It is apparently only in primitive

¹ [His wood thrush and veery were probably the olive-backed thrush and the Bicknell thrush.]

woods that they work. We had grand views of the Franconia Mountains from Campton, and were surprised by the regular pyramidal form of most of the peaks, including Lafayette, which we had ascended. I think that there must be some ocular illusion about this, for no such regularity was observable in ascending Lafayette. I remember that when I got more than half a mile down it I met two men walking up, and perspiring very much, one of whom asked me if a cliff within a stone's throw before them was the summit. Indeed the summit of a mountain, though it may appear thus regular at a distance, is not, after all, the easiest thing to find, even in clear weather. The surface was so irregular that you would have thought you saw the summit a dozen times before you did, and in one sense the nearer you got to it, the further off it was. I told the man it was seven or eight times as far as that. I suspect that such are the laws of light that our eye, as it were, leaps from one prominence to another, connecting them by a straight line when at a distance and making one side balance the other. So that when the summit viewed is fifty or a hundred miles distant, there is but very general and very little truth in the impression of its outline conveyed to the mind. Seen from Campton and lower, the Franconia Mountains show three or four sharp and regular blue pyramids, reminding you of pictures of the Pyramids of Egypt, though when near you suspected no such resemblance. You know from having climbed them, most of the time out of sight of the summit, that they must be at least of a scalloped outline, and it is hardly to be supposed that a nearer or more distant prominence

always is seen at a distance filling up the irregularities. It would seem as if by some law of light and vision the eye inclined to connect the base and apex of a peak in the horizon by a straight line. Twenty-five miles off, in this case, you might think that the summit was a smooth inclined plane, though you can reach it only over a succession of promontories and shelves.

Cannon Mountain on the west side of the Franconia Notch (on whose side is the profile) is the most singularly lumpish mass of any mountain I ever saw, especially so high. It looks like a behemoth or a load of hay, and suggests no such pyramid as I have described. So my theory does not quite hold together, and I would say that the eye needs only a hint of the general form and completes the outline from the slightest suggestion. The huge lumpish mass and curving outline of Cannon Mountain is yet more remarkable than the pyramidal summits of the others. It would be less remarkable in a mere hill, but it is, in fact, an elevated and bald rocky mountain.

My last view of these Franconia Mountains was from a hill in the road just this side of Plymouth village. Campton apparently affords the best views of them, and some artists board there.

Gathered the *Carex straminea* (?), some three feet high, *scoparia*-like, in Bridgewater. Nooned on west bank of the Pemigewasset, half a mile above the New Hampton covered bridge. Saw first pitch pines in New Hampton. Saw chestnuts first and frequently in Franklin and Boscaawen, or about $43\frac{1}{2}^{\circ}$ N., or half a degree higher than Emerson put it. It was quite common in

Hollis. Of oaks, I saw and heard only of the red in the north of New Hampshire. The witch-hazel was very abundant and large in the north part of New Hampshire and about the mountains.

Lodged at tavern in Franklin, west side of river.

July 17. Saturday. Passed by Webster's place, three miles this side of the village. Some half-dozen houses there; no store nor public buildings. A very quiet place. Road lined with elms and maples. Railroad between house and barn. The farm apparently a level and rather sandy interval, nothing particularly attractive about it. A plain public graveyard within its limits. Saw the grave of Ebenezer Webster, Esq., who died 1806, aged sixty-seven, and of Abigail, his wife, who died 1816, aged seventy-six, probably Webster's father and mother; also of other Websters, and Haddocks. Now belongs to one Fay [?] of Boston. W. was born two or more miles northwest, but house now gone.

Spent the noon on the bank of the Contoocook in the northwest corner of Concord, there a stagnant river owing to dams. Began to find raspberries ripe. Saw much elecampane by roadsides near farmhouses, all the way through New Hampshire.

Reached Weare and put up at a quiet and agreeable house, without any sign or barroom. Many Friends in this town. Know Pillsbury and Rogers here. The former lived in Henniker, next town.

July 18. Sunday. Keep on through New Boston, the east side of Mount Vernon, Amherst to Hollis, and noon

by a mill-pond in the woods, on Pennichook Brook, in Hollis, or three miles north of village. At evening go on to Pepperell. A marked difference when we enter Massachusetts, in roads, farms, houses, trees, fences, etc., — a great improvement, showing an older-settled country. In New Hampshire there is a greater want of shade trees, but long bleak or sunny roads from which there is no escape. What barbarians we are! The convenience of the traveller is very little consulted. He merely has the privilege of crossing somebody's farm by a particular narrow and maybe unpleasant path. The individual retains all other rights, — as to trees and fruit, and wash of the road, etc. On the other hand, these should belong to mankind inalienably. The road should be of ample width and adorned with trees expressly for the use of the traveller. There should be broad recesses in it, especially at springs and watering-places, where he can turn out and rest, or camp if he will. I feel commonly as if I were condemned to drive through somebody's cow-yard or huckleberry pasture by a narrow lane, and if I make a fire by the roadside to boil my hasty pudding, the farmer comes running over to see if I am not burning up his stuff. You are barked along through the country, from door to door.

July 19. Get home at noon.

For such an excursion as the above, carry and wear: —

Three strong check shirts.

Two pairs socks.

Neck ribbon and handkerchief.

Three pocket-handkerchiefs.

One thick waistcoat.

One thin (or half-thick) coat.

One thick coat (for mountain).

A large, broad india-rubber knapsack, with a *broad* flap.

A flannel shirt.

India-rubber coat.

Three bosoms (to go and come in).

A napkin.

Pins, needles, thread.

A blanket.

A cap to lie in at night.

Tent (or a large simple piece of india-rubber cloth for the mountain tops?).

Veil and *gloves* (or enough millinet to cover all at night).

Map and compass.

Plant book and paper.

Paper and stamps.

Botany, spy-glass, microscope.

Tape, insect-boxes.

Jack-knife and clasp-knife.

Fish-line and hooks.

Matches.

Soap and dish-cloths.

Waste-paper and twine.

Iron spoon.

Pint dipper with a pail-handle added (not to put out the fire), and perhaps a bag to carry water in.

Frying-pan, only if you ride.

Hatchet (sharp), if you ride, and perhaps in any case on mountain, with a sheath to it.

Hard-bread (sweet crackers good); a moist, sweet plum cake very good and lasting; pork, corned beef or tongue, sugar, tea or coffee, and a little salt.

As I remember, those dwarf firs on the mountains grew up straight three or four feet without diminishing much if any, and then sent forth every way very stout

branches, like bulls' horns or shorter, horizontally four or five feet each way. They were stout because they grew so slowly. Apparently they were kept flat-topped by the snow and wind. But when the surrounding trees rose above them, they, being sheltered a little, apparently sent up shoots from the horizontal limbs, which also were again more or less bent, and this added to the horn-like appearance.

We might easily have built us a shed of spruce bark at the foot of Tuckerman's Ravine. I thought that I might in a few moments strip off the bark of a spruce a little bigger than myself and seven feet long, letting it curve as it naturally would, then crawl into it and be protected against any rain. Wentworth said that he had sometimes stripped off birch bark two feet wide, and put his head through a slit in the middle, letting the ends fall down before and behind, as he walked.

The slides in Tuckerman's Ravine appeared to be a series of deep gullies side by side, where sometimes it appeared as if a very large rock had slid down without turning over, plowing this deep furrow all the way, only a few rods wide. Some of the slides were streams of rocks, a rod or more in diameter each. In some cases which I noticed, the ravine-side had evidently been undermined by water on the lower side.

It is surprising how much more bewildering is a mountain-top than a level area of the same extent. Its ridges and shelves and ravines add greatly to its apparent extent and diversity. You may be separated from your party by only stepping a rod or two out of the path. We turned off three or four rods to the pond on our way

up Lafayette, knowing that Hoar was behind, but so we lost him for three quarters of an hour and did not see him again till we reached the summit. One walking a few rods more to the right or left is not seen over the ridge of the summit, and, other things being equal, this is truer the nearer you are to the apex.

If you take one side of a rock, and your companion another, it is enough to separate you sometimes for the rest of the ascent.

On these mountain-summits, or near them, you find small and almost uninhabited ponds, apparently without fish, sources of rivers, still and cold, strange as condensed clouds, weird-like, — of which nevertheless you make tea! — surrounded by dryish bogs, in which, perchance, you may detect traces of the bear or *loup-cervier*.

We got the best views of the mountains from Conway, Jefferson, Bethlehem, and Campton. Conway combines the Italian (?) level and softness with Alpine peaks around. Jefferson offers the completest view of the range a dozen or more miles distant; the place from which to behold the manifold varying lights of departing day on the summits. Bethlehem also afforded a complete but generally more distant view of the range, and, with respect to the highest summits, more diagonal. Campton afforded a fine distant view of the pyramidal Franconia Mountains with the lumpish Profile Mountain. The last view, with its smaller intervals and partial view of the great range far in the north, was somewhat like the view from Conway.

Belknap in his "History of New Hampshire," third

volume, page 33, says: "On some mountains we find a shrubbery of hemlock [?]¹ and spruce, whose branches are knit together so as to be impenetrable. The snow lodges on their tops, and a cavity is formed underneath. These are called by the Indians, *Hakmantaks*."

Wiley quotes some one² as saying of the White Mountains, "Above this hedge of dwarf trees, which is about 4000 feet above the level of the sea, the scattered fir and spruce bushes, shrinking from the cold mountain wind, and clinging to the ground in sheltered hollows by the sides of the rocks, with a few similar bushes of white and yellow [?]³ birch, reach almost a thousand feet high."

Wiley says that "the tops of the mountains are covered with snow from the last of October to the end of May;" that the alpine flowers spring up under the shelter of high rocks. Probably, then, they are most abundant on the southeast sides?

To sum up (omitting sedges, etc.), plants prevailed thus on Mt. Washington:—

1st. *For three quarters of a mile*: Black (?) spruce, yellow birch, hemlock, beech, canoe birch, rock maple, fir, mountain maple, red cherry, striped maple, etc.

2d. *At one and three quarters miles*: Spruce prevails, with fir, canoe and yellow birch. Rock maple, beech, and hemlock disappear. (On Lafayette, lambkill, *Viburnum nudum*, nemopantes, mountain-ash.) Hardwoods in bottom of ravines, above and below.

¹ [The query is Thoreau's.]

² This is Oakes in his "Scenery," etc.

³ [The query is Thoreau's.]

3d. *At three miles, or limit of trees* (colliers' shanty and Ravine Camp): Fir prevails, with some spruce and canoe birch; mountain-ash, *Alnus viridis* (in moist ravines), red cherry, mountain maple, *Salix* (*humilis*-like and *Torreyana*-like, etc.), *Vaccinium Canadense*, *Ribes lacustre, prostratum*, and *floridum* (?), rhodora, *Amelanchier oligocarpa*, tree-cranberry, chiogenes, *Cornus Canadensis*, *Oxalis Acetosella*, clintonia, gold-thread, *Listera cordata*, *Smilacina bifolia*, *Solidago thyrsoides*, *Ranunculus abortivus*, *Platanthera obtusata* and *dilatata*, *Oxyria digyna*, *Viola blanda*, *Aster prenanthes* (?), *A. acuminatus*, *Aralia nudicaulis*, *Polystichum aculeatum* (?), wool-grass, etc.

4th. *Limit of trees to within one mile of top, or as far as dwarf firs*: Dwarf fir, spruce, and some canoe birch, *Vaccinium uliginosum* and *Vitis-Idæa*, *Salix Uva-ursi*, ledum, *Empetrum nigrum*, *Oxalis Acetosella*, *Linnæa borealis*, *Cornus Canadensis*, *Alsine Grænländica*, *Diapensia Lapponica*, gold-thread, epigæa, sorrel, *Geum radiatum* var. *Peckii*, *Solidago Virgaurea* var. *alpina*, *S. thyrsoides* (not so high as last), hellebore, oldenlandia, clintonia, *Viola palustris*, trientalis, a little *Vaccinium angustifolium* (?), ditto of *Vaccinium cæspitosum*,¹ *Phyllodoce taxifolia*, *Uvularia grandiflora*, *Loiseleuria procumbens*, *Cassiope hypnoides*, *Rubus triflorus*, *Hieracium lanatum*, archangelica, *Rhododendron Lapponicum*, *Arctostaphylos alpina*, *Salix herbacea*, *Polygonum viviparum*, *Veronica alpina*, *Nabalus Boottii*, *Epilobium alpinum*, *Platanthera dilatata*, common rue, *Castilleja septentrionalis*, *Arnica mollis*, *Spiraea salicifolia*,

¹ Vide June 14, 1859.

Salix repens,¹ *Solidago thyrsoides*, raspberry (Hoar), *Lycopodium annotinum* and *Selago*, small fern, grass, sedges, moss and lichens.² (On Lafayette, *Vaccinium Oxycoceus*, *Smilacina trifolia*, *Kalmia glauca*, *Andromeda calyculata*, red cherry, yellow (water) lily, *Eriophorum vaginatum*.)

5th. *Within one mile of top*: *Potentilla tridentata*, a very little fir, spruce, and canoe birch, one mountain-ash, *Alsine Grænländica*, diapensia, *Vaccinium Vitis-Idæa*, gold-thread, *Lycopodium annotinum* and *Selago*, sorrel, *Silene acaulis*, *Solidago Virgaurea* var. *alpina*, hellebore, oldenlandia, *Lonicera cærulea*, clintonia, *Viola palustris*, trientalis, *Vaccinium angustifolium* (?), a little fern, *Geum radiatum* var. *Peckii*, sedges, rush, moss, and lichens, and probably more of the last list.

6th. *At apex*: Sedge, moss, and lichens, and a little alsine, diapensia, *Solidago Virgaurea* var. *alpina* (?), etc.

The 2d may be called the Spruce Zone; 3d, the Fir Zone; 4th, the Shrub, or Berry, Zone; 5th, the Cinquefoil, or Sedge, Zone; 6th, the Lichen, or Cloud, Zone.

Durand in Kane (page 444, 2d vol.) thinks that plants suffer more in alpine regions than in the polar zone. Among authorities on northern plants, names E. Meyer's "Plantæ Labradoricæ" (1830) and Giesecke's list of Greenland plants in Brewster's Edinburgh Encyclopedia (1832).

It is remarkable that what you may call trees on the White Mountains, *i. e.* the forests, cease abruptly with

¹ And apparently *S. phyllifolia* (?). Vide Sept. 21.

² Vide Sept. 21.

those about a dozen feet high, and then succeeds a distinct kind of growth, quite dwarfish and flattened and confined almost entirely to fir and spruce, as if it marked the limit of *almost* perpetual snow, as if it indicated a zone where the trees were peculiarly oppressed by the snow, cold, wind, etc. The transition from these flattened firs and spruces to shrubless rock is not nearly so abrupt as from upright or slender trees to these dwarfed thickets.

July 21. Wednesday. CONCORD. P. M. — To Walden, with E. Bartlett and E. Emerson.

The former wished to show me what he thought an owl's nest he had found. Near it, in Abel Brooks's woodlot, heard a note and saw a small hawk fly over. It was the nest of this bird. Saw several of the young fitting about and occasionally an old bird. The nest was in a middling-sized white pine, some twenty feet from the ground, resting on two limbs close to the main stem, on the south side of it. It was quite solid, composed entirely of twigs about as big round as a pipe-stem and less; was some fifteen inches in diameter and one inch deep, or nearly flat, and perhaps five inches thick. It was very much dirtied on the sides by the droppings of the young. As we were standing about the tree, we heard again the note of a young one approaching. We dropped upon the ground, and it alighted on the edge of the nest; another alighted near by, and a third a little further off. The young were apparently as big as the old, but still lingered about the nest and returned to it. I could hear them coming some distance off. Their note was a kind

of peeping squeal, which you might at first suspect to be made by a jay; not very loud, but as if to attract the old and reveal their whereabouts. The note of the old bird, which occasionally dashed past, was somewhat like that of the marsh hawk or pigeon woodpecker, a cackling or clattering sound, chiding us. The old bird was anxious about her inexperienced young, and was trying to get them off. At length she dashed close past us, and appeared to fairly strike one of the young, knocking him off his perch, and he soon followed her off. I saw the remains of several birds lying about in that neighborhood, and saw and heard again the young and old thereabouts for several days thereafter. A young man killed one of the young hawks, and I saw it. It was the *Falco fuscus*, the American brown or slate-colored hawk. Its length was thirteen inches; alar extent, twenty-three. The tail reached two or more inches beyond the closed wings. Nuttall says the upper parts are "a deep slate-color" (these were very dark brown); also that the nest is yet unknown. But Wilson describes his *F. velox* (which is the same as Nuttall's *F. fuscus*) as "whole upper parts very dark brown," but legs, greenish-yellow (these were yellow). The toes had the peculiar pendulous lobes which W. refers to. As I saw it in the woods, I was struck by its dark color above, its tawny throat and breast, brown-spotted, its clean, slender, long yellow legs, feathered but little below the knee, its white vent, its wings distinctly and rather finely dark-barred beneath, short, black, much curved bill, and slender black sharp claws. Its tail with a dark bar near edge beneath. In hand I found it had the white spots on scapulars of

the *F. fuscus*, and had not the white bars on tail of the *F. Pennsylvanicus*. It also had the fine sharp shin.¹

But what then is my hawk killed by Farrar, with so stout a leg? Had that any white bars on tail?²

July 22. The nest of the marsh hawk is empty. It has probably flown. C. and I took refuge from a shower under our boat at Clamshell; staid an hour at least. A thunderbolt fell close by. A mole ran under the boat. The wind canted round as usual (is not this owing to the circular manner of storms?) more easterly, and compelled us to turn the boat over. Left a little too soon, but enjoyed a splendid rainbow for half an hour.

July 23. *Neottia gracilis*, how long?

July 26. Button-bush in prime. Edward Bartlett shows me a nest in the Agricultural ground which had four eggs, yet pretty fresh, but the bird has now deserted it. (*Vide* one.) It is like Farmer's seringo. It is a broad egg, white with large reddish and purplish brown spots chiefly about large end. The nest is small and deep and low in the grass of this pasture. (*Vide* nest out of order.) Could not see the bird; only saw bay-wings and huckleberry-birds. I suspect it may be the *Fringilla passerina*? He says the bird had a clear yellowish-white breast!

July 28. P. M. — To Conantum.

From wall corner saw a pinkish patch on side-hill west

¹ *Vide* Aug. 29th.

² *Vide* Aug. 29th.

of Baker Farm, which turned out to be epilobium, a rod across. Through the glass it was as fine as a moss, but with the naked eye it might have been mistaken for a dead pine bough. This pink flower was distinguished perhaps three quarters of a mile.¹

Heard a kingfisher, which had been hovering over the river, plunge forty rods off.

The under sides of maples are very bright and conspicuous nowadays as you walk, also of the curled [?] paniced andromeda leaves. Some grape leaves, also, are blown up.

July 29. P. M. — To Pine Hill, looking for the *Vaccinium Pennsylvanicum* berries. I find plenty of bushes, but these bear very sparingly. They appear to bear but one or two years before they are overgrown. Also they probably love a cool atmosphere, for they bear annually on mountains, as Monadnock. Where the woods have been cut a year or two they have put forth fresh shoots of a livelier green. The *V. vacillans* berries are in dense clusters, raceme-like, as huckleberries are not.

I see nowadays young martins perched on the dead tops of high trees; also young swallows on the telegraph-wire.

In the Chinese novel "Ju-Kiao-Li, or The Two Fair Cousins," I find in a motto to a chapter (quoted): "He who aims at success should be continually on his guard against a thousand accidents. How many preparations are necessary before the sour plum begins to sweeten! . . . But if supreme happiness was to be attained in

¹ *Vide* Aug. 21.

the space of an hour, of what use would be in life the noblest sentiments?" (Page 227.) Also these verses on page 230: —

"Nourished by the study of ten thousand different works,
The pen in hand, one is equal to the gods.
Let not humility take its rank amongst virtues:
Genius never yields the palm that belongs to it."

Again, page 22, vol. ii: —

"If the spring did not announce its reign by the return of the leaves,
The moss, with its greenish tints, would find favor in men's eyes."

July 31. P. M. — To Flint's Pond.

I see much *eriocaulon* floating, with its mass of white roots uppermost, near the shore in Goose Pond. I suspect it may have been loosened up by the musquash, which either feeds on it, or merely makes its way through its dense mats. I also see small fishes, apparently shiners, four or five inches long, in this pond. Yet I have seen this almost all dried up.

I have smelled fungi in the thick woods for a week, though they are not very common. I see tobacco-pipes now in the path. You are liable to be overtaken by a thunder-shower these afternoons. The *anychia* already shows green seed-vessels on its lower branches. Petty morel has begun to bloom in shady swamps, how long?

Got the wood thrush's nest of June 19th (now empty). It was placed between many small upright shoots, against the main stem of the slender maple, and measures four and a half to five inches in diameter from out-

side to outside of the rim, and one and three quarters deep within. It is quite firm (except the external leaves falling off), the rim about three quarters of an inch thick, and it is composed externally of leaves, apparently chiefly chestnut, very much decayed, beneath which, in the place of the grass and stubble of which most nests are composed, are apparently the midribs of the same leaves, whose whole pulp, etc., is gone, arranged as compactly and densely (in a curving manner) as grass or stubble could be, upon a core, not of mud, but a pale-brown composition quite firm and smooth (within), looking like inside of a cocoanut-shell, and apparently composed of decayed leaf pulp (?), which the bird has perhaps mixed and cemented with its saliva. This is about a quarter of an inch thick and about as regular as a half of a cocoanut-shell. Within this, the lower part is lined with considerable rather coarse black root-fibre and a very little fine stubble. From some particles of fine white sand, etc., on the pale-brown composition of the nest, I thought it was obtained from the pond shore. This composition, viewed through a microscope, has almost a cellular structure.