# An Early American Attempt on Mont Blanc

## (Dr. Grant—1839)

The first American ascent of Mont Blanc was made by Drs. Howard and Van Rensselaer in 1819. The second American ascent, by Dr. I. T. Talbot, was not accomplished until 1854. In the interval, however, more than sixty tourists, including Albert Smith, stood on the summit, the number increasing as progress of railroads on the Continent facilitated the approach to Chamonix. In fifteen of the seasons between 1819 and 1851 there was no complete ascent recorded, and mountaineering had not yet become a recognized sport.

The annals of Mont Blanc have given little attention to an attempt on the mountain made by an American physician, Dr. Harry Allen Grant, in the summer of 1839 when he was twenty-six years old; and still less to the man himself, whose scientific interest in the matter was in the best traditions of Saussure.

Dr. Grant was born at Simon's Island, Ga., on January 23rd, 1813.[1] His father had been a surgeon in the British Navy, resigning and purchasing a large plantation in Georgia where he passed the remainder of his life. The son went north at the age of seven to be educated, returning home only for brief intervals thereafter.

After attending Union College, where he was graduated in 1830, Grant received his M.D. from Baltimore Medical College and began practice in Albany, N. Y. There he remained three years, but after the death of his wife, the former Louise Bloodgood, Dr. Grant went abroad for study, spending four years on surgery, chiefly in Paris. It was during this time that he went to Chamonix.

Returning to America, Dr. Grant settled in Hartford, but, after some twelve years, illness forced him to withdraw from his profession. He went to Europe for medical advice and his health was largely restored. He then took up residence in Enfield, Conn., marrying the daughter of Orrin Thompson, by whom he had two sons.

Although a Southerner by birth and education, Dr. Grant took the side of the National Government during the Civil War. He was Surgeon-General for the state under Governor Buckingham and, in 1862, was one of the representatives for Enfield at the General Assembly. For a time he was also Collector of Internal Revenue, and in 1864 became chairman of the delegation from Connecticut to the Republican National Convention at Baltimore.

"In all positions Dr. Grant was faithful and efficient. He was a man of broad and fine culture, of courtly manners, of tender sympathies and generous deeds. The poor, the sick, and the young were the special objects of his regard and kindness. He strove to make his life a practical illustration of Christian truth." He died at Enfield on November 30th, 1884, in his seventy-second year.—*Ed.*

---

[1] See J. Hammond Trumbull, *The Memorial History of Hartford County, Conn.* (1633-1844). Despite an exhaustive search, no portrait of Dr. Grant could be found.

Dr. Grant's account of his visit to Chamonix, entitled 'A Week Among the Glaciers,' appeared in the *American Journal of Sciences and Arts* (xlvi, 281),[2] where Van Rensselaer had also published the news of his own ascent. Dr. Grant's narrative now follows:

WE arrived at Chamonix (Chamouni of many tourists) on Friday evening, July 12th 1839, and strolled about this small but remarkably situated village. Chamonix is at the base of the monarch of the Alps, and completely surrounded by these stupendous barriers, which Nature has formed, as if to seclude these inhabitants of its peaceful vale from intercourse with, and consequent contamination from the adjoining nations.

Here in the space of a few square miles, has Nature congregated her most gigantic piles, and displayed with wasteful prodigality the immensity of her power. On every side the lofty peaks of the Alpine chain present themselves to the eye, and bound abruptly the limited horizon. While every mountain presents its own peculiar attractions, each possessing advantages denied to all the rest, they stand as opposing rivals, conscious of their own matchless attractions. On the east rises the Montagne Vert, celebrated for its *Mer de Glace* and garden; this is a spot that nearly every traveller visits, and is accessible with no great fatigue and little danger. To the south rises in fearful and majestic height the mighty monarch of the Alps (Mont Blanc), flanked on either side by the Dome de Gouté and the Aiguille de Midi, which stand as sentinels to guard the icy pass to the throne of the Alpine king. Nearly all are at first disappointed in the height which Mont Blanc presents, and this is doubtless from the description either of friends who have visited this spot, or the accounts given in the "hand-books of Chamonix," which describe the mountain as the "dark frowning monarch," etc.

Mont Blanc possesses a character to which appellation will not apply. It rises far above the surrounding mountains; and as its lofty summit towers above the rest, it impresses the beholder not with the awful sublimity that does our own impetuous Niagara, but by its grand and majestic serenity the turbulent passions which agitate our bosoms are quelled to silence in contemplating the stillness that rests on its eternal snow-capped heights.

[2] Reprinted in *The Recreation. A Gift-Book for Young Readers;* London, 1845, under the title 'A Week Among the Glaciers'; and in *Curiosities of Modern Travel: A Year-Book of Adventure;* London, 1845, as 'Thirty Hours on Mont Blanc.'

In the valley of Chamonix runs the river Arve, and has for a tributary the Arveron, which issues from beneath the Glacier du Bois, and is visited by all to see the icy arch, which has been formed by the waters of the river, in conjunction with the rays of the sun. Its height varies much in different seasons, and even during the year; it may be named from 30 to 100 feet.

The ascension of Mont Blanc is attempted by few. The first successful one was made by Prof. De Saussure,[3] whose valuable researches, and the praiseworthy object he had in view (the advancement of science), are sufficient excuse for hazarding the lives of his guides, who are tempted by money to brave the inevitable danger of the journey. Since his ascension it has been attempted by a few adventurers with varied success, and generally with no other motive than mere curiosity or a spirit of bravado. Recently a Dr. Barry[4] of England made a successful ascent, and has published an account of it, with his observations; but owing to the inaccuracy of his instruments, his experiments cannot be relied upon, which we much regret.

By the present arrangement of the government, the ascent of Mont Blanc is very expensive, in consequence of the great number of guides requisite to be taken; and it is also annoying by the forms and ceremonies attendant on such an expedition. When a party intend making the ascent, mass is previously said in the village church, for the safety of the guides and travellers; and the guides, for whom more especially it is said, are obliged to attend. On the whole it is rather an imposing sight, to see these sturdy mountaineers attending this religious ceremony, before attempting to brave the dangers of an ascent.

The attempt to ascend Mont Blanc was to me quite unexpected, for I did not wish to risk for myself the dangers of an ascent, and much less the lives of the guides necessary to such an excursion. But being in company with two English gentlemen, who determined to attempt it, I was persuaded to make it with them.

Having made known our intentions to the *hotelier,* he immediately sent for Couttet,[5] who selected the most trustworthy of the guides, eighteen for us; and six more, after seeing the preparation of eatables and drinkables the landlord had prepared for our

[3] It is difficult to understand why Dr. Grant should have been unaware of the first ascent, by Paccard and Balmat, in 1786.

[4] Martin Barry.—*Ascent to the Summit of Mont Blanc in 1834.*

[5] Probably Joseph-Marie Couttet.

journey, volunteered to accompany us, for the privilege of free access to our haversacks. Everything being arranged the night previous, we breakfasted the following morning, July 15th, at 4 o'clock. The hotel presented at this early hour a lovely scene, while the guides were depositing in the different haversacks the provisions which had been prepared, and which were truly in amount enormous for the time we anticipated being absent.

One hour later and we were already skirting the base of the mountain, myself and two friends on mules; and in this way we proceeded, till we entered the thick growth of pines that clothes the mountain side, through which we wound our way, until the broken fragments of rocks and the trunks of fallen trees prevented the further progress of the mules, when we dismounted and sent them back, while we proceeded on foot through the pines, which now becoming less and less thrifty, soon ceased altogether, and nothing but the barren rocks, with only here and there a scraggy shrub, till about 9 o'clock we arrived at the point of perpetual snow, where we halted to take a second *déjeuner à la fourchette* (breakfast).

It was at this point we determined to enter upon the Glacier des Bossons, and crossing it, to ascend the mount on the opposite side, which would, we conceived, be easier and less dangerous than continuing our course up the glacier to the Grandes Mulets, which was the point we wished to gain as a resting place for the night.

Here I made an experiment[6] to test the diurnal advance of the glacier. I took three large blocks of stone, with the smoothest faces I could find, and having placed them in a straight line about ten feet distant from each other, I sighted (in the usual manner of farmers in setting a post and rail fence) along the smooth faces of the stones which were turned towards the summit of the mountain. I then had three other stones carried on the glacier at the distance of 50 to 60 feet from each other, and placed in a straight line with the three former stones, and left them to mark the change which should take place in their relative positions, on my return.

A similar experiment I made in the evening on my arrival at the Grand Mulets, and on my return to the Grand Mulets the next day at 1 o'clock, P.M., which made nineteen hours for the former,

[6] This is a very early date for experiments on glacial motion: Hugi observed the position of the block on the Aar glacier in 1827 and Agassiz was working in the Oberland during 1836-9, but Forbes did not begin his study on the Mer de Glace until 1842.

and thirty-one for the latter. The stones on the glacier had descended during this time, from a line drawn from the upper surfaces of the stones on the mountain to the upper surfaces of the stones on the glacier, between 12 and 13 inches for the former, and about 21 inches for the latter, which is about 16 inches for the twenty-four hours.

The number of pulsations and respirations per minute, of the whole party, I had taken at Chamonix, previous to leaving, and found that the average was seventy-six of the former and sixteen and a half of the latter. At this point, the perpetual snow line, there was a slight acceleration, the respirations being eighteen and pulsations eighty-two per minute, after resting fifteen minutes, and of course previous to eating, as the pulsations are augmented during the process of digestion.

At 10 o'clock, A.M., we entered upon the glacier; the travelling was at first neither difficult nor fatiguing, for we had each a well-tried Alpenstock, which was equal to a third foot in case of need, and our shoes, made for the occasion, were well armed with square-headed nails throughout the whole extent of heel and sole.

The extreme purity of this glacier is remarked as greater than that of either of the other glaciers in the valley of Chamonix, and its crevasses present most perfectly the bluish green, and from that to the deep blue of the gulf water. The crevasses in this glacier are much deeper, wider and more extensive, than either of the others in this valley; and this is owing probably to its great extent, and to its being one of the most precipitous of the Alps. They vary in width from a few feet to many hundred, and taking their length, including their windings, from a few rods to one or two miles. Their depth has been estimated by De Saussure, for the deepest, at 600 feet, which has been considered as exaggerated—an opinion in which I should agree, if this depth is given as common; but that there is one, and indeed that there are several, of this depth below the Grand Plateau, I confidently affirm. One in particular, which I measured with a rude instrument constructed on the spot for the purpose, proved between 800 and 900 feet deep; it was but a short distance from the Grand Mulets. This crevasse, as I should judge, was about one-fourth of a mile in width, and seemed to have been formed by the inferior side sliding down to the distance mentioned above as the width of the crevasse, while its superior portion, remaining apparently stationary (I say apparently, because the whole mass is perpetually moving onward), had

increased in height, by the additions made to it from the falling avalanches, so that the upper side rose more than 200 feet above the inferior side of the crevasse; consequently, measuring its depth from the highest point of its upper edge, it measured near 900 feet, while from the highest point of its inferior border, my instrument marked something less than 600 feet. This I give as the maximum depth of any crevasse which we observed in this ascent. The crevasses are, however, generally from a few feet to 50 or 60 deep. Many have their sides nearly perpendicular, but in the deeper ones they are always zigzag, and many of the deepest, when they are very wide, may be descended with but little risk by means of ropes and hatchets, which are a necessary accompaniment to these expeditions. The crevasses which are the most difficult and dangerous to cross, are those whose width is about 60 or 80 feet, and 80 or 100 deep. These frequently extend to a great length, and to avoid the fatigue attendant on following them parallel to their length, an attempt is sometimes made to pass on the bridges, which have been formed by avalanches falling across them, and thus wedging in immense blocks, forming in many places a rude but substantial arch, which rises some 10 or 20 feet above their borders, and as many wide, making a very safe and convenient passage, while others at their base are sufficiently wide to tread on with perfect ease and safety. At the apex of the arch, they become so narrow, by melting, that it is quite impossible to stand erect upon their summit; it being only a few inches wide, and sloped on either side like a saddle, one is obliged for a few feet to sit astride of them as on horseback, and trust to the steadiness of his nerves and the firm grasp of his knees, to accomplish a safe transit. The ascent of these bridges is much easier and less hazardous than the descent, in consequence of being compelled, while descending, to look continually into the gap of the depth below, exhibiting the precariousness of the position.

We traversed these seas of ice and snow from about 10 o'clock, A.M., till between 5 and 6 o'clock, P.M., when we arrived at the Grand Mulets, which we should have reached at least two hours sooner, had it not been for a newly formed crevasse of very great extent (I say *newly formed,* because my guides said that the year previous when they made the ascent to the Grand Mulets it did not exist). It was of various width throughout its length, from fifty feet to one-fourth of a mile; and in following along the side we were obliged to ascend about one thousand feet above the

Grand Mulets before we could find a place to cross it, being about two-thirds up the length of the crevasse, where turning abruptly, at nearly a right angle, it was filled for the distance of 200 feet or more by avalanches, which had fallen from the Grand Plateau, or the summit of the mount, and illustrated in the grandest and most impressive manner, the way in which gravity hurls down and piles up these immense masses of snow and ice to the height of hundreds of feet, and so equally poised upon pedestals of ice, that have been wasted away by the heat of the sun, till it seems impossible that they could bear the enormous superimposed weight. In crossing the chasm at this point, we passed under these shelving masses, some of which projected 100 feet over our path. The scene was one of wild magnificence; and it was at this point that our guides enjoined the strictest silence, and to tread with the utmost lightness and precaution, which injunction I regarded at the time as being merely an attempt *ad captandum,* in order to enhance in our estimation the value of their services. Being excessively fatigued, and being here screened from the wind and dazzling rays of the sun, I proposed to halt and rest, to which my guide in the most peremptory and positive manner objected, saying if I attempted to stop at this point, he should be obliged to take me up and carry me from underneath this shelving ice, while at the same time, pointing to the water which was dripping slowly from its summit, and trickling down its side and base, he said it would not stand another day's sun, and any cause which should produce a slight vibration of the air, would dislodge other masses above it, which were less firmly fixed than even this one, and they would set the whole mass to tumbling headlong down. This being spoken with so much earnestness, and in a mere whisper, I proceeded. Our *valet de place,* whom we had taken with us, was immediately before me, and being rather awkward, moved very slowly, and had already made one or two false steps, which my guide seeing, advanced at once and stopped him, then told me to pass him, as a few more such steps might set some of the smaller blocks in motion, and as we were behind, we should lose our lives, by his stupidity. I passed him, and a few minutes' walk carried us to the opposite side of this dangerous pass, where we sat down to rest and viewed from a point of safety the danger which we had almost unconsciously braved. It was now frightful to see other promontories of ice, which while we were crossing them had been hidden from our view, resting upon mere feathery edges, with sheets of

snow dropping over their edges in festoons, appearing scarcely thick enough to support their own weight.

Our guides told us we could now prove, or rather test, the truth of their assertions respecting the powerful effect of the vibration of the air at this height, which hint we at once availed ourselves of, by ordering the whole company to give three shouts at the height of their voices, which they did, and the effect of which was quickly visible. The first shout produced no sensible movement, but with the second, though the sound produced none of that sharp echo, which we so often hear in the gorges of the mountain valleys, yet its effect was manifest, first upon those festooned edges of snow which I have mentioned above, and which with another loud shout began to detach themselves in quick succession,[7] falling in considerable sheets, till one of no great size fell some 80 ft., upon one of those huge rocks of ice, which was poised so equally that it required but the slightest force to turn the balance, when this slid from its resting place, with but little velocity, not as fast apparently as a man would walk; but the momentum of so large a mass must have been enormous. I should judge its slide was not more than 12 or 15 ft. (though it may have been many more) when being suddenly checked, by its base coming in contact with another mass, the momentum it had acquired in its slide threw its summit beyond the center of gravity, and it pitched headlong down the broken plane of the crevice, which was followed by an active scene of wild and terrific confusion. Avalanche succeeded avalanche of enormous size, as the fall of one detached others larger than itself.

At first their motion was slow and regular, as they merely slide from their resting places, till arrested by another mass, when they came tumbling, rolling, and bounding down as their velocity increased, till no barrier could check their impetuous course.

At their onset, each could be distinctly seen, and marked amid the rest, till by their increased velocity, according to the obstacles they encountered as they rolled onward in their descent, bounding from crag to crag with resistless force, they would rend and shiver themselves and opposing obstacles into immense masses. They seemed to gain additional power from each opposing barrier, till opposer and opposed, rent into ten thousand fragments, rushed headlong, tearing, crashing, thundering down, as if possessing

[7] The production of avalanche by vibration is mentioned by Simler (1574), but this is a unique instance of a scientific man observing the phenomenon.

within themselves the elements of life; then deviating from side to side, as any solid angular inclination turned them from their forward course, till ground and broken into myriads of pieces, their forms became too indistinct to be any longer discerned. They then assumed the confused appearance of a circumscribed storm of thick hail and snow, driven madly onward by a furious tempest, until it reached its final resting place, far down in the rough and jagged bosom of the glacier, of which it now forms a part, to be carried slowly yet surely to the valley, and there being liquefied by the rays of a summer sun, to aid in swelling the torrent of the Arve. This mountain river, as if exulting in being loosed from its icy bondage, then leaps joyously along, till it mingles its waters with the deep blue sea—although mingled, yet it is not lost, for it may again assume another and lighter form, as in vapor it rises from the tranquil bosom of the Mediterranean, a part to be wafted by the soft zephyrs of Italy to irrigate her fertile plains, while the rest may be again transported to clothe anew the lofty summit of some snow-capped Alp.

Those travellers who from the valley of Chamonix have seen these masses of ice falling from the summit of Mont Blanc, on the Grand Plateau, in consequence of their distance and great height, can form no idea of their size. These blocks of ice which from the valley appear, as they are displaced, not larger than 15 to 20 ft. square, are to those who are in their immediate vicinity, from 100 to 200 ft. This kind of avalanche differs from the Staub-laminen (dust avalanche), as they are called by the natives of the Alps, which being formed by the loose fresh-fallen snow of winter, before it has been melted and made compact, is piled up by the whirlwinds which are common in the Alps; such avalanches increase as they descend, till they acquire an enormous size, covering acres, I may say miles, in their descent; overwhelming and laying prostrate whole forests of pines or villages which lie in their course. Another kind, the Grund-Laminen, fall chiefly during the early months of spring and summer, as in May and June, when the rays of the sun being very powerful, the snow becomes more compact. They are composed of soggy snow and ice, and are also very destructive.

They were avalanches of this kind, that in 1720, in Ober Gestelen (Vallais), and in 1749, in the Tavetsch, produced such devastation. The records of the valleys of the Alps abound with mournful exemplification of the destructive power of these ava-

lanches, and of many others of this class. The wind of the avalanche, whose violent effects have been described by writers, probably acts only by its vibratory power, and the concussion subsequent upon the movement of the avalanche, thus filling up the momentary vacuum produced by its rapid motion through the air. The idea of the wind of avalanches is common among the inhabitants of the Alps, as is a similar one among many of us, concerning the wind of a cannon ball, killing without touching.

In support of their opinions of the wind of avalanches, they cite the fact of large and sturdy pines being cut smoothly off, without the bark or branches being chafed, but I saw nothing of this kind, which would not be accounted for by the rush of wind to fill the vacuum. It was in this way that the village of Randa in the Visp-Thal, had many of its houses prostrated and scattered in fragments in 1720, and also one of the spires of the convent of Dissentis fell by the vibratory action of the air, produced by an avalanche which fell about one-fourth of a mile distant from it. This concussion of the air is familiar to all by the effects produced in the discharge of ordnance, near our dwellings. It may be more perfectly exemplified, by taking a bottle and corking it lightly, and discharging at a short distance, 20 or 30 ft., a musket or rifle, so that the ball shall pass about one inch over the cork; the velocity of the projected bullet produces a vacuum, and the cork leaps from its place of confinement, in consequence of the atmospheric pressure being thus suddenly removed, and by the expansion of the air within the bottle.

The Grand Mulets are two rocks which project from the Glacier des Bossons, whose summits are so pointed, and their sides so perpendicular, that the snow does not rest upon them. Here we halted for the night.

They had loaded a cannon in the valley previous to our departure, and were to discharge it when they saw us (through their telescope) arrive at this point (Grand Mulets) which they did, but neither myself nor the guides heard the report, although some of our guides said they saw the smoke.

I had taken up with me six old pigeons, the strongest and shyest I could find in the pigeon-house of the hotel, and now determined to let two of them off from the rock; the time being marked on a small piece of parchment, and attached by a string to one leg. I had desired the landlord to note the time when the pigeons made

their appearance at Chamonix.[8] I then tossed one of them a few feet in the air, that he might see to take his direction, when to my surprise, he fluttered up a little, and came down nearly as rapidly as I had thrown him up. When we then attempted to catch him, he endeavored to fly, but being unable to rise, he fluttered about, ran with his wings extended a few yards, and was easily taken. I presumed he might have been injured by confinement in the basket, so I made the same experiment with three others, the result being the same; proving that the rarity of the air was too great to admit of their supporting themselves. But the next day in descending we let them off about half way down between the Grands Mulets and the upper point of vegetation, and they took their courses directly for Chamonix, and were doubtless safely at home long before we reached the perpetual snow line.

After resting here twenty minutes, and previous to eating, the average pulsations and respirations of the whole party stood at 128 of the former and 30 of the latter per minute. Nothwithstanding the increase in the frequency of the respiratory action was much greater than natural, and increases as you ascend to the higher points of the mountain, I found none of those urgent symptoms mentioned by tourists, of difficult and laborious respiration, that is, during rest or repose, but even at this point, I found that the muscles became rapidly fatigued, and while in motion the respiration was accelerated, and consequently more or less difficult, but ceased to be oppressive after a few moments of rest, proving that the effect was due not to the rarity of the air, but the exercise in this rare atmosphere. The higher you ascend, the greater and greater is the inclination to rest and lassitude, and the power of muscular endurance is diminished almost to zero. The moment, however, you place yourself in the horizontal position, by lying on the snow, the muscles being at rest, you feel merely lassitude, but no fatigue, which returns almost immediately, on the muscles being again called into action. The most troublesome and annoying circumstances was the intense thirst, produced in part by the cutaneous transpiration, which was very abundant, in consequence of the fatigue produced by motion, and also by the peculiar condition of the atmosphere. As this thirst increases, the desire for food diminishes, until it becomes actually a loathing. This was experienced not only by myself, but to a great

[8] Carelli also took pigeons to the Grands Mulets on his ascent in 1843.

degree even by the guides, who at the Grand Mulets devoured the fattest kind of roasted and boiled meats with the greatest *goût,* but at the Grand Plateau cared for nothing more than the wing of a chicken, refusing positively the hearty meats, but swallowed with infinite satisfaction the Bordeaux wine which I had carried for my own use. The only beverage that had an agreeable taste to me, and which alleviated my thirst, was the *lemonade gazeuse.* Taking a small quantity of snow in my hand, I would saturate it with this liquid, and then allow it to dissolve in my mouth.

My two friends and myself chose the highest point of the Grand Mulets as our resting place for the night; but owing to its steepness, fearing lest we might, during sound sleep subsequent to the fatigue of the day, roll or slide down its side, we constructed with the loose stones from the crevices of the rock, a wall about ten feet long, and about two feet high in the center, and descending to one foot at its extremities, of a semilunar form, against which we were to place our feet. The larger stones were now removed, to make the foundations of our beds as smooth as the circumstances of the place would permit; we selected each one his place, and spread upon it his sheepskin, while a knapsack served the purpose of a pillow. I had just wrapped my blanket around me, as the sun was sinking below the horizon, throwing its lurid glare upon the snow-capped summits, which now above, below, and on either side, rose in close proximity, presenting a scene in which were mingled the beautiful and sublime, and more than repaying any lover of nature for the fatigue endured in obtaining the sight. I now prepared for sleep, but the novelty of the position, the deathlike stillness, and the events of the day crowding before my imagination precluded sleep, while the vast expanse of the blue arch of heaven, which was my canopy, studded with its myriads of scintillating lights, invited contemplation rather than repose.

I was not allowed long to enjoy this scene of tranquillity and silence, for the day had been one of excessive heat, and its effects began to be manifested by the fall of avalanches. Situated as the Grand Mulet are, about 10,000 ft. above the level of the sea, below the Grand Plateau, at two-thirds of the height of Mont Blanc, within 2500 ft. of the summit of the Aiguille de Midi, and projecting from the middle of the glacier, they stand as opponents to very many of the avalanches that fall from either of these elevated points. I had not lain more than twenty minutes, when I was aroused by a tremendous crash, while the entire rock still vibrated

from the concussion of the ponderous mass: as I sprang to my feet, and looked over the mountain side, by the light of the moon, which had just risen, making every object, though enlarged and softened, almost as distinct as noonday, this mass of snow and ice could be seen hurrying and rushing headlong in its course, till ground and broken by its own violence it settled down still and tranquil, thousands of feet below, amid the ever-moving glacier. They continued to fall for about one hour; at first the interval between was some ten minutes, then more frequently, till becoming less frequent, they ceased altogether, and universal stillness reigned once more, broken only now and then by what is termed the groanings of the Alps, which is the cracking of the ice among the glaciers.

The fall of the avalanches at this hour is caused by the effect of the sun (melting the ice) and at this high point it requires the whole force of the sun's rays during the entire day; the water thus produced runs down and forms pools about their base, which continues to melt there for some time after the sun has set, when one avalanche after another is dislodged, and beginning to fall, they continue until the water again congeals, which prevents any further descent until the following evening, when the same effect being again produced during the day by the same cause, their fall is again renewed. I once more prepared myself for sleep, but feeling no inclination that way, I amused myself in watching the constellations, which being immediately over me, were shining with peculiar brightness, and during the course of an hour or more that I was thus engaged, I observed slight flashes of light passing before my eyes, not unlike aurora borealis; and supposed it an optical illusion, probably caused by the glare from the sun and snow to which my eyes had been exposed during the day; but as they became more frequent, I satisfied myself that they were real. Rising and looking down in the direction of Chamonix, I discovered at once the cause, which was a thunder shower in the valley. The *sillons* (streaks) of electricity presented a beautiful sight, as they sported amid the dense clouds that overhung the village. There was none of that dazzling brightness presented by the lightning seen when below the cloud, but merely the red zigzag or forked lines, owing doubtless to the cloud being between us and the electric fluid. Although the lightning could be distinctly seen, we could not detect the slightest sound of thunder; whether this was caused by any peculiar condition of the atmosphere at the time, or by the rareness of the air, or our distance, or whether it is a constant phenomenon

here, I am unable to say. There was, however, much thunder in the valley, and some very heavy explosions, too, I was informed by the landlord on my return home next day.

We left the Grand Mulets between 2 and 3 o'clock, A.M., and arrived at the Grand Plateau between 8 and 9 o'clock. The view from this elevated point is almost boundless, and the whole extent of country for miles on every side (except that portion where the prospect is interrupted by the summit of Mont Blanc) extended itself far and wide, presenting the plains, mountains and lakes, as distinctly as if spread out upon a map before the eye. The Plateau is an almost level plain, with an area, I should judge, of 10 acres. The Roches Rouges are between this point and the summit. The clouds began very soon to rise from different points, and often obstructed view after view, so that to continue the ascent to the very summit, we deemed would be useless, as far as the prospect was concerned. This was now nearly or completely limited by the moving masses of cloud and vapor, as they rose from the valleys or hung pendulous on the mountain side; for a moment they were stationary, and then rising in undulating broken lines, they assumed a deeper and denser form, as expanding and spreading themselves through and beyond the various mountain passes, they extended as far as the eye could discern. They formed one great tumultuous ocean of clouds, whose ever-restless waves were driven impetuously along, lashing the mountain tops that still peered above their ragged surfaces, and which soon sank in the bosom of the rising vapor, till this vast, restless, rolling cloud, seemed to fill immensity.

We now hastened our descent, which was quickly and easily achieved in comparison with the toil of the ascent; as, in a few minutes, we slid down the snowy plains, which had taken hours of indefatigable effort to surmount. This was done by sitting on the summit of the plant to be descended, with the legs extended in front; then thrusting the Alpenstock in the snow a couple of feet, we depended upon a firm pressure on it to govern the velocity of the descent. Thus, continually repeating this novel kind of locomotion among the inclined snow plains, walking and leaping among the glaciers, jumping and scrambling among the rocks and pines, we arrived again safely at the hotel in Chamonix at about 8 o'clock in the evening, having been absent about forty hours.