

The people at the farm, Anfin Jorgensen and his wife Johanna 'Iversdatter,' had never, or certainly not for the last eleven years, received a visit from an Englishman. I found them nice, kind people, who did their best to make me comfortable. Of course, theirs is but a homely dwelling, and far too out of the world to afford the luxuries that some 'Norwegian tourists' might vainly enquire for. It is a very old-fashioned looking house inside, and, as is so frequently the case in Norway, there are sacred verses carved or painted on the panels and doors. Here is one which I give literally as it stood:—

'Naar vi gaar ind, naar vi gaar ud,
da tænk paa os, O milde Gut.'

(Trans.) 'When we go in, when we go out,
then think on us, O merciful God.'

Note.—From aneroid observations taken below and at the top of the fall, I made the height of the Mørkfos about 1,040 English feet. I was told that an ordnance-survey officer in 1867 computed it at 986 English feet; measurements by two other gentlemen have given it as 1,100 and 1,029 English feet respectively. I saw the Fos when there was comparatively little water in it; early in the summer, during the melting of the snows, it must be twice as fine.

ON SOME WINTER EXPEDITIONS IN THE ALPS.

By A. W. MOORE.

(*Continued from No. 26.*)

THE comparative ease with which, in the winters of 1866 and 1867, passages previously considered impracticable at such a season had been effected, naturally suggested that, under equally favourable conditions of weather, even more considerable expeditions might be tried with fair prospect of success, and that, in particular, there was no reason why Mont Blanc itself should not be accessible. The extent of snow to be traversed would not be very much greater than on the double passage of the Strahleck and Finsteraarjoch in 1866, while there would be no rock difficulties such as had been successfully overcome on the Brèche de la Meije in 1867. The idea, at any rate, took firm hold of Mr. H. Walker and myself, and when last winter approached, having secured the co-operation of Messrs. G. E. Foster and T. S. Kennedy, we determined to make an effort to carry it out.

However little of actual difficulty might be encountered, the expedition would undoubtedly be both long and laborious. In addition, therefore, to calm and clear weather, there were two other essentials to success—moonlight and good condition of body. The first of these the almanack showed to be obtainable in the week from the 15th to the 22nd of January, while a few days' walking would suffice to secure the second. For a variety of reasons, Chamouni did not commend itself to us as a desirable training-ground, and we finally resolved to locate ourselves at the little inn of Schwarenbach, near the top of the Gemmi Pass. Our choice was influenced by the fact of the inn being kept by our trusty ally Melchior Anderegg and his two brothers, who could be relied on to make us comfortable, and also by its position within easy reach of the Altels, Balmhorn, Rinderhorn, and Wildstrubel—four mountains which seemed likely to be particularly accessible at the season. We hoped to ascend them all on successive days, then cross the Gemmi to Martigny, and thence to reach Chamouni by the Tête Noire. Our whole programme, it will thus be seen, was an ambitious one, and I can expect nothing but scorn from my readers when I confess, as I do at the outset, that of it we accomplished in full only one single item, and that one the least important,—the passage of the Tête Noire. This is therefore a narrative of failure, but of failure from which we derived more enjoyment than from many of our summer successes in past years.

Walker and I left England in advance of our friends, and on the afternoon of the 9th January arrived at Kandersteg, where Melchior and Peter Anderegg were awaiting us, Andreas, the third brother, having gone up to Schwarenbach to prepare for our reception. The weather during our drive up from Thun was warm, cloudy, and altogether dismal, and, even as high as Kandersteg, everything was in a state of slush eminently unromantic and disagreeable. The morning of the 10th was misty and unpromising, but we started off for the upper Æschinen Alp, more for the sake of exercising our legs than in expectation of seeing much. Snow soon began to fall, and continued more or less throughout the day, but not heavily enough to inconvenience us. Moderately bad weather is indeed far more tolerable in winter than in summer, a walk in snow being very much less disagreeable than one in rain, while every flake which falls adds to the beauty of surrounding objects. The Æschinen See was entirely frozen over with ice a foot thick, almost bare of snow, and painfully slippery, as I found to my cost when, in a moment of weakness, seduced by

Walker's graceful movements into trying a slide. At the lower alp the snow began to be really deep, and there was ice enough on the steep rock staircase which conducts from it to the upper alp to make the ascent rather troublesome. The huts on the upper alp were almost buried in snow, and had a most curious appearance. Just as we reached them the blue cliffs of the Blumlis Alp Glacier, close at hand, showed themselves for a few moments, but the fog soon settled down again. There was no object in going farther, so, having found a hut less blocked with snow than its neighbours, we with some difficulty effected a burglarious entrance, lit a fire, spent an hour or so pleasantly in lunching, and then retraced our steps. While we were skirting the lake on the way down, the top of the Doldenhorn was clear for a brief space, and, as usual under such circumstances, appeared to our wondering eyes to be at least as lofty as, and a good deal more inaccessible than, Kinchinjunga. The vision, momentary as it was, put us in good spirits, and we regained our comfortable quarters at the 'Victoria,' well satisfied with the day's work.

Snow fell heavily during the night of the 10th, but the next morning broke without a cloud. Foster and Kennedy arrived early, and were in a state of speechless delight at the beauties which had been revealed to them during their drive up from Frutigen. Certain photographic operations in which Walker had been engaged were abruptly concluded, and we set off at once for the Schwarenbach, a walk of four hours. The forest through which the first part of the ascent lies was in a condition of perfect beauty after the night's snowfall, and the only drawback to our enjoyment of the wonderful effects presented to us at each step was the exceeding slipperiness of the path, which required the exercise of constant care in order to avoid making as much of the ascent on the hands and knees as on the feet. On the way we had a fine example of a phenomenon described by Professor Tyndall, in his 'Glaciers of the Alps' (p. 178). Looking up, a cluster of pines on a snow-covered brow, behind which the sun was just rising, shone with the brightness of silver as they stood out against the intensely illuminated sky. The appearance was new to all of us, but in the course of the next few days, we had other, though less perfect illustrations of it. The ordinary path above the Gasteren Thal is not followed in winter, the old track more to the right being preferred; but we diverged from it for the sake of getting a view down into that wonderful ravine, at all seasons the *ne plus ultra* of desolate grandeur. The walking across the plain at the foot of the Altels was

heavy, and round the Schwarenbach itself the snow, as might be expected at a height of 6,775 feet, lay deep.

The exterior of the inn is not particularly inviting, but the accommodation inside is comfortable enough, and we, at any rate, had no reason to complain of either our quarters or our fare. A man resides in the house throughout the winter to afford help, if required, to anyone crossing the Gemmi; his only companions are a very fine dog of the St. Bernard breed, and a goat, the three living together in 'happy family' style. The dog appeared to us to be a most amiable monster, but Melchior assured us he could be fierce enough upon occasion, and that a thief would fare badly if the animal once got hold of him.

The hopes which had been raised in us by the extreme fineness of the day of our ascent from Kandersteg were doomed to disappointment, as, during the period of our stay, the weather proved unfavourable for high expeditions, though enjoyable enough for ordinary excursions. One day, indeed, resembled another in a most remarkable way. Early morning, everything was hidden in clouds, with slight snowfall, and the prospects of the day seemed hopeless. At about 8.0 there were signs of a clearance, and by 10.0 the sky was nearly cloudless, but with so violent a wind raging in the upper regions that ascents seemed out of the question. This lulled towards evening, and by sunset there was a comparative calm, but invariably at about 10.0 at night the melancholy sighing of the wind was once more heard, the outside shutters began to rattle, and in the morning fog and snow again prevailed. On the 12th, failing anything more exciting, we went to the top of the Gemmi, and were rewarded by a fairly clear view, which, however, is one of a class seen to less advantage in winter than in summer; the charm of contrast between the green alps and pinewoods and the snowy chain is wanting, and the effect of the universal mantle of snow is to dwarf the great peaks and reduce them to the level of the minor ranges. Far more striking than the distant view were the atmospheric effects close at hand, as the light vapours blown over the pass from time to time were illuminated by the sun's rays, producing such gorgeous effects of colour as I have never seen at any other season. From the pass we climbed to the east for about a thousand feet to the top of one of the lower points of the Plattenhörner, but were more than once nearly brought to a stand by the smoothness of the slabs of rock beneath the snow, which was itself too powdery and incoherent to give footing.

We lay basking in the sun until the wind, which seemed temporarily to have gone to sleep, woke up to the fact of our presence, and by a spiteful gust, which seemed to freeze the very blood in our veins, drove us down helter-skelter to a more sheltered position. Both in ascending to and returning from the pass we had the satisfaction of going straight across the Dauben See, which was, of course, hard frozen with about five feet of snow on the ice.

On the 13th we made an attempt on the Balmhorn, but met with a smart repulse, the spirit of the mountains thinking it time, I suppose, to gird up his loins against such audacious intruders. The early morning having, as usual, been uninviting, we did not start till 10.15, and at 1.20 reached the lowest point of the ridge connecting the Balmhorn and Rinderhorn, close under the latter peak. So far all went well. The Zagen Glacier, though much changed in its upper regions since I had last seen it in 1866, presented no difficulty, and the wind did not trouble us. But the latter enemy had only been reserving himself, and, as we stepped on to the exposed ridge of the mountain at a height of about 10,000 feet, burst upon us with all his fury. We crouched down for a few minutes on the Leukerbad side of the ridge, to swallow a few mouthfuls of food, but the powdery snow was blown over us in clouds, and, although in brilliant sunshine, we were quickly so benumbed that it was impossible to remain still. The appearance of our party was startling; our hair and beards were masses of ice, which had been generated in an incredibly short space of time, and our faces perfectly bloodless, Peter Anderegg and Foster looking specially ghastly. The ridge of the mountain is broad and easy, so we started along it at a trot, but had not gone many yards when Kennedy announced that his hands were frost-bitten; he therefore turned back with Peter and descended to comparative shelter, where, after much thumping and rubbing with snow, the circulation was restored. The rest of us, led by Melchior, still pushed on, but Walker's feet soon became so affected that he also was compelled to give in. We then determined to persevere no further, as, although at the moment neither Foster nor I was suffering severely, we felt that we could not hope to hold out during the two hours which would be the least time requisite to reach the top of the mountain, from the whole upper part of which the snow was blowing away in grand style. Once off the ridge the descent was very pleasant, and we strolled leisurely home, amusing ourselves in freeing our hair from icicles—an operation which, unless conducted with discretion, resulted in violent contortions of coun-

tenance and language to match. Although the experience of the day was rather severe, we did not regret it, as it brought home to us thoroughly how absolutely essential to success in such an expedition at such a season is a calm state of the air, though indeed such a wind as that to which we were exposed might have been hard to struggle against, even in the height of summer.

The 14th we spent in an excursion to the Engstligengrat, or ridge overlooking the Engstligen Thal, which runs from Adelboden up to the base of the Wildstrubel. We first climbed in 1½ hour, through very deep snow, to a broad depression in the range of the Felsenhörner immediately behind the inn, and then keeping round the head of the Ueschinen Thal, a wild glen which drains into the Kander just above Kandersteg, ascended to the ridge in two hours more. Up aloft the wind still raged, but for such a walk the weather was perfect, and the view from the point which we gained close under the Tschingellöchlihorn, a remarkable mass of crags like an uplifted hand, was unexpectedly fine. In addition to the Altels, Balmhorn, and Rinderhorn, immediately in front, we had, in one direction, a very picturesque view of the Weisshorn, seen as an isolated peak between two smaller points near at hand, and, in the other, of the Wetterhorn and Wellhorn, while beyond the two latter in the far distance the Lake of Lucerne could be clearly distinguished. On the 15th we walked down to Kandersteg in order to make arrangements for porters to carry our baggage over the Gemmi to Leukerbad, and returned in the evening. The day had been exceedingly fine, but snow fell heavily all night, and on the morning of the 16th was still falling, accompanied by a violent wind. The porters did not arrive till 9.0, having left Kandersteg early in the night, and had great difficulty in struggling against the storm. After dropping many hints, Melchior at length proclaimed that he did not think it would be prudent to try the Gemmi, as the path on the Leukerbad side would be completely obliterated, and after so much snow 'Staub-lawinen' were to be feared. At the same time he was willing to go if we wished. The odds were, of course, greatly in favour of our getting over without accident, but after such an expression of opinion from our leader, on a point upon which he was eminently qualified to pronounce, we did not feel justified in running the chance. Moreover, the porters, while willing to cross with us to Leukerbad, if we so determined, refused flatly to return the same way, and insisted on being sent home by railway *viâ* Lausanne and Bern! The disturbance of our plans

was serious, but it was soon agreed that we had no alternative but to make for Bern and get from that place to Martigny by rail. So, after copious libations of champagne poured forth by Melchior at the last moment as a stirrup-cup, we once more descended to Kandersteg, tramped on to Frutigen in pouring rain, and, driving down to Thun, managed to catch the last train to Bern, where, in the enjoyment of the numerous luxuries of the Bernerhof, we scarcely regretted the disappointment of the day.

On the 17th Kennedy left us to return to England, but the remainder of the party started for Martigny by the afternoon train, and arrived there at 9.30 P.M. After a dubious morning the weather cleared, and as the train skirted the upper end of the Lake of Geneva the full moon was shining in a cloudless sky. The view, looking across the lake towards the snowclad peaks along the south shore and the Dent du Midi, was of most exquisite beauty, and so excited us, that during the brief halt at Lausanne we seriously planned to walk across the Tête Noire during the night, without halting at Martigny. But before we arrived at that place our enthusiasm had time to evaporate, and finding that, clear as was the sky, there was still much wind, we discreetly turned for the night into the Hôtel Clerc, which was the only inn open. At 8.25 on the 18th we set off with three porters and Melchior. There was a great deal of ice on the lower part of the path, and progress along it was made more difficult by the quantity of timber, in course of transport from the upper hill-sides, with which it was encumbered. We were surprised, and by no means sorry, to find the inn on the Forclaz open, as, although the day was brilliantly fine, the cold was intense, so that we were glad to take refuge inside for half an hour and warm ourselves with more glasses of Curaçoa—inferior, but, under the circumstances, seductive—than I now care to count. The view of the Bernese Alps was extraordinarily clear, and we were able to identify a number of peaks—notably the Finsteraarhorn, Aletschhorn, and Jungfrau—which we had not before known to be visible, and which, I suspect, are in fact very rarely distinguishable in summer, when the distance is frequently hazy. We reached Chamouni at 6.25 P.M., and took up our quarters in the pension of Couttet Baguette.

The 19th was again a cloudless day, but we were obliged to pass it in idleness in consequence of Foster having unexpectedly to return to England. He left in the afternoon, and Walker and I, who were thus left to end our expedition as we had begun it—alone, then strolled up nearly to the chalet of

La Para on the way to the Pierre Pointue. The snow effects in the lower part of the wood were finer than any we had seen this year, and, from above, the view down into the valley, which by that time was almost in darkness, was very striking. The arrangement of our future proceedings was a matter of some difficulty. The unavoidable delay in our arrival at Chamouni, the absence of Kennedy and Foster, and the still unsettled appearance of the weather, combined with the following circumstances to make us give up the attempt on Mont Blanc. We found it impossible to agree with the two Devouassouds, whom we took into council, as to where it would be best to sleep before making such an attempt. Our own plan was to make a two days' affair of it, sleeping the first night at the Grands Mulets, but to this they seemed to have insurmountable objections, and urged us in preference to pass the first night at the Pierre Pointue, a second at the Grands Mulets, and make the actual ascent on the third day. To this we would not consent, as the whole experience of the last fortnight had gone to show that, in this particular season, three consecutive fine days were not to be relied on, and we had no inclination to indulge in a costly failure. To reach the summit from the Pierre Pointue and return in a day was quite out of the question in the then state of the moon, as from 6.0 P.M. till midnight there would be absolute darkness. So, as before said, we gave the thing up, and finally resolved to be content with an excursion to the Jardin, and, perhaps, one to the Grands Mulets, sleeping at the Pierre Pointue before the latter.

Accordingly, at 6.30 A.M. on the 20th, we started for the Jardin with Melchior and François and Henri Devouassoud. The morning was not very promising, and we had small hopes of reaching our destination, but were anxious for a walk, and determined, at any rate, to see something. For a certain distance there was a good sledge-track, and we got on rapidly, but when it ceased the work became hard, the snow being both deep and soft. After crossing the channels of two torrents which were filled from side to side with avalanche débris, we had to traverse a broad open slope bare of trees. I certainly thought this part of the route dangerous, though it is hard to say what gave rise to the impression, as the inclination was not excessive, and the snow was smooth and unbroken. From whatever cause it proceeded, we had an unpleasant feeling of insecurity at every step, and this was specially the case when, at one place, it was necessary to abandon our transverse course across the slope, and turn straight up its face. The danger

was perhaps imaginary, but I have since referred to Professor Tyndall's account ('Glaciers of the Alps,' p. 202) of his expedition in the winter of 1859, and find that he was similarly impressed at what reads like the same spot, so that I am inclined to think there is something peculiar in the winter condition of this particular slope. Be this as it may, we walked very gingerly, taking every precaution to avoid breaking the snow more than was necessary, and so, without accident, reached the Montanvert at 10.0. Clouds veiled the Aiguille Verte and the Jorasses, and the weather in the valley momentarily grew worse; we were anxious however to get a little farther, so went on after a short halt. We had rather expected to find the glacier entirely snowed over, and that we should be able to descend on to it at once and keep under its left bank, thus avoiding the usual passage by 'les Ponts.' But this proved impracticable, the quantity of snow, though considerable, being insufficient to make such a smooth highway as we had calculated on. We therefore followed the regular route, skirting the hill-side without difficulty as far as 'les Ponts,' but found that passage by no means in its usual simple state. The slabs of rock, though of no great height, are exceedingly smooth and steep, and the curtain of snow which covered them was too powdery and lay at too high an angle to give footing. It was clearly impossible to cross, but, after many attempts at different points, we managed to 'wriggle' down just on this side of the usual passage, and so gain the glacier.

At 11.10 we halted on the moraine to lunch and take counsel. It was by this time snowing heavily, and we could not see many hundred yards in any direction; much discussion therefore was not required to arrive at the conclusion that no good purpose would be served by further progress in the direction of the Jardin, and that it would be better to return to the Montanvert, cross the glacier to the Chapeau, and so regain Chamouni. After half an hour's halt we accordingly retraced our steps to the point where the passage is generally made in summer, and, having put on the rope, crossed without the least trouble, the quantity of snow on the glacier being, as before observed, very much less than we had expected. The Mauvais Pas itself was very icy, and looked in consequence more worthy of its title than usual; but we avoided it by passing below, and at 2.0 reached the chalet at the Chapeau, where we remained some time, the weather having improved, the sun shining brightly although snow continued to fall. The ever-changing atmospheric effects arising from the com-

bination of snow, cloud, and sunshine, were of the most wonderful character, and, with the exquisite view across the Glacier des Bois, free from the dirt and impurities which more or less spoil it in summer, amply repaid us for our labour. We were back at Chamouni by 4.0, and, encouraged by the success, so far as our own pleasure went, of a rather unpromising day, finally made up our minds for the expedition to the Grands Mulets, as to which we had in the morning been still hesitating.

We set off at 12.30 on the 27th, with the same attendants ^{21st} as before, and Sylvain Couttet, the proprietor of the chalet at the Pierre Pointue, who went up to open the house for us. As far as La Para we had our tracks of two days before, but, beyond that, new ground had to be broken, and the work became very heavy. The snow on the long slope of comparatively open ground between the forest and the Pierre Pointue was enormously deep, and it was at some points a matter of the greatest difficulty to get through. But although the snow was deeper and the slope steeper than during the ascent to the Montanvert, yet the feeling of insecurity, which was so irrepressible on that occasion, was now entirely absent. There was nothing in the 'feel' of the snow to suggest the least danger, and progress was a mere question of labour. At 4.15 we reached the chalet, which is at a height of 6,723 feet, and was as nearly buried in snow as its position on the brow of a steep cliff would allow. On gaining admission it was found that, in spite of the tolerably substantial building of the house and secure fastenings to the windows, a good deal of snow had contrived to find its way inside. Matters, however, were soon set straight, and we made ourselves comfortable round the small stove, the smoke-pipe of which, passing through a hole in the outer wall, kept us constantly on the alert by getting red-hot at intervals of half an hour or so, and threatening a general conflagration, to stave off which it was necessary to go outside and apply masses of snow at the point of contact between the wood and iron. During the evening we had a grand display of magnesium torches, to the great delight of Chamouni, where people were on the look-out; but, so far as we were concerned, its effect was thrown into the shade by the view which we got, just before retiring for the night, of the snowy crests of the hills behind Sallanches lit up by the first beams of the moon, whose light did not reach us for some hours.

We rose betimes on the 22nd, but there were more than the usual delays, and we did not get off till 5.0 upon a cloudless

morning. The moon was high in the heavens, and, though five days past the full, gave ample light. A casual survey on the previous evening had satisfied us that to reach the Pierre de l'Échelle by the ordinary route would be very difficult, if not impracticable, owing to the icy state of the track, which is at no time very pleasant going. We therefore struck up the slopes immediately behind the chalet towards a little peak locally known as the Aiguille du Tour, getting on the way most charming views, backwards towards the Brévent, and down, to the right, of the whole length of the Glacier des Bossons. Bearing to the left from the Aiguille du Tour, we got on to a small glacier at the base of the Aiguille du Midi, and, crossing it, descended slightly on to the Glacier des Bossons, which we struck, at 7.20, rather above the usual point. Anyone at all acquainted with the locality will at once understand that at any other season this route could not have been followed, as the small glacier which we traversed with such equanimity is the first recipient of the stones which fall almost incessantly from the Aiguille du Midi, and which, shooting down it, finally land on the Glacier des Bossons. There was now not the slightest danger from this source, and the most doubtful part of the route was the passage on to the last-named glacier, which had to be effected between and beneath some big séracs in a very shaky state, some of which actually fell before our return.

The snow on the glacier, though not excessively deep, was 'tough' enough to make our advance slow; and my total disappearance in a concealed crevasse was rather a welcome relief to the monotony of the way, which, however, diminished as we approached 'the junction.' Often as all of us had crossed the Glacier des Bossons, we had never seen the ice pinnacles, for which this part of it is famous, in so wonderful a state as now. Not only did they appear more colossal in size and more eccentric in shape than we had ever seen them in summer, but their whiteness and purity were quite dazzling. The isolation, too, of the most monstrous and fantastic masses was more than usually remarkable, defying conjecture as to how they got into the positions they occupied. The passage of 'the junction' was a little awkward, and some ingenuity was required to hit off the exact point at which it was possible to get through the labyrinth of crevasses. Above, there was no difficulty beyond what arose from many of the slopes being very bare of snow, necessitating a good deal of step-cutting, and consequent detention, which a cold but not violent wind made unpleasant. We reached the Grands Mulets at 10.40 in 5½ hours from

the Pierre Pointue, but, having plenty of time at our disposal, we had not hurried. In alluding to the view from the Gemmi, I spoke of it as less remarkable in winter than in summer; but, with regard to the prospect from the Grands Mulets, the exact converse is the case. The ranges of low hills between the Valley of Chamouni and the Lake of Geneva gain enormously both in apparent height and in picturesqueness of form by a covering of snow, while the effect produced by the distant chain of the Jura, delicately capped with snow, sweeping round in the background, is most peculiar and exceedingly striking. Upon this particular day the clearness of the air was something marvellous, and along the whole horizon not a single cloud marred the distinctness of the panorama. The wind, though perceptible enough, had for once moderated both its force and keenness, so that it was impossible to avoid regretting that we had not, as originally proposed, passed the previous night at our present position, instead of at the Pierre Pointue. Had we done so, I have not a shadow of a doubt that we should have reached the top of Mont Blanc. Starting by moonlight at 1.0 A.M., twelve hours at most would have taken us up, and the descent could have been effected as rapidly as in summer, so that Chamouni would have been reached soon after night-fall. It was, however, useless to indulge in vain regrets; and, having deliberately abandoned the larger plan, we could only congratulate ourselves on the success of the smaller undertaking.

The door of the cabin was securely fastened, but we managed to half open one of the windows and squeeze through—an operation which required a good deal of management, especially on the part of François, whose proportions are considerable. A fire was lit, some hot wine brewed, and we made ourselves comfortable until 12.15, when we commenced the descent, of which I need say very little. We got off the ice at 1.30, and, leisurely retracing our morning's route, reached the Pierre Pointue at 2.50, remained there half an hour, and then, floundering down through the soft snow, entered Chamouni at 4.40, amidst an amount of gunfiring which made us speculate as to what would have been the expenditure of powder had our original programme been carried out. The sunset that evening, the last of our stay at Chamouni, was one of the most gorgeous I ever remember, and, as we gazed at the wonderful hues which lit up the snowfields of Mont Blanc and the long line of precipitous Aiguilles, we were sorely tempted to postpone our departure. But the weather kept up its character for variableness to the last, and when we started down

the valley on the morning of the 23rd, there was a dense fog, which, on its disappearance, revealed a cloudy sky, in marked contrast to that of the day before. To this same fog, nevertheless, we were indebted for yet one more illustration of the beauties of the Alps in winter. There had been an intense hoar frost during the night, and the result was—on every object a coating of rime half an inch thick; every rock and every tree was delicately carved in ice, and the numerous groves which stand alongside the road offered glimpses of fairy-land surpassing in loveliness the wildest dreams of the most imaginative of artists.

Of our homeward route *viâ* St. Gervais, Annecy, and Geneva, I need say nothing, except that the country between St. Gervais and Annecy is probably a good deal more picturesque in summer than in winter, and that the suspension bridge of La Caille, on the road between Annecy and Geneva, is well worth seeing, even in these days of engineering wonders.

I have purposely reserved till the last such few general observations as the incidents of our daily life suggested at the time. Naturally, the temperature was a subject which was most constantly forced on our attention; and, with regard to this, what chiefly struck us was the moderate degree of cold at considerable elevations, compared with what might be expected. The following table gives readings of Fahrenheit's thermometer on different days at various places, and it will be seen from it that upon not one single occasion did the mercury sink to zero.

Date.	Place.	Reading at 9.0 A.M.	Minimum previous night.
January 11	Kandersteg, 3,839 feet	—	20°
" 12	Schwarenbach, 6,775 "	20°	8°
" 13	Do.	13°	11°
" 14	Do.	30°	9°
" 15	Do.	23°	22°
" 16	Do.	26°	18°
" 19	Chamouni, 3,425 "	10°	—
" 20	Do.	—	9°
" 21	Do.	15°	10°
" 22	Pierre Pointue, 6,723 "	10° at 4.0 A.M.	7°

The temperature above indicated is of course not absolutely tropical, but the readings are not lower than are often recorded in England in frosty weather, and moreover give, even as it is, an exaggerated idea of the average cold during the day or night. At the Schwarenbach, for instance, between the hours of

11 A.M. and 3 P.M., the mercury was rarely more than two or three degrees below freezing point, even in the shade; in the sun it was many degrees above it. After 3 P.M. the fall was rapid, but the minimum temperature was usually reached comparatively early in the night, before 10 o'clock, the hour at which, as mentioned elsewhere, the weather generally changed. The coldest night during our tour was certainly that of January 18th, at Chamouni, during which the thermometer was not exposed, owing to the late arrival of our baggage. The instrument was carried up to the Grands Mulets, but there met its inevitable fate, being accidentally knocked over and smashed before it had been exposed many minutes, or any observation had been taken.

With regard, also, to the quantity of snow on the high Alps, the actual state of things appeared to us different from what is ordinarily supposed. The winter snow only lies at all deep at the lower elevations, where in summer there is either none or very little; the higher peaks are comparatively bare. For instance, the Altels, from the foot of its glacier to the summit, was a pillar of ice, up the whole length of which steps would have had to be cut; while in the wood below it, and on the hill-side between the glacier and Schwarenbach, the snow was many feet deep. So, again, more step-cutting was required to reach the Grands Mulets than I ever remember to have been the case in the least snowy summer, while the quantity of snow on the smooth part of the Glacier des Bossons, below the 'junction,' bore no comparison with that between La Para and the Pierre Pointue, far lower down, or on the path to the Montanvert. The violent wind which prevailed in the upper regions during the whole of our stay was, perhaps, sufficient to account for a specially marked deficiency in this particular year, the powdery snow being blown away as soon as deposited; but we observed the same fact on the Strahleck in 1866, so that the condition of things is probably usual, to a greater or less extent, in most seasons. The state in which we find the higher peaks and glaciers in summer would seem, therefore, to be less dependent on the midwinter snowfall than on that of the spring, which, owing to the higher temperature at that time of year, perhaps descends in a less powdery state, and is therefore not so liable to be affected by wind.

Of the general attractions of the Alps in winter, and of the vast amount of pleasure afforded by a tour at that season, I have spoken in my first paper; and of what I there said, I have not a word to retract. The comparative failure which attended our high mountaineering on this last occasion only

brought more strongly than ever before us how absolutely unessential to enjoyment in winter high mountaineering is. I shall not for a moment be suspected of undervaluing the benefits both to mind and body of a summer tour; but, personally, I think that a greater amount of mental pleasure and a fuller store of bodily health are to be obtained in winter, with fewer drawbacks, and very much less labour and weariness. That many persons, unless they have tried the experiment, will agree in this opinion, I do not expect. I trust, however, that sceptics will not be content with simple derision of my views, nor believers with passive assent to them; but that both parties will take the earliest opportunity of going and judging for themselves.

THE PAPAVER ALPINUM. By Mr. CHARLES PACKE.
Read before the Alpine Club by the Secretary.

THE plants which have been selected by the great botanists and first mountain explorers to be associated with their own names are not probably the same as would be chosen by a member of the Alpine Club. The *Linnaea borealis*, *Wulfenia carinthiaca*, *Ramondia pyrenaica*, and *Saussurea alpina*, are all plants more or less rare, of exquisite beauty, and of a very distinct generic character; but, with the exception of the last, they are none of them strictly alpine. I may remark by the way, that Ramond has been thus far more fortunate than De Saussure in his selection; that his plant is exclusively confined to the Pyrenees, while that of the Swiss naturalist is not restricted to the Alps, but is found also in the Central Pyrenees, as well as in Norway, Britain, and high arctic latitudes. Now I feel quite sure that when those ardent mountaineers, M.M. Tuckett and Stephen, shall be driven by infirmity of years and declining powers to have recourse to botanical science, they will unlock their herbarium, and set before our admiring eyes some unknown plant of an order at least as exclusively alpine as the *Androsaces*, with which they intend to transmit to posterity their names, hitherto only associated with the barren peaks and spitz.

I am not going here to speculate what manner of plant this will be. No two observers, even in the same range of mountains, would probably name the same plant as that which they had met at the greatest elevation.

It would be difficult to find what constitutes an alpine plant. Some—for example, the *Linaria alpina* and *Hutchinsia alpina*