the shady side, so we turned and dropped quickly down through the deep snow to the head of the long slope. This required very great care, and seemed longer to descend than ascend, and my arms and shoulders ached violently when we reached the bottom, with anchoring fast with my axe all the way down. This difficulty passed, we trudged on up to our knees in snow to the head of the ice-fall. This we passed by taking to one of the avalanche channels where the crevasses were all smoothed over, and, choosing our opportunity, going down at a run, and jumping round a corner at the bottom into safety. We thus arrived at our camp by four o'clock, and after making tea and resting an hour, we carefully packed our remnants of firewood and hay under shelter, ready for Almer's use the next month, when he expected to try that route again. We then walked on to Zermatt, where we arrived at 7.40, thus proving that our route is good for a descent, if not so eligible for an ascent.

I believe that this route will be found decidedly preferable to the old one. A tent may be easily taken to the top of the Bies Joch, and thus plenty of time given, as the commencement of the route, being over snow, may be traversed before it is light; and if the long slope were ice instead of snow, there would probably be more rock bare. It possesses one very material advantage, a perfect immunity from falling stones.

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VARIATIONS ON THE HIGH LEVEL ROUTE. BY A. W. MOORE. Read before the Alpine Club on the 30th January, 1872.

THE discoverers of the original high level route from Zermatt to the St. Bernard road have certainly no reason to complain of lack of appreciation on the part of the mountaineering public. On the contrary, they have had a crowd of followers, and their footsteps over the Cols de Valpelline, de la Reuse d'Arolla, and du Sonadon, have been adhered to with almost slavish exactness. Nevertheless there is no district in the Alps which offers a more inexhaustible variety of routes, suited to every degree of mountaineering capacity, or which is more crowded with gems of scenery accessible to the quietest, as to the most enterprising, pedestrian. Not that this mine of wealth has been left entirely unworked; had it been so, I trust that even in these days of equality and so-called fraternity I should have a keener sense of my duty towards myself than, under such circumstances, to break silence, or act as a finger-post to others when I should certainly desire to be the first passer my-

self. The fact is that, in this as in other parts of the Alps, every peak and pass has been climbed or crossed, during the last ten years, by Swiss or English mountaineers, and no absolute novelty remains; but many of the expeditions have been made only once or twice, and few men know anything of them except from the pages of Mr. Ball. My object in the present paper is to describe some of those which I have made myself, with the not very sanguine hope of diverting some part of the stream of traffic from the high level route proper to the equally interesting, and undeservedly neglected passes parallel to it.

My first acquaintance with the district was in 1862, a date which carries one back to the middle, if not to the dark, ages of mountaineering. On June 26 in that year, I slept in the Vassorey châlet, above St. Pierre, with designs on the Col du Sonadon. My refreshing state of 'green-ness' will be understood from the fact that I was attended not only by two Chamouni guides, but by Daniel Ballay, of St. Pierre, and a local porter. Notwithstanding this imposing force, at 7.30 next morning, I found myself hopelessly stopped on the rocks leading to the Sonadon glacier—a circumstance which, writing at this distance of time, seems extraordinary, and scarcely to be accounted for by the glaze of ice and falling stones which I find mentioned on my notes. Ballay was and is a thoroughly good man, but probably had no personal knowledge of the pass which had only been discovered in the previous year, and I can only suppose that we entirely missed the true line of ascent. However this may be, further progress was declared impossible, and at Ballay's suggestion I determined to cross into the Val de Bagnes by the Col de la Maison Blanche. This pass had for years been known to the hunters of St. Pierre, and was reached by Mr. Utterson-Kelso on his ascent of the Grand Combin in 1860; but whether, at the time of which I am writing, any traveller had used it as a route to the Val de Bagnes, I cannot say. Without descending more than was necessary, we kept round the face of the rocks above the Vassorey at a high level, and, after a laborious circuit, reached the small flat glacier at the foot of the Col. This glacier descends from the upper regions in a very narrow, but steep, cascade of séracs, between precipitous rocks, of which those on the right bank give access to the Col. We began the ascent at 12.15, and at 2.0 stood on the level snow-field at the head of the Corbassière glacier, after a scramble, which at that time I thought difficult, but should now probably describe as a good climb. We kept throughout quite close to the steep glacier, and at one point diverged on to it for a hundred feet or

so; at the top of the rocks was a sort of snow-crater, filled by a little lake frozen over, which, in 1863, when I again crossed the pass from the opposite side with Mr. Morshead, had disappeared. Upon that occasion, we had Melchior and Perren as guides, to both of whom the pass was new, who would not believe a descent possible from this point, and insisted on passing a good way further to the north, and descending by a couloir more distant from the steep glacier. Their route commanded a fine view of Mont Blanc, which is, I think, concealed from the true Col, and was certainly easier on the Vassorey side; but my course is preferable from a climbing point of view, and is, I believe, usually taken by the St. Pierre men.

The Corbassière glacier is one of the finest in the Alps, and its descent is a very varied and interesting piece of work. The upper snow plateau, with the Combin rising at its head, is of great extent, and the central portion of the glacier below it, though not at all steep, is a complicated system of crevasses, which, in 1862 at any rate, was by no means easy to pass. The difficulties we met were a good deal owing to the great quantity of soft fresh snow which covered the glacier, and concealed its numerous pitfalls, so that more than once two members of the party were in different crevasses at the same moment, and at one time we almost despaired of getting through. The best plan is to keep on the left side of the glacier until beyond the base of the Petit Combin, and then strike across to the right bank, and take to one of several parallel moraines, which offer easier walking. We reached this point in 3¾ hours from the Col, and were very thankful indeed once more to tread 'terra firma;' in 1863, with Mr. Morshead, 2½ hours sufficed to ascend the same distance, but we then passed the night in the stone hovel by the side of the glacier, which served Mr. Mathews as a refuge in the course of his explorations, and so got through the difficulties while the snow was hard. In 1862, our intention was to pass the night at the Corbassière Alp, but on reaching it, at 7.10, we found no inhabitants, and accordingly made a rather headlong descent to the small hamlet of Fionnay, in the Val de Bagnes, where we arrived at 8.30, glad enough to find shelter for the night, which turned out wet, in the house of a hospitable peasant. There is now a small inn above the bridge of Monvoisin, in the Val de Bagnes, from which the Col de la Maison Blanche can be reached in, I should think, at least as short a time as the Col du Sonadon, the Corbassière glacier being gained either by the Glacier des Otanes, or by the Col des Pauvres, described by Mr. Mathews in 'Peaks, Passes, and Glaciers.' From my

experience of the latter Col in 1863, I should, on another occasion, prefer the route by the Glacier des Otanes. A stout walker, favoured by moonlight and a good state of the snow, might probably combine the ascent of the Combin with the passage to St. Pierre—one recommendation at least over the rival route of the Sonadon.

On the afternoon of the 28th a certain Gaspard Moulin, of Lourtier, having taken the place of Ballay as local guide, I marched with my army up the valley to the châlet of Boussine, which is on the left bank of the stream, just opposite the end of the Glacier de Breney. My object was to try a pass to Arolla over that glacier and the Glacier de Cijorénové, which would be parallel to, and perhaps shorter than, the Col de Chermontane over the glaciers of Otemma and Pièce. In the evening, however, the weather changed for the worse, and after an intensely cold night in the herdsmen's sleeping quarters under a big stone, we woke on the morning of the 29th enveloped in a fog, whose colour and consistency were more suggestive of London in November than of the Alps at midsummer. Serious glacier work over unknown ground was out of the question; but being anxious to reach Arolla, I listened favourably to a suggestion made by Moulin, that we should go there by the Col du Cret, a pass leading from the middle district of the Val de Bagnes to the head of the Val d'Hérémence, and by the Pas de Chèvres. He guaranteed to find the way over these two passes in any weather, and that, in eight hours from Boussine, we should be at Arolla. We accordingly retraced our steps down the valley as far as Mazeria below Monvoisin, and then turned up the slopes on its eastern side past the châlets of Vasevey to those of Cret, above which we once more plunged into fog. The result of our proceedings during the next seven hours was rather funny. After a steep climb up rather difficult rocks, followed by the descent of a glacier with no special features, we found ourselves at 5.30 P.M., not in the Val d'Hérémence, as, until five minutes before, we had fondly supposed, but back again in the Val de Bagnes, about a mile and a half lower down than the point at which we had turned out of it in the morning! Instead of the Col du Cret, we had effected a new and exciting pass from the glen of Cret to the parallel glen of Sévereu, having gone up the south side of the intervening ridge, and down the north side of the same! Our disgust may be imagined. The Chamouni men swore according to their fashion, I did ditto according to mine, while the wretched Moulin—anticipating by a few years the resources of modern statemanship under similar circumstances of discredit-

able failure—Moulin wept. Nothing could be done; so, abandoning the campaign for the year, I walked savagely down the valley, and slept that night amidst the mosquitos of Martigny.

Neither in 1863 nor 1864 did variations on the high level route form any part of my plan. In the former year, with Mr. Morshead, I crossed the Cols de Valpelline and Reuse d'Arolla, or Col d'Olen as it is now called, and renewed my acquaintance with the Maison Blanche, not for its own sake, but as a road to the Combin, which, however, we did not even attempt, mainly in consequence of Melchior's nervousness on the subject of avalanches. We saw three large ones fall across the route before six o'clock in the morning, so that his fears were not groundless, and we were unanimous at the time as to the prudence of leaving the mountain alone; but, as is usual, I have regretted the decision ever since. I cannot get over a sneaking idea that, so far as Morshead and I were concerned, laziness had as much to do as prudence with our unanimity, and I suspect that such is the case five times out of six in similar situations. Not that I for a moment mean to insinuate that Melchior, on this or any other occasion, gave, or is capable of giving, anything but a *bonâ fide* opinion; but all guides are not Melchiors; and I think that travellers are often not unwilling to accept, without much hesitation, any plausible suggestion for doing nothing, especially when the work is likely to be laborious rather than difficult or exciting.

The ludicrous fiasco, which had been the sole result of my first visit to the Val de Bagnes, was always a sore point of which the recollection was to be effaced at the first opportunity. With that object the Col de Breney, which remained uncrossed, was included in the programme drawn up by Mr. H. Walker and myself for 1865, and we proposed to prelude it by another new pass from Zermatt to Arolla, which should be more direct than the ordinary route by the Cols de Valpelline and Mont Brulé. In 1864, from the head of the Moiry glacier, I had got a view of the snow-field which is the common source of the glaciers of Ferpècle and Mont Miné, and had satisfied myself that there would be no difficulty in going straight across it from the Col d'Erin to the range of the Dents de Bertol, above the Arolla glacier. There were several well-marked depressions in that range, from one of which, overlooking, as I supposed, the Glacier de Bertol, I had little doubt we should find a tolerably easy descent.

On the evening of July 4 we arrived at Zermatt, with Jakob Anderegg, over the Sesia-joch, and, having satis-

factorily disposed of the Gabelhorn in the interval, started on our new adventure at 1.20 A.M. on the 8th. At 9.10 we were on the Col d'Erin, having travelled slowly, partly owing to Jakob not being very well, and partly because we expended much time in looking about us *en route*. The Matterhorn, in particular, came in for a large share of our regards. From the summit of the Gabelhorn, exactly opposite and at a distance of less than four miles, we had examined that famous peak with great attention, and with one consent voted that it would ever remain unscaled. There are, however, two ways of looking at a mountain—with a desire to see, or not to see, a way up it. We had ourselves no intention of trying the ascent, and therefore naturally were glad to think that attempts by other parties were not likely to be successful, and that we showed superior wisdom in passing by on the other side. But apart from this form of the 'psychological element,' I rather fancy, that from our point of view the steep wall above the elbow, which eventually proved the only serious difficulty on the ascent, assumed its most forbidding shape, and would have deterred us from any attempt, had we been ever so ardently bent upon it. However this may be, our opinion was considerably shaken during the progress of our walk up the Zmutt glacier, as we observed, not for the first time, the extraordinary change which takes place in the appearance of the mountain as the glacier is ascended and the Hörnli arête seen more and more in profile. The final peak looked formidable as ever, but the possibility of getting with ease to a very great height was so evident, that we were scarcely surprised when, only one week later, the news reached us of Mr. Whymper's long-struggled for, well-merited triumph.

After a few minutes' halt on the Col d'Erin we started across the snowfield, not, as we might have done, straight for its further side, but away to the left towards the Tête Blanche, in order to examine the range south of our supposed Col, called the Dents de Bertol, or Dents des Bouquetins, on the highest peak of which we had designs, if it should look decently practicable. The névé was much crevassed, but at 10.5 we reached its highest point, to find that, so far as the Dents de Bertol were concerned, we might have saved ourselves the détour. The peaks rose in front of us, a long line of splintered crags, suggesting very considerable difficulties, and a possibility of finally arriving on the top of one which might not be the highest—a consideration which, coupled with Jakob's indisposition, decided us to have nothing to do with any of them. It has since been discovered that the

highest point of the group is not that marked on the map 3783 mètres, but one further south, the height of which is 3848 mètres, and which was ascended last year by Mr. Hamilton.

Though balked in our immediate object, we in nowise regretted the time spent in reaching a position commanding such a glorious view. The snow-field which feeds the three glaciers of Ferpècle, Mont Miné, and Zardezan, is of vast extent, and as a piece of ice scenery seemed to me comparable to the Grand Plateau of Mont Blanc—to my mind the *ne plus ultra* of magnificence. The Dent Blanche is, from whatever point seen, a most noble peak, but from no other does it tower up with such grandeur, a symmetrical pyramid of rock, forming with its neighbours the Weisshorn and Rothhorn, which somehow come into line with it, a trio unequalled in ruggedness and boldness of form. Half an hour was spent in idleness, and we then once more turned towards our Col, the position of which was unmistakable, at the head of a small bay formed by the névé. The distance was considerable, but there was no sort of difficulty, and at 11.55 we stood in a broadish gap between two rock peaks, looking down, as we had expected, upon the small Glacier de Bertol, and across to the magnificent double ice-fall in which the Vuibez glacier joins that of Arolla. The Col de Bertol is certainly lower than the Col d'Erin, and the view from it, except westwards, is limited; in that direction too, save the Vuibez ice-fall and the Mont Collon, there is nothing very striking; but these exceptions are quite enough to redeem the pass from dulness, the Mont Collon in particular being, for its height, one of the most striking peaks in the Alps. The glacier, though rather steep and crevassed in places, was quite easy, and, thanks to some glissades, by 12.55 we reached its termination on a flat stone-covered plain extending to the brow of the cliffs above the Arolla glacier. The descent of these cliffs had always been the one doubtful part of the expedition, and we were prepared for some trouble on them. The stream from the Glacier de Bertol finds its way to the Arolla glacier through a very narrow and precipitous ravine, and it was soon decided that we could not do better than follow its example. The south side of the torrent looked rather the most promising, so we made for it, and began a very rough scramble, which in an hour landed us on the level surface of the Arolla glacier. The descent was not really difficult, but care was required to avoid knocking over the loose stones which abounded, and lay at such a ticklish angle that a very slight touch sufficed to set them

going. A large one broke away just behind me, and had I not luckily been able to stop its progress until Walker and Jakob in front had got into safe corners, the result might have been disagreeable, as when I jumped aside and let it go, it started a perfect avalanche, which would have effectually pulverised anyone unlucky enough to be in the way. A short hour took us off the glacier, which is so smooth and clean that it can be traversed to its very tip, and at 3.30 we reached Arolla, where we found one of the châlets in course of being transmogrified into an inn. The carpenters were still at work, and only one room, containing three beds, was in a finished state; but the accommodation was sufficient for our party, and as the beds had not been occupied before, we were free from the entomological annoyances for which the place has since become rather notorious.

At 3.0 A.M. on the 9th we started up the grass slopes behind the châlets, following for some distance a zigzag path in a direction apparently away from that which we desired eventually to take. Having gained a certain height, we turned sharp to the left across the upper part of the Combe d'Arolla, towards the left bank of the Cijorénové glacier, crossing on the way no fewer than five moraines of varying ages and great size, and at 4.35 set foot on the ice. The glacier stretched away in front of us smooth and level as far as the base of its central ice-fall, which streams grandly down between the rocks of the Zinareffien on the left bank, and a spur of the Pigne d'Arolla on the right. Direct ascent by the ice-fall was hopeless, and the rocks on the right bank did not look inviting; the only alternative route was therefore up those on the left—the Zinareffien. I have since heard that these particular rocks are, to this day, considered impassable by the hunters of Arolla on account of falling stones; happily, in the absence of any of the local men, we were without that little knowledge which is so proverbially dangerous, and turned towards them with perfect confidence that they would serve as a staircase to the upper snows. A red and angry sunrise, indicating a change of weather, shortened our deliberations and quickened our steps, so that at 5.20 we were at the foot of a rather steep snow-slope, which led up to what looked like the most accessible point in the rocks. No local knowledge was needed to tell us that this was no place for tarrying in, as stones lay thick in all directions, and an occasional pebble, whizzing past, gave evidence that the heavy batteries, though silent now, were quite ready to commence operations again at a later period of the day. The danger, however, was very short,

and we were soon on the rocks, which seemed firm and good enough.

Our original idea had been to make for a point about half way up the ice-fall, where there seemed to be a sort of gully between the glacier and the cliff up which we could pass; but, as we mounted, the policy of this seemed doubtful, and it was finally decided not to attempt to get on to the ice until much higher up. The rocks, at first free from difficulty, became more troublesome as we ascended, and were at last so smooth and void of handhold, that the rope was put on. With this precaution, and Jakob's judicious leading, we were still able to climb rapidly, and at 6.30 reached a point from which there was an easy passage on to the glacier above its most broken portion, having, as I believe, taken the best possible way, and that which should be followed by anyone crossing the pass. The weather since sunrise had steadily deteriorated, and, as we sat down to breakfast, a smart squall of wind and rain passed over us, and made that usually pleasant meal a cold and uncomfortable one.

Our progress up the glacier was uneventful until just below the upper snow-field, where a projecting spur of rock on the left bank, which we followed throughout, produced its natural effect in the shape of an ice-fall, not so steep and long, but nearly as broken, as that we had already circumvented. A formidable-looking snow-slope, which masked the rocks, offered a not really difficult way of turning the obstacle, and we were soon fairly above it, and pounding doggedly along over the upper névé, which extended in front for a distance made more apparently illimitable by the light mist which hung about. So very gentle was the slope, that it was hard to say exactly when the summit level was passed, but at 8.30 we had certainly ceased to rise, and therefore halted to look about us.

We were at the edge of a rather extensive plateau, which is the common source of three glaciers—the Cijorénové, by which we had ascended; the western Breney, by which we hoped to descend; and the Cheillon, which flows down to the head of the Val d'Hérémence. Our col was still some way to the left—a broad opening between the north end of the ridge of the Serpentine and the Mont Blanc de Cheillon, while behind us a steep slope led up towards the Pigne d'Arolla, which peak we determined to bag before commencing the descent to the Val de Bagnes. The height of our position was a great surprise; not only did we look over the Col de Bertol, but over the still loftier Col d'Erin beyond, to all the old familiar Zermatt peaks, so that we must have been very little below

12,000 feet. At 8.55 we turned up towards the Pigne d'Arolla, and, after surmounting the first steep slope, found ourselves on an undulating plateau, crowned on the further side by two low snow humps, the highest of which was our peak, though we did not at first realise the fact. The truth is, that the Pigne d'Arolla is not a peak at all, but merely the highest point of the snow-field, forming the head of the eastern or main branch of the Breney glacier. On the north side, above the Cijorénové glacier, it is cut away in a grand precipice, and from that direction looks like a really fine mountain, but it is none the less a rank impostor, and the partiality which we naturally were disposed to entertain towards a summit of which we were the first ascenders could not blind us to the painful truth. The snow-field which we had to traverse to get at the peak, such as it was, was only remarkable for the enormous size of its concealed crevasses, one or two of which cost no little trouble to cross, and, having attained the saddle between the two humps, we turned to the left, and at 9.55 stood on the highest point, 12,467 feet in height.

Whatever may be its inferiority as a mountain, as a point of view the Pigne d'Arolla more than holds its own with many loftier and more striking rivals. Placed almost midway between Mont Blanc and Monte Rosa, the Combin and Dent Blanche, and with nothing higher than itself between the Oberland on the north and the Graian Alps on the south, it stands in the one position most favourable for a comprehensive view of those great ranges. The weather was anything but perfect, but we saw enough to satisfy us of the grandeur of the panorama, which can scarcely be surpassed unless from the adjoining and slightly higher summit of the Ruinette. So far as we were concerned, this same Ruinette was one of the most satisfactory features in the view, for a reason which will, I am afraid, draw down upon us the contempt of the Club, but which I must nevertheless in candour state. We had long been of opinion that it was discreditable to the Club that so considerable a peak should remain unscaled, and had decided that, being in the neighbourhood, we were bound to attempt to reduce it to the same state of subjection as its neighbours. This, however, would involve passing a night at the dirty châlets of Chanrion, on very short commons, and a probability of absolute starvation on the ensuing day—a prospect which, I almost blush to confess, had so few charms for us, that it was with supreme satisfaction we discovered on the summit of the supposed virgin peak an unmistakable stone man. There was no doubt whatever about

it, and we promptly moved a vote of thanks to the unknown individual (afterwards found to be Mr. Whymper) who had anticipated our views, and left us free to make our way to Aosta and the fleshpots of the Hotel Mont Blanc. The thought of these fleshpots, coupled with the again threatening appearance of the weather, drove us down after only ten minutes' halt, and by 10.35 we had rejoined our baggage on the plateau above the Glacier de Cheillon. This détour was unnecessary, as we might have gone straight down the main Breney glacier; but, besides having to pick up our effects, we wished to complete the pass without reference to the ascent of the peak.

Twenty minutes over level snow took us to the actual col between the Mont Blanc de Cheillon and the Serpentine, which we christened Col de Breney, but to which the Swiss engineers have since given the equally appropriate name of Col de la Serpentine, applying that of Col de Breney to some point of the snow-field at the head of the main glacier, which we crossed on our way to the Pigne d'Arolla. Without delay we hurried down the glacier, having on our right the long ridge which rises at either end into the peaks of the Ruinette and the Mont Blanc de Cheillon, and on our left that of the Serpentine. Where the glacier sweeps round the southern spur of the last-named peak came the inevitable ice-fall, and, just when we were in the thick of its intricacies, the long-threatened thunderstorm burst upon us. A deluge of rain, combined with a cold wind of extraordinary violence, rendered our position far from pleasant; but luckily the ice-fall did not prove very formidable; we found an easy passage on its left side, and so soon as we were below it, on the level glacier, all difficulty was over. We kept to the ice until it began to fall towards the Val de Bagnes, and then at 1 P.M. quitted it for the moraine on the left bank, after crossing which a run down steep grass slopes took us to a point near Chanrion at 1.45.

The same afternoon we crossed the Col de Fenêtre to Valpelline, and of so familiar a passage I need give no particulars. But I do not think that the last hour and half of our walk from Ollomont will ever be forgotten by either Walker or myself. The rain descended literally in sheets, the roar of the thunder never ceased, while the lightning was dazzling, its vividness being more remarkable from the inky darkness which followed each series of flashes. To us the spectacle was one of appalling, but still enjoyable grandeur; to the usually stout-hearted Jakob it had no charms; and his responses to our repeated exclamations of wonder as a blaze of flame over the whole heavens was suc-

ceeded by a crash as though the surrounding mountains were crumbling to their foundations, had in them more of anxiety than admiration. At 9 we reached Valpelline, and found refuge in a wretched cabaret, where we fell asleep over the table while waiting for supper—of which meal my only recollection is a liqueur, apparently flavoured with assafœtida, which I commend to the notice of connoisseurs of nastiness who may chance to visit the locality. The next morning, in bright sunshine, we jolted down to Aosta.

The last expeditions in the "High Level" country of which I have anything to say, are two which I had the pleasure of making in company with Mr. G. E. Foster during the past summer. The first and most important was an alternative route to the Col de Valpelline from Zermatt to Prerayen. I do not wish to say anything disrespectful of that pass, which is indeed one of the most useful ever made in the Alps. It traverses fine scenery, and may be crossed with decent guides in almost any weather. But there are three points in which it fails to come up to the ideal of a perfect pass. It is utterly free from difficulty from end to end, its summit is a snow-field, and it is not the direct route between the two places which it connects. I am not, of course, blind to the fact that to some persons, whose state of mind we can but pity, my first two objections may seem recommendations rather than otherwise; but with regard to the third, there can, I think, be no difference of opinion. A glance at the map will show that the traveller bound for the Valpelline who, on reaching the foot of the Stockje, turns to the right towards the Col d'Erin, deliberately goes out of his way, which would naturally lie to the left, up the Tiefenmatten glacier, and across the ridge which extends from the Dent d'Erin to a nameless peak, marked on the map 3,813 mètres, and which, for the purposes of this paper, I shall call Pic de Zardezan.

That the somewhat circuitous route of the Col de Valpelline should have been originally preferred, is not perhaps very wonderful, especially as the pass was first made *from* Prerayen, but that the direct route should have been so long untried is curious, as the appearance of the Tiefenmatten glacier is eminently stimulating, though, as a high road, it has certain obvious disqualifications, the nature of which will appear in the course of my narrative.

The Zmutt glacier is among glaciers what the Rhone valley is among valleys—the most tiresome, and, at the same time, one of the least avoidable with which the climber has to do. Often and often, when stumbling over its endless moraines, had

I cast longing looks at the shattered ice-falls of its principal feeder the Tiefenmatten, and speculated whether it might be possible to cross the formidable ridge beyond them, but never until last summer had I looked with intent actually to try the experiment. On July 9 I crossed the Col Durand from Zinal,—a noble pass, in my opinion, much to be preferred to the Trift—and from the slopes of the Ebihorn directed Jakob's attention to the Tiefenmatten. After looking at it long and anxiously, he expressed his opinion that a passage might be made, but that it 'would be a Winter-Joch,' referring to a certain pass which we had effected in 1870 from the Geschenen Thal, and which had left on his mind an unusually vivid impression of danger and difficulty. As, however, we *had* passed the Winter-Joch, and had not broken our necks on the way, his present opinion was, on the whole, encouraging, especially as he backed it up by pointing out the exact manner in which he proposed to make the assault. Accordingly, at 1.35 A.M., on July 17, Foster and I, with Jakob and Hans Baumann, started from Zermatt. Although the sky was cloudless, the wind was ominously warm, and in no way suggested, what proved to be the case, that we were commencing the one week of fine weather which marked the early season of 1871. The night was so intensely dark that, in spite of the aid of a candle stuck in a broken bottle, our progress as far as the châlets of Zmutt was slow, and it was 5.50 before we were seated at breakfast on a big stone near the foot of the Stockje. We were exactly opposite to the couloir leading up to the Col du Lion—so well known in connection with the Matterhorn—and, during our meal, examined it with care. If any gentleman wishes to achieve the reputation of having made the most impossible-looking pass in the Alps, let him try to climb this couloir. If he succeeds, I shall have great pleasure in congratulating him, while if he fails and comes to grief into the bargain, it will afford me equal satisfaction to observe that it served him right. The Col Tournanche, further west, crossed by Mr. J. A. Hudson's party some years ago, is not a very inviting route, but with patience and step-cutting it is obviously practicable. The Col du Lion is a different affair altogether, and will demand fly-like qualities not often found even in the members of our Society.

So far we had been treading the old familiar route of the Col d'Erin; we had now to venture on new ground. The Tiefenmatten glacier tumbles into the Zmutt in a double ice-fall between the cliffs of the Dent d'Erin and a long spur from the Pic de Zardezan. The lower one, which first presented itself to our consideration, did not appear to be either very

long or very steep, but it was extraordinarily broken, and, even in this snowy year, was evidently only passable on its right side, under the Dent d'Erin. It unfortunately happens that this right side is the exact direction which every prudent man would desire to give as wide a berth to as possible, for the following reason:—the north face of the Dent d'Erin immediately above is for the most part precipitous rock, but at about half its height runs a broad band of broken séracs. How the ice clings to the cliffs at all is a marvel, but that portions of it are liable to, and actually do, come down with a run at varying intervals of time, is a fact which the merest novice would see at a glance. The danger was palpable, and theoretically we ought not to have incurred it; but, fortunately for the success of the majority of expeditions, people in the Alps do not allow theory to blind them to facts—at least when theory runs counter to the wishes of the moment—and we satisfied ourselves that, great as was the theoretical risk, the practical danger of a fall occurring at the precise moment of our passage was small. If it did, of course we deserved our inevitable fate; if it did not, we probably made our pass, and in so doing accomplished the desire of our hearts. The game may not have been worth the candle—at any rate, we thought it was, as hundreds have thought before under similar circumstances, and, as I hope, hundreds will think again. This elaborate argument was not, I need scarcely say, gone through at the moment. Baumann gave us very little time for anything of the sort; for, taking the rope between his teeth, as it were, he went straight at the only promising point as hard as he could go, and accommodating us with smaller and fewer steps than I ever before saw used in such a position, in a wonderfully short space of time landed us panting and breathless at the top of the fall, on a small plateau which was covered almost from side to side with avalanche *débris*. Over this we made our way towards the upper ice-fall, which was not an ordinary jumble of crevasses, but a series of huge dislocations in the glacier. As before, the only possible way seemed to be under the Dent d'Erin, and there we were nearly stopped at the last moment by a monstrous chasm stretching completely across the glacier. The bridge by which we finally escaped on to the upper snow-field was of a very ticklish character, and in a day, or perhaps even a few hours, might have been found non-existent, in which case the only alternatives would have been a retreat, or a prolonged and dangerous piece of step-cutting along the face of the Dent d'Erin.

The snow-field which we had attained is one of the most

secluded recesses in the High Alps; almost environed by steep and lofty ridges, there are few points from which even a glimpse of it can be got. The view from it is limited to the peaks of the Matterhorn, Tâschhorn and Dom, Gabelhorn, Rothhorn, and Weisshorn, which range themselves in a sort of rough semicircle, and, standing up unrelieved by any extent of snow, produce a most singular effect, quite dissimilar to anything I know elsewhere. At its head an ice-wall of almost uniform height sweeps round from the Dent d'Erin to the Pic de Zardezan, and up this we had now to seek a way. The wall was steepest near the Dent d'Erin, and least so at its opposite end, where too it appeared to be faced with snow, while elsewhere along the line the ice glistened suspiciously blue in the sunshine, promising many a weary hour of step-cutting before the sharp crest should be reached. There was therefore no question as to the point at which it was advisable to make the attack, if possible. On that side where the ice-wall begins to merge in the rocky face of the Pic de Zardezan, the uniformity of the slope was broken by a bulging mass of séracs, the *débris* from which had partially choked the bergschrund below them. It would be necessary to cross the bergschrund by this *débris*, pass along to the right under the séracs, then turn up the slope alongside of them, until it was possible to swerve sharp to the left again, and so strike the ridge. The route was not tempting. Not only were there those threatening séracs, on which the sun had been playing since early dawn, but the Pic de Zardezan was in a most lively condition. Already, while crossing the snow-field, we had had to look out for stones from its cliffs on our right, towards which we had steered in order to avoid the dangerous neighbourhood of the Dent d'Erin. It was a case of Scylla and Charybdis—on the left, ice-avalanches; on the right, stones; even in the middle, the old proverb notwithstanding, no absolute safety, so contracted was the space.

I should have been sorry to attempt the ascent we had before us with inferior guides, but with men like Jakob and Baumann much might be risked. They showed no hesitation about proceeding, but only impressed upon us that, once committed to the venture, we must push on, without halt, at the top of our speed, as upon it might depend our safety. On this understanding, at 8·55, we crossed the bergschrund, and commenced the most helter-skelter, breathless ascent I ever made. The first thing was to get clear of the séracs, the danger from which was most imminent; and the pace at which Baumann led us across the deep gullies, scored in the face of the slope by the

falling blocks, which had so conveniently bridged the bergschrund, was a caution. Then came a race up the slope beyond, under a constant fire from the Pic de Zardezan, which was straight overhead. The inclination was greater than that of the Strahleck, and the snow, where there was snow, was deep and almost in a melting state. Where there was none there was ice, and that meant delay; so, as either condition was equally objectionable, Baumann made for a patch of crumbling rocks which looked practicable. We had scarcely reached them when a large shower of stones swept down to our right, mixed with huge masses of snow which they had started —a suggestive spectacle, though under no circumstances should we have been in danger from this particular fall. A short scramble up the wet and slippery rocks, followed by a nearly level passage above our old enemies the séracs, along the face of the slope, brought us on to the ridge at 9·45, and the Tiefenmatten Joch was a *fait accompli.* The final ascent had taken only forty-five minutes, but in those forty-five minutes had been excitement enough for three hours, which is about the time it would have occupied us to cut steps up the wall at any other point.

The ridge, which rises to no great height above the snowfield on the south side at the base of the Dent d' Erin and the long rugged range between that peak and the Château des Dames, was too sharp to be a pleasant resting-place, so we turned along the rocks of the Pic de Zardezan, and on a convenient ledge sat down in the glorious sunshine, in a happy state of contentment with ourselves and the world in general. The view towards Zermatt was not extensive, the spurs of the Pic de Zardezan on one side, and the noble cone of the Dent d' Erin on the other, intervening. We had had some thoughts of combining with the pass the ascent of the latter peak, the base of which was close to us; but its smooth rocks were so coated with snow, and the snow, as we had just seen, was in such a dangerous state, that the idea was given up; though, under more favourable circumstances, there would have been no difficulty whatever in striking from the col into the route followed by Mr. Hall's party in 1863. Looking south, the whole chain of the Graians was clear, while in the west the eye ranged over all the Bagnes mountains to Mont Blanc, which towered up pre-eminent in size and grandeur, as usual from all distant points of view. From a rough aneroid observation, the height of the col comes out about 11,500 feet, somewhat lower than the Col de Valpelline, another recommendation over that pass, if greater directness and the attractive features of the route,

on which I have dilated, are not considered conclusively to establish its superiority. Our satisfaction at the happy result of our exertions, and the skill shown by Jakob and Baumann, was not without a tinge of melancholy, as we reflected that, with the exception of the Silber-sattel between the Nord End and Höchste Spitze of Monte Rosa, and the still more dubious Col du Lion, we were making the last imaginable new route out of Zermatt. Some fifteen years earlier the Alpine Club had swooped down upon that dingy village, as a centre of seemingly inexhaustible novelties; in that time the district had been swept, if not garnished, and, beyond all question, from a strictly mountaineering point of view, its last state was worse than its first. Some such sentiment as this we expressed to Jakob and Baumann, but those prosaic individuals did not see it at all, and declined to be melancholy over what they justly considered a feather in their caps, and a source of much future exultation over the Zermatt guides.

For the descent we had a choice of routes. We could either traverse the whole length of the snow-field to its southern extremity, and come straight down upon Prerayen, following the line taken by Mr. Whymper in his attempt on the Dent d'Erin; or we could descend to the lower Zardezan glacier, either by the central and largest of the three tributaries which stream into it from the aforesaid snow-field, or by the northern and smallest of them, which was at our feet. The last alternative was decided on, and at 11, having first built a stone man, we started, keeping back along the ridge for a little way, and then striking sharp down to the right, over steep snow-covered rocks, which required care. On reaching the level snow below them, we still kept to our right, hugging the base of the Pic de Zardezan, and passing through an opening between it and the head of a buttress separating the central and northern tributary glaciers, descended on to the latter, and by it without the least difficulty, to the lower Zardezan, at the precise point where the route of the Col de Valpelline falls in. It was only 12.15, and we were within two hours of Prerayen, from which place our design had been to cross the Col Collon on the morrow to Evolena. It seemed a pity to pass the afternoon in idleness, so, instead of descending further, we crossed the glacier, climbed up some 2,000 feet of rocks on its further side to the Col de Mont Brulé, and at 8 P.M. had the satisfaction of walking into the inn at Evolena, having not only gained a day, but substituted good fare and the most comfortable beds to be found in any inn in Switzerland, for the flinty bread and animated hay of Prerayen.

Our next destination was the Liappey Alp at the head of the Val d'Hérémence, a valley almost unknown to English mountaineers, if the meagreness of the information with reference to it in Mr. Ball's Guide may be taken as evidence. The range between it and the Val de Bagnes, extending northwards from the Mont Blanc de Cheillon, has several large glaciers, and at least two peaks of importance, the Mont Pleureur 12,161 feet, and La Salle 11,936 feet; but, like the valley, it has never received any attention from our members. The Swiss 'Alpen Club' has not been equally indifferent to its attractions, and the 'Jahrbuch' for 1868 contains narratives of a good many interesting excursions, including the ascents of the Mont Pleureur and La Salle from the side of the Val de Bagnes. From these narratives it appeared that it was possible to pass from one to the other of these peaks, and from a paragraph in one of the later volumes I inferred that Herr Weilenmann had descended from them into the Val d'Hérémence. Our plan was to reverse his route, which seemed likely to be a more interesting way from Evolena to the Val de Bagnes than any of the regular passes from Arolla, with most of which, moreover, Foster and I were already acquainted.

We intended to cross to the Val d'Hérémence by the Col de la Maigna, a grass pass north of the Pic d'Arzinol—a panoramic peak, sometimes ascended from Evolena. The path to the Col de la Maigna, after crossing the Borgne at Evolena, winds round the opposite hill-side through picturesque woods into the glen of Vouasson, follows its south side for some distance, and is then carried over the stream from the small Glacier de Vouasson to the Alp of the same name. We here made a very stupid mistake, for which I, as the bearer of the map, was alone responsible: instead of keeping to the left up the north side of the glen of Vouasson, we bore away to the right, and finally, at 1.30, struck the ridge above the Val d'Hérémence, a long way too far north, close under a small point of rock called Pointe de Mandalon. The col commanded a fine view, east, of the Dent Blanche, Rothhorn, and Weisshorn; north, of the Oberland from the Diablerets to the Gemmi; and west, of the Val d'Hérémence and the range on its further side. The Mont Pleureur was conspicuous, and, to the north of it, La Salle, a curious tooth of rock apparently rising, in a strangely isolated way, from the centre of a nearly level snow-field. The valley itself is a large and fine one, very green and well wooded, and on its western side broken by numerous lateral glens of considerable size, crowned by peaks, not of the first order, but bold and picturesque in outline.

It now became a question whether we should descend into the valley in order to gain the cowpath up it, or keep at a level along its eastern slopes, so as eventually to strike into the track we should have followed had we not missed the Col de la Maigna. The latter course, after much vacillation, was finally preferred, and the result was one of the most laborious walks I ever had. The Pic d'Arzinol, the face of which we traversed, is deeply scored by ravines, and the passage of each of these in succession was an excessively rough piece of scrambling. Further on, a faint track helped us here and there; but it was 4.20 before we reached the upper châlets of Méribé, which are placed on the hill side, at some height above the bed of the valley, just below the steep ascent to the level plain, on which are situated the châlets of La Barma. In point of labour, we should now, I think, have done better to have descended to the valley, and climbed this ascent by the path: but acting on the advice of the herdsmen, we adhered to our old course, which involved an ascent of about a thousand feet, nearly to the level of the small Glacier de Merdéré, and then a traverse by a series of grassy ledges along the face of the Pic de Vouasson, until we were at last able to descend on to the dreary plain of La Barma, and strike the long-desired path. The remainder of the way was easy enough, and at 7.0 we reached the extensive Liappey Alp, situated on the left bank of the torrent just below the end of the glaciers of Cheillon and Lendarey, at the extreme head of the valley. Our walk of six hours had thus resolved itself into one of nine hours and a half; but in spite of heavy loads, intense heat, and the roughness of the way, neither Foster nor I regretted our involuntary détour. The men, however, were not pleased; and Baumann in particular could not be persuaded to admit that the day had been interesting, unless, as he said, we were admirers of stones, stones, stones!

The Liappey Alp has an evil reputation for fleas; indeed, poor Herr Weilenmann seems here to have been driven by them to such a state of desperation that verse alone could express his feelings—

Von Bagne bis nach Heremanz
Von Nendaz bis Arolle,
Da führen die Flöhe ihren Tanz
Dass sie der Teufel holle,

sings the sorely-persecuted veteran. Foster and I not having been reduced to the same stage of despair, I do not feel called upon to translate the above effusion, which, however, pretty well conveys its own meaning.

We passed a not uncomfortable night, and at 3.50 next morning resumed our way, the weather being still fine, but too warm to be quite satisfactory. Immediately north of La Salle, the Glacier du Petit Côte de Liappey streams steeply down into the valley behind the alp, and we had reason to believe that by it Herr Weilenmann had effected his descent. Mounting steadily over pastures succeeded by stones and shale, we soon came in sight of the glacier, which is of the smallest dimensions, and much broken up in its central part, where it falls over a wall of rocks towards the valley. It was not at first obvious how the tiny snow-field above was to be reached, but in the end a tolerably easy way was found up the rocks and snow-slopes on the south side of the glacier, and at 7.10 we were looking down into the Val de Bagnes, at a point locally known as the Col de Vasevey, after the name of the alp just below on the Bagnes side. A strong wind made delay unpleasant, so we turned at once to the south, along the shaly ridge which led up towards the peak of La Salle. The ridge came to an end too soon, at the foot of a steep ice-slope, above which we knew was the snow plateau out of which rises the final peak. This promised some step-cutting; so Jakob calmly proposed that, in order to avoid it, we should try and cross the precipitous face of the mountain above the Val de Bagnes, until we could turn straight up towards the summit. Foster and I protested vigorously against anything of the sort, and Baumann smiled his grimmest smile at the very suggestion; so Jakob did not press the point, and began hacking away vigorously with his axe. The slope was steeper and longer than it had seemed to be from below, and the ice was hard and quite bare; but Jakob worked with a will, and in about three-quarters of an hour landed us on the snow-field above, on the further side of which was the peak—an apparently vertical pillar of rock, perhaps 100 feet in height. We went straight towards it, the snow gradually falling away on either hand until it became an arête, abutting at last against the rocks. Up to the very last moment these looked unscaleable, and I really do not know now how Jakob got up the first five-and-twenty feet; but he did so, pulled us up after him, and at 8.45, after a short but very exhilarating scramble, we were on the top of La Salle, where we found a cairn with the cards of our Swiss predecessors.

Clouds were rising in all directions, but the view was nevertheless very fine; the Combin especially, comparatively close at hand, being an object of overpowering grandeur. The

ridge connecting us with the Mont Pleureur was evidently free from difficulty, but as the snowy summit of that mountain did not seem a convenient resting-place, we preferred making our principal halt where we were, and did not start towards our slightly-loftier neighbour until 9.25. No one had ventured to estimate the intervening distance at less than two hours; but in fifty minutes, at 10.15, we stood on the summit, having first descended along a ridge of broken rock, and then kicked steps up a slope of snow, very steep, but in perfect condition. The Mont Pleureur, on the side of the Val de Bagnes, is cut away in one of the most terrific precipices I ever saw; Jakob, having looked over, called on us to do the same, but the convulsive grip which he gave me as I craned forward clearly showed how it had impressed him. After only a few minutes' stay, we turned along the great south-western ridge of the mountain, but soon left it, and struck straight down the face towards the Glacier de Gétroz. On the map this side of the Mont Pleureur is represented as all rock, and I have no doubt that in most seasons it is so; but it was now from top to bottom densely covered with snow, down which we floundered at such a pace that, in three-quarters of an hour from the summit, we were at the edge of the glacier. Having crossed to its left bank below the great ice-fall without difficulty, we soon found a track down the steep grass slopes on that side, which took us to the Gétroz Alp, whence a good path led to the Val de Bagnes, and the little inn at Monvoisin, where we arrived at 1.30, after an expedition of remarkable interest.

The same afternoon we walked down the valley to Chables, drove on to Martigny, and slept that night at Sierre, thus satisfactorily concluding the last of my variations of the 'High Level Route.'

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## PROFESSOR TYNDALL'S ATTEMPT ON THE MATTERHORN IN 1862.

We have received the following letter from Mr. E. Whymper:—

*To the Editor of the Alpine Journal.*—Sir,—My attention has been lately directed to an additional note at pp. 166–7 of the second edition of Dr. Tyndall's 'Hours of Exercise in the Alps.' I regret to learn from those pages that I have been misunderstood by their author upon two occasions, and I shall be greatly obliged if you will afford me sufficient space in the columns of the 'Alpine Journal' to explain away these unfortunate misconceptions.

The first part of the 'additional note' has reference to a conversation between us in the Val Tournanche. I returned to Breuil on July 26,