

too low, and consequently make the mountains appear too high. The height of the Dent Parassée given by Von Welden is 12,137 English feet. My reading, corrected and compared with an almost simultaneous observation by M. Carrel at Aosta, gives as a result 12,409 feet. The Grande Motte has been estimated at 11,500 feet; my observation makes it 12,268 feet. But in this case I believe the estimate to be too low, and that the real height is nearer 11,900 feet.

THE MOMING PASS. By A. W. MOORE. Read before the Alpine Club, on June 6, 1865.

ON Saturday the 16th July, 1864, Almer and I crossed the Zmeiden Pass from Gruben in the Turtman-thal to Zinal, where we were engaged to meet Mr. Winkworth, for the purpose of trying a pass to Zermatt, over the Moming and Schallenberg Glaciers.* The Zmeiden Pass is tolerably well known, and my only object in alluding to it, is to recommend anyone who may cross it to follow our example, and make a detour of about half-an-hour from the col, in order to climb a rocky point immediately to the north of it, which, in addition to the Fletschhorn and Mischabel ranges, and a large part of the Oberland, commands a view of the peaks and glaciers at the heads of the valleys of Turtman, Anniviers, and Erin, superior probably to that from the loftier, but more distant, Bella Tola.

On arriving at Zinal, I found myself in solitary possession of the little inn, Winkworth, as it afterwards appeared, having been taken ill at Zermatt, and consequently prevented from keeping his appointment. On Sunday morning, however, to my infinite satisfaction, I was joined by Mr. Whympier and Michel Croz, fresh from a series of successful expeditions in the chain of Mont Blanc, and was thus relieved from the unpleasant necessity of attacking the proposed pass alone. Mr. Ball, in 1859, first suggested the possibility of effecting a passage between Zinal and Zermatt over the Moming Glacier; but, strange to say, no one took up the idea, and the long ridge connecting the Weisshorn and Rothhorn remained unscaled and untried. Of the probabilities of success in such an attempt, we could get no

* On sheet 23 of the Federal map, the name 'Hohlicht' is given to the glacier hitherto known as the 'Schallenberg,' but I have preferred adhering to the old and familiar name.

trustworthy information from the natives. Some thought it was possible to get up, others the reverse; but as it did not appear that either party had ever tried, and neither could give any substantial reason for the faith, or absence of faith, that was in them, the diverging opinions were equally valueless. I had mentioned the project to Melchior Anderegg at Zermatt, but had not received much encouragement from him. On the contrary, he had expressed himself in the strongest terms against the plan. 'You may make the attempt,' said he, 'and you may lose your life, but, take my word for it, you will never get over; it is impossible.' I am afraid that this melancholy vaticination did not make so much impression upon me as, coming from such lips, it ought to have done; but I was naturally unwilling to believe that one of the pet items of my programme was going to turn out a myth, and therefore consoled myself and Whymper with the reflection that even the best guide is liable to be deceived as to the nature of a place which he has never actually tried.

At 3.25 P.M. on the 17th, we quitted Zinal, and, crossing to the left bank of the stream, steered towards the end of the Zinal Glacier. The Arpitetta Alp, whither we were bound, is situated on the right side of the valley, but the cliffs below it are inaccessible 'en face,' and to turn them it is necessary to ascend the gorge, down which the drainage from the Moming Glacier pours. This can only be reached by traversing the lower end of the Zinal Glacier, which is one of the dirty and unpleasant class, being covered with moraine and debris, across which a precarious path is traced every year, for the use of the cattle going to and from the Alp. At 5.15 we reached the lower châteaux which were shut up and deserted, the cows and their keepers having gone higher up. We cheerfully followed them, expecting to find a similar colony in the more elevated situation, and abundance of hay whereon to pass the night. As we gradually rose, the Moming Glacier opened out broadly and grandly in front of us, backed by the cliffs of the Weisshorn, Schallhorn, Rothhorn, and Lo Besso. In spite of rather unfavourable atmospheric conditions, the tops of the peaks being enveloped in clouds, we saw enough to satisfy us that for savage grandeur the vast amphitheatre we were entering can have but few equals in the Alps. The 'cirque' of Monte Rosa above the Macugnaga Glacier is probably even finer, but the cliffs of Monte Rosa, though more colossal, are less precipitous than those of the Weisshorn and Rothhorn. The Moming Glacier is very different in character from that of Zinal. The latter is long and sinuous, while the former is of immense breadth, but has comparatively little length, terminating in a steep tongue

of ice, which dies out in the midst of a tract of débris, indicating its much greater extent at some former period. Along the ridge at its head connecting the Weisshorn and Rothhorn are three depressions. One, the lowest, is at the point marked on the Federal Map 3,751 mètres, or 12,307 feet, between the Weisshorn and Schallhorn, at the head of the arm of the glacier which comes down between those peaks, and is called on the map Glacier du Weisshorn. This is cut off from the Moming Glacier proper by a spur of the Schallhorn, but the two glaciers unite at the base of that spur, or at least are only separated by a moraine common to both. The gap was approached by a long steep slope of ice, with patches of rock cropping out here and there, and there was little doubt as to the possibility of gaining it by means of more or less step cutting, but there were two objections to adopting it as our point of attack. In the first place, we knew nothing whatever about the descent on the other side, and secondly, it would take us to Randa, where we were particularly anxious not to go. The pass was subsequently effected by Messrs. Hornby and Philpott, and christened by them 'Schallen-joch;' they, I believe, experienced no particular difficulty on the Zinal side, beyond what arose from the extreme steepness and hardness of the slope, but the descent to Randa proved a very formidable affair. The two remaining depressions are between the Schallhorn and Rothhorn, one at the point marked 3,867 mètres, or 12,688 feet, the other very slightly to the south of it and rather higher. Practically, these two gaps are one and the same thing, the intervening distance being trifling, while both must be approached by the same route. The upper part of the wall beneath them is formed by a steep slope of snow or ice, which, when first seen, looked so straightforward, that we began to think our pass would turn out a humbug; but as we advanced and opened out the nature of the ground below this delusive slope, we were undeceived, and our confidence was replaced by an unpleasant suspicion that Melchior might, after all, prove a true prophet. The higher portion of the Moming Glacier occupies an immense bay under the ridge connecting the Rothhorn with Lo Besso, and is raised above the lower glacier by a long and lofty ridge of rocks, running approximately east and west. Between the western end of this ridge and Lo Besso is a wide opening, through which the upper glacier finds its way to the lower level in a broad and shattered ice fall; but between the eastern extremity of the ridge and the rocks of the Schallhorn the space is very confined, and the glacier is forced downwards in a precipitous wall of ice-cliffs and séracs of the most forbidding aspect. This wall is of great

height, and, as fate will have it, lies immediately beneath the two depressions, through one of which the traveller wishing to find a way over to the Schallenberg Glacier must pass. Under these circumstances we had a choice of four plans. We might force a way up the great ice-fall under Lo Besso, and pass along the snow fields above, at the base of the arête joining that peak with the Rothhorn; or we might hunt for a vulnerable point in the supporting ridge of rocks whose presence was the cause of the difficulty, and so again to the névé; or attack the ice-cliffs themselves, with a final alternative of taking to the rocks of the Schallhorn. The fatal objection to the first plan was, that, putting aside the by no means inconsiderable difficulties of the way, the détour required would be so great, that a day at least would be consumed in reaching the final slope. The second plan at first seemed more feasible, as, at one point in the ridge of rocks, a promising snow couloir stretched invitingly upwards, but careful examination through the glass showed it to be of such length and steepness, and so furrowed by stone channels, as to be practically inaccessible. The only alternatives remaining were the ascent of the wall of ice-cliffs, or of the rocks of the Schallhorn, and from so considerable a distance it was not easy to decide which route was the least unpromising, but on the wall there appeared to be at least one 'schrund' which would be impassable without a long ladder.

So absorbed were we in the contemplation of the morrow's work, that we wandered out of the track, until, finding ourselves too low down, we struck straight up the hill side, and finally emerged on to a tract of open ground, where the welcome sight of cows warned us that we were near our destination. The expected châteaux were not at first visible to the naked eye, but at 6.5, just as heavy rain was beginning to fall, we stumbled upon a wretched hovel, built against the side of the hill, from which it was hardly distinguishable. At the entrance stood a dirty native, who gave us the cheering intelligence that the building before us was the only one on this part of the Alp, adding that though the accommodation was limited, we were at liberty to share it. Alas for our anticipations of comfortable quarters and the usual hay! The height of our den was scarcely sufficient to allow of standing upright, while the floor was a sea of filth into which we sank above our ankles. In one corner was a rough platform of stones, raised a few inches above the general level, covered with some sheepskins apparently in an advanced state of decomposition. This was pointed out as our couch for the night, a bit of news which combined with the state of the weather to reduce still further our already depressed spirits.

After a long delay, a brew of chocolate was prepared, and we then retired for the night. To take off boots was impossible, so, rolling myself up in my plaid, I assumed my allotted place on the sheepskins, persuading myself, as really proved to be the case, that their appearance was the worst thing against them. Whymper however could not bring himself to trust to their tender mercies, and, I believe, sat all night on a stone, meditating on the immortality of the soul and kindred topics. I had just settled myself, and was listening to the contest going on amongst the animals outside for the sheltered positions under the walls of the hut, and beginning to think myself not so badly off after all, when my complacency was disturbed by the receipt, exactly in my eye, of a heavy drop of rain—a convincing proof that whatever might be the merits of the roof, watertightness was not one of them. Having, after several trials, taken up a more secure position, I was again dropping off, when there was a sudden irruption into the cabin of at least a dozen men, women, and children. Where they came from heaven knows, and I should be sorry to say where we wished them. Seating themselves with the previous occupants round the fire, they forthwith commenced an animated discussion, which lasted with very slight intermission throughout the night. What the seductive topic was, we could not accurately discover, but from the excited and prominent part taken in the conversation by the female portion of the community, I inferred that it was some local scandal of a peculiarly piquant and agreeable character. There was some consolation in the reflection that the women of the Val d'Anniviers are not superior to the weaknesses of their sex in less enlightened parts of the world, but the thought, soothing as it was, failed to act as an antidote to the incessant cackling, and I slept but little. About 1 A.M. the guides made a move to look at the weather, and reported a thick fog with heavy rain, so that a start was out of the question, and we therefore composed ourselves again until 4 A.M., when, shaking off dull sloth and the fleas simultaneously, we finally rose. The prospect out-of-doors was not encouraging; the rain had ceased, and the fog had partially lifted, but the sky was encumbered with heavy masses of cloud, which threatened momentarily a fresh down-pour. We were at a loss what to do, it being obviously not the style of day on which to try a new and difficult pass, while, on the other hand, the idea of vegetating for twenty-four hours in our present quarters was too appalling. The guides, when appealed to for an opinion, manifested the usual objection of their class to committing themselves one way or the other, and we could get nothing out of them but replies of

a most oracular character. It was however finally agreed that anything would be preferable to idleness, and that a start should be made; so breakfast was prepared, we swallowed some hot wine, with the result of seeing things from a somewhat less blue point of view, and at 5.40 A.M. quitted our refuge, amidst encouraging assurances from the herdsmen that we need not distress ourselves about the weather, as, were it to turn out ever so fine, we should not be able to get over at the point for which we were aiming.

The elevation of our *châlet* cannot be much under 8,500 feet, so that we were spared the 'grind' usual before beginning the day's work, and, after an easy walk along gentle slopes of grass and stones, passing beneath the tail of a glacier, over which there ought to be a magnificent pass to the upper Turtman Glacier and Gruben, got, at 6.15, on to the moraine of the Glacier du Weisshorn. We struck straight across the moraine, which is of vast extent, and bears a strong family resemblance to that of the Southern Miage; beyond it was a narrow strip of clear ice, which has a hard struggle for existence with the immense masses of *débris* pressing upon it on either side, and this, in turn, was succeeded by a second moraine, which draws its supplies from the spur of the Schallhorn before mentioned, and forms the division between the lower parts of the Weisshorn and Moming Glaciers. Dropping down upon the latter, we had before us a long stretch of smooth and uncrevassed ice, up which we pushed, keeping close under the moraine, and steering tolerably straight towards the Schallhorn, until at 7.20 we came upon a dirty little glacier tarn, where we halted to put on the rope, and decide upon our further proceedings. We were now nearly opposite the eastern end of the ridge of rocks which supports the upper glacier, and the point to be determined was, whether it would be better to attack the great wall of *séracs* between it and the Schallhorn, or endeavour to find a passage up the rocks of the latter peak on the right side of the wall. It was evident from the state of the glacier below that the ice-cliffs were in the habit of coming down with a run -- indeed I have rarely seen so great an extent of *avalanche débris*. It stretched in the usual fan-shaped form from the bottom of the wall down on to the level glacier, a broad slope which at its termination must have been more than a quarter of a mile wide. The whole of this space was covered with ice-blocks of various sizes, many of them quite fresh, conclusively showing that falls occurred daily, and might be expected at any moment. We here experienced in a high degree the great inconvenience of having guides mutually

ignorant of each other's language. Almer advocated taking at once to the rocks of the Schallhorn, and endeavoured to explain to me, for communication to Croz, the exact line which he proposed to follow. Now my German is queer at the best of times, and upon the present occasion, as usual when much excited, Almer degenerated into patois of a more than commonly unintelligible character. He therefore failed to make me clearly understand much beyond the general fact that he thought the rocks practicable, and that we had better take to them, while I of course found it still more difficult to give the necessary explanation to Croz. The latter worthy did not fancy the rocks at all, and urged in preference a direct assault upon the ice-cliffs, imagining that he saw in them an accessible point which, it must be confessed, was invisible to Whymper and myself. Had the two men been able to talk the matter over, Croz's objections would doubtless have been dissipated, but this was impossible, and he adhered so strongly to his own view, that we yielded against our better judgment, Almer tacitly concurring. I take this opportunity of emphatically cautioning any one who may follow us over the pass, against a similar error; the rocks, it is true, especially in their lower portion, do not look tempting, but appearances in such cases are notoriously deceptive, as we soon found.

At 7.30, Croz and and Whymper leading, we started across the glacier, which was slightly crevassed, towards a long slope stretching upwards to the base of the cliffs on the left of the wall of séracs. The snow on this slope was rather soft, and the inclination considerable; zigzags were consequently required, but we mounted rapidly, and were soon far above the level glacier and nearing the formidable barrier which we were about to attack. The wall above us was one of the most utterly impracticable looking places I ever saw, broken into cliffs and pinnacles of ice, many of which heeled over towards the slope below at any conceivable angle, and evidently could not long retain their equilibrium. At every upward step we became more sceptical as to the possibility of long continuing in our present line of march, and convinced that, sooner or later, we should have to manœuvre to get on to the rejected rocks. Almer behind me kept up a subdued growl of dissatisfaction, but otherwise no one gave any outward indication of his opinion, and we followed silently, though anxiously, in the steps of the leader, until he at last stopped of his own accord, and suggested that things above looked unpromising, and that perhaps we had better try to effect the ascent by the rocks of the Schallhorn. There could be no doubt as to the propriety of

such a course, but the operation of getting on to the rocks, which, at the proper time, would have been simple enough, now involved an amount of danger so great, that, had it been possible to persevere in our original line, we should have done so, in preference to incurring it. We were very near the top of the long fan-shaped slope of débris, the base of which we ought to have skirted. Instead of doing so, we had mounted along its side, and its upper part was now between us and the Schallhorn, so that, to reach the desired point on the rocks, we must cross it from one side to the other. At its head rose an overhanging wall of ice, crowned by a mass of threatening séracs, which would evidently be the next contributors to the collection of débris. A similar formation extended upwards to the base of the final slope below the col for which we were making, and the upper and invisible masses were just as likely to pay a sudden visit to the depths below, as those before our eyes. Beneath this delightful arrangement for the manufacture of avalanches at the shortest notice lay our only route, and we saw with unpleasant distinctness that the passage would be by no means a short one. However the thing had to be done, so, abandoning the slope of snow whose fatal smoothness had led us into such a scrape, we turned sharp to the left, and committed ourselves to the venture. I am not ashamed to confess that, throughout the passage, I was suffering from that unpleasant form of anatomical derangement described as 'having one's heart in one's mouth,' while Almer's countenance sufficiently indicated his uneasiness, of which he gave further evidence by indulging in language of a more unparliamentary character than I ever, before or since, heard him emit. His objurgations were not addressed to any member of our party, but to himself; and his predominant feeling appeared to be one of intense self-reproach at being found in such an unjustifiable position. The fact was that, after our experience on the Bies Glacier three days before, where, under very similar circumstances, we had escaped two tremendous falls of ice by something less than two minutes, Almer and I were perhaps even more impressed than our companions with the imminent nature of the present peril. Croz certainly exerted himself manfully, but rapid progress was impossible, the slope being very steep, at an angle of about 48°, and the ice-blocks so jammed together that nearly every step had to be cut with the axe. At intervals too the surface was scored by deep grooves, which had been scooped out by falling blocks of more than average dimensions. The passage of these channels was the most anxious and difficult part of the business, as in them the footing was specially precarious, the

débris having been carried away, and smooth ice left exposed, while, in the event of a fresh fall occurring, the chances were of course in favour of the weightiest and most deadly missiles selecting the convenient routes marked out by their predecessors. One enormous tower of ice impended right over our path, apparently in the act of falling, and on this we kept our eyes fixed, speculating whether the inevitable catastrophe would or would not be deferred until we reached the rocks, which, as usual on such occasions, in spite of our exertions, seemed to keep their distance. But all things must come to an end, and so, at 8.40, after a passage of about twenty minutes, we found ourselves in comparative safety, clinging to a ledge of slippery rocks, where there was just room for the whole party to stand together.

Without halting we commenced the ascent of the crags, which rose precipitously above our heads, and disappeared in the mist by which everything around was enshrouded. From the beginning the work was sufficiently hard, but the difficulties were only such as required more or less care and patience to overcome. The rocks were exceedingly steep, and arranged in large smooth slabs, which gave not more hold than was agreeable; but they had one great point in their favour—they were generally sound, and whatever we *could* catch hold of we could trust to without fear of dislodging stones upon the men below. We worked for some time along and up the side of the precipice overhanging the séracs beneath which we had crept in fear and trembling, and the regularity of our way was occasionally interrupted by narrow snow couloirs running across our path down towards them. These gullies gave us some trouble, as on either side the rocks were almost invariably covered with a thin coating of ice, in which it was impossible to cut a secure step. At such points hands, feet, and eyelids were all brought into play; but in spite of every precaution, and thanks to the nail-less state of my boots, I lost my footing on one specially awkward stride, and was fairly on my back; fortunately the others held their ground, and I was soon on my feet again, but, without the rope, which some people profess to think should only be used on a crevassed *névé*, my travels would have terminated then and there in a prolonged roll succeeded by an 'almighty smash.' Severe as the climbing was, it was not dangerous, and in decent weather the whole thing would have been most enjoyable; but that was denied us, the elements appearing determined to do their very best to baffle us, or at least render our progress as uncomfortable as possible. As we rose it became important to see something of what was

above, but it was snowing fast and the fog was thicker than ever, so, as we had no ambition to find ourselves by mistake on the top of the Schallhorn, we halted at 9.35 on a convenient ledge, in the hope that while we were breakfasting there might at least be a partial clearance. Notwithstanding the dreary look-out, we were in tolerable spirits, as there was little doubt that the most serious difficulties to be encountered on the Zinal side of the pass were already below us, while we were under the impression that there was not much to be afraid of on the Zermatt side. As we sat, we looked down upon the Moming Glacier at our feet, or rather upon the mist which concealed it from view, and showed no inclination to disperse. Suddenly it became less dense, and disclosed to our astonished gaze, immediately on our left, an enormous pinnacle of ice, towering like an uplifted finger to an apparent height of several hundred feet above our heads. The appearance of this fantastic monster, as it loomed mysteriously through the haze which concealed its base, and doubtless magnified its true proportions, was quite startling, and we had scarcely recovered from our amazement at the spectacle, when, chancing to turn our eyes towards the glacier below, now plainly visible, we saw one of the immense masses of ice, underneath which we had passed, lurch over, totter for a moment, as if struggling against the resistless pressure which was urging it on, and then fall with a crash straight down upon the slope we had crossed. It was impossible to form any estimate of the dimensions of the falling mass; but we were able to judge of the resistless violence with which the avalanche swept downwards, and of the certain result to ourselves had it occurred a little earlier, by its effect on the portion of the slope traversed by it—every atom of the old débris, compact and jammed together as it was, was cleared away, and a broad band of smooth ice left in its place. At 10.10 we were off again, Almer leading, the mist having lifted sufficiently for us to see our way in front. Croz had led most judiciously, and we were exactly where we ought to be—at the top of the first line of crags, which were connected with a higher range by a curtain of snow. About half-way up this thinned off to a sort of arête, the slopes on either side falling rapidly, but we went along the crest without difficulty, the snow being soft and the footing good; farther on it widened out again, and we should have liked to strike away to the right and cross the slope diagonally, so as to cut off a considerable corner and get on to the plateau below the final ridge, at a point more immediately under the col than would be possible by persevering in our present direction. Actual trial, however,

showed that the soft snow was lying on hard ice, and could not be traversed without imminent risk of disturbing its cohesion and creating an avalanche. The attempt was therefore abandoned, and in due course we took to the rocks again, which were now glazed with ice, and so gave an opportunity for some very pretty scrambling; but they did not last long, and at 10.35 we had left the last one behind, and were standing at the foot of the final slope.

We were on a narrow shelf of *névé*, which lies along the base of the wall of ice or snow stretching from the Schallhorn to the Rothhorn. It sweeps round under the latter peak and the ridge connecting it with Lo Besso, gradually widening in its course, until it expands into an extensive plateau, which sends down a broad ice-fall to join the lower glacier. We were a good deal to the north of both the gaps we had seen from below, but resolved to steer for the one most distant, nearest to the Rothhorn, although it was higher than its neighbour. We came to this determination because the slope below the lower gap seemed to be steeper and more bare of snow than at the other point, so that, notwithstanding the superior elevation of the latter, less time would probably be consumed in reaching it. For the present our way was delightfully easy, and we plodded contentedly along the level corridor of snow, past the head of the wall of séracs which had from below appeared so hopeless, looking out for a favourable point for effecting a passage of the bergschrund, which, as was to be expected, defended the last slope. After passing underneath the lower gap, we turned up to the 'schrund,' which was almost choked with snow, and crossing without difficulty at 11.15, committed ourselves to the slope above. This was inclined at an angle of about 50°, and covered with snow in a most offensive condition. There was a hard upper crust which had to be kicked through in order to find footing, but beneath were about two feet of soft powdery snow, in which, as soon as the foot was through the upper crust, we floundered about hopelessly. We found at last that the best plan was to go down on our hands and knees, with only the tips of our boots in the steps, resting upon the thin crust at the edge, which bore our weight thus distributed firmly enough. So climbing, as if we were going up a ladder, we mounted steadily behind Almer, until at 11.50 our efforts were crowned with success, the last upward step was taken, and the Moming Pass was won. The point at which we crossed is about seventy feet higher than the neighbouring gap, or 12,750 feet, and the view from it in fine weather cannot be otherwise than superb; but its glories were

concealed from us, the fog having surged up again so that we saw absolutely nothing.

It has been said on excellent authority, that when a party arrives at the summit of a new peak, the orthodox and invariable question is, 'How many chickens?' but I doubt whether the same rule applies to a new pass, where, in a general way, the work is only half done when the top is reached. It certainly did not in our case, for Almer had scarcely set foot on the ridge, and we were still below it, when a voice was heard exclaiming 'What is it like on the other side?' This was a question more easily asked than answered, as, at the spot where we had struck the ridge, an immense cornice of snow impended over the Schallenberg Glacier, so that it was impossible to see what lay between us and it. Caution had to be used in moving on the cornice, as to the stability of which there were no means of judging; but after advancing a few yards towards the Rothhorn, a point was found where the width of this overhanging fringe was less considerable, and the guides setting to work quickly cut away a portion of it. The opening thus made disclosed a wall of snow, which, so far as we could judge through the fog, did not exceed a hundred feet in height, and had no bergschrund at its base. Croz led the way through the hole, and we followed. The descent was more formidable in appearance than in reality, and a movement which was a combination of a run, a glissade, and a tumble, soon landed us on the comparatively level surface beneath. We had no very distinct notion of the nature of the ground between us and the lower glacier, and the fog was too thick for us to make out much. We knew that the lower ice-fall was long and broken, but we must still be far above that, and although Almer and I had seen the whole glacier from the slopes of the Dom a few days before, we had no recollection of the character of its upper region. For a short distance the snow stretched gently downwards, and we trotted cheerfully along, bearing rather to the right, until the inclination became greater, and our progress was abruptly stopped by a huge chasm. This was turned with some trouble and proved to be the beginning of difficulties, as we forthwith found ourselves involved in one of the most formidable ice-falls I ever encountered. Most fortunate was it that we had as guides two of the first icemen in the Alps, to whom ignorance of the ground was of little consequence; as with incompetent or second-rate men, I doubt whether we ever should have extricated ourselves from such a labyrinth. It was not a confused jumble of séracs, like the fall of the Glacier du Géant,

but a great wall, broken into ice-cliffs, and intersected by gigantic crevasses of the most complicated description. Croz was here in his element, and led with the greatest skill and sagacity, while Almer had an equally honourable and responsible post in the rear, which he kept with his usual steadiness. It would be difficult to give a detailed description of the exciting and critical situations in which we were placed for more than an hour and a half. Perhaps the most trying to the nerves was encountered near the outset of our troubles. We had to pass along a crest of ice, a mere knife edge, with on our left a broad crevasse, whose bottom was lost in blue haze, and on our right, at an angle of 70° or more, a slope falling to a similar gulf below. A person of suicidal turn of mind might thus have chosen between a 'tremendous header' on one side, and a roll followed by a plunge on the other. Croz, as he went along the edge, chipped small notches in the ice, in which we placed our feet with the toes well turned out, doing all we knew to preserve our balance. While stepping from one of these precarious footholds to another, I staggered for a moment; I had not really lost my footing, but the agonised tone in which Almer, who was behind me, on seeing me waver, exclaimed 'Schlüpfen Sie nicht, Herr!' gave us an even livelier impression than we already had of the insecurity of the position. On the side of the cliffs there was little or no snow, and nearly every step had to be cut; to save time the holes were not made by any means too large, and more than once, when we were cutting down towards small crevasses which had to be leaped, our gallant leader lost his footing, and shot over before he intended, of course taking care not to perform such a manœuvre in places where there was serious risk. One huge chasm, whose upper edge was far above the lower one, could neither be leaped nor turned, and threatened to prove an insuperable barrier; but Croz showed himself equal to the emergency. Held up by the rest of the party, he cut a series of holes for the hands and feet down and along the almost perpendicular wall of ice, forming the upper side of the 'schrund.' Along this slippery staircase we crept with our faces to the wall and a fringe of icicles over our heads, until a point was reached where the width of the chasm was not too great for us to drop across. However, to make a long story short, after a desperate but highly exhilarating struggle, we at length emerged on to the upper plateau of the glacier, close to a short but lofty wall of rocks, crowned by ice-cliffs, the neighbours of those with which we had been contending. We passed close

to their base, regardless of the avalanche débris which was lying about in profusion, and so soon as we were out of danger from stray blocks, at 1.35 halted to refresh and look about us.

It was snowing fast, but the fog had lifted, and we were able to see a long way in front. We had always intended to get to Zermatt, if possible, by crossing some point of the ridge running from the Rothhorn to the Mettelhorn, which separates the Schallenberg Glacier from the basin of the Rothhorn and Trift Glaciers. Close under, and to the west of the Mettelhorn, whose summit was still far below us, were several gaps, led up to by steepish snow slopes, any one of which would give access to the ravine of the Trift, but to get at the base of the slopes, a way would have to be forced through the lower ice-fall of the glacier, the aspect of which was suggestive of some trouble and difficulty, while from the foot of the fall the ascent to either of the gaps would be considerable. We therefore saw with no small satisfaction that, from where we were sitting, the névé ran up in a broad bay, due south, to an extraordinarily well-marked depression in the ridge of the Rothhorn, which appeared to be intended as a natural exit from the upper part of the Schallenberg Glacier. The slopes leading up to this depression were so gentle, and the general appearance of the place was so irresistibly tempting, that with one consent we resolved to turn our steps in that direction, never doubting that some sort of descent would be found on to the Rothhorn Glacier, and so to the level of the Trift. Accordingly at 2.5 we started off, pursued by a bitterly cold wind which swept across the snow fields, and chilled us to the bone. The snow was in good order, and nothing could have been easier than our progress as we skirted the base of the almost vertical crags of the Rothhorn, which in fine weather must be exceedingly grand. At 2.50 we crested the ridge, and were startled with a view, as unexpected as it was striking, of every peak and glacier between the Alphubel and Matterhorn, the sky in the direction of Zermatt being perfectly clear, At our feet were the Rothhorn and Trift Glaciers, but our expectation of effecting a descent towards them was disappointed, as the ridge on that side is cut away in a precipice, down which we were unable to find a passage. Looking towards the Mettelhorn, and about midway between us and it, a broad opening in the ridge was conspicuous, from which the Rothhorn Glacier fell away in easy slopes, and it was evident that if we could only get at that opening, our escape was secured. To pass along the south side of the ridge was impossible, so at 3.30 we turned and, after retracing our steps for a short distance, struck

up to the right and commenced working round the steep slopes of snow, which masked its northern face on the Schallenberg side. As we advanced, the slope in front became so steep that it seemed doubtful whether we should be able to pass. The two men therefore cast off the rope, and got on to the arête to see what sort of going it would offer, leaving Whymper and myself to shiver, a violent squall of wind and snow having selected this inopportune moment to vent its fury. It soon however subsided, and we were favoured with our first and only view of the Weisshorn, which showed its precipitous crags, that rise above the northern or smaller arm of the Schallenberg Glacier, perfectly white with snow. Almer, returning, reported all well, so we mounted to the arête, which, though narrow, was quite easy, and, following it, descended at 4.15 into the wished-for gap, where Croz was waiting our arrival. Here we made two discoveries: first, that if we had so wished, there would have been no difficulty in descending to Randa, through the lower ice-fall of the Schallenberg Glacier; and secondly, that in clear weather, we might possibly have found a less-difficult route from the col to the upper névé, than the one we actually took. At some remote period, the Rothhorn and Trift Glaciers probably formed part of one and the same sea of ice, but the former has now shrunk considerably, and terminates on the brow of steep cliffs at a great height above its far more extensive neighbour. Its descent proved even easier than we had anticipated. There were no crevasses, and, bearing well to the left, we ran and glissaded until, at 4.50, we quitted the ice at its extreme south-eastern angle. After a quarter of an hour's halt for water, we descended a steep and stony ravine, which led us by 5.40 to the pastures near the foot of the Trift Glacier, where we were once more on familiar ground. Keeping to the left side of the gorge of the Triftbach, we of course managed to miss the track, but luckily hit it off again on the brow of the cliffs above the valley of Zermatt. The descent of these cliffs and the grass slopes below them was effected, so far as I was concerned, in a series of tumbles, my boots being by this time worn perfectly smooth; but the level of the valley was soon reached, and at 7.20 we walked into the 'Monte Rosa' at Zermatt, the passage from the Arpitetta Alp having occupied twelve hours' actual walking, of which about one hour had, from various causes, been wasted.

I am not going to make invidious comparisons between the pass which I have attempted to describe, and the Trift Joch or Col Durand; but I can confidently recommend it to the members of the Club and others on its own merits. Few

passes in the Alps lead through such magnificent scenery, while the difficulties on both sides are sufficiently exciting to satisfy any reasonable mortal. Though not the shortest, it is the most direct route between Zinal and Zermatt. A straight line drawn on the map from one place to the other, not only traverses the Moming, Schallenberg, and Rothhorn Glaciers, but cuts the two ridges connecting the Weisshorn, Rothhorn, and Mettelhorn at the precise points, to a hair's breath, at which we effected the passages. I have only to add that with minute local knowledge, there is no reason why the pass should not be taken from Zermatt; but without such indispensable aid, which, until the route becomes better known, will not be easily procured, a party attempting the descent on the Zinal side might be involved in serious difficulty before gaining the level of the Moming Glacier.

SUMMARY OF NEW EXPEDITIONS DURING THE SUMMER
OF 1865 (*continued*).

Alps of Dauphiné.

COL DU JODRI, *July 12.*—Made by Messrs. R. W. Taylor and W. G. Adams, with Joseph Basil Simond of Argentière. 'On the night of July 11 we slept at the Châlet de la Montagne de la Selle, some 3 hrs. above Freney, intending to cross the Col de la Lauze from the west side of the Glacier du Mont de Lans. Owing to bad weather we were unable to start before 10 o'clock. Leaving the châlet on the right, we climbed a hill-side of turf and shale, and then followed the ridge to the foot of the steepest rocks, and skirted the rocks which close in the upland valley till we reached the edge of the glacier at 12 o'clock. We next crossed the glacier, bearing a little to the left, to a depression E. of the Jodri, reached by Messrs. Bonney and Mathews in 1863. (Time to this point 3 hrs. 20 min., so that the Col de la Lauze would be an easy day's walk from the Châlets de la Montagne.) After ascending the Jodri, which in clear weather will command an excellent view of the Dauphiné Alps, we descended on the NW. side to a point a little below the actual col. An easy snow slope led us down to a plateau with several stagnant pools. We then followed an arête which divides the valley in two, crossed to a couloir on the right, and ultimately, after a good many ins and outs, joined a small track which brought us down to the Vallon de la Selle, about an hour above St. Christophe. The descent requires a good guide, and in some places a steady head and a sure foot. This col, with the ascent of the Jodri, may form a good variation upon the Col de l'Alpe for persons going from Freney to St. Christophe. It is more direct, but not so short in point of time. Time, exclusive of halts, 7 hrs. 45 min.'—R. W. T.