

From Romsdal we turned eastward, and drove across to Christiania as hard as we could go, caught the 'Scandinavian,' the most comfortable boat on the line, with a large cabin amidships; and reached Hull in three days in a gale of wind, for which we had been prepared by the appearance of mock suns, or sun-dogs, two smaller lights, one on each side of the afternoon sun. I never saw them before, and at sea I had rather not see them again—and so said all our party.

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THE EBNEFLUH JOCH, SCHMADRI JOCH, AND AGASSIZ JOCH. By the Rev. J. J. HORNBY, M.A.

SINCE the discovery of five great passes over the main chain of the Bernese Oberland, it may seem unreasonable to complain that the mountaineer's choice of routes between Grindelwald and the *Æggischhorn* is inconveniently limited. Yet probably most of those who have crossed the great mountain barrier once or twice will feel, with the writer, that if these five great passes are the only practicable routes, nature has by no means done all that could be desired for the convenience of travellers. Two of these passes, the *Eiger Joch* and *Lauinen Thor*, were found by the excellent mountaineers who first crossed them to be so long and difficult that others have been deterred from following their steps. The *Viescher Joch* is supposed to be still longer and remarkably tedious; and the *Jungfrau Joch*, the noblest of passes, must, I fear, be considered often rather dangerous. Thus the mountaineer who devotes much time to the Bernese Oberland, especially if in the prosecution of his plans he is obliged occasionally to cross from the south to the north side of the mountains, is apt to think, in his ungrateful heart, that he is always wasting his finest days in crossing the *Mönch Joch*, and to entertain rather harsh feelings towards that worthy pass.

This summer Messrs. Kitson, Morshead, Philpott, and I, finding ourselves at *Lauterbrunnen*, with an unusually strong party of guides, consisting of Chr. Almer, Chr. Lauener, and Jakob Anderegg, determined to devote some time to attacking the few apparently practicable passes over the great barrier which had not yet been traversed. It is hardly necessary to say that we did not expect to find another *Mönch Joch*, which might be crossed at almost any time in either direction; but we had some hopes of finding some route from the north less dangerous, if not less difficult, than either the *Jungfrau Joch*, *Eiger Joch*,

or Lauinen Thor; and one pass from the upper part of the Lötsch Thal, by which, combined with the Lötsch Sattel, or the Beich Grat, Lauterbrunnen might be reached from the Faulberg, or the Bell Alp, in a day. Two of these passes, one between the Ebnefluh and Mittaghorn, and the other between the Grosshorn and Breithorn, had for three years attracted our attention, and Philpott and I had made several visits in successive seasons to Lauterbrunnen and Trachsel Lauinen, in hopes of getting over the mountains by one of these routes; but we had always been foiled by weather. Meanwhile the attention of Messrs. Hawker and Whymper had been attracted to the Ebnefluh in 1865, and it would, no doubt, have yielded to their assault but that, fortunately for us, they were unable to leave Lauterbrunnen till a late hour, and consequently had not time to get further than the bergschrund at the foot of the great ice slope. A third pass, probably the best of all, between the Finsteraarhorn and Agassizhorn, was pointed out to me by Mr. George, who had examined it carefully two years ago, and convinced himself of its practicability. An accident to one of his party prevented his attacking it at that time from the Aar Glacier, as he had intended to do, and last year, being unable to go to Switzerland, he commended his proposed Agassiz Joch to us.

Before the weather allowed us to attempt any of these passes, Mr. Kitson was obliged to return to England; but the rest of the party still hung about Grindelwald and Lauterbrunnen, waiting for a favourable opportunity.

At last, on the morning of July 31, we set out from the little hotel at Trachsel Lauinen at 3 A.M., and crossing the stream by a bridge rather higher up on the Schmadribach route, we began at once to breast the steep grass slopes which lead up to the rocks and hanging glaciers of the Ebnefluh and Mittaghorn. From this point to the top of the pass we went as nearly as possible in a straight line for the col between those two mountains, the whole of our route being in full view from the little hotel at Trachsel Lauinen, as well as from that at Mürren. The grass slopes were succeeded in due time by broken rocks presenting no difficulty, and these again by a steep crevassed glacier, fairly covered with snow, up which we trudged at a steady pace without encountering any serious obstacle, till we reached the foot of the bergschrund. Before quitting the rocks, Almer, pointing to the threatening appearance of the sky to the west, put the question whether we should go on or beat a retreat. The Blümlis Alp and Balmhorn had already taken to themselves very ugly caps of grey cloud,

and the wind had a hollow sound, suggestive of the least pleasant parts of Alpine experience.

The thought of returning to Trachsel Lauinen or Lauterbrunnen for another rainy season was too much for us, and we resolved, in spite of the dismal appearance of the weather, to go on as long as we could. Almer now went to the front, crossed the bergschrund, and began cutting steps in the hard ice above. Though I had often looked at the slope from Mürren and from the valley, I had no idea till now of its great length and steepness. Almer worked indefatigably at the steps, but we seemed to get on very slowly. The wind dislodging the loose snow above sent down long streams of fine snow-dust, which poured over our shoulders, covered up our feet in the steps, and though not heavy enough to be dangerous, or to suggest the notion of avalanches, were about as unpleasant as anything I have experienced in the way of Alpine discomforts. We were making for the nearest rocks, which from the way they cropped out of the steep ice slope were evidently very steep indeed. Still it was a relief to see any prospect of more active exercise and shelter from the snow, and there was considerable satisfaction in getting hold of a firm piece of rock again, and looking down at our long staircase, a satisfaction which before long was considerably lessened on a nearer acquaintance with the rocks. Jakob now took a short turn at leading, but after two unsuccessful attempts to find a route, first along the side of a smooth and perpendicular rock, and then up a most repulsive-looking *cheminée*, which apparently led to nothing, Almer went to the front again, and after considerable difficulty found a practicable, but by no means easy route to the top of the first cliff. As he disappeared over the rocky edge he told Morshead, who was next in the line, to wait where he was and hold fast, as there was a quantity of loose and dangerous snow above which must be dislodged before further progress was possible. For the next quarter of an hour a steady stream of snow, sometimes I should think unpleasantly heavy, poured over Morshead's head and shoulders, and then pattered down on to the ice slope far below. However, it failed to disturb his balance or his equanimity, though it was certainly sufficient to try both severely, as the ledge on which he was standing was of the narrowest, and the face of rock above it about the worst which we encountered during the whole climb. At last, after a good deal of difficult work, things began to mend a little, and a bright gleam of sunshine cheered us during the remainder of our hard work. Another ice slope, at first covered with sound snow,

which however soon became too thin to be trusted, afforded ample exercise for Almer and Jakob. Then more rocks succeeded, not quite so bad as those below, and in places fairly broken. We could now see the shoulder of the Ebnefluh on our left sloping down to the true col. We were just to the right of this, and a little, very little, above it on the shoulder of the Mittaghorn. A *jödel* from Almer, as he stepped from the rocks on to a short snow slope, announced that our work was as good as done, and in a few minutes we all stood together at the top of the mighty wall up which we had been climbing as hard as we could for nearly ten hours. From the time of crossing the stream, which we now saw looking like a small white thread in the deep valley below us, we had made but two short halts. The slope from first to last was extremely steep, and the ice and rock-work in the upper part uncommonly difficult. Accordingly we were not sorry to find, on gaining the ridge, that the descent to the Aletsch Glacier was smooth and gradual, and apparently free from difficulty. We were, however, not deceived by it into giving up the safeguard of the rope, and it was not long before we had reason to congratulate ourselves on our prudence. As we were going along merrily over the smooth snow, Jakob, who was leading, suddenly fell into a concealed crevasse, not as ordinary mortals fall into crevasses, with a more or less prolonged struggle, ending usually in only a partial disappearance—but disappearing instantaneously and completely, without leaving so much as his hat on the surface, as a memorial of his recent presence. We speedily hauled him out, amidst much laughter, as his good-humoured face, well sprinkled with snow, came to the surface; and he soon went to the front again, nothing daunted. This was the only incident to enliven a monotonous and unusually heavy walk down the glacier, which was covered with deep snow down to the Faulberg, and with a pretty good sprinkling of it even lower down. Down this lower part, as soon as we got free from the rope, we ran at a good pace, urged on by a strong north wind behind us, and a wild snow storm, and finally reached Mr. Wellig's hotel, wet through, but well contented with our day's work, at seven o'clock.

On the 2nd of August we crossed by the Beich Grat from the Bell Alp to the Guggi Staffel chalets, hoping to reach Lauterbrunnen on the following day by a very marked but hitherto untried col between the Grosshorn and Breithorn. Our patience was severely tried by wet weather, which detained us during the next day in the Lötsch Thal, and which, in spite of the favourable predictions of the priest at Kippel,

based on the rise of a most untrustworthy-looking barometer, grew worse towards night as we trudged back to our chalet, and had by no means abated on the following morning. We lay gloomily in the hay, listening to the rain and meditating on the delight of crossing the Petersgrat in a snow storm, a fate which seemed inevitable, as we were *due* at Lauterbrunnen that evening and could not afford another day for our proposed Schmadri Joch. We started not less gloomily from the chalet a few minutes before 5, when Almer observing that the rain had stopped in the valley (though the hills all round were covered with dense clouds) proposed that we should at least begin our route in the direction of the Jägi Glacier and shape our subsequent course according to circumstances. We accordingly pressed on in better spirits past the upper chalets, through a little wood, and over some open alps, till we reached the right bank of the Jägi Glacier at a place not far from its lower end, where it is nearly level and free from crevasses. We crossed at once to the left bank, mounted some steep grass slopes, keeping near the side of the glacier, and working upwards till we had gained a much higher level, when we took to the ice again and made straight for the col, or at least for that part of the clouds where we thought the col ought to be. We plodded steadily up snow slopes in rather deep but firm snow, crossing or going round an occasional crevasse till we thought we had nearly reached the height of the col. Our guides now differed in opinion as to the position of the col, Almer maintaining that it was to our left, and that we were going up a spur of the Grosshorn instead of making for the true pass, Lauener, who was leading, thinking that we were in the right direction. He, however, willingly gave way to the opinion of Almer, which proved quite correct, for before we had gone many hundred yards to the left, a break in the clouds showed us the col right in front of us. It showed us, moreover, to our great delight, that the thick clouds through which we had made our way, were massed against the south side of the mountains only. As we pressed on to the edge of the cliffs which look down on the Lauterbrunnen valley we walked fairly out of the clouds, saw Trachsel Lauinen and many a well-known spot lying in bright sunlight far below us, and fervently blessed the priest and his barometer. It was just 8.45. The ascent had been entirely free from difficulty, except that of finding our way through the clouds, and our hopes were now high, though we knew from previous surveys of the north side that we must expect some difficulty in getting from the steep hanging glacier which runs down from the col, and ends in an

abrupt ice cliff near the rocks of the Grosshorn, on to the comparatively gentle slopes below. Just as we were commencing the descent and bearing towards the right along a gentle snow slope towards the rocks of the Grosshorn, Jakob with a loud yell rushed down a steep slope to the left, straight for some huge séracs and crevasses under the rocks of the Breithorn. I could not divine the reason of this strange procedure, and could attribute it at first to nothing but to some sudden revelation, understood by Jakob only, of the approach either of a chamois or an avalanche. Soon, however, it became clear that Jakob was engaged in a hot race with some small object which he was labouring to overtake before he or it went into a crevasse. The chase soon ended in Jakob's triumphant success, and he toiled up the snow towards us with a beaming countenance, brandishing a tooth-brush which had fallen from one of the knapsacks. Probably the circumstance that English travellers persist in carrying this useful article in remote districts where they are content to dispense with clean shirts, collars, and razors, had invested it in Jakob's sight with a mysterious value, and stimulated his zeal to save one of the party from a severe loss.

We were soon on the steep sloping face of the great hanging glacier which is such a conspicuous feature from the valley, and Almer began cutting large steps not down it but across it towards the rocks of the Grosshorn. At this time I thought that the descent, if practicable at all, would prove a most difficult and tedious business. To cut steps down such a slope would be a serious undertaking, and the rocks in front of us looked very forbidding. Almer, however, had noticed that near the rocks the snow was thicker and firmer, and as soon as he reached a point where it covered the ice to a sufficient depth, he turned round and began to go down backwards, kicking steps and driving his axe in above him to give a firmer hold. We followed in the same way and descended some hundreds of feet rapidly and without difficulty. Still the slope was too steep and the snow too thin to allow us to descend in the ordinary way, as we had reason to discover shortly afterwards. After a long descent we took for a few minutes to the rocks, which appeared to be quite practicable, and probably, when there is less snow, would furnish the best route. We returned, however, to the snow slope, and presently descended into a very narrow and steep gully between the glacier and the rock. Some way down a sort of landing place in our great staircase presented itself, where the gully ran nearly level for a few feet between the rock and the

glacier. I had just reached this when I heard a noise behind me and received a slight blow on the back, and on looking round saw the limbs of Morshead, Lauener, and Jakob, strangely intermingled in one heap. Jakob's axe was sticking in the ice some way up the slope. It seems that on approaching the trough of the gully, Jakob had turned round to look at it. The snow giving way with him he fell without any warning upon Morshead, who was of course knocked instantaneously out of the steps, and in his turn fell upon Lauener. The three descended like lightning into the gully, Jakob driving his axe manfully into the ice, but being unable to stop himself, as the handle ran through his grasp. No one was hurt except Jakob, who cut his hands slightly; but if such a slip had been made when we were higher up on the slope, it must have been fatal to the whole party. However, it must be said for Jakob, that he never while with us showed any rashness or carelessness in dangerous places; and we all felt that he would not have relaxed his caution here had he not seen that we were so near the bottom of the gully that a fall would not be dangerous. He seemed to have taken it into his head this year that he would establish a reputation for prudence; and he was so steady and careful in difficult places, that we could not grudge him an occasional indulgence of his natural bent in easy places. A slight escapade, such as his glissade on this occasion or his dive into the crevasse on the Aletsch Glacier, seemed almost necessary to afford relief to his pent-up feelings.

Another long descent backwards brought us fairly out of the gully, the glacier which formed its left bank ending abruptly in a perpendicular ice cliff, and the rocks on the right sinking so that we could once more get upon them. After descending by them a little way we took again to the snow slope on our left, which was in fact a prolongation of the gully, and descended, first with some care and finally with a long glissade, to the lower level of the Schmadri Glacier. Here we threw off the rope and looked back with much satisfaction at the steep slopes we had descended. After a most unpromising beginning we had had a glorious day, or rather morning (for it was only 11.30), and had made a very fine pass. We should recommend future travellers, however, as a general rule to take the pass in the opposite direction, since the difficulties are all on the north side, and would be more easily surmounted in ascending than in descending. Still, with a steady party and good guides, there seems to be no danger in taking the pass from the south side. We reached Trachsel Lauinen at 12.30, and Lauterbrunnen a little after 2 o'clock.

The afternoon of August 6th found us at the Kastenstein, intending on the next day to attack the col between the Finsteraarhorn and Agassizhorn. The next morning was dull and cloudy; as we left our bivouac at 3.30 it began to rain. Still the weather did not look thoroughly bad, and occasional glimpses of peaks above us gave us some hope that the day might possibly mend. However, for some time it grew decidedly worse, and we had twice to stop for about a quarter of an hour under such shelter as we could find, as Almer could not see the proper line to be taken for the Finsteraar Joch, and we were likely to lose much time if we got involved amongst the séracs of the northern ice-fall. Fortunately the rain stopped in time to give us good hopes of success. At half-past seven o'clock we reached the summit of the Finsteraar Joch. We had been just three hours from the Kastenstein, and were now about to enter upon new ground and to face the real work of the day. Those who have seen the Finsteraarhorn from the Aar Glacier, or know the photographs of it, will no doubt remember the great couloir which comes down from the lower extremity of its north arête, and separates the rocks of the Finsteraarhorn from those of the Agassizhorn. On this or up the rocks at one side of it our route lay. Both Almer and Melchior Anderegg, whom we had met at Grindelwald, had warned us not to attack this huge couloir too soon after a fresh fall of snow, and accordingly, though the weather had cleared on the Sunday evening, it was not till Wednesday that it was thought safe to make the attempt. We were rewarded for our patience by finding first that an avalanche of fresh snow had come down the couloir on one of the two preceding days, and, secondly that the old snow beneath was in admirable order. The foot of the couloir does not coincide with the summit of the Finsteraar Joch pass, but is a little to the south of it on the Aar Glacier side of the pass. We contrived to skirt the slopes of the Agassizhorn so as to lose no elevation, and then struck into the great couloir some little distance from its base.

The snow was at first very soft, and Jakob, who was leading, sunk several times up to the middle, but this happened only in a sort of drift near the rocks of the Agassizhorn. When we were fairly on the great slope, we found the snow in such perfect order that the steps kicked by the leading guide held the whole party in succession as safely as if they had been cut in hard ice. I do not think that a single step gave way, or that an axe was used for more than a dozen strokes during the

whole ascent. This was, of course, extraordinarily good fortune, and those who may follow us ought not therefore to count on making the pass in the same time, but should allow an hour or two more at the least for this part of the ascent. Jakob after leading for some time gave way to Almer, and he in turn to Lauener. We made rapid progress and soon gained a great height, but the couloir seemed interminable. Thick clouds covered both its summit and base; but occasionally, as the mist lifted, we caught glimpses of the huge slope which served to give us some idea of its vast proportions. As we saw it still stretching away into the dark clouds at a giddy height above us, I could not help thinking of

‘Cry, faint not, climb: the summits slope  
Beyond the farthest flights of hope,  
Wrapt in dense cloud from base to cope,’

and reflecting with considerable satisfaction, as I looked at Jakob's solid frame, on the difficulty which the ‘dull one-sided voice’ would find in getting its ironical suggestions listened to in that quarter,

At last, soon after Almer had taken his second turn at leading, and about two hours since we had begun the ascent of the couloir, we caught a glimpse of its summit. Before long we cut a few steps towards the Agassizhorn, and after a short scramble upon its rocks, walked triumphantly on to the snow at the very top of our col. The first thing that met our eye was the Viescher Glacier, free from cloud and glittering in the sun far below. The rocks on the farther side were still wrapt in cloud, but our route down to the glacier seemed free from difficulty. It was only 9.30, and the thought occurred to us at the first moment that we might as well ascend the Agassizhorn, which seemed to be accessible by easy snow slopes on its south-west shoulder. We gave it up, however, as the wind on the summit seemed to be unpleasantly strong, the weather doubtful, and the snow deep on the glacier below, promising us a heavy trudge before we could hope to reach the *Æggischhorn*. The descent to the glacier proved quite easy by gentle snow slopes, and, with the exception of an unsuccessful attempt to shorten our course to the summit of the *Grünhorn Lücke*, by taking to the rocks to the north of the col, which were easy to climb, but brought us out too high, and amongst some *séracs*, the remainder of our journey lay over a well-known route. We reached the *Æggischhorn* hotel at 4.30, just twelve hours and a half after leaving the *Kastenstein*.

We christened our pass the *Agassiz Joch*. It is likely, I

think, to prove very useful and attractive. The whole route is fine, the ascent of the couloir when the snow is in good order is free from danger, but early in the year, or immediately after a fall of snow, there would be great risk of starting an avalanche. When there is much ice on the couloir the rocks of the Agassizhorn may be taken in many places, but not, I think, through the whole ascent, and some hard work at step-cutting must be expected. Of the other two passes, the Ebnefluh Joch was seen by us under very unfavourable circumstances, but it is probably at all times too severe a climb to be recommended as an ordinary pass. We all thought it very much more difficult than the ascent of the Schreckhorn, which we had made a few days before, and the climb from Trachsel Lauinen to the top of the ridge took us nearly twice as long as the ascent of the Schreckhorn from the Kastenstein. The Schmadri Joch, though not an easy pass, may be confidently recommended to travellers from Lauterbrunnen to the Lötsch Thal; and under favourable circumstances the Bell Alp, or the Faulberg, might be reached in the same day.

It may be of use to mention, before concluding this paper, that at times like last season, when there is much snow in the high Alps, and rock-climbing becomes difficult, the Schreckhorn may be ascended by the great couloir which descends from the lowest point of the ridge connecting the Schreckhorn proper with the Lauteraarhorn. This route was taken last year for the first time by Lord Melgund and Mr. H. Walker, who made the ascent and descent considerably quicker than it had been made before. Profiting by their experience, as conveyed in a note in the visitor's book at Grindelwald, we made the ascent by the same route on the 27th of July. Leaving the Kastenstein at 2 we reached the summit at 7.30, and returned to the Kastenstein at twelve, after spending a long time on the summit, and descending very slowly, owing to my being unwell and unable to go fast. I have no doubt that Morshead and Philpott could easily have reached the Kastenstein by 11, and Grindelwald by 1.30, had speed been any object. After resting for two hours at the Kastenstein, we reached Grindelwald at 4.45. It is hardly necessary to say that the snow on the couloir was in excellent condition. When this is not the case there would be great danger from avalanches. The final arête of rock, which is extremely sharp and somewhat jagged, was very difficult, owing to the fresh snow and ice upon it. It took us an hour and a half to get along it, though the distance is not great. Late in the season, or in dry seasons, the great couloir is no

doubt a mass of ice, but the rocks will then be in good condition, and Mr. Leslie Stephen's route may be taken with advantage. At other times travellers will probably prefer to follow Lord Melgund and Mr. Walker.

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SUGGESTIONS AS TO THE BEST MODE OF CARRYING A  
PACK. By H. B. GEORGE, M.A.

THERE is no question more perplexing to the mountaineer than that of baggage—what must be taken, and how it is to be conveyed. The vast majority of men find their comfort perpetually at war either with their purses or with their regard for their own muscles. A certain amount of *impedimenta* may be assumed to be absolutely necessary on every expedition which is not out and home again, there being no one who will literally and in fact content himself with a toothbrush; but it does not at all follow that one is bound to drag over every pass the entire kit brought out from England. Such a proceeding may suit the exuberant gentlemen who like a 15lbs. knapsack on their shoulders to steady them, and may not seriously incommode people with fathomless pockets, though even these, to whom the expense of additional porters does not signify, will greatly prefer to be saved the nuisance of them. Average mortals, however, who see that the strongest and most willing of guides greatly dislike carrying much weight when there is severe work to be done, who feel that their own bodies are nearly enough for them to lift in climbing, and that wearing a heavy knapsack destroys a great part of the pleasure which is after all their main end and object, and who moreover find it extremely inconvenient to be continually paying for porters, are always seeking how to reduce their baggage to a minimum, and how to carry it most conveniently. Mountaineers of some experience have usually either struck out a plan of their own, according to the exact amount of luggage each man finds necessary to his individual comfort, or have resigned themselves to dragging about the regulation knapsack in despair; but the weaker or less experienced seem to be still at sea. It is with the hope of assisting some few of the latter, and of being minutely criticized by the former, that I desire to call attention to a mode of carrying which I have myself pretty thoroughly tried, as very likely others have done also, and which has recently been recommended for the use of the army, after a laborious investigation by a committee of generals and medical officers, presided over by General Eyre.