

THE HIGH LEVEL ROUTE.

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I AM afraid that there can be very few members of the Club here this evening whose boyhood was (like my own) rejoiced by reading of the earliest adventures of our noble predecessors in the three volumes of 'Peaks, Passes, and Glaciers' which appeared between 1859 and 1862, the years preceding the birth of the ALPINE JOURNAL itself in 1863. But I am sure that I can speak for all my contemporaries when I say that these stories made an ineffaceable impression upon our youthful minds, and were largely responsible for the beginnings of that enthusiasm for all things and matters mountainous which has for these long years been one of the unfailing joys of our lives.

For some reason or other—the nature of the reason, physical or metaphysical, is quite unimportant—I was always more attracted by climbing adventures which included travel, the getting from one point to another, than by climbing pure and simple, the mere going up and coming down again. (Not that I wish for a moment to undervalue the joy of a climb just to get to the top, although even then I prefer to come down another way.) At any rate, I can claim that in my preference I was obviously in agreement with such men as Tuckett and Tucker, and Moore and Walker, not to mention Bonney and Freshfield and Conway, some of them still happily with us. Naturally, with this preference I read and re-read, with special pleasure and interest, F. W. Jacomb's papers (in vol. i. of the second series of 'Peaks, Passes, and Glaciers,' 1862) describing the gradual working out of what he called, and what has since been known as, the 'High Level Route' between Chamonix and Zermatt.

Let me say here at once that none of the passes which constitute this route involve anything sensational whatever as climbs, nor even any difficult rock-work, although most of them demand, even under normal conditions, some considerable experience in way-finding over large and sometimes troublesome glaciers; but also further, that, taken from one end of the route to the other, they conduct the pedestrian

through a never-ending series of mountain and glacier scenes which it would probably be impossible to match in any other continuous excursion of equal length in the Alps.

What may be called the classical—the real original—High Level Route, as known and described in 1862, was as follows: First came a half-day or so to get from Chamonix to the starting-point, which was somewhere near the Lognan Chalets.¹ The first day on the main route crossed the Col d'Argentière to the Swiss Val Ferret and Orsières. Then came what Jacomb calls an 'intermediate link,' namely, the walk from Orsières to Bourg St. Pierre. The second day of serious climbing crossed the Col du Sonadon from Bourg to Chermontane or Chanrion. The third day originally went from Chermontane to Prarayen in the Valpelline by what is now known as the Col d'Oren,² but alternatively from Chermontane by the Glacier d'Otemma to Arolla; the last (fourth) day was from Prarayen by the Col de Valpelline to Zermatt, or alternatively (but this alternative had not actually been used when Jacomb wrote) from Arolla 'past the Dents des Bouquetins' to the Col de Valpelline, and so to Zermatt.

Naturally, as the geography of the country and its possibilities became better known, and this was within a very few years of Jacomb's papers, sundry modifications were made. The Col du Chardonnet, at first with the Fenêtre de Saleinaz, very early superseded the Col d'Argentière. The descent to Prarayen was generally abandoned as a part of the main route, and Arolla came to be the intermediate stopping-place. This led to the discovery, or use, of several different routes from Chermontane to Arolla, and naturally also of variant routes between Arolla and Zermatt.

The High Level Route, therefore, as a whole, covers a matter of four or five days, and I cannot think that anyone who wishes to enjoy the passes and their surroundings fully, and who is not pressed for time or anxious to make records, would take pleasure in combining two days' march into one, although I know this has been done by very distinguished climbers. (After all, if time be an object, the 'Col de Martigny' and the 'Col de Stalden' will take one from Chamonix to Zermatt between breakfast and dinner with entire comfort and through fine scenery!) As to this matter I cannot refrain

¹ Jacomb by a slip speaks of the Col de Balme; Winkworth started from the 'Argentière' Chalets.

² Originally called the 'Col de la Reuse de l'Arolla.'

from quoting Cust,³ who says, in connection with one of his own expeditions, which were certainly not remarkable for their shortness: 'We made for the lowest depression in this ridge, and for a short time had the satisfaction of joining the main line from Zermatt to Chermontane, a distance done by the express trains without stoppage. I have observed that so bewildering is the speed attained on this line that the parties traversing it know as much of the Cols they pass as an average Great Western traveller of the country towns on his route.'

I hope, in what I have to say, to be able to illustrate and give some particulars of all these principal variations; none of them are without interest; and by the kindness of my fellow-members I am able also to illustrate them all on the screen.

Jacomb recognises, with obvious regret, the existence of an 'intermediate link' between the Val Ferret and Bourg. He throws out a feeble hint that this may be combined with the Col d'Argentière into one day, an idea which will not commend itself strongly to the average walker when he finds himself down from the Saleinaz Glacier at Praz le Fort, and thinks of twelve or fourteen miles of high road ahead of him.

The 'intermediate link' is, in fact, a very steep, double-backed wooded range of hills, some six or eight miles across, and requiring ascents of about 3,500 and 1,600 ft., and descents of about 1,000 and 3,000 ft. I have not yet heard of any member of the Club whose enthusiasm for directness of route has led him to spend a day over this laborious crossing rather than go the longer way round by road and (probably) on wheels.

In 1864 Jacomb himself found an alternative to the northern circuit by Orsières in a southern circuit, from Bourg St. Pierre over the Col des Planards (9,197 ft.) to the Ferret Chalets.⁴ The next day he crossed the Col d'Argentière from Ferret to Chamonix, so that he felt justified in saying that his new Col truly became 'the connecting-link of the High Level Route.' It would not, of course, be by any means convenient if the western crossing were made by the Saleinaz Glacier, as it practically always is now.

There is, however, another 'intermediate link' which can be more satisfactorily dealt with. The High Level Route, taken from W. to E., starts, nominally and properly,

³ *A.J.* viii. 135.

⁴ *A.J.* ii. 44.

from Chamonix itself, but neither the Col d'Argentière nor the Col du Chardonnet can practically be taken direct from Chamonix. Although the actual walk to the Lognan Inn (the present starting-point) only occupies the hours of an afternoon, yet it is sufficient to represent all that can be done in a day—except gossiping and writing letters at Couttet's. I venture, therefore, to suggest that a much more interesting, as well as sporting, method of starting the route is to make on the first day a traverse of the easy Col des Grands Montets (10,634 ft.) across the northern ridge of the Verte. The map shows that it is very nearly in the direct line, and there is no doubt that it is an exceedingly pleasant first-day climb (a mere training walk, if you like, but it will leave you quite ready for dinner at Lognan), and it commands extraordinarily fine views. I shall therefore include this Col among the variants to be dealt with.

I feel the more justified in doing this from the remarks which Adams-Reilly made about it⁵ in 1862. He says: 'I have often wondered why this point is so seldom visited. I know of no view like it in the whole valley, for while in the S.W. the Chamonix Aiguilles are seen massed together into a clustering pyramid, above which rises the great white dome of Mt. Blanc: towards the E. the view is more striking still, for from this point only can be seen from top to bottom the magnificent Aiguilles beyond the Glacier d'Argentière. The summit of the Aiguille Verte appears scarcely an hour's climb distant, and the double-headed Dru, though not so graceful in form as it is when seen from the valley, rises close at hand like a ruined tower above the séracs of the Glacier de Nant Blanc.'

The Col des Grands Montets has been so fully described before the Club in a paper by the late Nevile Done,⁶ that I need not say anything further as to the nature of the pass, beyond noting that the large crevasses occurring unexpectedly at the very Col itself seem to be permanent institutions, as I twice found them there many years ago. I presume they are due to some huge serrations in the ridge itself.

COL D'ARGENTIÈRE.

Although Winkworth's crossing of the Col d'Argentière (11,549 ft.) was not at all the earliest high level passage from the Chamonix Valley to the Swiss Val Ferret, it deserves the

⁵ *A.J.* i. 259.

⁶ *A.J.* xxix. 234-5.

place of honour as being, originally, the first link in the classical High Level Route.

No doubt the difficulties and length of the Glacier de Saleinaz, as experienced by Principal Forbes and Justice Wills, discouraged the early explorers from pursuing that line; moreover, the routes traversed the Glacier du Tour and started naturally from the Col de Balme, an uncomfortably long distance from Chamonix itself. The relation of the Glaciers of Tour, Trient, Saleinaz, and Argentière to each other, also, was most imperfectly known, or not known at all—the maps being entirely erroneous. So it came about that Winkworth, starting from a night spent in an uninhabited chalet somewhere near Lognan⁷ (June 22, 1861), passed the foot of the Col du Chardonnet, and makes the note, 'between the Chardonnet and the Argentière is a tributary glacier, steep and crevassed, but I thought not impracticable, and leading—who knows where? Simond thought to the Glacier du Tour, and at the time I agreed with him; but it seems to me now quite possible that a passage may exist by it to the Glacier de Saleinaz. At any rate it is an interesting question, and had we not been engaged in the solution of a still more attractive problem, we should have tried to decide it.'

Winkworth had with him three Simonds. They left the sleeping-place at 1.30 and reached the Col without difficulty in seven hours, finding there the names of Tuckett and Wigram, who had reached the pass the year before, but had been unable to cross it owing to the state of the snow on the other side. Winkworth's party had some trouble on the descent through falling stones, but no other difficulties.

FENÊTRE DE SALEINAZ.

In the early 'fifties the geography of the district was, as I have said, very imperfectly known, and practically not known at all E. of the Glacier d'Argentière. There was also, it should be remembered, a great deal of confusion as to the Aiguille d'Argentière itself, which had been leading a disreputable second life under the name of Pointe des Plines. It is to be noticed in particular, in reading Forbes and Wills' accounts, that the peak they knew as the Aiguille d'Argentière was really the Aiguille du Chardonnet, seen from the Tour or the Saleinaz side.

⁷ *Peaks, Passes, and Glaciers*, II., 1, pp. 231 *et seq.*

The first crossing by a high level route recorded in our literature, from the valley of Chamonix to the Val Ferret, was that of Principal Forbes in 1850.^a He had with him Auguste Balmat and Charlet, and started from the Col de Balme. They ascended the Glacier du Tour and looked down on the Saleinaz Glacier, apparently from somewhere near the Col des Fourches, but did not like the look of things. They therefore traversed round to the névé of the Trient Glacier, and then turning to the right found what we now know best as Wills's Fenêtre de Saleinaz (10,709 ft.), which Charlet told Forbes that he had crossed some twelve years before. By the Fenêtre they descended to the Saleinaz Glacier, and, after trying both the left and the right bank, they finally left the ice pretty nearly, I think, where the Club hut now is. They descended by what must have been the left moraine of the Glacier d'Evole, which must then have been much more extensive than it is now. Passing under the foot of this they reached the road at Praz le Fort, and so to Orsières. The whole expedition proved a long one, but at any rate Forbes succeeded in making the crossing from valley to valley without a night out, in which he had better luck than some of his successors.

One more recorded crossing, at any rate, was made between the valleys of Chamonix and Ferret before what we may call the official working out of the high level route in 'Peaks, Passes, and Glaciers.'

Justice Wills' (we were all so familiar with Wills as a Judge, that it would be affectation to speak of him now as 'Mr.' Wills) historical description of his crossing of the Fenêtre, which forms the first paper in the first series of 'Peaks, Passes, and Glaciers,' may really be said to have taken an important, even if an indirect, part in the bringing into consideration of the various passes which, as a whole, eventually formed the High Level Route. Wills's paper must be so well known that there is no need to summarise it. To some of us here present I expect it helped to start at the very beginning that enthusiasm for mountaineering which is responsible very largely for the membership of this Club. His object was to repeat Forbes' route. He slept, therefore, at the Col de Balme, but owing to bad weather did not get a start made until very late. The party did not find the crossing from the Glacier du Tour to the Trient Plateau easy,

^a *Norway and its Glaciers* (1853), p. 330.

and in this way were a good deal delayed, only reaching the Fenêtre itself about four o'clock. They found great difficulty in getting down the Saleinaz Glacier, were eventually benighted, and had to camp above the Glacier, and Wills's story of that early night in the open, when such events were not such everyday occurrences as they have since become, is one of the delightful passages in Alpine literature. Eventually the party reached Orsières, half-starved, after about six hours' walking from their camp. Wills's guides were Balmat and Cachat, and with him were two friends whom he does not name, but who were, I believe, Mr. R. E. (afterwards Lord) Welby, and Mr. Russell, a barrister.

COL DU CHARDONNET.

As the Col du Chardonnet (10,909 ft.) had not been crossed in 1862, it naturally did not form a part of the scheme described by Jacomb in 'Peaks, Passes, and Glaciers.' The first actual crossing of this pass took place in August 1863, when it was traversed by Adams-Reilly and Brandram with J. Carrier. They slept at the Lognan Chalet and found no difficulty in the ascent at all, the snow being very good, and the séracs not difficult. But Adams-Reilly says: 'Even if I had not been warned by Mr. George's misfortunes, I should not have tried to descend by the lower icefall of the Saleinaz, for I had chosen a route which, though it involved the passage of another Col, would still be an immense saving of time. In pursuance of this plan we held on a straight course as far as the arm of the glacier leading to the Col Fenêtre, and then, turning sharply to the left, crossed the Col, and reached Orsières by the usual route.'

In the sketch maps attached to H. B. George's paper on the Col de la Tour Noire, this route of Adams-Reilly's is dotted, as it is in Moore's sketch. I am unable to say from my own knowledge how long the Saleinaz Glacier continued to present, or was believed to present, so great difficulties as to make the Orny route preferable to the direct one. I did not myself cross it until more than thirty years later, and at that time there was certainly no special trouble, either from crevasses or otherwise, on either side of the pass, and the whole expedition was most pleasant as far as the hut. After that one gets out of sight of the glacier and has no distant view, and

the path down to the Val Ferret is long and hot and rough enough to make one welcome the sight of any kind of wheeled vehicle at Praz le Fort which would render unnecessary the further tramp along the high road to Orsières.

I have not traversed the Orny route, so that I am unable to compare the two, but certainly the upper part of the Saleinaz Glacier is hard to beat.

I am not certain who made the first complete passage of the Col du Chardonnet—*i.e.* with descent by the Glacier de Saleinaz. Even Moore, in his *annus mirabilis* 1864,¹⁰ shirked the long glacier. He had started with Whymper, as will be remembered, for the ascent of the Aiguille d'Argentière, but this was found to be impracticable, although actually successful only a week later. He left Whymper and Adams-Reilly on the col to make a further attempt on the Aiguille, and descended with Almer to the Saleinaz Glacier, from which, he says, 'it is quite possible to force a passage straight down, but it is most unprofitable, and the necessity can be avoided by a rough and tiresome scramble along the rocks on the right bank. But we had no desire to encounter either the difficulties of the one course or the unpleasantness of the other, so determined to make for the Fenêtre de Saleinaz.'

But clearly the condition of the ice in later years has been much more favourable than it was fifty years ago.

COL DE LA TOUR NOIRE.

It was in endeavouring to repeat Winkworth's Col d'Argentière that H. B. George and R. J. S. Macdonald with C. Almer and M. Anderegg, made their wonderful (if highly injudicious) crossing of the Col de la Tour Noire (11,618 ft.) in 1863.¹¹ They drove to Argentière after supper, got three or four hours' sleep, and then started for the Glacier d'Argentière. Of the right bank of the glacier (that is to say, on their left) George says: 'On the opposite side of the glacier rose a series of peaks which we, after some desultory guessing, gave up the attempt to identify, and turned our attention to the more practical problem of discovering the exact locality of our Col.'

¹⁰ Moore's *Alps in 1864*, p. 160 *et seq.*

¹¹ *A.J.* i. 274. The name has been altered improperly to Col du Tour Noir, *cf.* *A.J.* xiv. 516. The culprit is properly Mieulet's map published by authority of the French Minister of War in 1865.

The head of the glacier, where I at least, on the delusive authority of our only map, was inclined to look for it, was closed by a semi-circle of dark rocks . . . and yet, somewhere there, if the map was worth anything, lay the well-known Col. The guides simply shook their heads when I showed them the map. . . . On our left there appeared easy access to either of two cols very near together. . . . Almer . . . pushed on alone to explore. . . . As we came in sight, Almer appeared on the Col telegraphing to the effect that it was all right.' The sky was cloudy, the slope below was steep and only partially visible, and it did not occur to them that they were possibly in a wrong place. The story of the descent of that 2,400 ft. of ice is one of the great stories of the first volume of the *ALPINE JOURNAL*. It took them $6\frac{1}{2}$ hours, cutting steps pretty nearly all the way, and they reached the névé below after five o'clock. They then saw to the left a gap which must no doubt have been the Fenêtre de Saleinaz, over which they could have crossed in time to get off the Orny Glacier at any rate by daylight. As, however, the party thought they were on La Neuvaz Glacier the gap on the left did not appeal to them, and they made up their minds to start away down the glacier, especially as they found certain mysterious footprints leading in that direction. They continued as long as there was light to see anything, still under the impression that they were going down to the upper Val Ferret, made as good a night as they could on some wet rocks, got off the glacier three hours or so after leaving their bivouac, and after another three-quarters of an hour found chalets and a boy and some pieces of potato, and discovered that they were at the foot of the Glacier de Saleinaz.

I believe that this Col has only been crossed once since, and then in the reverse direction. I have not heard that any member of the Club recommends a third attempt.

BOURG ST. PIERRE TO THE VAL DE BAGNES.

COL DU SONADON.

It is not perhaps to be wondered at that the route by the Col du Sonadon was not very easily discovered. The Col itself is perfectly obvious and easily accessible from the E.; but on the W. side the icefall of the Sonadon Glacier, which is quite invisible from the valley, is so steep and broken up as to be unclimbable. To turn it by the S. (the side of the Vélán) is impracticable, and the only method so far found

for dealing with it is to cross over a ridge which projects southwards from the Combin itself, not very far from the head of the Col des Maisons Blanches. This ridge seems always to have looked very unpromising, and in August 1861,¹² when Jacomb and William Mathews made their first attempt on it, they tried to turn it altogether by taking first the Col des Maisons Blanches, hoping to return by a couloir on the E. side of the ridge and between it and the mass of the Combin de Valsorey. When, however, they got to the top of this couloir they found it to be impracticable. There was nothing for it but to return to St. Pierre, and the next day Jacomb (Mathews being unwell), with J. B. and Michel Croz, made an attempt to find a crossing of the ridge which had looked so troublesome. He seems to have found the now well-known couloir as the only possible route without much difficulty, and to have found also that it was uncomfortably frequented by falling stones and falling water, but he mentions no climbing difficulties. An easy descent from the ridge leads down to the névé, and once on this he had no difficulty in reaching the Col, the height of which is 11,447 ft. Jacomb did not complete the passage of the Col, but went as far down the Mont Durand Glacier as was necessary to convince himself that there was no difficulty on that side. The complete passage of the Col was first made in August 1861¹³ (that is, three weeks later), by J. F. Hardy, E. B. Prest, G. Johnson and J. A. Hudson, with Peter Perren and Moritz Andermatten as guides. They slept at Chermontane—although 'slept' is perhaps not the right description of the wonderful adventures which always happened at night to mountain climbers in chalets in those early days! They found no difficulty in ascending the Glacier du Mont Durand and reaching the proper Col du Sonadon. They seem, however, to have had considerable difficulty from large crevasses in the upper part of the Sonadon Glacier, only reaching at length the head of the couloir after much difficult ice work.

The couloir has received, according to my recollection, a worse name than it really deserves. Starting from St. Pierre in the morning early there is not much chance of falling stones, and I remember no difficulties greater than that of one pitch where we sent up knapsacks and axes by the rope so as to clamber unimpeded. We did, however, like Hardy's party,

¹² *Peaks, Passes, and Glaciers*, II., vol. i. p. 241 *et seq.*

¹³ *Ibid.* p. 252 *et seq.*

find some difficulties in the ice in the upper part of the glacier, which no doubt varies from year to year. Once the Col is reached there are no difficulties whatever on the eastern side.

The head of the couloir is very difficult to find when the pass is taken from the E., and no doubt the pass is best made from the W., if only on account of the chance of stones in the couloir. The course of the lower part of the Sonadon Glacier keeps it quite out of sight until a somewhat high level is reached, but the backward view of the Mont Blanc range in the early morning from somewhere near the Chalets d'Amont is a thing which lives in one's memory.

VAL DE BAGNES TO THE VALPELLINE.

In connection with the next section of the route several things have to be remembered which put the explorers of the 'sixties in quite a different position from that in which we now are. In the first place, Arolla (the 'Chalet d'Otemma') practically did not exist, nor was any direct route from Arolla to Zermatt known. Not unnaturally, therefore, the half-way house was looked for in the Valpelline, and the chalets at Prarayen seemed to be the only available spot. Hence the problem as it presented itself originally was to find a route from Chermontane to Prarayen, and then a route from Prarayen to Zermatt. The confusion was still further increased by the obstinate belief on the part of the natives in the existence of a mythical 'Crête à Collon' entirely blocking the upper part of the Otemma Glacier, which otherwise appeared to form so tempting a roadway. Very little was known about the southern or south-eastern side of the Otemma Glacier, which subsequently was so thoroughly investigated by Mr. Cust; but from Prarayen there is a pass which seems to have been well known in 1861, which is now called the Col d'Oren (10,637 ft.), and which opens from the head of a valley leading up from Prarayen just N. of La Sengla on to the upper part of the Glacier d'Otemma. As a link in the High Level Route, this pass was first traversed by Tuckett in 1861, along with C. H. and W. F. Fox and with J. J. Bennen and Peter Perren as guides.¹⁴

The tradition as to the 'Crête à Collon' was so definite that when Tuckett, starting from Prarayen, found himself at the pass he thought the Crête must lie to his left, and that he must be to the E. of it and looking down on the Vuibez Glacier.

¹⁴ *Peaks, Passes, and Glaciers*, II., vol. i. p. 295.

As soon, however, as the party reached the main glacier they discovered their mistake, and saw that in all probability the 'Crête' must be a creature of imagination. It may be remembered that in 1856, when the two brothers Mathews were in the Val de Bagnes on an expedition which I must mention presently, the information that they received from their guide was that the head of the Glacier de Chermontane (that is, the Glacier d'Otemma) was absolutely barred; that he had once followed a chamois to the top of the Pic d'Otemma, and examined the 'Crête à Collon,' and his word might be taken for it that they could not get across. Mathews did not, however, consider Trolliet's opinion as absolutely decisive about the 'Crête,' and adds that if ever he were there again he would try, regarding no place as really impossible until it had been actually tried.

Tuckett and his friends did not find any difficulty on descending the Otemma Glacier, except what was due to the softness of the snow and some awkward séracs at the bottom on the N. side. Bad weather came on, and the party decided (the comfortable little inn at Mauvoisin not being in existence) that they would cross the Col de Fenêtre, and so eventually turned up at Aosta at 11 P.M. in a half-drowned condition.

In 1879 Cust discovered and crossed a pass which he suggested as an alternative route between Prarayen and Chermontane.¹⁵ He called it the Col de Blancien, and describes it as S. of the Bec de Blancien and at the head of a side valley descending to the Valpelline above Bionaz. Its height is 11,454 ft., and by it the Glacier d'Otemma can be reached in less than five hours from Prarayen.

CHERMONTANE (OR THE VAL DE BAGNES) TO AROLLA.

When Jacomb dealt with the High Level Route the actual crossing from Arolla to the Col de Valpelline and Zermatt had not been made, but as it had been already pronounced 'practicable,' he had included in his scheme the crossing of the Col de Chermontane (10,120 ft.) to Arolla, which was first made by the brothers Buxton and J. J. Cowell in August 1861.¹⁶ They had made an attempt on the Grand Combin which had failed (Sir Fowell Buxton says), 'partly owing to

¹⁵ *A.J.* ix. 365.

¹⁶ *Peaks, Passes, and Glaciers*, II., vol. i. p. 277.

the discouraging nature of our guide, old Bernard Trolliet, whose passion for giving up any undertaking when about three parts accomplished amounted to a monomania.' This was the very gentleman who had tried to persuade Tuckett two months before of the existence of the mythical Crête, and had prevented Mathews from attempting the pass in 1856. Buxton's party managed, after some trouble, to dismiss him; but although they had heard of Tuckett's expedition, they knew that he had not been actually quite to the head of the Otemma Glacier, and their own expedition started under considerable uncertainty about the whole matter, an uncertainty which was strengthened when they got far enough up the ice to see ahead of them a rock ridge which certainly appeared to bar their passage. They began to consider which of the gaps in it they should aim at first, and the illusion actually continued until they had nearly reached the pass, when the 'Crête' finally resolved itself into the ridge (presumably the Bertol ridge) on the opposite side of the Arolla Glacier, and one more legend was exploded for ever!

The only maps which the party had with them were naturally very inaccurate, and left them quite in doubt as to the route by which they should descend to the Arolla Glacier. They attempted to get down the Vuibez icefall, but found so much difficulty that they had to re-ascend, and they eventually reached the valley by the now usual route by means of the pass at the head of the Pièce Glacier (10,498 ft.).

I have already mentioned that no route from Arolla direct to Zermatt was as yet known, at least to travellers. The Buxton party, therefore, crossed the Col de Collon the next day down to Prarayen, and in doing so noticed particularly a snowy Col between the Bouquetins and the Mt. Brûlé, which they thought might lead to the Col de Valpelline. On the day after, going by that pass from Prarayen to Zermatt, they saw the other side of this same depression, and they may, therefore, be said to have definitely discovered it, although they did not cross it.

The first actual crossing direct from Zermatt to Arolla was made by Sir George Young, C. H. Pilkington, and E. E. Bowen in August 1862 (a year after Buxton's expedition), the new Col being named by them the Col du Mt. Brûlé (10,925 ft.).¹⁷ The party had with them Payot and Favret of Chamonix and

¹⁷ *A.J.* i. 63.

Nägeli of Meiringen. From the Col de Valpelline they rounded the top of the basin now called the upper Glacier Za de Zan, crossed under the Col des Bouquetins, and finally, after a gentle ascent, crossed the easy ridge which led to the top of the Collon Glacier.

Certain passes from the Val d'Hérémence or the Val d'Hérens to the Val de Bagnes were well known at a date earlier than that of 'Peaks, Passes and Glaciers.' Studer¹⁸ says that long before his time hunters and smugglers had crossed by the Pas de Chèvres, the Col de Seilon, and the Col du Mt. Rouge to Chermontane, and thence to Italy, but thinks that probably his party were the first 'tourists' to do so, this being in the year 1849.

The first mention of this crossing in the Club literature, however, is in a paper by William and C. E. Mathews,¹⁹ in which were described the ascents of the Vêlan and Grand Combin, and in particular the passage of the Col du Mt. Rouge. The Mathews were at Chermontane in 1856, and wished to get to Arolla by the Glacier d'Otemma—'by a pass which Forbes supposed to exist, and which we concluded must be at the spot marked "Crête à Collon" on Studer's map.' The party gave up their intention of exploring the Glacier d'Otemma and instead climbed the Mt. Avril, from which they saw what was no doubt the Col du Sonadon. They descended to Chermontane and discussed with the shepherds how best they might get across the mountains. They were told that they might go over the Col de Crête Sèche to Bionaz in the Valpelline, or that they might go by the Col du Mt. Rouge to Hérémence. In these circumstances they sent down the valley for the redoubtable Bernard Trolliet, 'le premier chasseur de Bagnes.' Eventually this gentleman arrived and undertook to take them in one day to Evolena by the Col du Mt. Rouge, or by the Col de Collon, but which would involve a two days' journey by way of the Valpelline. As for the Glacier d'Otemma, he gave them the opinion which I have already quoted. The Mathews decided to cross by the Col du Mt. Rouge (10,962 ft.). In the Giétroz Glacier as far as the Col de Seilon (10,660 ft.) they found considerable difficulty from crevasses. Crossing the head of the Seilon Glacier, Trolliet pointed out the Pas de Chèvres (9354 ft.) as repre-

¹⁸ *Ueber Eis und Schnee*, second edition, vol. ii. p. 400.

¹⁹ *Peaks, Passes and Glaciers*, vol. i. p. 76.



LE PAS DE CHÈVRES.



S. Spencer.

THE SALEINAZ GLACIER
from below the Col du Chardonnet

senting their route. Mathews says: 'When we arrived beneath it we found a very narrow ledge of rock running up to a little col. Trollet said we could pass without difficulty; but it looked so ugly that we preferred to keep to the right, and crossing the ridge at a higher level we got easily down to the other side.' It is something to find that even our great predecessors occasionally made absurd mistakes of this kind.²⁰

This route, with slight variations according to whether the start is made from Chanrion or Mauvoisin, remains probably the most convenient passage between the two valleys, and is certainly full of beautiful views from whichever direction it be taken. From Mauvoisin, going to Arolla, one naturally climbs the steep bank of the Val de Bagnes as soon as possible, after which there is a delightful stroll along the Glacier de Giétroz to the Col de Seilon.

The most notable variant in this section of the High Level Route is perhaps Moore's, the now named Col de la Serpentine (11,634 ft.),²¹ with Horace Walker in 1865. He made the first ascent of the Pigne d'Arolla *en route*, calls it a 'rank impostor,' but admits that it has 'enormous crevasses' and an unequalled view. For some reason he descended by the W. branch of the Glacier de Breney instead of direct by the main branch, and reaching Chanrion at 1.45 proceeded to cross the Col de Fenêtre the same afternoon to the Valpelline. The Col de Breney at the head of the main branch seems first to have been crossed in 1873 by T. Brooksbank and R. N. Hayward²² (with Kaspar and Jakob Blatter), who point out the relation between the two passes.

THE VALPELLINE TO ZERMATT.

The last pass in Jacomb's scheme of the High Level Route was the Col de Valpelline (11,687 ft.), first crossed in August 1860²³ from Prarayen by Jacomb himself, with a single guide (Kronig), after a reconnaissance from the Château des

²⁰ Mathews says that Kennedy, Ainslie, and Stevenson crossed it in 1855, but I can find no further reference to this in their book than that they had explored the glaciers and passes in the neighbourhood of Monte Rosa and Mont Combin.

²¹ *A.J.* v. 316.

²² *A.J.* vi. 366.

²³ *Peaks, Passes and Glaciers*, II., vol. i. p. 333.

Dames, and an unsuccessful attempt balked by very bad weather. He found some difficulty from deep snow and from large crevasses on the Zermatt side, but otherwise the route was free from any trouble, as in fact I think it always must be. Jacomb made the first ascent of the Tête Blanche on this occasion. Knapsacks were left on the Col, to which therefore a return had to be made—otherwise from the Tête Blanche itself it is better to descend to the N.E. by what is called on some maps the Col de la Tête Blanche, and so reach the Stock Glacier some distance below the Col de Valpelline. By either of these passes one avoids the bergschrund which sometimes gives trouble at the Col d'Hérens.

From the Col de Valpelline the Tête de Valpelline, an even finer viewpoint than the Tête Blanche, can be reached by easy snow slopes, and the digression is well worth while.

From the Col de Valpelline to Zermatt—or to the Schwarzsee—the route is so well known that it needs no description, even if I were capable of finding words to describe the succession of the noblest of the Valais peaks which surround one during the whole of the descent.

The only important variant on the Valpelline as a pass between Zermatt and Prarayen—the Tiefenmatten Joch²⁴ (11,789 ft.)—we owe to Moore, who crossed it for the first time in 1871, with G. E. Foster, Jakob Anderegg and Hans Baumann. That the route had great difficulties may be inferred from Moore's statement :

'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.' He speaks of the crossing as 'the most helter-skelter, breathless ascent I ever made'—'in those forty-five minutes had been excitement enough for three hours.'

All this, however, was soon forgotten, and when the party got within a couple of hours of Prarayen (about noon) it occurred to them that it would be 'a pity to pass the afternoon in idleness,' so they crossed the glacier, climbed 2000 ft. of rocks to the Col du Mont Brûlé, and finally reached Evolena at 8 P.M. (I fear that on some occasions Moore must have travelled by Cust's express train !)

²⁴ *A.J.* v. 321, and *Alps in 1864*, chap. xvii.



A. B. W. K.

THE TIEFENMATTEN JOCH
from above the lower Icefall.



A. B. W. K.

W. FACE OF THE MATTERHORN.
from below the Stockje.

AROLLA TO ZERMATT.

There remains only to mention what is now the most usual final day's walk in the High Level Route—a pass, like the last mentioned, crossed for the first time by Moore.

I have already spoken of the first-discovered route from Arolla to Zermatt by the Col du Mont Brûlé and the Valpelline in 1862. This apparently remained the only known passage until 1865,²⁵ when Moore and Horace Walker, with Jakob Anderegg, crossed from Zermatt by the Col d'Hérens and the S. Col de Bertol (11,200 ft.) to Arolla. There is, of course, no difficulty about this pass, but for continuously glorious views it is probably the finest of all the 'links' in the High Level Route. For the sake of the views, however, it is clearly preferable to cross it from W. to E. than from E. to W. It is probably most repaying in that case to keep well to the S. after reaching the Mont Miné Glacier, so as to reach a point somewhere near the Col des Bouquetins, then to keep round more or less on the watershed to the Tête Blanche, and over it, and finally to reach the Stock Glacier by the Col de la Tête Blanche.

On the other hand, it must be said that although the views to the N. are much finer by this route than on the Za de Zan Glacier, the latter has the great additional interest of allowing one to see something of the structure of the badly mapped mountain chain (so fully worked out by Alfred Topham and Cust) in this corner of Northern Italy, of which otherwise it is not easy to form any idea.

In what I have said about the High Level Route I have confined myself strictly to narrative, chiefly historical narrative, and have not attempted to dilate upon the wonderful beauty, and indeed grandeur, of every one of the passes which form the links in the chain. This is partly—for your sakes—because 'purple patches' do not come readily to the tongue of an engineer, but partly also because the slides which I have been able to show you give you a much better idea of the glories of the route than could any words of mine.

To the great majority of the Club members to whom the High Level Route is familiar, I am sure that the reminder given by the slides must have been an unmixed pleasure—to the minority, if it exists, to whom these passes are not familiar, I hope the views may have formed the foundation of a solemn

²⁵ *A.J.* ii. 133, and v. 314.

resolution that the unfamiliarity shall disappear as soon as the end of the war allows us once more to see our beloved mountains. Such a resolution will never be regretted.

HEIGHTS OF PASSES CONNECTED WITH THE HIGH LEVEL ROUTE.

	Feet.
Col des Grands Montets	10,634
Col d'Argentière	11,549
Fenêtre de Saleinaz	10,709
Col du Chardonnet	10,909
Col de la Tour Noire	11,618
Col des Maisons Blanches	11,240
Col du Sonadon	11,447
Col d'Oren	10,637
Col de Chermontane	10,120
Col de Pièce	10,498
Col du Mt. Brûlé	10,925
Col du Mt. Rouge	10,962
Col de Seilon	10,660
Pas de Chèvres	9,354
Col de la Serpentine	11,634
Col de Breney	11,975
Col de Valpelline	11,687
Col de la Tête Blanche	11,811
Col d'Hérens	11,418
Tiefenmatten Joch	11,789
Col de Bertol	11,200

NOTES ON THE OXFORD UNIVERSITY EXPEDITION TO SPITSBERGEN.

BY N. E. ODELL.

THE expedition which went out this summer comprised two parties. The first party, under the leadership of the Rev. F. R. C. Jourdain, left England in May, and after visiting Bear Island proceeded up the W. coast of Spitsbergen, making studies of the fauna, flora, and geology. The second party left England on July 2, and after numerous shipping delays reached Spitsbergen on July 21. This party had its base at Klaas Billen Bay, at the head of Ice Fiord, in huts, the property of the Scottish Spitsbergen Syndicate, to which the expedition is deeply indebted for its kindly assistance and co-operation.