

large fissure out of which we saw the eruption descend. The water of these rivers was boiling as it fell into the sea—in fact, it was reproducing on a small scale the phenomena of boiling mud which are described above in the cases of the Wallibu and Rabaka Rivers in St. Vincent, though how far up the mountain these Wallibu effects extend, and where they give place to true volcanic discharges, it is difficult to describe as yet; we must await further observations by M. Lacroix and his colleagues.

THE WEISSHORN PASS.

By GODFREY W. H. ELLIS.

SOME few years ago, whilst reading, in A. W. Moore's well-known classic 'The Alps in 1864,' his interesting account of the first crossing of the Biesjoch, I was struck by his suggestion of the possibility of traversing the N. ridge of the Weisshorn, and so making a new pass to Zinal.

On referring to Conway and Coolidge's guide to the Central Pennine Alps I was surprised to find that there was no recorded ascent of the Weisshorn Pass, though it was reported therein to have been crossed many years ago by hunters.

In the year 1899 my guides, Alois Biner and Peter Perren, met me at Zinal, and we commenced the season by crossing the Moming Pass to Zermatt, having a hazy idea of returning the next morning by the Trift Pass. However the next day was wet, and whilst idling in Zermatt my mind reverted to the Weisshorn and to Moore's suggestion of the possibility of a route across the N. ridge of that mountain to Zinal. The possibility appeared to me to be such an attractive one that I went off to hunt up my guides to find out what they knew on the subject.

Biner knew nothing of it; he had not even been over the Biesjoch and rather scoffed at the idea. Peter, however, had often been on the Freiwänge rocks, above Randa, when hunting chamois in the winter, and thought that there would be no difficulty in the expedition.

The next day we took the 11 o'clock train to Randa, ordered our provisions at the Weisshorn Hotel, and looked about the village for a porter to carry blankets and impedimenta to an unknown *gite* below the Freiwänge rocks. No porter was to be found, but luckily we came on Alois Truffer, who, being out of an engagement, was easily persuaded to join us and return the following morning with the blankets.

It was late in the afternoon before we had completed our arrangements, but we decided to start off without further delay.

We crossed the Visp and toiled over loose stones in the full glare of the sun in search of a bridge which would conduct us across the stream from the Bies glacier. We much regretted we had not made an earlier start, as the bridge, or alleged bridge, was nowhere to be found, and we were wasting precious hours. Our patience at last became exhausted, and we decided to give up this fruitless endeavour, so we followed the left bank of the stream in hope of finding a satisfactory place where we might ford it. A great quantity of water was coming down and we did not want to get wet through at the start. Presently a small boy who was tending sheep on the alp appeared on the opposite side of the stream, and volunteered to show Peter a place where it might be crossed. Leading some little way higher up he pointed out a stone in the middle of the stream, and suggested to Peter that he should jump on to it. There was a foaming torrent above this stone and a deep pool below it, and it appeared to me to be the most uninviting stone in the whole stream to jump on to; but, as I was not going to jump first, I thought much and said nothing. Peter, who is a firm believer in adopting the regular routes, jumped; the stone turned over, and he was up to his waist in the water and anathematising the small boy almost before the latter had time to remember that he was in charge of invisible sheep somewhere up the alp. After the rapid disappearance of the boy, Biner, Truffer, and I went still higher up, and at last managed to cross the stream without getting ourselves wet above our knees. After about a quarter of an hour amongst the stones we managed to hit off the sheep track, which winds first to the right and then circles round steeply to the left, and finally lands one under the cliffs on the left side of, but much below, the glacier. Here we got on to better ground, but, owing to the great heat, we made slow progress to the foot of the alp on the right bank of the glacier.

A long détour to the right at last led us on to the top of the steep cliffs which overlook the lowest part of the glacier, and here we made our first long halt. Another hour or two was spent in traversing grass slopes and collecting wood for a fire, so it was nearly 7 o'clock before we found a suitable sleeping-place under a rock high up on the slopes of the Kastel, with water within easy reach. Peter is an excellent cook and a great hand at making soup, so here we supped in

much comfort and discussed our plans for the morrow. By the time our plans were settled the sun had sunk behind the hills and the chill of twilight crept up the valley, so reluctantly we betook ourselves to our blankets. We all passed a good night, and when Truffer called me the following morning I could hardly believe it was time to get up, but on looking at my watch I found it was 2.30, so I extricated myself from my wraps, hastily breakfasted, and made ready to start, leaving Truffer to pack up and descend to Randa at his leisure.

Peter led us at a great pace over easy ground till we reached a patch of smooth rocks, which we scrambled up, and then found ourselves on the right of and close to a portion of the Bies glacier. Thinking that the ice would be the quicker route we put on the rope and started out on the glacier. We had hardly got fairly off before we were in difficulties. A steepish ice slope stretched before us, and required careful step-cutting, and the first snow bridge we encountered was of that disagreeably rotten character which augurs ill for fast progress. The glacier is much broken up at this point, and we were not long in seeing that we must retrace our steps and make as straight as possible for the *Freiwänge* rocks. We found little difficulty in doing this, though at first the rocks were rather steep and smooth. Further along we had a scramble up a shale couloir, which, fortunately for us, was bound together with patches of snow, and by this route we at last arrived at the foot of the final rock wall, which obviously led to the top of the *Freiwänge* rocks. This wall is seamed by several chimneys, so, as time was pressing, we took the nearest one to the glacier, which is not only the most direct but apparently the steepest.

Peter led up, and as soon as the rope was paid out I carefully followed, being coached by him over some loose stones which I found rather disconcerting. There was a steep pitch about half-way up the chimney which gave us some good climbing and required care, for any stones dislodged would be unpleasant for the man below. However Biner climbed up to me at the worst point, and Peter was soon able to get a hitch round a rock on the left wall, and from here we had an easy scramble to the top of the rocks. Quickly throwing off their sacks the men prepared a second breakfast whilst I sat down to enjoy the magnificent view. Away to the left the fine E. ridge of the Weisshorn glistened in the sun, whilst the upper portion of the Bies glacier, covered with new snow, separated us from the great amphitheatre of rocks which form the N. ridge of the mountain, and through which

we hoped to effect a pass. This rock ridge runs right round to the Bieshorn, and encloses the glacier in the great horse-shoe which terminates in the Bieshorn. From this point the rocks look appallingly steep and our pass most forbidding.

As soon as breakfast was over we crossed over the snow to the tongue of rock which falls from the Bieshorn, scrambled up and over it to avoid a long *détour*, and were soon on the snow slopes on the other side. As I wished to have a good view of this stupendous half-circle we descended from here to the level glacier, and no doubt lost considerable time by doing so.

Neither of us had been on this glacier before ; it was much crevassed, and a good deal of new snow had fallen a few days before, so we had to proceed carefully and slowly across it, getting a good panoramic view of the wall around us. We were pleased to find that the couloir which we had seen from the sleeping-place appeared the best route to the summit. This grand view so delighted me that I should have liked to have spent hours instead of minutes on the glacier ; but my guides desired to advance, and by the time we arrived on the snow slopes leading to the foot of the couloir it was 8 o'clock. There was a hard crust on the snow, requiring the use of the axe, and, finding we were losing valuable time, we reluctantly took to an avalanche track of about 4 ft. in depth, in which the going was easier. Biner was now leading, Peter coming next, whilst I brought up the rear. A distance of about 20 ft. only separated us, and each man held a coil of the slack rope. Biner had just arrived at the bergschrund, and during the temporary halt I had turned round to look at the view. Suddenly a slight hissing noise caused me to start ; at the same moment I saw Peter carried off his feet by a snow avalanche which had noiselessly slid down from the heights above, and a second later it was upon me and I was carried along till the rope tightened, and with a tremendous jerk I was pulled up on the edge of the wave. Hastily springing up I saw Peter extricating himself from the loose snow in the avalanche track. Biner, however, was not to be seen. The rope which held Peter led a little to the right of the grooved avalanche track, and here we found Biner in the bergschrund, standing on a small shelf of old snow some 10 ft. down, and complaining bitterly of an attenuated waist. We pulled him up with some difficulty, as the rope had cut deeply into the snow and it was not easy to free it. He had been standing on the lower lip of the schrund when the avalanche fell, and, seeing it coming, had rushed to one side

and quietly dropped on to the old snow in the schrund. Luckily for us his presence of mind had saved us a nasty shaking, if nothing worse. The snow had streamed right down to the level glacier, spreading out like a great fan.

We quickly descended the slope till we were out of reach of avalanches, and then sat down for a drink and discussed the situation. Both men were desirous of attempting the couloir again, saying that as one avalanche had fallen it was not likely to recur whilst we were in it, and they suggested that once over the schrund we should probably soon be able to take to the rocks on the right.

The fall of another avalanche in the same spot whilst we were debating this point put an end to the controversy, and convinced us all that we were too late in the day for another try, so we reluctantly turned away and prospected for a safer route.

Away to the right, and nearer the Bieshorn, we had noticed another depression in the ridge, which was not so steep as this col, but, as it was broader and not so well defined, we had decided against it. We now agreed to try it, and were delighted to find that a large snow bridge led us straight to easy rocks, and that our way seemed clear, although a considerable number of fallen stones on the snow warned us that we must be on our guard. The sun was now beating fiercely on the mountain-side, and occasional stones fell as we scrambled up the slabs. For the first half-hour all went well; we had risen considerably, and were about half-way across the couloir (we were making for the right side), when stones began to come frequently, and after one had crossed the rope between Peter and myself we decided to take to the only available shelter, under a small rock which stood out by itself, and then to await the course of events.

The rock was hardly large enough to shelter us all; crowd together as we would one of Peter's long legs was always exposed. But in spite of our scanty shelter our position was deemed good enough for another meal and a debate on what was best to be done. Stones, small and large, were constantly falling, and when they did not hit the rocks around us whizzed over our heads. I remember to this day the sulphurous smell as the great stones crashed on to the rocks about us. If the shelter had been a little better I should certainly have advocated staying there till the evening frost had bound the *débris* together again; but with Peter in only partial safety this did not seem exactly sportsmanlike. The men too favoured a retreat. 'Let us wait,' said they, 'till

after the next great fall, and then run as fast as we can.' 'My darling will pray for me,' added Biner in parenthesis. As to whether Mrs. Biner's prayers would include Peter and myself he did not say, but, as the moment did not appear opportune for discussing the efficacy of prayer, I did not argue either of these debatable points.

Emptying the sacs of everything but the spare rope, and waiting for a moment of comparative quiet, we prepared to start. 'Now,' said Peter, and with a great leap he started on the descent. How we raced over those rocks, how I was pulled off my feet, stumbled up again, jerked over boulders, and hustled along cracks in the platten, which in our calmer moments we should only have noted to avoid, I hardly remember. Suffice it to say that at last we were over and 'out,' all of us covered with dirt, damaged in various ways, and with no breath left in us. We flung ourselves on the snow, and whilst regaining our breath we congratulated ourselves that we were out of one of the tightest places Fate had ever brought us into. A few small stones only had fallen whilst we descended, and had not come very near us.

Having regained our breath—for the men were almost as exhausted as I was—we wended our steps a little lower on the glacier to be quite out of harm's way, and then had another long rest.

Slowly retracing our steps in the now soft snow, we made for the Biesjoch, crossed the schrund at about 1 o'clock, and tramped down the long Turtmann glacier. The going was very slow; we were all tired and discouraged, and when we arrived at the foot of the glacier uncertain as to our route to the Col de Tracuit, by which we intended to reach Zinal. However by the use of the map and the 'Central Pennine Guide' we made out the way. The guide-book advises the climber to take to the rocks half an hour above the foot of the glacier, but they looked rotten, and the guides, though they had never been on the glacier before, assured me that there could be no difficulty in negotiating it.

So it proved; and with hardly a hitch we went straight up the glacier, and, if my memory serves me, took only an hour to the Col de Tracuit, and then sauntered slowly down to Zinal by 7 o'clock.

Our intended route was not attempted again till the summer of 1901, when an unfortunate Herr, led by old Pollinger, essayed it. As they did not sleep out, but started from Randa at midnight, it is not to be wondered at that, as they chose a foggy morning, they spent the first few hours

amongst the stones below the Bies glacier, and arrived ultimately at the top of the Freiwänge rocks much too late to make the ascent. They appear to have crossed the Biesjoch and to have returned to the Vispthal by one of those subsidiary cols known only to old Pollinger, and for which, as long ago as 1887, he had—as mentioned in 'Pioneers of the Alps'—earned notoriety.

During last July, whilst at Zermatt, I decided to try the climb again. I had been lucky enough to secure the services of Ulrich Almer as well as Biner, and knowing of old that Ulrich was 'a good man to go tiger-shooting with,' and there being very little old snow on the mountains, concluded that our chances were good. Biner too was very anxious to make another attempt.

Profiting by our previous experience, we decided to camp above the Freiwänge rocks, and by so doing get to the pass in good time. This course, however, necessitated our taking two porters, as the return from this place by one man heavily laden and alone would have been undesirable.

Starting from the Monte Rosa Hotel about 7 A.M. on July 29, the guides and I drove down to Randa, and found our two porters, who had come by train, already waiting for us at the Weisshorn Hotel. They were two young men who had lately been undergoing examination to qualify for their guide's certificate at the triennial examination, which last year was held at Zermatt, and, in consequence, were the butt of much witticism from the guides.

Crossing the stream much lower down this time, we all got safely over except Ulrich, who got rather wet, and the porters avenged themselves by invidious comments on the relative advantages of knickerbockers *versus* trousers.

Slowly we toiled up those interminable slopes, taking a long rest about two hours from Randa at about the point which Moore mentions as having afforded him such a magnificent view of the Mischabel.

And truly the view from here is splendid! The long Teufelsgrat ridge of the Tüschhorn is probably better seen from here than from any other point; in fact, the whole chain is well worthy the attention of some of our photographic members, especially as this—the Bies glacier—region seems but seldom traversed, and still more seldom photographed.

In due course we all arrived at the top of the Freiwänge rocks by our old route, though Ulrich stoutly maintained that our chimney was not the best one. The porters, who

were on a separate rope, went finely, climbing the chimney as if large bundles of blankets were their usual garb. It was nearly 7 o'clock when we clustered round a fire on the top of the *Freiwänge* rocks, and ate, drank, and smoked to our hearts' content. During supper the porters came in for a good deal of chaff from the guides. After one peal of laughter louder than usual I inquired the cause of the merriment. 'This,' said Biner, slapping one of the porters on the back, 'this is the man who, when he was asked in the guides' school what a *bergschrund* was, said it was "the place where the *Herren* go to drink beer in the evening"! Oh, yes, he will be a great guide some day!'

In due course we spread our blankets on the rocks, or rather small stones; I got into my feather sleeping-bag, and we tried to make the best of a cold night on a very exposed spot. There is no real shelter here, as the rocks are flat and slabby. A little wind got up too, which, by the way, carried off Biner's hat during the night. But the longest night comes to an end, and at 3 o'clock the next morning we were breakfasting and thawing our boots in orthodox style. Biner, who took a fatherly interest in the porters, vetoed their wish to return by our route, as he did not like their descending the chimney encumbered with heavy packs, so he explained to them the *Biesjoch* route to *Turtmann*, and saw them safely over the *schrund* and well on their way, and returned to us at the sleeping place.

After tying on our frozen rope Biner led us over the snow to the *Bieshorn* rocks, traversed them, and, instead of descending to the level glacier, as we had done before, kept higher up on the snow slopes, and at 6 o'clock arrived at the *schrund* below our old col. It was almost covered, and with little trouble we crossed it slightly to the right of the avalanche track, and were at last really in the *couloir*. The snow was good and hard, though steep, and, swinging his axe vigorously, Biner led us straight up till we reached a large stone where the *couloir* narrows. Then, turning somewhat to the left, he carefully cut a large step or two in the ice on the side of the avalanche track, cut rapidly across it, and sat down on the other side to field me whilst I crossed. We all passed across as quickly as we dared, and in a few minutes were well on the left slope and out of shot if anything had fallen. From here we made for a ridge of rock which rises out of the snow, and there halted for the second breakfast. At this point we could see that a steep snow and ice slope led almost to the summit, and we quickly found

ourselves at work again kicking steps in half-frozen snow, and, when possible, we traversed back to the ledge of rocks on the left, by this means saving time. The rocks were not very sound, but, like most loose rocks, they were easy, so we progressed rapidly. Occasionally the snow thinned out, and forced us to cut steps into the ice, but finally we were on the last snow slope, and at 10 o'clock clambering up the last rock. As we surmounted the ridge a bitterly cold wind was blowing up the ice-slope from Zinal, and, after a hasty look round, we got under the lee side and considered our next move.

The change from the bitter cold to hot sunshine had made us all drowsy, so we threw our rope around a crag above us, and I at any rate indulged in slumber.

When I awoke from my nap I found the guides were agreed that we should all be frostbitten if we attempted to cut downward steps in the teeth of such a wind, so they suggested that we should wait an hour or two, as they expected it to sink towards midday.

About 11.30 the wind had moderated, so we shouldered the sacs and got on to the Zinal side of the ridge again. Straight below us a long ice-slope led down to the level glacier. Two or three rock islands were visible, and the men suggested that by cutting down to these and using the spare rope in descending from them we might by hard work reach the level glacier in 2 or 3 hrs. But I was still afraid of the wind on the ice-slope, and as I was not very fit that day I shunned a descent over steep ice if it was to be avoided. I therefore persuaded Ulrich, who was now leading, to traverse for a short distance down the ridge to where the slope was easier, and where we hoped to find snow.

The scramble along this rock ridge is quite easy, and in a very short time we took to the ice, and, finding but little snow, carefully started on the descent.

In a more snowy year this slope, which has often been ascended by parties bound for the north ridge of the Weisshorn, would probably give no difficulty in the descent, but we found it nearly all ice, and, although it is not steep, hour after hour passed in step-cutting, Ulrich first leading straight down, and then, by a long downward traverse in the direction of the Bieshorn, bringing us to a level where again we hoped to find snow. But in this we were disappointed; until we got quite close to the schrund we found no long stretch of snow, and it was nearly 5 o'clock before we were on the level glacier.

Thence we went quickly down to the Col de Tracuit, walked down the alp to the zigzags, and so to Zinal in time for dinner.

I trust that nothing that I have written above of our first attempt will give any one the impression that this is either a dangerous or a difficult pass. Given settled weather and the snow in good condition it is a very enjoyable expedition.

If I were crossing the pass again I should descend directly opposite the couloir, without making any divergence, and thus to some extent the route would be shortened.

A FIRST EXPLORATION OF NUN KUN.

By ARTHUR NEVE, F.R.C.S.E.

(Read before the Alpine Club, February 3, 1903.)

FROM many of the Kashmir Himalayas, looking northwards, two mountain giants lifting their heads and shoulders well above all surrounding ranges are conspicuous—a well-known peak to the N.W., Nanga Parbat, and to the far N.E. the little known twin peaks of Nun Kun. These are the culminating points of the great middle range of the Himalayas. East of Nun Kun spread the lofty ranges of Zanskar; but few of the peaks exceed 21,000 ft., and W. of this the range tends to be lower, with a few peaks of 18,000 ft. or 19,000 ft. along the watershed between Baltistan and Kashmir for the odd 120 miles to Nanga Parbat, where the great bend to the S. takes place. On the map Nun Kun is easily found, being exactly at the junction of 34 N. with 76 E.

There is scarcely any mention of these great twin peaks in books of travel, for they lie far off beaten tracks. Even those sportsmen who are most familiar with the Wardwan or with Zanskar have but a hazy idea of Nun Kun, beyond a vivid remembrance of its vast outlying precipices seen from the mountains opposite. Two good climbers, Major Bruce and Major Lucas, once paid it a too brief visit, and were checked at no great height by the séracs, and Mrs. Bullock Workman skirted the mountain and photographed it from the Rangdum valley and Pukartse La, but was not tempted to a closer acquaintance. From the N., the W., or the E. stupendous precipices are visible, which give the mountain a truly forbidding appearance. But from the Khardong La, 150 miles N.E., through a telescope, many years ago, I obtained a view