

view was the detail it presented of the approaches to that great unsolved problem, the ascent of Elie de Beaumont from the W. After careful study I came to the conclusion that it is an even more formidable undertaking than I had imagined.

Here, since our subsequent doings were of interest only to ourselves, I will leave the party seated on the top of Green, or, to be quite accurate, on the nearest comfortable rock adjacent to the summit, one of them at least lost for a time in pleasant dreams of a happy and not too far distant future when a few more gems may be inserted in the still vacant niches of his New Zealand crown.

THE FIRST ASCENTS OF THE HOHBERGHORN AND  
STECKNADELHORN FROM THE RIED GLACIER.

By O. K. WILLIAMSON.

(Read before the Alpine Club, May 6, 1919.)

THERE is a French proverb which runs: 'On revient toujours à ses premiers amours,' perhaps an explanation of another paper on the Saasgrat. The plain unvarnished truth is that I love the Saasgrat peaks whether in fair weather or in foul: when having shed their snowy winter mantle they rise in majestic grace with sharp yet shapely granite ridges, flanked by couloirs of snow and ice gleaming in the summer sun and converging to the clear-cut summit cone; or when a gale chases the clouds in fast fury across their rugged pinnacles and soft rolling snowfields, obscuring here, revealing there, and providing marvellous glimpses of undreamt-of grandeur and of ever-changing beauty.

The present paper is, I think, justified by the fact that the *JOURNAL* has never contained one on the Stecknadelhorn, and only one, that by August Lorria, in Vol. 13, 521-9, on an ascent of the Hohberghorn.<sup>1</sup> The story of the two climbs forming the basis of this paper, old friends with new faces, has not yet appeared except in the form of bare notes. Owing to their shortness these expeditions cannot rank as great climbs, indeed the glaciers at the points at which these peaks arise

<sup>1</sup> True in 1919, but see, however, Mr. Meade's note, *A.J.* 41, 212-3, as well as M. Blanchet's note, *A.J.* 40, 395.—*Editor.*



Photo, S. F. Staffurth.

Great Gendarme on E. Arête of LENZSPITZE.

from them are about 12,000 ft. above sea-level. Both the Hohberghorn and Stecknadelhorn suffer as regards height from their proximity to their splendid neighbours, especially the Dom and Täschhorn; but it must be remembered that each of them is actually higher than the Zinal-Rothhorn and the Dent d'Hérens, and that they overtop all the summits of the Bernese Alps except the Finsteraarhorn; for the Stecknadelhorn reaches a height of *ca.* 13,870 ft. (4235 m.) and the Hohberghorn one of 13,861 ft. (4226 m.).

It is, or should be, unnecessary to remind the habitué of Zermatt that the Stecknadelhorn and Hohberghorn are the culminating peaks of the *Nadelgrat*, the lofty ridge which extends N.W. from the Nadelhorn, and separates the Hohberg from the Ried Glacier.

Both peaks may be considered, broadly speaking, as having three faces, separated from one another by corresponding ridges. In the case of the Stecknadelhorn the well-defined N.W. and S.E. ridges form part of the crest of the *Nadelgrat*, and bound the rocky S.W. face, rising from the névé of the Hohberg Glacier, whilst the N.E. ridge separates the snowy N. and E. faces, which fall in slopes of uncompromising steepness to the great snowy basin whence issues the Ried Glacier. As regards the Hohberghorn the S.E. and N. ridges form a part of the *Nadelgrat* and bound on each side the snowy N.E. face, which is continuous with the N. face of the Stecknadelhorn, whilst the S.W. arête divides the S. from the W. face. It will be seen further that both peaks are on their N.E. and N. aspects snowy, whilst the flanks facing towards the S.W. and S. are in the main of rock.

I must ask the indulgence of my fellow-members for a brief historical résumé of the climbs on the two peaks.

The first ascent of the Hohberghorn, being also the first time any peak of the *Nadelgrat* was climbed, was in August 1869, by Mr. R. B. Heathcote, accompanied by the guides F. R. Biner, Peter Perren, and Peter Taugwalder, jun., by way of the S.E. arête. By this route one reaches the foot of the broad couloir which descends from the depression between the Stecknadelhorn and Hohberghorn, and by this or by the slope on its true right that depression is reached, and the S.E. ridge of the mountain followed to the top. A variation of this route was made on October 9, 1890, by Professor W. Gröbli with Alois Pollinger, who ascended from the glacier crossing the bergschrund to the W. of the couloir, in a fairly straight line to the summit. On August 30, 1881, Dr. Emil

Burckhardt and Professor Karl Schulz<sup>2</sup> with Alexander Burgener and Peter Schlegel first descended the upper part of the S.W. ridge of the mountain, leaving this to complete the descent by the W. flank over rotten rocks and a couloir to the Hohberg Glacier; whilst on July 30, 1886, Herren August Lorria and O. Eckenstein, without guides, ascended this ridge throughout its whole length. They found it very difficult, and occupied 5½ hrs. on it. On the way down, owing to Eckenstein's lack of faith in Lorria's assurance that the lower icefall of the Hohberg glacier was impassable, the latter, in a temper, went with him straight down towards it. Finding then that Lorria's statement was correct, they had to re-ascend, and Lorria 'got some of his own back' by making Eckenstein lead up in the soft snow. As a result of this incident the two were forced to pass the night on an evil ledge, close to the Festijoch, in very severe cold. Finally, on August 8, 1901, Herr Walther Flender with Heinrich and Salomon Burgener descended the mountain by its N. arête.

The Stecknadelhorn, now named on the Siegfried map, arises at the point where the *Nadelgrat* changes its direction from N.W. to a more W. direction. The first ascent was made on August 8, 1887, by Herr O. Eckenstein, accompanied by Mathias Zurbrücken, by the N.W. arête, reached by way of the couloir between the Hohberghorn and Stecknadelhorn. The S.E. arête was first descended on the same day by the same party *en route* for the Nadelhorn.

I think that the first time the idea of an ascent of the Hohberghorn by its N.E. face assumed a definite form in my mind was in the winter of 1907-8 on reading Dr. Blodig's article.<sup>3</sup> The only other reference to it which I have seen was in Mr. Lorria's article (*ibid.*). From the col between the Hohberghorn and Stecknadelhorn he and Eckenstein examined it, and he says that 'Eckenstein hankered to descend towards the Gassenried Glacier, and the snow slope seemed practicable, at least as much of it as we could see. But after my determined declaration that I considered this route very difficult, and perhaps impossible from what I had seen of it some days before from the Gassenried Glacier, Eckenstein made up his

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<sup>2</sup> The death of this distinguished mountaineer and former A.C. is reported in this number.

<sup>3</sup> D. & G.E.A.V., *Zeitschrift*, 1904, 'Zwischen der Saaser und Matternvisp.'

mind to descend by the snow couloir to the Hohberg Glacier.

In July 1908, Daniel Maquignaz and I looked at this side of the mountain critically from the Ulrichshorn, and Daniel expressed the opinion that the climb would be practicable under favourable conditions for a party using crampons. There is little doubt that this aspect of the upper part of the *Nadelgrat* is as beautiful as the opposite or S.W. side is comparatively speaking commonplace.

Between the Hohberghorn and Stecknadelhorn on the N. side there lies a well-marked bay or inlet in the snowy cliffs. This is guarded about halfway up by a very formidable hanging glacier extending across the whole breadth of this inlet, a hanging glacier undercut, moreover, in a wonderful fashion.

In the very unsettled weather of the summer of 1909, Daniel Maquignaz, Heinrich Fux and I actually started for the climb one morning from the Schallbett Alp above St. Niklaus, but owing to the unsatisfactory snow conditions were forced to give up all idea of it before reaching the foot of the mountain. The autumn of that year I planned a week-end devoted to an attack on the peak with Joseph Pollinger, and a journey from and back to England should the weather become really settled ; but the plan never materialized.

On July 28, 1910, accompanied by Mr. H. Symons and Franz Lochmatter, Jean Maître, Heinrich Fux and I trod the path from Saas Fee to the Mischabelhütte. I was glad that my friend and his guide, who had been climbing the last few days with great energy, were able to accompany us.

The following morning we started at 5.10 A.M., Symons and Franz on one rope, myself with Jean and Heinrich on another, and proceeded to the Windjoch (12,528 ft. or 3848 m.). Sir Martin Conway in a paper in the thirteenth volume of the *JOURNAL*, speaking of the view from a point just above where the hut stands, says: 'The snowfield of the Hochbalm Glacier is for subtlety of curvature and grace of undulating form, one of the loveliest I ever saw . . . The wall joining the Südlenzspitze to the Nadelhorn is surpassingly grand in scale and fine in structure.' I imagine that most mountaineers would agree with him. The col was reached at 6.25 A.M.; ten minutes later we proceeded to traverse the snowy basin from which springs the Ried Glacier, trending in the main in a westerly direction along the snow slopes, and keeping at much the same level. Having passed beneath a striking overhanging sérac we

halted at 7.15 A.M. for photographic purposes, and climbed a vertical wall of snow some 10 ft. in height. We soon reached the foot of our peak at a point probably slightly below the level of the Windjoch, and immediately beneath the most westerly of the séracs of the hanging glacier in the well-marked bay to which I have already referred. Here, some yards away from the bergschrund, we halted for 17 minutes, below the snowy wall, cold gray in the morning light, and near some ice débris fallen from the séracs, to make final plans for the actual assault. The N.E. face in its S.E. portion shows the end séracs of the hanging glacier. The angle of the slope from here to a point near the top of these séracs (the highest point visible from our position) measured by clinometer was approximately  $45^{\circ}$ . At 7.52 A.M., after nothing more exciting than the fall of a few small stones which had playfully skipped down close to us in 'stealthy haste,' we started up, Franz Lochmatter leading. The bergschrund was crossed without any difficulty and we took a line leading straight up the slope. Jean considered that the face to the right of us (N.W.) would present less snow than the route which we followed, and so would be slower though somewhat safer; but any risk which we ran from falling ice was very slight under the conditions and so early in the day. The state of the snow was all that could be wished for, and Franz, equally brilliant on snow as on rocks, cut large steps with wonderful rapidity and finish. To me also it was a great pleasure on looking down to notice Jean's strong face beaming, manifestly revealing his keen enjoyment of the climb. Directly above us there loomed the great ice wall with séracs above it, and to its right one or two other blocks of ice. After a time we bore slightly to the right. We reached a point where our leader's rapid progress became suddenly greatly diminished. 'De la glace,' said Jean, and sure enough there was ice at a very slight depth beneath the snow, and where consequently it was desirable to cut steps into it: just after this we reached the level of the top of the séracs. The slope had up to this point become rather steeper. We had now been moving for exactly one hour from the foot of the slope, and were free to indulge in a halt of 13 minutes just above the level of the séracs, a further clinometer reading giving the angle to the top of the peak as  $47^{\circ}$  to  $48^{\circ}$ , but Symons and I agreed that the angle above us was distinctly less steep than that of the slope already climbed. Heinrich now took his turn of leading and again we encountered for a short distance ice beneath a thin covering of good snow. Bearing

slightly to the left we again got on snow and in a short time reached the summit ridge of the *Nadelgrat* a few yards S.E. of the top of our peak, on to which we stepped at 9.28 A.M., 23 minutes after our last halt, or 1 hour 23 minutes actual going from the foot of the slope. The snow had been in first-rate condition all the way up, although slightly hard at one point.

The Hohberghorn is well placed for a view, the grandest objects being the neighbouring giants, the *Nadelhorn*, *Lenzspitze*, and above all the *Dom*. The *Nadelgrat* itself forms a most striking foreground; the *Weisshorn* shows to particular advantage from this direction, and of course there is a splendid panorama of the *Oberland* peaks. These were on this occasion partly clouded over, and some clouds lay over Italy. Forty minutes spent in lazy enjoyment and in photography passed, as the time always does pass on a summit, all too rapidly, and at 10.7 A.M. we started for the neighbouring *Stecknadelhorn*. We went down the (as we found it) remarkably easy snow ridge of our peak (the S.E. ridge) to the col between the *Hohberghorn* and *Stecknadelhorn*, a ridge by the way described by Dr. *Blodig* in his article as an 'Alpiner Eiertanz,' which implies, I take it, that the extreme care needed suggests walking on eggs. The condition of the arête on that occasion was, therefore, widely different from that in which we found it. We then proceeded along the N.W. arête of the *Stecknadelhorn*, my first experience of which as well as of the S.E. ridge was in the previous year, and by pleasant but easy rocks, for the most part sound, with some traverses on the S. side, reached the top at 10.49 A.M. and descended without difficulty to the col between this peak and the *Nadelhorn*, a col for which Dr. *Blodig* has suggested the name *Ober Stecknadeljoch*. Here we halted from 11 till about 11.30 A.M., then started down the snow slope to the N.E., a route which had not been previously followed, *Jean* leading. The angle soon became extremely steep, so that, adopting the method recommended by *Jean*, we descended backwards, the snow being excellent. This safe but somewhat slow method continued for a hundred or two hundred feet, but the angle eased off just above the *bergschrund*. Below this we turned to the right, traversed moderately steep slopes and got on slightly harder snow for a few yards; then, keeping the *bergschrund* above us, reached the N.E. ridge of the *Nadelhorn* and descended to the *Windjoch* by 12.35 P.M., whence, after 5 minutes, we proceeded to the *Mischabelhütte*, reached at 1.35 P.M. Clouds were blowing up whilst we rested for about

1½ hours, and when we descended to Saas Fee, reached at about 4.25 p.m., there was some rain. The whole expedition occupied about 7¾ hours, excluding halts.

The snow had been in perfect condition throughout the day, and it is probable that the route was a safe one on the occasion of our ascent, although it would be rare to obtain such favourable conditions as those we experienced. Fux considered the N.E. face steeper than the route up the E. face of the Dom, which we had accomplished under Joseph Pollinger's leadership in 1907.

A week was spent in various minor expeditions at Saas and a return to the Bernese Oberland for the second time that summer with a view to an attack upon the Gletscherjoch. In the second half of August, I again found myself at Saas Fee, with the object of devoting the last week of an Alpine holiday to attempting the Stecknadelhorn by the N.E. arête. One night we slept at the hut, starting next morning betimes albeit the wind was howling ominously. However, when we reached a snow plateau a few hundred feet up, a furious gust of wind forced us into a crouching position on the snow, and we perforce drove in our axes to prevent our being blown bodily off the slope. After one or two further blasts it became quite obvious that so far from a new climb on the Stecknadelhorn being within the range of practical politics it would have been foolhardy even to have attempted the ordinary way up the Ulrichshorn. It was very annoying as the sky was clear. On returning to Fee a friend asked me with a certain air of surprise why we had returned. I pointed out to him a small, and to the uninitiated harmless-looking cloud-banner on the ridge above the hut, and explained what it signified. On the last day upon which it was possible for me to start, August 21, we again walked up the now very familiar path to the Mischa-belhütte, the only incident of interest on the way being the necessity of crossing the stream from the Hohbalen Glacier by a single tree trunk. Our scheme was to ascend the peak by the N.E. arête and to go down to Randa. That evening there was a thunderstorm; in fact the clouds did not clear away until a few hours before the time of our start, so that next morning when we arose we found to my intense disgust that the snow round about the hut was unfrozen. If such conditions obtained on our peak it would obviously be more than rash to undertake a climb of the degree of steepness of the Stecknadelhorn's N.E. ridge; however, Jean thought that quite possibly the snow higher up would be in good order,

and he proved to be perfectly correct. Starting at 5.14 A.M. we reached the Windjoch at 6.40, and after 5 minutes' rest turned to the left up the N.E. ridge of the Nadelhorn. After another halt of 8 minutes we left the arête at 7.16 A.M. and traversed the snow slopes to the W. We bent back towards the ridge to avoid a steep descent, descended and again turned W. We traversed beneath the bergschrund and some séracs and above a large overhanging mass of ice. Hitherto the snow had been moderately good. Between us and the N.E. arête of the Stecknadelhorn there fell away to the glacier below an exceedingly steep slope or open couloir consisting of pure ice. We cut horizontally across this slope, a distance of some 30 ft. to the rocks of the N.E. arête, starting our ascent with Heinrich leading. We began by tackling some rocks which needed care. We then reached the foot of an overhanging rock with a chimney on its left (true right). Jean was in favour of prospecting on the right-hand side of this with a view to turning it, but Heinrich pointed out that he had already examined these rocks and that the route was not the most desirable one. Accordingly we turned our attention to the chimney. The first stage, a height of perhaps 25-30 ft., was exceedingly steep, and its lower part narrow. Having accomplished this our leader climbed the wall to the left (true right) of the chimney. This, as we first learnt from much scraping of our leader's boot nails on the rock and from sundry grunts, was difficult and the holds small. As our heads rose in turn above this wall it was seen that the rock above sloped back at an easier angle for a height of about 15 ft. These rocks, although easy, craved respect on account of their looseness. The ridge above this level was of snow, fortunately in good condition. The angle then steepened, and the ridge, here flat and broad, revealed rocks jutting out of the snow, being in the form of sharp vertical edges, by holding which one had to climb, but which, owing to their not being very sound, could not have much reliance placed upon them. Above this place we encountered snow a few yards to the left of the arête (true right) inclined at an easier angle. In much of this it was necessary to take care that one cut through the 6-inch layer of snow into the ice beneath, although the condition of the snow throughout the ascent was good.

The arête was again reached ; it consisted now for the most part of not difficult rocks and brought us to the summit at 9.38 A.M. after a very fine climb, in 2 hours 22 minutes from the time of leaving the Nadelhorn's N.E. arête. For some time

past evil-looking clouds had been collecting round the Oberland summits, and the Bietschhorn and its neighbours had been silhouetted against a stormy-looking sky with ominous distinctness, but we had been so engrossed by the technicalities of the ascent that the rapid change for the worse in the weather had escaped our notice. Fine snow now began falling, and no time must be lost in eating our lunch, or was it a second breakfast? 'Where is that *Wurst*, Heinrich?' Fux professed ignorance as to the presence of any such article of diet, till Jean in a moment of inspiration suggested the word 'salami.' After the customary somewhat prolonged search in the guides' rucksack—that rucksack which holds so much and in which it is always so difficult to discover the particular article desired—the missing sausage was produced. Jean now passed some distinctly uncomplimentary remarks anent the lack of keenness displayed by the Saas guides in not having shown sufficient enterprise in past years to make the two fine routes which we had accomplished. It was more than time now to leave our summit, as thunder was rumbling ominously among the crags. We packed with all possible expedition, and started at 10.8 A.M., Heinrich leading, down the well-known N.W. arête. Snow was now falling heavily, and, owing to the fact that our axes were hissing from the electric disturbance, it was obviously desirable to leave the ridge as soon as possible. We started down some tracks on the S.W. flank observed by Heinrich. The unwelcome truth, however, was soon forced upon us that the descent of this face would involve much step-cutting in ice, so we reluctantly climbed up to the ridge again, reaching the conclusion that the tracks were those of a wandering chamois. There was some ice on the rocks, which, although many were loose, presented no technical difficulty. By the time we again reached the arête the red rock was shrouded in snow, and along the ridge we scrambled as quickly as possible to the accompaniment of thunder and entertained by corresponding and almost continuous volleys of oaths from Heinrich. Having reached the col between the Stecknadelhorn and Hohberghorn, we struck down the face on the W. side of the couloir, descending to the Hohberg névé by the same route which we had followed the previous year after our ascent of the Nadelhorn.<sup>4</sup> At first ice, masked by a thin layer of snow, bothered us a good deal. There followed snow, then easy

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<sup>4</sup> 'The Südlenzspitze from the Fee Glacier and Other Climbs on the Saasgrat,' *A.J.* 25, 312-31.



Photo, Howard Barrett.

ULRICHSHORN, LENZSPITZE, NADELHORN, STECKNADELHORN  
and HOHBERGHORN. (DOM in background.)

From Summit of BALFRINHORN.



Photo, O. K. Williamson.

NADELHORN, STECKNADELHORN, HOHBERGHORN.  
From Summit of LENZSPITZE.

rocks, by following a rib of which we gained the foot of the snow couloir. A little hard snow brought us to the bergschrund at 12.26 P.M., the snow having ceased to fall some minutes before this. Traversing the Hohberg névé we made a détour to avoid passing beneath some threatening séracs above the ordinary Dom route, and reached a gap at the Festijoch, just to the W. of the one which is usually crossed, at 1.10 P.M. Here we threw off our sacks and lunched. 'En tout cas, monsieur,' said Jean, 'nous avons tué le grand diable là.' At 1.55 we again started, and, after halts of 22 minutes, reached the Festi hut at 3.22 and were glad to leave the stony wastes in its neighbourhood for the luxuriant beauties of Randa, where we arrived at 4.55 P.M., the whole expedition having occupied 9 hours 50 minutes, excluding halts. I need only add that Heinrich Fux had led magnificently.

The history of the mountain is not complete without allusion to an ascent by the E. face by Messrs. Geo. Finch and F. Schjelderup, without guides, on August 6, 1913. These mountaineers, leaving the N.E. arête of the Nadelhorn at a height of about 4000 m., after descending slightly, traversed the steep snow wall till they were almost beneath the summit of the Stecknadelhorn. They then ascended the extremely steep snow wall to the S.E. ridge of the mountain, and so in 5 minutes more to the top. This ascent lies between the slope by which Symons and I descended from the Ober Stecknadeljoch in 1910 and the N.E. arête of the mountain.

A fine expedition from the Mischabelhütte to be recommended under first-rate (snow) conditions would be to ascend the Stecknadelhorn by our route, to traverse the ridge to the Nadelhorn and then to descend by the ordinary route.

My last expedition up to the present time on the *Nadelgrat* was made under conditions which may perhaps make it worthy of narration. Leslie Stephen, I think, made the statement that with regard to difficulty no two mountains differ more from one another than does any mountain from itself when under different conditions. With the same pair of trusty guides I started at 4.34 A.M. from the Festi hut on September 14, 1912, our object being to traverse the ridge of the *Nadelgrat* over the Hohberghorn and the Dürrenhorn as far as the Galen Pass. Already late in the season, there was an exceptional amount of snow, some 4 ins. in depth, at that level. After halts of 40 minutes in all we reached the col between the Hohberghorn and Stecknadelhorn, having enjoyed an uneventful ascent except as regards the unusual depth of snow. Halting a

quarter of an hour we ascended the steep snow of the ridge on its left to the top of the Hohberghorn, where we halted from 11.43 A.M. to 12.10 P.M. Then we went down the N. arête, first of all by snow and easy rock. The weather, which had been cloudy during our ascent, now became beautiful, but there were occasional gusts of wind. We arrived at the top of a steep rock gendarme 100-200 ft. in height. It was necessary to turn on to the N.E. or Ried Glacier face. From an icy ledge with outcrops of rock one had to step across a gully with nothing in particular visible beneath one's feet above the glacier nearly 2000 ft. below, a proceeding rendered distinctly trying owing to the biting N.E. wind. Suddenly a break in the driving mist revealed the Ulrichshorn far below. We reached the arête again, here nearly vertical, and the holds in the rock, although of good size, were full of snow, so that this descent was decidedly difficult and demanded every precaution, especially for Jean, who was last man. 'Descendez doucement, et tenez bien la corde, monsieur!' Indeed, I was unlikely to do anything else than to proceed 'doucement,' especially as the strong gusts of wind blew sharp crystals of snow into our faces and eyes. On safely reaching the foot of these rocks we had a few feet of snow inclined at a gentle angle. Our leader Heinrich then hesitated and to our intense chagrin gave the most unwelcome news that he was on 'blankes Eis,' in fact a slope which usually consists of snow turned out to be, as ill luck would have it, of practically pure ice. Heinrich now proposed that we should traverse across to the S.W. arête and so descend to the glacier, but the fact that this route was unknown to all of us caused the proposal to meet with no encouragement from his companions. Heinrich now cut across the ice slope, an operation consuming nearly two hours' work. Easy rocks then brought us to within a few feet of the Hohberg Pass, and just below this we halted for 40 minutes at 4.35 P.M. It was by this time, of course, perfectly obvious that the further traverse of the ridge was not to be thought of, and indeed that all hope of bed, not to speak of dinner, had vanished for that night, for it was plain that night must fall before we could be off the mountain. On the other hand, it was clearly highly desirable to get as low down as possible. Traversing and descending now on snow, now on shaley rock, after a considerable descent we crossed a large well-marked couloir to the W. arête of the Dürrenhorn, down the easy but absolutely loose and rotten rocks of which we scrambled. After a time we traversed on the S. side, beyond the point

where Maquignaz, Fux and I had descended in 1909 ('A.J.' 25), and as it was now dark had to camp on the rocks here at about 7.45 P.M. Our 1909 party had descended on the N. side of the ridge on to the unspeakable rock and stone-covered waste known as the Dürrenpfad, a region which if it were in Great Britain would doubtless have commended itself to certain politicians in search of deer forests or other land suitable for cultivation. A further descent in the dark would have been simple folly, as there was still climbing to be done. We were at a height of about 11,000 ft., close to the top of a steep slope falling away to the Hohberg Glacier. A partly overhanging rock under which the ground sloped outwards, fortunately at first at a very gentle angle, afforded some shelter. We huddled ourselves as close together as possible, our heads towards the rock, Heinrich on one side, I on the other; and my younger guide, after a few minutes' deliberation, gave an admirable summing-up of the situation as a 'verfluchte Sauerei.' I took my boots off to use them as a pillow, and changing my wet stockings put my feet into a rucksack, being by that means able to obtain snatches of sleep. Up the main valley twinkled the Zermatt lights, so near and yet so far. Such nights in my experience always pass very slowly, and this night was an extremely cold one, as will be realized when one points out that next morning when we descended to the valley we found the ground hard frozen for several thousand feet below the level of our bivouac. At dawn we began to prepare for our departure, but my boots were frozen so hard that half an hour was expended in getting them on, and it was 6.30 A.M. before we were able to start. We scrambled clumsily and slowly at first, owing to our stiffened limbs and the annoying kinks in the frozen rope, kinks which Jean always dignified by the description 'queux de cochons.' Down the rocks we went, with short stretches of climbing, towards the Hohberg Glacier, traversed moraine and steep grassy slopes, then descended a few slopes, slippery from short hard frozen grass with outcrops of rock between. We thus reached the right lateral moraine of the Hohberg Glacier, went down grassy slopes below, and crossed over avalanche débris which had fallen from the foot of the glacier. By this time we were thoroughly thawed. We traversed slopes profusely decked with rhododendron, reached a path by a 'Wasserleitung' in a wide valley rich with luxuriant vegetation now autumn-tinted, and hurried down to the main valley by way of Kühbodmen, reaching Randa at about 10 A.M. on the Sunday morning, September 15, in good time for the

train to Zermatt, Heinrich having hurried on so as to dispatch a telegram to announce our safety.

About midday three mountain-worn, rather weary, distinctly hungry and very disreputable-looking men were duly deposited at Zermatt Station, where they were met by my wife, who had passed very anxious hours since the previous evening, but had received very great and most tactful kindness from Wollaston. We had been benighted solely owing to the exceptional and very unfavourable conditions of the mountain as regards snow and ice.

Heinrich led throughout on the climb, and needless to say led admirably; Jean, who was as always a pillar of strength, experienced, I am sorry to say, frostbite in one of his fingers, a trouble from which he recovered completely in a short time.

This expedition was the last considerable one accomplished with my friend Jean Maître, my staunch companion and judicious counsellor on many a memorable expedition, whose wise precepts born of his natural sagacity, keen observation and mature experience will remain imprinted indelibly on my memory as souvenirs of a great guide and splendid mountaineer.

## THE SIERRA NEVADA OF THE UPPER KERN RIVER, CALIFORNIA.

By A. E. GUNTHER.

THE western portion of the North American continent has been thrust into a succession of mountain chains, the Coast Ranges, the Sierra Nevada and the plateau ranges of the Great Basin lying parallel with the Pacific Coast. Within a distance of 100 miles continental earth movements have raised Mt. Whitney to an altitude of 14,500 ft. above sea-level, the highest point in the United States, and have depressed Death Valley 280 ft. below sea-level, the lowest. By far the grandest of these ranges is the Sierra Nevada, which extends almost the length of California, from Mt. Shasta in the N. to the Sierra Madre in the S. This range, restricted throughout its length to a width of 50 miles, gives backbone to the Pacific Coast States and is flanked on both sides by deserts, by the Mohave Desert and the Great Basin on the E., and by the valley of the San Joaquin on the W.

On the E. flank of the range the Owens Valley, a narrow trough-like depression 3000 ft. above sea-level, lies wedged