

Botany and Natural History.—Rare specimens of the flora, particularly from the *highest* rocks, should be taken. Flowers grow at an extraordinary height (over 13,000 feet) north of the Caucasian chain among the snows on exposed rocks. Bulbs or seeds of any unusual species should be obtained whenever possible. Any uncommon objects in natural history (entomological, &c.) may of course profitably be collected.

Photography.—Photography is invaluable in the Caucasus, not only for topographical delineation, but also for obtaining types of the population, their dwellings, domestic furniture, antiquities, monuments, &c.

Anthropology.—Measurements of natives, made according to the principles set out in the Royal Geographical Society's 'Hints to Travellers,' p. 222, would be valuable.

Local Traditions, &c.—An interpreter of intelligence may aid in collecting evidence of old customs, religious or legal; forms of worship and modes of tenure of property. Also by copying down local ballads and traditions. In the Caucasus at this moment there is an opportunity in this respect which will be lost as civilisation and schools spread. Old burial-grounds, specially those where ancient objects have been found, should be noted.

Instruments.—Information as to instruments and instruction in their use may be obtained from the Map Curator of the Royal Geographical Society at 1 Savile Row on any day (except Saturdays) between 10.30 A.M. and 5 P.M.

D. W. F.

THREE NEW ASCENTS' IN THE BERNESE OBERLAND.

BY H. SEYMOUR KING.

(Read before the Alpine Club, May 1, 1888.)

WRITING a paper nowadays for the Alpine Club has become strangely akin to the task of the children of Israel in Egypt, and consists largely, I fear, of making bricks without straw.

The Alps have been so thoroughly explored by our predecessors, that only here and there the tiniest scrap of stubble remains ungarnered. A few years ago the humble adventures I have to narrate this evening would have been crowded out by papers relating doughty deeds of daring. But the necessity of providing the monthly paper for consumption by the Club, coupled with the decreasing number of Alpine ascents which by any stretch of words can be called *new*, has driven the Secretary to request me to fill up a gap to-night with a short account of three excursions I made last year, and to inflict upon you what I fear can only be considered a tale of very trivial adventure. At the same time it may be noteworthy, as showing that the Alps are

not yet so utterly exhausted as some members of the Club would have us believe, that there should have been two peaks, even though of a humble character, under the very eyes of every traveller from Meiringen to Grindelwald, which until last year had remained neglected, and indeed, so far as I have been able to ascertain, unascended; and I confess that no one could have been more surprised than myself at finding this out.

No one who has visited Rosenlauri can have failed to be struck by the bare, rugged, and precipitous character of the Engelhörner, and yet I can find record of only one of their peaks—true it is the highest, that marked ‘Engelhorn, 2783’ on the Federal map—ever having been ascended. It was certainly without a thought of making a new ascent that we first essayed the highest of the four peaks of the Engelhörner which crown the end of the ridge separating the Ochsenthal from the basin of the Rosenlauri glacier, and are conspicuous from the valley.

Everybody in this room must be familiar with the wonderful amphitheatre which discloses itself to view as the traveller descends from the Scheideck to Rosenlauri, and must have looked with admiration on the bare rugged wall of precipices which shut it in on the left.

I had gone to Rosenlauri at the beginning of August last year straight from England with the intention of getting into training a little, before attempting any of the severer expeditions in the Oberland. On the first day after our arrival we went for a walk to the Dossen hut across the Rosenlauri glacier. The precipitous walls of grey limestone on our left naturally attracted our attention, and we amused ourselves, as we walked, speculating on the best way to the summit. It never entered our heads that peaks so near to the track from Meiringen to Grindelwald could have remained unclimbed.

Careful examination with the glass led us to the conclusion that the route to the summit probably lay on the other side, and that the ascent would have to be made from the little valley which lies between the Engelhörner and the Jägiburg, and is known to the inhabitants as the Ochsenthal.

We decided to make some inquiries, and see if it were possible to find any one who could point out the way. It struck me as an expedition well suited to my then state of decrepitude, and not likely to prove either long or severe. Inquiries at the hotel, however, proved fruitless; one old man said he thought there was a way leading up from the

Ochsenthal, and, as people are always rather inclined to believe those who agree with them, we came to the conclusion that probably the old man was right. The more general opinion, however, was that hitherto no one had succeeded in reaching the summit marked 2626 (8,616 feet) on the Federal map, on which our affections were set; and, although we could hardly believe that this was likely to prove true, it did not tend to decrease our desire to make an attempt. So early next morning we started off through the woods to the glacier, following the usual path, until we reached the little ruined chalet at its foot. Here we turned up through the woods, and leaving the track to the Dossen hut just beyond where it crosses a stream, and then taking to the alp on our left, pushed upwards to the little col which lies at the extreme northerly end of the ridge, our intention being to pass over it into the Ochsenthal, whence we hoped to find a way to the summit.

There is no difficulty about reaching the col, but we found to our dismay that the rocks leading down to the Ochsenthal were as steep, if not steeper, than those on the Rosenlauri side, and it was only possible to descend them a very little way; then the end came in a sheer precipitous drop into the valley. It was obvious there was no way up on that side, and an attempt to climb along the ridge was very quickly defeated. The rest of the day was spent in exploring along the base of the rocks, and though we discovered a way that ultimately proved practicable, it was not until it was too late in the afternoon for me to reach the summit; indeed, I must confess to have been so dead beat as to have been utterly unable to make the ascent, however much time I had had on hand. A few days' exercise, however, put that right, and a week later we made a second attempt on the peak.

Let me first recall to your memory a little more in detail the aspect of the northern end of the crest Engelhörner from Rosenlauri. It shows four peaks, the highest (8,616 feet) being the most southerly, that is, the one most to the right as you stand facing the ridge, and the lowest at the extreme left, or northerly end. Between the highest and the central peaks there is a deep gap leading into the Ochsenthal: the two central peaks are connected by a ridge slightly depressed in the middle, and then between the lower of these two central peaks and the most northerly one is the col which I have mentioned. I must ask you to try and bear this description in mind, if you are to under-

stand our subsequent movements. From the further of the two central peaks, the one, that is, on the right as you face the Engelhörner, a spur of rock runs down towards the valley, very precipitous, very steep, and very narrow, between which and the ridge on which the highest peak is situated is a narrow couloir, the rock floor of which has been worn by the action of water so smooth that it would have been impossible to take three steps on it without slipping. On the second occasion we followed the same route as at first, until we came to a point about 500 feet below the col to which we had first climbed. Striking across the face of the alp at this point we made our way up an easy couloir to the foot of the spur I have just described. The side of this ridge facing us was uncommonly like a steep, high-pitched, sloping roof of slate, and at first sight was by no means inviting. A closer view, however, showed that the surface had broken away here and there, leaving a few cracks, running sometimes vertically, sometimes horizontally across its surface, and by the aid of these we managed to worm our way in a devious fashion up the slope until we reached the arête. We crossed now to the other side, and found no great difficulty in skirting the rock couloir I have before mentioned, and making our way to the gap lying between the highest and the central peak.

Up to now it had been comparatively plain sailing, and we halted for breakfast. One of the chief difficulties—the smooth rock couloir—had been circumvented, and we felt pretty certain of reaching the summit. Leaving the col, we ascended towards the final arête, working to the right until we came under a sort of chimney or couloir of a very stiff and uncompromising character; the rocks were very rotten, and extremely steep; Supersax, however, was in good form, and after a hard climb we finally reached the arête. From here to the summit was a distance of only about two hundred feet, but it was not easy. The ridge is very narrow, and the rocks are even steeper on the further side than on that by which we had ascended. On the top no cairn or any evidence of a previous visitor could be discovered, and we occupied our time in building two large stonemen. We left our names in a wooden match-box, the only receptacle we could find, having left all the knapsacks far below.

The ascent had occupied from Rosenlauri four and a half hours, of which about two and a half were consumed in actual rock-climbing; the descent of the rocks occupied an hour and a half.

The climb is a decidedly interesting one, and it is not easy to find the way. There are people, I believe, in the Club who, like the law, *de minimis non curant*; but to those who appreciate a good climb, even if the peak be under 9,000 feet, I can confidently recommend a scramble on the Engelhörner from Rosenlauri.

If it had been a surprise to find that one of the principal peaks of the Engelhörner had not been ascended, I was still more astonished when Emil Boss pointed out to me one day from the hotel steps at Grindelwald the Eigerhörnli (8,878 feet), and stated that it was still virgin, no one having ever seriously attempted it. Anthamatten, who had been with us on the Engelhörner, had left to keep another engagement, and his place was well filled by Louis Zurbrücken, and both he and Supersax were highly delighted at the chance of adding another feather to their cap from the Oberland.

Leaving Grindelwald early one morning at four o'clock, we followed the path to Alpiglen, and shortly before reaching the hotel there, turned off across the alp and made for the ridge of rock which is so conspicuous from the hotel, running down from the *Mitteleggi* by the side of a hanging glacier. Ascending by its side nearly to the point marked 2575 on the map, we then turned to the left and traversed the face of the mountain until we came to the foot of the buttress of rock which forms an outwork of the *Eigerhörnli*. Here we put on the rope, and, surmounting some difficult pieces of rock, found ourselves at the foot of a long couloir of a most forbidding appearance. It was then about ten o'clock, and not liking the look of the couloir we spent some considerable time in casting about for some other means of reaching the summit. The rocks were of an extremely smooth character, and our efforts in various directions proving fruitless, we at last reluctantly committed ourselves to the slippery dangers of the couloir.

It was one of those uncomfortable couloirs that have the habit of constantly swelling outwards and throwing you off your centre of gravity; it was very narrow, and at its summit was a large patch of snow, the melting of which caused a permanent trickling over the rocks, rendering them additionally slippery, and causing us great discomfort by running down our necks and arms. This was undoubtedly the most difficult part of the ascent, and occupied us over an hour and a half. It was half-past twelve before we emerged from the couloir, and after the severe exercise we had been going through we were glad of a rest.

After some lunch, and a pipe, we climbed without much further difficulty to the arête, and keeping just under it, made our way to the summit.

There is on every smooth rock-face to cross, but a large stone, like a milestone, has been providentially placed where the climber may easily fasten a rope, held by which he will have no difficulty in reaching the base of the final peak. Here let me say I would decidedly advise those who follow us to take a second rope with them. We reached the summit at two o'clock, and only stayed long enough to build the traditional cairn.

The descent of the couloir proved a real 'stumper,' as it was very hard for the last man to avoid seriously damaging his predecessors with stones. The descent occupied us a very long time, and it was five o'clock before we got to the bottom. Ambrose had dropped his axe, and when we recovered it the handle was found to be broken. A thick mist was sweeping up from the valley, threatening to engulf us every minute, and it was evident we must hurry on if we were to get back to Grindelwald that night. Just as we reached the rock-face where it had first been necessary to put on the rope, the mist finally descended upon us, and it was with the greatest difficulty that we were able in the dark to find our way down it. The last man only succeeded in descending by fixing Ambrose's broken axe in a crevice and running the rope round it. Unfortunately, the rope got stuck, and we could not dislodge it. The night was upon us, and we could not see where our path of the morning lay, and after vainly attempting to find some shelter were obliged to sit down on the rocks and wait for the dawn.

Soon the mist turned to rain, and from seven until three it rained on and off all night. It was half-past four before there was light enough to move, and we then were drenched, stiff, and dispirited, and so, without going back to fetch the rope, we made our way, as quickly as our stiff legs would carry us, down to Grindelwald. Fortunately, the night had been fairly warm, and we got off with no worse consequences than very bad colds. Mr. J. Wills and his brother, with one guide, repeated the ascent a few days afterwards, sleeping the previous evening at the hotel at Alpigen. They reached the summit in six hours from that place, and brought back with them our rope and Ambrose's ice axe. I should hope that this may become a favourite expedition from Grindelwald, being one of the few that can be made

within the compass of a day from the hotel, and it certainly gives opportunities for as fine rock-climbing as any peak among its more pretentious brethren in the neighbourhood.

A few days later we went to Mürren, with the intention of carrying out a long-cherished plan of mine and testing the possibility of ascending the Silberhorn from the Roththal. Previous ascents had proved so lengthy, necessitating, I think, in nearly every case, the passing of a night on the rocks or the glacier, that I thought it would be highly desirable if some shorter route could be discovered. I had an idea that the route by the western arête would prove to be the one sought for. Unfortunately, we were delayed in making an attempt by bad weather until the 23rd of September, which is undoubtedly too late in the year for so difficult an expedition.

I left the Hôtel Silberhorn, with Ambrose Supersax and Louis Zurbrücken as guides and a porter, at ten o'clock on the morning of the 23rd of September, and followed for some distance the usual path to the Jungfrau hut; at length leaving the Roththal path on the right, we struck off into a goat track which leads by narrow ledges round the shoulder of the great bluffs forming the northern boundary of the Roththal. In this way gaining the face of the alp fronting Mürren, we made our way to the base of the 'Strahlplatten,' where we had determined to encamp for the night.

The nights were already lengthening out, and where we were it was not light before six, and it was not possible to move earlier than five; punctually at that hour we started. We took only one knapsack with us, leaving the rest of the things with the porter, whom we instructed to stay where he was until he saw whether we were going to return the same way or not, as we thought it was quite possible we might have to pass another night at the same place. We therefore arranged with him that when we got to a certain point on the ridge, if we intended to return, we would wave our hats; but if we made no sign, he might pack up his things and go home, as in that case he might understand that we had determined either to descend from the Silberhorn across the glacier to the Wengern Alp, or else make our way over the Jungfrau, and pass the night in the Bergli hut.

Now, let me try for a moment to describe the appearance of the rock face up which we purposed making our way on to the arête. From where we were the arête appeared to run nearly due east and west. At the west it terminated in

the precipices which face Mürren ; and at the east with the peak whence we had arranged to signal to our porter. From this peak a ridge descended towards the valley bounding the side facing us. On that side the rock face itself was divided into two compartments by a well-marked ridge running down the middle, giving the appearance of two couloirs leading to the arête ; the whole side was composed of extremely smooth rocks, with very little foothold or handhold, which would be extremely dangerous, if not impossible, to attempt if they were not dry. Fortunately, we found them perfectly free from either water or ice, and, with the exception of one difficult piece which it took us some little time to surmount, we found nothing to check us until we were just under the arête. We ascended by the right-hand couloir, if I may so term it, and then made for the gap on the ridge at the extreme westerly end. Just below this gap we experienced some difficulty, owing to the excessive smoothness of the rocks, but finally reached the gap I have mentioned a little before nine.

I need not say that our hopes rose high, and that we were in the very best of spirits, and when we finally stood in the gap itself we began to think the worst part of the work was over. We soon found, however, that it had hardly begun ; it was all very well being in the gap, but the problem was how to get from there on to the arête itself ; for, though the latter was not more than twenty feet above us, the peculiar formation of the rocks rendered every attempt to get on to it fruitless. The rocks hung over on every side. We exhausted ourselves in vain attempts to surmount them. An hour soon passed away, and after each of us in turn had failed, we sat down disconsolately to consider the situation under the lee of the ridge, so as to be out of the way of the biting north wind which was blowing. Looking round as we sat mournfully consuming some breakfast, I spied a bottle in a crevice, and found it contained the names of Mr. C. E. Mathews and Herr E. von Fellenberg, with Melchior Anderegg and two other guides ; it was undated, but recounted how they had reached this spot, and had been obliged to return without achieving their object, which apparently was identical with our own.* This was the last straw, and exasperated Ambrose to the highest degree. That we should have gone through so much only to have gained the same spot where another party several years before had arrived was too much

* See Note at end of the paper.

for his equanimity. He vowed he would never go back, and nothing under heaven should turn him back, he would get on to the ridge. We might do as we liked, he meant to stay there until he had. All of which I pointed out to him was very fine talk, but, as men were at present constructed, it did not appear to me possible to climb an acute angle. Ambrose, however, persisted that he would make another attempt to get on to the ridge, and, as it was quite hopeless anywhere on the side by which we had ascended, he roped himself, and insisted on being let down the northern face of the mountain.

With great skill he managed to work himself along the face for the full length of the rope, and the first 100 feet being exhausted, a second of eighty feet was tied to it, and this again paid out to its utmost length; still he could find no way up to the ridge. He thereupon demanded that the rope should be let go, and, in spite of our remonstrances at the danger he was running, he pulled it in, slung it on his back, and proceeded, while we sat down and waited with no little anxiety lest some accident should befall him.

For half an hour we neither saw nor heard anything of him, and our shouts remained unanswered. Zurbrücken muttered at intervals something about 'Dummheit,' and was evidently very uneasy. Suddenly we heard a shout from above, which told us he had succeeded in ascending the wall above him, and getting on to the ridge, down which he was actually coming at the moment, and the next minute he was peering over the point where we had been stuck.

It was really a magnificent exhibition both of pluck and skill, and Ambrose deserves the highest credit for his success. Letting the rope over, and fastening it well to a piece of rock, he first hauled up the ice axes and knapsack, and then we each in turn were half hauled, and half climbed to the place where he stood. I know when I arrived at the top I was nearly speechless from the terrible exertion it was necessary to make, and the pressure of the rope on my ribs; I could only lie on my back and gasp feebly for brandy!

However, it was imperative to proceed; more than two hours had been wasted here, and it was nearly eleven o'clock. The way in front of us looked fairly plain and easy, and our hopes once again began to rise; but soon, as we proceeded along the ridge, it became narrower and narrower, until from walking we were reduced to kneeling, and at last could only proceed *à cheval*; in this elegant position we struggled along for some little distance until the arête widening out again

permitted us once more to stand up ; but here we found the rocks much more difficult, and finally absolutely impossible. At the foot of the peak at the easterly end of the ridge which I have before mentioned we were forced off the arête on to a wall of ice which led to the summit ; the slope was at a very sharp angle, the ice very hard and blue, and at last became so steep that we were forced back on to the rocks, and with some considerable difficulty reached the summit : from there we could see the Silberhorn in front of us jutting out like a great white promontory into a frozen sea. It being then one o'clock, we saw there was no possibility of our getting back the same way that evening, so we made no sign to our porter, whom we could see watching us far down below.

The formation of the ridge here is somewhat curious. After a slight descent it broadens out into a small and much crevassed glacier, shut in on the further side by a level snow wall, the promontory which I have mentioned above. The arête of this wall appears to run level from the rock ridge to its northern termination ; indeed, I am of opinion that the highest point is on the rock ridge itself, and that the extreme end of the ridge facing the Wengern Alp is a few feet lower than the rocks overlooking the Roththal.

We speedily crossed the little intervening glacier, or snow field, and commenced to ascend diagonally the snow wall, but found the snow in such a dangerous condition, lying as it was loosely on the surface of ice, that from the fear of starting an avalanche we once more made our way back to the ridge which formed the continuation of the arête along which we had been climbing. Here the rocks were extremely difficult, being interspersed with ice, and very rotten. I think this was one of the most difficult parts of the expedition. It was half-past three when we reached the final summit, and then made our way along the snow ridge nearly to its extremity. The snow arête was very narrow, and in its then condition not very pleasant to traverse ; the day too was far advanced, and we had no time to spend in much exploration ; so we returned as quickly as we could to the ridge which leads down to the Silberlücke : we were already getting very doubtful as to whether we should get any shelter for the night. We had reached the narrow rock arête joining the Silberhorn with the precipices of the Jungfrau ; in the middle was the narrow gap called the Silberlücke, and to that we crawled down and halted a moment to consider whether it would not be better to descend on to the glacier

and strike across to the Wengern Alp; but we knew from the results of previous expeditions that crossing the glacier would probably take four, if not five, hours. None of us had ever been across it; it was then four o'clock, and it would be dark at six. Our only hope lay in getting across the Jungfrau before the daylight finally died out. In the gap we found a ladder left by some previous explorer, and two or three pieces of wood; and after debating whether we had not better pass the night there, finally decided to push on for the Jungfrau.

Our chance of escaping a night in the open air depended mainly on two points: first, whether the snow leading up to the Jungfrau was in fairly good condition; and, secondly, whether anybody whose steps we could make use of for descending had been on the mountain that day. A few minutes settled the first question: we found that the slopes leading up to the upper snowfield which circles round the base of the Jungfrau were hard as ice, and we were soon laboriously cutting steps upwards. We pushed on with all speed, but step-cutting is at the best a slow operation, and before we got into the Roththal track the lengthening shadows had almost overtaken us. We hurried on and managed to get across the bergschrund before the last rays of sunlight left the summit of the Jungfrau. As we surmounted the final rocks I turned for a minute to look across Switzerland, and was rewarded by one of the most beautiful spectacles it has ever been my good fortune to witness. The valleys were filled with mist, but the setting sun tinged their surface with a deep crimson glow; the last rays were still lingering round Mont Blanc and one or two of the higher mountains; where we stood was still filled with golden light from the last rays of the sinking sun. The sky was perfectly clear, and the panorama which unrolled itself before our eyes with its mingled light and shadow was one of the most wonderful that a lover of mountain scenery could desire to gaze on. A justification for the erection of a hut on the summit of the Jungfrau might almost be found in the possibility of obtaining such a view.

But we had no time for indulging in rhapsodies; a bitter north wind was still blowing so keenly, that the upper leathers of our boots had frozen stiff as boards while we walked. The moon was well up, and if only our second hope were realised, and some one had been on the mountain that day, we might find a refuge from the wind in the Bergli or Concordia huts. We tumbled rather than scrambled down

the rocks by the flickering moonlight, until we reached the well-known point where it is necessary to strike across the face just above the Roththal Sattel. Our last hope was dashed to the ground! No one had been there that day; and if we were to get down, it must be by our own efforts. So Ambrose at once set to work to cut steps across the face. We had been there a fortnight before, and gone up and down the Jungfrau without cutting hardly a step; now the face was all blue ice, and in five minutes I made up my mind that the risk of such a descent was too much to take.

The wall above the great bergschrund was in shadow, the bergschrund last year was especially formidable, and we were all too exhausted safely to face the freezing wind on such a steep ice slope in the dark. We returned, therefore, to the rocks, and, after a brief consultation, decided to pass the night there as best we could. We managed to find a corner shut in on two sides by rock about five feet high, from the floor of which we set to work to rake out the snow with our axes. The snow had drifted to a considerable depth, and its excavation gave us a good quantity of heat to start the night with, but our boots refused to thaw, and do what we would our feet would not get warm.

Our provisions being nearly exhausted, we agreed only to take a mouthful of brandy and a little bread that night, and keep the bulk of the provisions until next morning, when we expected to be in a more or less exhausted condition, as the cold was very great, and it was obvious that we had a pretty severe ordeal before us. It was by this time half-past seven o'clock. We put on our gloves and gaiters, buttoned up our coats, and after making a seat apiece out of three smooth stones, sat down as close together as we could, and commenced to smoke.

The night was beautifully clear, but far away to the south we could see a great thunderstorm raging over the Italian hills, and were in no little trepidation lest it should be coming up in our direction, as indeed a storm had done in exactly a similar way a week before; but the north wind kept it at bay, and we luckily had not a snowstorm to face in addition to the other discomforts.

The night passed slowly enough; it was necessary to keep shuffling our feet and beating our arms together the whole night long without cessation, in order to prevent being frost-bitten, and it was even more difficult to keep awake. The hours, however, passed somehow, and at half-past four the first primrose streaks in the sky heralded the coming day.

By five o'clock the welcome face of the sun peeped over the Trugberg, and we began to prepare for a start.

Our first thought was breakfast, but this solace was denied us; the wine and brandy had frozen during the night, and were solid lumps of ice; the bread required nothing less than an ice axe to cut it, and then probably would have tumbled into chips like a log of wood; the three remaining eggs we possessed had been converted during the night into icicles; there was nothing for it, therefore, but to start hungry and thirsty. Ambrose proposed that he and Zurbrücken should first cut the steps, and then come back for me, but after a very few minutes' exposure to the wind they were obliged to return and wait until the sun had warmed them a little; the biting cold of the night and exhaustion from want of sleep rendered it impossible to face the work of step-cutting in such a bitter wind. We resumed our seats, therefore, and waited another hour, and then commenced our descent to the bergschrund. We had to cut steps the whole way down, and very glad I was we had not attempted it in the dark, as I think it would have been almost impossible to get over without an accident.

We pushed on steadily, but the night had taken all the spurt out of us, and our progress across the Jungfrau Firn was not very rapid. We hoped to find water under the Mönch Joch, where we had found a good supply a fortnight previously, but the wind had prevented the snow melting at the time we reached the spot, and there was nothing for it but to press on to Grindelwald, and it was not until we reached the end of the Viescher Glacier that we found any water to drink. At the Bäregg we got some ginger nuts to eat, and by three o'clock in the afternoon were being hospitably welcomed by the Bosses at the 'Bär,' whose welcome was never more appreciated. These estimable hosts soon had an excellent dinner ready, and by half-past four I was driving to Interlaken to rejoin the rest of my party.

This expedition was certainly made too late in the year, but I hope, as the climb is full of interest, that some member of the Club will repeat it, taking advantage of one of the long days in July or the beginning of August, in which case there should be no difficulty whatever in reaching the Bergli or Concordia hut, as a start could be made at three in the morning, and daylight can be relied on up to between eight and nine P.M.

Note.

The unsuccessful attempt made by Mr. C. E. Mathews and Herr E. von Fellenberg to reach the Silberhorn by the west arête took place on June 29, 1863 (*Alpine Journal*, i. 134); Herr von Fellenberg (with Herr K. Baedeker) succeeding in making the first ascent of the peak on August 4, 1863, from the plateau between the peak and the Wengern Jungfrau (*Alpine Journal*, i. 197). In the first volume of the *Jahrbuch* of the Swiss Alpine Club (for 1864), Herr von Fellenberg has given a full account of both expeditions (attempt, 326-335; ascent, 335-358). On June 29, 1863, the party started at 2 A.M. from the Stufenstein Alp, and at 11.10 A.M. reached the foot of the overhanging rocks at the west end of the western arête. Melchior Anderegg was unable to overcome this obstacle, and Herr von Fellenberg declares emphatically that the north and south sides of the arête could not be traversed, saying of the former (that actually scaled by Mr. King's party) that a 'terribly steep snow slope descended towards the very crevassed glacier far below.' The party was, therefore, forced to return at 12.30, leaving a flag and a bottle with their names. When on the summit on August 4, 1863, Herr von Fellenberg saw clearly the flag he had left on June 29, and says that the ridge between is so steep and rugged, and the little glacier basin so crevassed, that even if they had been able to scale the overhanging rocks (or 'Flühlein') the party would certainly have failed to force their way up to the Silberhorn (p. 350). Mr. King's ascent by the western arête has thus solved an Alpine puzzle which was tried in vain twenty-four years before. It would seem that there is no previously recorded instance of a paper having been found after twenty-four years' interval, the longest cases yet mentioned in these pages being twenty-three years (*Alpine Journal*, xii. 467; xiii. 129).

Herr von Fellenberg gives two diagrams of the western arête of the Silberhorn (pp. 332 and 347), with all the various points of the route indicated. They serve to make quite clear the route tried in 1863 and achieved in 1887.

THE GROWTH AND SCULPTURE OF THE ALPS.*

BY PROF. T. G. BONNEY, D. SEC. R.S.

(The Tyndall Lectures for 1888, delivered at the
Royal Institution, London.)

No. 1.

THE geological history of the Alps, which is inseparable from the geological history of at least a large portion of Europe, is a far more complicated question than is generally imagined. Contrast a geological

* Some introductory paragraphs are omitted in which the author drew attention to the diversity of opinion which still prevails in regard to the geological history of the Alps, and the field which, notwithstanding the atten-