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(No. 139.)

THE EXPEDITION TO ACONCAGUA.

BY EDWARD A. FITZGERALD.

OUR work in South America was almost completely confined to the Argentine Republic. We went direct from London to Buenos Ayres, and then up to Mendoza by rail. Here we procured about twenty pack-mules and some native mule drivers; these we used throughout our work in the Cordilleras; we also bought five horses for riding. From Mendoza we went to Punta de las Vacas, the last station on the Transandine Railway. Here we made several expeditions up the side valleys surrounding Aconcagua, in order to determine the best route by which to attack the mountain. We decided that our best route would be by way of the Horcones valley; accordingly, on December 23, I started up that valley with Zurbriggen, four porters, two horses, and ten mules, to attack the mountain by the N.W. face. We gradually worked our way up, camp by camp, till we founded a bivouac at about 18,700 ft. Here we pitched two tents, and brought up supplies. The altitude of this camp was determined by boiling-point thermometers. The trigonometrical height has not as yet been worked out. I think, however, that it would be safe to say that this computation is correct within 200 or 300 ft. We met with very bad weather here, so, on December 27, we were compelled to turn back, mainly owing to the fact that our apparatus for warming food was deficient. Between December 30 and January 2 I made two attempts, but was obliged to turn back each time, owing to extreme weakness and nausea. On January 5 I returned to the attack, making a fourth attempt on the 14th. This time I reached 22,000 ft. Here I was attacked with severe mountain sickness, and was once more obliged to turn back; however, I sent Zur-

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briggen on, and he reached the summit two hours later, about 5 P.M. Next day we returned to our base camp at the Inca. On January 19 I started up again with Mr. Vines, a porter, a mule driver, and three pack-mules. Zurbriggen was then temporarily disabled by the hardships he had undergone on his previous and successful ascent. We bivouacked at 12,000 ft. that night. On the 20th we went up to our camp at 14,000 ft. Finding all our porters suffering from mountain sickness and severe mental depression, and knowing that our camp was well provisioned at 18,700 ft., Mr. Vines and I started for it alone on the 21st. I was, however, taken ill half-way up, and we both turned back. Next day, the 22nd, we again tried. This time, notwithstanding a tremendous gale, we reached our 18,700 ft. camp. Here Mr. Vines and I passed a miserable night in a small Mummy tent, the minimum temperature being 4° F. On the 23rd we were enveloped in clouds, and in the evening snow fell heavily. We were so completely disabled by these two nights of extreme cold and mountain sickness that we were compelled to return to our main camp at the Inca. On February 7 Mr. Vines and I made a fresh start. On the 8th we reached our 14,000 ft. camp. Here I was again attacked by illness, and it was not until the 10th that we managed to crawl up to our 18,700 ft. camp. The 11th and 12th we spent at that altitude, but as we were gradually getting enfeebled, I thought our only hope was to make an immediate attack on the mountain. Therefore, on the 13th, we started before daybreak for the final climb. We took with us Nicola Lanti, an Italian porter. At a little over 20,000 ft. I was completely disabled by mountain sickness, and had to return, but I sent Mr. Vines and the porter on to complete the ascent. They reached the summit late that afternoon, remaining there one hour, and rejoined me at the 18,700 ft. camp late that night, in an extremely exhausted state. On the 14th we returned to our camp at Inca.

On March 18 Mr. Vines left our 14,000 ft. camp to make the ascent of a high peak some few miles west of Aconcagua. He was accompanied by Joseph and Louis Pollinger. They had a difficult climb, and met with an accident that very nearly proved fatal. It happened thus:—Louis Pollinger was leading, Mr. Vines in the middle, and Joseph Pollinger behind. The leader, thinking he might save a long detour by negotiating a difficult rock-climb ahead of them, made for this nearly perpendicular face; but when the party had got about half-way up, Pollinger found it impossible to proceed

higher. In turning to descend he fell, at the same time dislodging large masses of loose rock, which only just missed falling on Mr. Vines, while he landed on the edge of a very deep precipice, just escaping a jagged pinnacle of ice, which must have killed him had he struck it. He was much shaken, but was able to proceed after a short rest, and they reached the summit at 1 P.M. without further mishap. I estimate the height of this peak at about 19,000 ft., but the calculations have not yet been worked out. The last part of the ascent was difficult and dangerous, owing to the ice cornices. The party got back to the 14,000 ft. camp late that evening. Pollinger was some days before he quite recovered from the effects of his fall.

Mr. Vines and Zurbriggen, Lanti, a mule driver, and three mules left Punta de las Vacas March 27, and reached the foot of Tupungato on the 27th, after 40 miles of very rough riding. They made a base camp at about 10,000 ft. On the 28th they pushed on, and slept under a rock in the open at 14,000 ft. On the 29th Mr. Vines, Zurbriggen, and Lanti started. Lanti returned at 17,000 ft. ill; the others, at 3 P.M., still 2,500 ft. from the summit, were forced to descend. They returned to main camp at Vacas for fresh supplies and more porters. On April 3 the same party, augmented by two porters and more mules and horses, reached the base camp on the evening of the 4th. On the 5th they started for the bivouac at 14,000 ft. On the 6th they made a second attempt, only to be driven back by storms and mountain sickness. On the 8th they made a new bivouac at about 17,000 ft. A hurricane destroyed their tent during the night, and forced them to retreat again. The cold was terrible, the thermometer standing at 5°. On the 11th they again bivouacked at 17,000 ft., and the next day Mr. Vines and Zurbriggen reached the summit at about 4.30. The porters were obliged to turn back ill at about 20,000 ft. The whole party returned to Vacas on the 14th, after nine days of great suffering and exposure. On April 29 Mr. Lightbody and Mr. Philip Gosse, with Lochmatter as porter, made the ascent of the 'Forked Peak,' as we call it, a mountain about 17,000 ft. S.W. of Aconcagua. They started from a camp 18,500 ft. high in the Horcones valley.

Many full plate photographs were taken, also some 60 yards of cycloramic film were exposed. Geological, zoological, and ornithological specimens were collected.

Our party consisted of:—Stuart Vines, A. E. Lightbody,

Alan de Trafford, Philip Gosse, with Mattias Zurbriggen as guide. Also Joseph and Louis Pollinger, Lochmatter, Nicola Lanti and Fritz Weibel as porters, besides several native mule drivers.

Of our climbing and exploration, of which the foregoing, of course, is but the briefest summary, I hope to give an account in a volume to appear in the autumn.

‘PROGRESS’ IN THE ALPS.

BY THE REV. H. B. GEORGE.

(Read before the Alpine Club, December 13, 1897.)

I FEEL that apology is due when a veteran like myself ventures to address the Alpine Club—nay, more than a veteran, for I am no better than a Chelsea pensioner, laid entirely on the shelf so far as mountaineering goes, and perhaps not altogether impervious to the temptation which is understood to beset such respectable old cripples, to

Shoulder his crutch, and show how fields were won.

Still, we who belong to the past have one advantage, perhaps one only, over you who belong to the present. We remember a state of things in the Alps which men, say under thirty, can barely imagine, and can form an estimate of what has been gained and lost by the change. I will say nothing about the greatest difference of all; the necessary loss, so far as the Alps go, of the many-sided pleasure associated with new ascents, of which I personally had but enough thoroughly to realise its charm. I fancy I hear the younger men grinding their teeth with vexation at the thought of what they lost by being born a generation too late, and I will give them no further pretext for tearing me to pieces. No; the changes I am thinking of are those of organisation, so to speak, of the conditions under which life is lived while we are among the mountains. The white peaks and the broken icefalls, the rocky pinnacles and ledges, are what they were forty years ago, though it is certain that the latter at least are now attacked with a skill and audacity which had hardly then dawned on the imagination. The differences are down below, from where huts begin to be found down to the lowest level attainable in the mountain land. And I think they may all be summed up in one phrase—the Alps have become popular. The founders of the Alpine Club rendered a vast service to the youth, not of this country only, but of the whole civilised

world, by inventing the best of all forms of athletic amusement; but the very greatness of that service implied that ever-growing numbers would devote themselves to the pursuit, and the increase has been, in fact, enormous in the total of climbers. Since the foundation of the Swiss Club, the first-born of our posterity, which took place, I think, in 1863, the number of our club has grown by three or four hundred; and there is, for very obvious reasons, a considerably greater proportion than formerly of English climbers who are not in the club. Outside England the increase is not threefold, but twenty- or fifty-fold. If not a soul went to the Alps who did not mean business, the hotel accommodation of 1863 would simply not suffice—I will not say in the crowded centres only, but even if the climbers were distributed mathematically over the whole mountain area. The results are not pleasant, even with the vastly increased accommodation, in all respects. Poets, or mountaineers in a poetical mood, used to talk of icy solitudes, and the silence of the everlasting hills. Solitude on a peak is almost as difficult to realise nowadays as any other poet's dream, whereas in the sixties—I have consulted my old diaries, and found that in fifty-six expeditions of that decade my party three times joined another bent on the same thing, and three times casually encountered other people on the snow. I remember that in 1862, while Moore and I were failing to ascend the Mönch from the Wengern Alp, some other men were making the third ascent of the Eiger. As we re-entered the hotel, Christian Almer asked me what I thought of consoling ourselves for our failure by going up the Eiger next day. I gave no answer at the moment, but when we met again before bedtime we had separately come to the conclusion that it would be bad form to make use of other men's steps. What peak in the Alps could be now ascended, except just after a spell of real bad weather, if the same scruple were still alive? Of course, this is very disastrous from the point of view of sentiment; nowhere is the ordinary gregarious temper of humanity less in place than when one is breathing 'the difficult air of the iced mountain top.' But it must be confessed that there is some compensation, and that of the most important, though perhaps least agreeable description. When an accident happens, large or small, the vicinity of another party may easily make all the difference between life and death.

It is not, however, entirely, or even mainly, the growth of mountaineering which has transformed life in the Alps. There has been a still greater proportionate increase in the

mass of non-climbers resorting to the chosen haunts of the mountaineers. There was always a fair number of business-like walkers, whose aspirations were limited to the Jardin and the Théodule, or perhaps the Mettenberg, who rarely took a guide and mostly carried their own traps, men who occasionally furnished excellent recruits to the noble army of climbers. Doubtless there are more of these than formerly, but the growth is mainly of persons who are still less pedestrian.

We are always being told that we live in a democratic age. The word is made to mean many different things according to the taste and fancy of the speaker or writer, but in every sense it is more or less true. What concerns us in the Alps is the social sense; indefinitely large numbers of people nowadays do things of which formerly they never dreamed, for lack of opportunity or knowledge, perhaps of cash. The few suffer through the crowding, but they also gain in the facilities without which the many could not come to crowd them. I do not say that the compensation is adequate, but it exists; and, inasmuch as we cannot undo the democratising, to which we have ourselves contributed, I think we are fortunate to have so much compensation. Zermatt in the old days, when one would not see a white collar during a whole summer, when the club-room was that depicted in Mr. Whymper's frontispiece, was more to my liking than the Zermatt of monster hotels, station omnibuses, and elaborate toilets. I admit the nuisance of trudging up the long hot valley unless one went in over a glacier pass. No doubt one usually did take a glacier pass; in those days we did not despise passes, as seems to be now rather the fashion, unless they take the form of going up one side of a peak and down the other. But even in those golden days one was driven repeatedly to traverse the whole length of the Zermatt valley on 'shanks his mare,' and still worse the Rhone valley in the crawling *einspanner* or lumbering diligence. To be able to substitute the train for this weariness is, I should imagine, a boon to all climbers, especially those who centralise; for, after all, they can go over a mountain if they like. To us old fogies who can no longer climb, the boon is a very real one; it makes one's holiday practically a couple of days longer. And though I am not prepared seriously to maintain the utility of our continuing to exist, yet here as a matter of fact we are, no more to be kept aloof than the rest of the democratic flood. Seriously, we cannot prevent all the world rushing to our favourite haunts. So far as getting there is concerned, and

living in them, we are simply items of that world, not a caste apart; and we may, I think, be fairly contented to accept the comforts and facilities which we used not to enjoy. Like a landowner who has to give up a bit of ground for a railway, we do not like parting with our ancient exclusive ownership, but we receive a pretty fair price by way of consolation.

Take as an illustration the place which personally I love best in the Alps, the Wengern Alp, or, to be more accurate, the Little Scheideck. A generation ago there was a humble inn, well managed and satisfactory within its limits, but then those limits were narrow. The bedrooms were bare little slips, provided with the minimum of necessary furniture; the *salle-à-manger* was the only place to sit in; probably there was not an arm-chair in the house. The cooking was adequate, but rough; supplies were capable of running short. I remember being seriously delayed in starting for the first ascent of the Jungfrau from that side, because there was no bread left, and it was necessary to send to the Wengern Alp Inn to beg for more. It took pretty well a day to get there from Thun, the nearest point on a railway. Now one can leave London at 11 A.M., and be on the Little Scheideck in less than 24 hrs. Now there is a large hotel, with salon and smoking-room, besides the hall, with a fair supply of newspapers, and post twice a day. Now the bedrooms are furnished according to civilised principles, so that anyone who wants to read or write in quiet on a wet day, or after an expedition, can sit in his room with comfort. And the older one grows, the more one appreciates the pleasure of being able to live in comfort 7,000 ft. above the sea.

On the other hand, the railway brings crowds; the question is how far those crowds interfere with the mountaineer. But here we must discriminate, for there are many elements in the crowd. First of all there is one which we all welcome, for has not a member of the Alpine Club the right which St. Paul claimed for himself, though he did not exercise it, to lead about a wife or a sister, or even daughters? And then there are the ladies whose only home is in their portmanteaus, quiet old maids usually in couples, widows with a daughter or two no longer very young. These people used to content themselves with Interlaken, or Vevey, or Lucerne; they mostly limited their journeys to places accessible by railway or steamer, occasionally venturing on a diligence; it seldom entered into their heads to mount on mule back. But as railways have been constructed, their sphere has extended, and now they form an appreciable element of the

crowd. Of course they are all English, of course some are pleasanter than others, but they are all at least harmless; and I think it must be said that to them is mainly due the prevalence of the black coat at dinner time, and similar social observances.

Then there is the mob of trippers, who swarm all through the middle of every fine day, but do not signify much, for the mountaineers certainly, and other people if they like, are out of the way. The majority only stay long enough to eat, happily many of them at the station; others cluster on the Lauberhorn, or straggle up the track to the Eiger Glacier; but all are gone long before sunset. And there is a certain pleasure, cynical if you like, in studying the manners and customs of some of them. One day there came up a *gesangverein* from Pumpernickel (or was it Gerolstein?—I forget exactly), thirty or forty strong. They wore elaborate badges, and some of them started for the Eiger Glacier, but they all sat down to dinner at 12.30 and stayed there till 4.30, singing rather nicely at first, but less articulately as the afternoon wore away, which was perhaps accounted for by there being more empty bottles than men when at length they left the table to return to Pumpernickel. I confess that I thought it was a pity they ever quitted it; they could have boozed equally well at home. Another day I had walked down to Grindelwald to see a friend, and came back in the train with a personal conductor and one of his victims; the rest of the flock were in another compartment. The conductor was a very decent fellow, anxious to pick up all the information he could. He told me he had once been up the Wetterhorn, though he had no taste for climbing, so as to know what a mountain ascent was like. In fact, he showed so much zeal in his rather ignominious calling that he reminded me of the actor who blacked himself all over to play Othello. But his companion was perfectly abject. As we neared the Little Scheideck he asked anxiously if he need get out of the train. 'No, I don't know that you need, but the train stops there an hour, and people consider it one of the finest views in the Alps.' 'I don't care; I don't want to see anything more. I only want to get to Geneva,' where as I gathered he was to be released from his bondage and allowed to go home. A generation ago Cook, I think, existed, but he could not bring these reluctant sheep to places far beyond the railway. Yet do we not now most of us take advantage of Cook's machinery to get our through tickets? If Cook helps to bring the crowds to the Alps, he helps us also.

Cook's junior rival, Dr. Lunn, treats the Wengern Alp more mercifully, appearing once a week only. He comes up in his scores or his hundreds every Monday from Grindelwald, marches up to the Eiger Glacier, and there listens to a discourse from somebody. What these *causeries de Lunndi*, as some bad punster named them, really amount to, I cannot report. Every self-respecting dweller at the Wengern Alp goes somewhere else on Mondays. Once, forgetting the day of the week, I went to the glacier early, and was pottering about in the usual manner, when suddenly—a crowd, and an archdeacon. What was to be done? If I retired across the glacier, perhaps the crowd would follow, taking my axe for part of the show; besides, I had no lunch in my pocket. If I stayed to face them worse things still might happen. The only chance was to turn their flank. Exactly how and where I got off the glacier I do not clearly remember, but it was not by the path that I returned, and I did not hear the archdeacon.

There is one sub-species of the genus tripper which may be called *Americana*, because its ways are those of the conventional Yankee doing Europe in a hurry, though it comprises many more Germans and Swiss than real Americans. Its habits are such that naturalists have few opportunities of observing them. It arrives at the Wengern Alp late in the evening, occasionally, if the swarm happens to be large, crowding the house unpleasantly; and it invariably disappears by the first train next morning. Now at that hour the climber on duty is half way up his mountain, and the climbers off duty and other inhabitants are mostly still horizontal. I owe to the misfortune of being a bad sleeper, and therefore very ready for early breakfast, the opportunity of studying this species at leisure. Day after day I have enjoyed their conversation; I have heard them abuse the bread or the coffee, and inquire after the exact time of the train's arrival at Interlaken; I have heard them tick off the Wengern Alp as a thing done; I have had my knowledge of the extent and variety of mispronunciation possible in the German language very greatly extended; but never have I heard a word implying the slightest appreciation of the scenery which, *ex hypothesi*, they came to see. And now that the species has been described, nobody will wish to hear of it again, a fate which befalls many new species.

The Little Scheideck threatens to become a very centre of railway enterprise. I understand that a concession has already been obtained for a railway up the Lauberhorn, a

great mistake, for the slopes are gentle, and the top is too small. And there is a talk of one to the Männlichen, which would be simply a crime. Finally, all the world knows that there is to be a railway up the Jungfrau. As regards the last, I had been in hopes until last summer that as soon as it had been made up to the edge of the Eiger Glacier, the rest of the scheme would be abandoned. The work was being carried on in 1896 in a way that suggested 'Punch's' ancient cartoon of a wasted session of Parliament. Mrs. Britannia asks John, her head servant, 'What have you been doing all this time?' 'Nothing, mum.' 'And what have you been doing, Pam?' 'Helping John, mum.' Nor was the road-making very much more rapid in 1897. In two summers half, or, perhaps, two-thirds, of the distance to the Eiger Glacier has been dug. At this rate of progress completion may be confidently expected by the year 2000. On the other hand, stacks of iron sleepers have been provided; copper wires have been put up the whole way from Lauterbrunnen to convey the electricity which is to do the boring, and eventually to drive the trains; and the tube for diverting part of the stream of the White Lütschine to work the dynamos is nearly complete. Moreover the engineer is a wealthy man and an enthusiast, not a speculator; he has hitherto provided all the money required, and believes implicitly in the scheme. Whether he will find enough money that shares his enthusiasm remains to be seen; but I fear there is no doubt the work will be carried on in earnest. When I left the Wengern Alp, the engineer hoped to begin boring into the flank of the Eiger before the end of September, and to be able to arrange for working through the winter. What has actually happened I have not heard.

If the Little Scheideck is going to be thus turned into an Alpine Clapham Junction, will not all true lovers of the mountains shun the desecrated spot? Possibly; it is a question of degree, whether the desecration is sufficient to outweigh its inherent charms. Yet there is a place within easy distance of the Wengern Alp, one of the loveliest which I know, where one may spend the whole day without seeing a human being, or hearing a sound save the distant cowbells and the occasional thunder of an avalanche. But cart ropes shall not draw from me a hint as to where it is situated, lest the tribes of Cook and Lunn should descend on it, and destroy it utterly.

Chamonix is in most respects not so far advanced in democratisation, but except that the place has provided

itself with electric light, and has completely hidden the generating station among the trees on the Brévent slope, the changes tend to the bad. The railway, which will be opened to St. Gervais next June, will be years in reaching Chamonix, for the work will be heavy, notably a great bridge across the river near the top of the long defile below Les Houches, but when it does come it will be very disfiguring. The line is to come up the left bank of the river, to have its station placed so that the road to it will run between M. Loppé's gallery and the English church, and to be taken by a straight gash along the whole southern slope of the valley up to the Montanvert. Possibly when this is finished, and much occupation of carriage and mule driving is destroyed, the inhabitants may revert some of them to other employments. At present I am told that a Chamoniard workman is not to be found; all the men call themselves guides, &c., and all handicrafts are left to strangers. The experience of the thoroughly bad season of 1896, followed by another not much better, may teach them that a community cannot live on the *fremden-industrie* alone.

The worst thing I heard at Chamonix was that last spring some idiots collected a considerable sum for prizes for a race to the top of the Brévent and back. Whether the rage for record breaking is or is not an outcome of democracy, we need not inquire; we are all agreed that the Alps offer the most injurious of all fields for emulation in this direction. What it cost the competitors I naturally did not hear; but it is obvious that to go up the Brévent and back under two hours must strain dangerously the strongest heart and lungs. The Chamonix guides, as a body, are none too good already; if they repeat this folly often, they will soon become a *quantité négligeable* altogether.

The Grands Mulets hut has assumed the dimensions of a small hotel, and I believe the like has been done at the Concordia, and there are other moves in the same direction. Those who remember the days when the Grands Mulets possessed almost the only hut in the Alps, except Agassiz's deserted cabin on the Aar Glacier, which moreover was of no practical use, will probably most of them wish that there were none now. Certainly we managed tolerably well with the Eiger-höhle and the Faulberg cave, and occasional bivouacs. But the democratisation of the Alps rendered huts inevitable, and it must be confessed that they give some compensation. Fewer failures from bad weather, diminished risk of disaster from the same cause, the possibility of doing very long

expeditions in the shorter days, facilities for combining more ascents than without them would be possible in a given time—these are advantages which every mountaineer appreciates. I allow, nay, I insist on, the superior charms of the bivouac pure and simple; but one was shy of starting to camp out in dubious weather, whereas if you can go to a hut, the only risk is of having to return next day *re infectá*; and if the clerk of the weather does his duty, you get your expedition. And if you are to have huts, they may as well be comfortable. I remember the first time I went to the Grands Mulets, when one had to lie on the floor, spending the night in calculating whether it was least painful to lie lengthways of the planks, with cold air coming up all along each side of me, or crossways upon a sort of gridiron of draughts. The crowd, of course, occasionally is abominable. The Vallot refuge, packed so tightly with human beings that everyone had to stand, suggests the Black Hole of Calcutta. The Orteler Spitze between the Payerhütte and the summit is a sight to make angels lose their tempers. But then why did we render the Alps popular? If huts are to exist, I think it a pity that more in Switzerland are not organised on the Tyrolese model. Wherever the influence of the German-Austrian Club extends, the mountaineer knows exactly what supplies he can reckon on; and there is a fixed and very reasonable tariff for everything. If this is feasible in one part of the Alps, why not in another? Why should a night at the Grands Mulets cost more than at the most luxurious hotel in London or Paris?

Finally, let me make a suggestion. Mountain railways have come to stay; let us try to keep them harmless. Might not the Alpine Club formally request the Swiss Government not to allow any railway or hotel buildings to be erected actually on the summit of any mountain, large or small? The panoramic nature of the view from a mountain top is one of its greatest charms. There is a certain element of truth, perhaps, in Dr. Johnson's opinion, that a fine view is improved by having a good inn in the foreground; but let us be accurate—let it play the part of the cattle grazing or nymphs dancing in an eighteenth century landscape, not interfere with the view altogether. A proviso to the effect that the Jungfrau railway was not to impede free access to the peak was inserted in the concession by the Federal Council. And though the top of the Faulhorn, or even of the Gornergrat, is of less æsthetic value, yet its value is very real, and concerns a much greater number of people. If such a condition were insisted on a few times, it would establish a principle; and

then if we cannot keep the mountain slopes from invasion by the railway fiend, we shall at least have the summits clear.

A DOLOMITE HOLIDAY.

By EDWARD A. BROOME.

MEN are boys writ large, and what overgrown schoolboys most of us are! How we look forward to our holidays from the end of the last to the beginning of the next; and if an Alpine holiday is contemplated, our keenness exceeds even that of our boys! This particular holiday had been long anticipated, though often deferred. One year the Dolomites were too far, another we were too few; but last year all seemed propitious, and a pleasant party (including my friend, Mr. Pryor, who knew the district) was arranged.

We had, perhaps, even less to complain of from the weather than any other party out. At any rate, whilst in Switzerland and Savoy little was being done, and the more difficult rock-peaks not climbed at all; while closer to us, in Austrian Tyrol, bridges were being washed away, and wretched railway passengers carrying their own baggage across yawning gulfs; we pursued the fairly even tenor of our ways, only got drenched five times, and in five weeks got up twenty peaks besides some passes.

It is right, however, at the outset to warn the long-suffering reader that if he expects new expeditions, or even new routes up old peaks, he is doomed to disappointment. No new peak, nor even (so far as I know) any important variation, was attempted. We were content to climb the best mountains by the known routes, and my excuse for this paper is that the Editor asked me to write it; partly, I suppose, because so few English climbers go to the Dolomites, and so little has lately been written about them in the 'Journal.'

The Dolomites! I longed to see them, their fantastic forms, their dark green forests, their gorgeous colours. I had devoured all the books (in English) about them I could find—Gilbert and Churchill to Sinigaglia, Leslie Stephen and Amelia B. Edwards to Sanger Davies. Pictures I had seen; Titian's, Elijah Walton's, and latterly my friend Howard's, whose 'Civetta' was to the fore in last year's Academy, and whose Dolomite paintings were the feature of our own private and particular little Academy in Savile Row. I had also cross-examined such of my friends as had been there; and now at last, on July 29, the Channel was crossed, our internal

arrangements duly disarranged, even our early eviction from the Engadine Express at Feldkirch ended, and Innsbruck reached the next afternoon. Here, of course, it was necessary for the ladies to 'rest after the journey' and do a little final shopping, while the more energetic explored the interesting old city, visited Schloss Andraz, and got a glimpse of the Oetzthal and Stubaihal snowpeaks from the hills near.

Monday, August 2, we were again early *en route*, crossed the Brenner, and after 1½ hour's detention at Bruneck (owing to the floods) reached Toblach at luncheon time, rejoicing in the thought that we had done with railways for some weeks. This is a *dear* spot in more ways than one, and the fine new hotel should add one more conspicuous signboard, 'For Millionaires only,' to those it already has. The drive hence to Cortina is grand, and affords fine views of many peaks with which we were to become better acquainted. The Popena and Cristallo from the Durren See, the Drei Zinnen, and the blood-red Croda Rossa, are specially graven on my memory, and the first and last-named were added to my programme.

The journey, however, was spoilt to some extent by the vagaries of our driver, who confirmed an old theory of mine that getting to and from the mountains is quite the most dangerous part of mountaineering. Our Jehu was certainly mad or drunk—or probably both. He emerged from every house of call *en route* wiping his mouth, burnt good garments with red-hot ashes of bad cigars, shaved awful precipices, banged into parapets of bridges, and charged other entirely innocent vehicles. He informed us that the best way of driving down steep hills (like the zigzags between Ospitale and Fiammes) was to recross backwards and forwards from one extreme edge of the road to the other; a theory from which I entirely dissent! However, once more a special providence 'watched over children and drunken men,' and after sundry repairs we arrived very late at Cortina, where our pleasant reception at the 'Faloria' and the good dinner Signora Menardi gave us, did much to efface the terrors of the drive. We were also met by my old guide, philosopher, and friend, Josef Marie Biner, of St. Niklaus, who (like myself) had not been here before.

Our coming first to Cortina was part of a carefully considered campaign, confining our climbs to the Dolomite district proper, which only covers an area of about 50 miles by 40, and for which Cortina, San Martino di Castrozza, Caprile, and Campitello are the best centres. We thought of giving about a fortnight each to

the two former, and all the rest of the time at our disposal to the two latter. The idea of also doing some work on the W. side of the Eisak and Adige had been dismissed, for if a good number of the real Dolomites were to be climbed they would give us quite enough to do. This disposal of time was afterwards slightly modified, as my climbing companion, and other members of our party, only arrived at Cortina a week later, and then did not want to hurry away; but as a theoretical arrangement it could not be much improved upon.

At Cortina rock peaks surround the valley on all sides, and from the 'Faloria'—which is close to the pine woods, 400 ft. above the town, and much more bracing—the Cinque Torri (resembling an enlarged Kenilworth Castle) and the Nuvolau are especially conspicuous. Being neither far away nor high, they seemed cut out for a training walk; so the following morning (3rd) Biner and I started at six o'clock, and in about 3½ hrs. easy going were at the Sachsendank hut which crowns the Nuvolau, and contained things to eat and drink. These fortified us for the Torri, the foot of whose biggest tower is perhaps half an hour below the hut. We had not, however, the slightest idea which of the four walls to tackle, each being cleft by a similar fissure. We knew that one of them was our route, so I prospected one way, while Biner tried the other. A 'view holloa' took me round to the N., a short rope was adjusted, and the little climb begun. It is interesting, typical, and short, taking a little under 25 min. each way. The rock architecture is extraordinary, the whole being broken up into bridges, chasms, and chimneys; while the chief peculiarity is that from the time you climb into the cleft at the foot, till you scramble out of the chimney at the top, you are *inside* the rock. The tower is 500 to 600 ft. high, and nice practice; the route too must be greatly improved since the first ascent in 1880, as this took 3 hrs., and the guide's verdict was that 'in none of the Ampezzo mountains was there a bit as hard as the easiest on this!'

The next morning was devoted to making acquaintance with the pretty town, and the afternoon to a picnic at the Belvedere; but the following day (5th), with Tobia Menardi as second guide, I set out for the Croda da Lago. The hour was five, and we hardly ever started before, usually getting back quite early in the afternoon—a great pull. The Croda is a deservedly popular ascent, good firm rock and very little scree, and I shall always remember it as having first introduced me to Kletter-schuhe, to which everyone new to the Dolomites

takes so kindly, and which might with advantage be used on purely rock-peaks elsewhere. The actual climb is all too short, only occupying 45 min. from the Rastplatz, where the rope is put on. It is chiefly made by steep chimneys, with traverses between, until a little col not far from the summit is reached, whence fairly perpendicular rock faces are surmounted to the top. We descended a different way by the N. ridge, an arête of beautiful firm rocks with capital holds; and though rather awe-inspiring to look at, quite easy to do, while the narrow ridge made the descent a nice contrast with the different work on the ascent. Both occupied exactly the same time. The return to Cortina was by the Val Formin, through shady woods and by pleasant streams, leading ultimately into the road near Pocol.

Saturday (7th) I crossed Piz Popena. This proved a more important expedition, and one of the best in the district. It is a longer day, too, than most others, and for once we started at three o'clock, and didn't get back till after five. The Popena precipices are magnificent from whichever side they are seen, and I can only suppose the reason this fine peak is not more often climbed is the long and tedious grind up the ordinary E. route from the Misurina valley. Our intention was to try it by the W. face over the Cristallo Pass, waking up Menardi as we passed the Tre Croci Inn, and going slowly, we arrived at the pass at 7.30. Hence, after breakfasting, we took 2½ hrs. to the higher col on the summit ridge which ends the difficult part. This is all really good rock work; commencing with a good chimney, a traverse is made to the right, whence still bearing right-handed, difficult 'chimneys' are appropriately followed by narrow 'mantelpiece' shelves, varied with the occasional dog-kennel caves so often seen in these regions. These latter we found useful to rest in, while the man in front or behind moved, for care is required throughout, the ascent being almost absolutely perpendicular, and the loose stones numerous. On the other hand, the rocks themselves are fairly sound, with sufficient holds. The last chimney landed us 30 or 40 ft. below the aforesaid col, and a final good scramble up the face was necessary. Up the easy arête to the top took half an hour more, during which it began to snow vigorously. Down to the col again, below which the snow turned to heavy rain. The descent on the E. side was by a steep snow couloir with overhanging walls, over which the rain poured in sheets; lower down we had loose and steep scree slopes, wet snow, and swollen water-courses, so I draw a veil over

the clammy condition in which we arrived at Croci and Cortina.

For the next two days the deluge continued. The rain descended, the floods came, the winds blew and beat upon our house and the oburgations thereat were great; for though it did not so much matter about Sunday, a trip up Cristallo with a keen laughter had been planned for the Monday.

The bad weather did not much damage our peak, and on the following day (Tuesday) we carried out our intention, and had a jolly little climb. I don't propose to enlarge much on this; Cristallo is the best known and most often climbed of all the Dolomites. Let it suffice that none of us had been up before, and that so far as possible we avoided the ordinary bicycle-track. In this we were fairly successful, for when we were at the foot, a locally-guided party were on the summit; and when we were on the summit, they were at the foot, and we had not met. In going up we negotiated—a few minutes before the top—a short rock arête 'à cheval,' which may or may not have been the 'Böse Platte.' Anyhow, the young lady (who prefers her horse exercise with hounds) besought me to make another route back, and seeing my way to a few pretty chimneys, I gladly did so. The whole day was enjoyable; our view from the summit was certainly not very successful, but in this respect, after early morning, the Dolomites are generally uncertain, and this season even more uncertain than usual.

That same evening the rest of our friends arrived, and (with one exception) all my further climbing was done with Pryor, using a couple of ropes;—two men on the one and two on the other. This method is the rule here, and where there is so little glacier has everything to recommend it.

August 11, after luncheon, we went off on wheels to Misurina; and after duly anathematising the hideous hotel now being erected at the S. end of the pretty lake, which makes such a bad foreground for the view, arrived at the old inn more fatigued than if we had walked. However, the celebrated blue trout of the lake and a whole 'flask' of excellent Chianti, which in a hasty moment I ordered, and which took us a good many leisurely moments to finish, brought sound sleep and oblivion of the shaking.

Next morning we set off at four o'clock for the Drei Zinnen to do both peaks. These obelisks are the most impressive of all the Dolomites, and the climbing is considered to be as good as it looks. The beautiful walk up to the saddle between the Kleine and Grosse Zinne, from which both are climbed,

occupied $2\frac{1}{2}$ hrs., the last bit only, up steep scree and snow, being trying. Breakfasting, roping, &c., took $\frac{3}{4}$ hr., the climb to the Kleine Zinne summit 1 hr. and 5 min., and the descent 1 hr. and 20 min. The first part is simple enough, but presently (bending more to the left) the work gets harder, the rock-faces steeper, and the chimneys longer, till the celebrated traverse is attained. I cannot see any special danger here; if a climber wants to tumble off it he easily can, and in that case



THE KLEINE ZINNE.

would commit murder as well as suicide. But the average one doesn't, and to him it is a splendid scramble all along, and especially over the last big slab or two at the end of the traverse. After this some more steep rocks lead to the well-known 'Jammed-stone,' or Zsigmondy Kamin, at the foot of the final wall. This is perhaps 60 or 70 ft. high, and takes a bit of doing, the Jammed-stone being neither easy to surmount nor to descend; but I did not (either going or coming) see anyone circumvent it upside-down, as depicted in

Mr. Sanger-Davies' well-known sketch! We returned the same way, reaching the saddle again by ten o'clock.

More breakfast followed (or was it luncheon?), after which we tackled the Grosse Zinne at 10.45. This took $1\frac{1}{4}$ hr. in the ascent, and rather more in the descent, and was climbed in boots, not klettershoes. It is easier than the sister peak, but contains plenty of interesting work, and about half is scaled on the E. side, and then, after going through a rock gap, a long shaly traverse is made, and the other half surmounted on the S. face. The last half hour is the best, and comprises some good bits, including a long cavernous couloir, called the Schwartze Kamin. Many interesting views of the Kleine Zinne precipices were seen, one of which, taken a day or two later by Mr. C. E. Thomson, is here given.

The descent was made to within half an hour of Misurina; whence, turning off down a valley to the right, the southern slopes of Monte Piano were skirted, and the Val Popena regained an hour above Schluderbach. Here hours with tea and other rewards of the faithful awaited us, and we all drove back the 10 miles to Cortina.

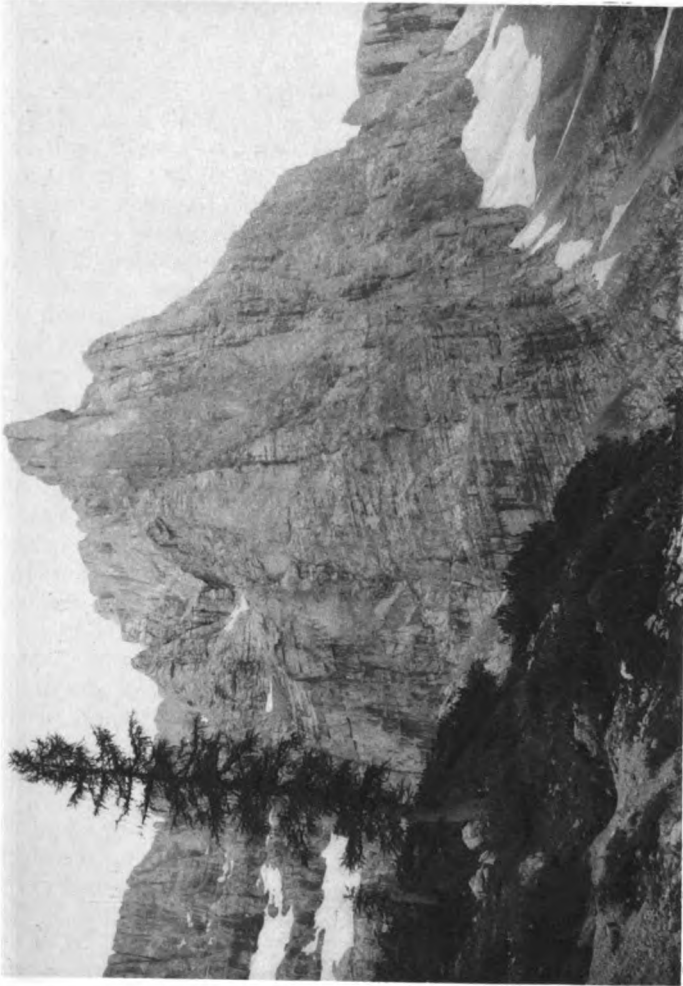
From the Zinnen, as well as from Popena and Cristallo, we had been impressed by the great battlemented wall of the Sorapis range, and decided to cross this peak next. A grand view of the huge mountain mass may also be had from St. Vito in the Ampezzo Valley and other points; but the 'vast amphitheatre of wall and embattled turrets' (vide Gilbert and Churchill) are better seen from the North side. Sorapis is usually slept out for, in the new and comfortable Pfalzgau hut at its N. base; but as this can be reached from Cortina in about three hours, we preferred the Falorian fleshpots to making two bites of our Cyclopean cherry. Starting early on the 14th, the hut was reached by five; and while we waited for the breakfast which was following us on two pairs of legs, my companion was fortunate enough to secure the view illustrating this paper, which possesses the double merit of being a good picture, and showing most of the route. We then went up a little higher, leaving the lake to the right, and breakfasted on the moraine, starting afresh at 6.30.

Soon reaching the glacier, and leaving to the left the broad island of rocks, we got to the foot of the great wall. This supplied interesting work, first by the face, and then by chimneys, till some terraces were reached, which had to be traversed to the left. So far all was easy, but more difficult chimneys and faces followed, and were succeeded

(bearing right-handed) by a frozen couloir necessitating step-cutting. Above this the arête on the top of the wall was surmounted, and then followed the *mauvais pas* of the peak. This consists of a very smooth perpendicular wall 18 to 20 ft. high, with two narrow ledges, one to take off from, and the other to land. On the former we overtook a foreign gentleman, who was rather blown, and who asked us to precede him. Menardi climbed up on Biner's shoulders, and then with a shove of the axe and a scramble was up. We all followed (perhaps with a little hempen assistance), and I found Biner's *head* useful as an extra step. This was the last difficult bit, and a few minutes later we waited on the saddle, dividing the lower from the higher peak, for our friend to repass us and reach the summit first (11.15); a trifling courtesy for which he repaid us later by sending one of his men racing down to St. Vito to secure the only vehicle there! Leaving the top at 12.15, and descending by the ordinary southern route via the Forcella Grande and the Antelao hut, we arrived at St. Vito at four o'clock. The descent was easy, and the only special item remembered is a pleasant rarity in the shape of a 1,000 or 1,200 feet glissade. After all, we luckily annexed an antediluvian vehicle from Chiapuzza, the village next above St. Vito, and drove off in it, just in time to escape a soaking.

August 16 was wet again; Mondays were monotonously moist. On the 17th Pryor and others were for Cristallo, while I hesitated, like the proverbial donkey, between Pelmo and Croda Rossa. The bases of both being distant, starting on wheels for either was desirable; but when it was discovered that, owing to the absurd Dogana rules, driving to St. Vito in forbidden hours would involve 100 lire fine, I naturally remembered Sinigaglia's opinion that Pelmo, though a fine mountain, was 'devoid of climbing interest,' and that the only interesting passage had been 'simplified for the benefit of families and young people!'

Croda Rossa, the 'blood-stained mount of sacrifice,' on the other hand, presented no financial difficulties, so we sleepily drove off there at 4 a.m. in a waggonette, which enabled two of us to repose full length on the seats, while the third nodded alongside the driver. The choice was wise, and from the time we finally woke up, where the mountain-path begins beyond Ospitale, till our return there at 4 p.m., the whole expedition was delightful. We were on the top from eleven to twelve; the climbing was nowhere difficult, and I recollect more about the extraordinary colours of the rocks than of their gymnastic details. On the way down, half an hour above the



From Eastern Esplanade St.

View from Galtzau Hütte.

Photo by P. H. Meyer.

road, I got the best view of the Zinnen yet seen, framed by pine slopes, and rising above the mound of Monte Piano like a Cologne Cathedral in cloudland. Will not some Alpine painter immortalise himself here?

The day (19th) had now come for us to speak the fond farewell to Cortina and go to Caprile for a day or two. It was the hottest morning we had had, and the prophecy of thunder and rain later was to be duly fulfilled. Toiling up with our sacks to the Nuvolau Saddle was a grind, and, indeed, one of us chartered a boy, but was understood later to have had to carry both boy and sack!

Climbing the 'Torri' again *en route*, with two other members of the party, made an agreeable diversion; but they returned to Cortina, whence all rejoined us (viâ Falzarego) two days later. We had a wet walk down, and the combination of rain overhead and hard stone-paved paths underneath was trying; in fact,

'Our hearts were full of weary thoughts
Our boots were full of feet.'

At Caprile we naturally made for the inn with Baedeker's 'Star,' but for once this was misplaced. Comparisons of second-rate Italian inns are, indeed, 'odorous'; but for smells pure and simple, or rather impure and complicated, the Albergo Alle Alpi beat the record. To make matters worse, when I had gone to bed after an apology for a dinner, in a dirty little blindless room whose one window opened on a narrow balcony, some blood-stained ruffians bearing lights, and armed with awful-looking weapons, tramped heavily about outside, glared in at me, evidently preparing for some hideous rite. I was alone, and could see nothing between me and a dreadful death, but, grasping a pocket-knife, prepared to sell life dearly. Presently, however, the cut-throats vanished, and when all was still I arose and found—a large calf just made into veal, hanging outside, almost touching my window! This was too much, and though Pryor's experiences were less harrowing we transferred ourselves to the 'Posta,' which had been recently rebuilt, and where we all were made most comfortable.

We intended to sleep out that afternoon for the Civetta, but it rained until too late to start. This expedition was much too long for one day, so when next morning dawned fine we booked for the Marmolata instead, and tramped off early for the Fedaja Alp, its usual starting-point. Day broke as we emerged from the gloomy gorge at Sottoguda, and from

thence it was a lovely walk up park-like Alps dotted with fine conifers. After a long delay in getting breakfast at the little inn on the pass, we proceeded up the well-used track, and over glacier-worn rocks, to the foot of the lower peak, which shows conspicuously from Penia. Here the rope was put on, and getting at once on to steep glacier, some imprecations were evoked by the local guide striding away on 'steigeisen' and never attempting to cut steps! However, the slope soon eased off, and going right up the glacier, crossing some considerable crevasses, we worked up into a tongue of névé under the summit, climbed some easy rocks, and along a snow arête up to the highest point. Here, for once, we were in luck's way, and got one of the finest views I ever saw. The day was wonderfully clear, and the isolated central position of the peak seemed to place the whole Dolomite country at our feet. The Marmolata is, of course, the highest (11,020 ft.), and from it all the others could be recognised; as well as the more distant ranges, from the Glockner and Venediger to the Oetzthal, Ortler, and Disgrazia, and far away in the south the Venice Lagoons and the Adriatic. It was a panorama not to be forgotten. We returned by the same way without adventure, in time to welcome our friends, who had had our share of them as well as their own.

Next day was spent in looking up at the towering organ-pipes of Civetta from different points and in various lights; in picnicing on the beautiful Alleghe lake, and in searching (with the usual success) for the villages and church towers that were submerged when the lake was formed a century and a quarter ago, and are still sapiently supposed to be sometimes seen!

The journey (23rd) from Caprile to San Martino proved a horrid experience, to be forgotten as soon as possible. Driving viâ Cencenighe to the inn above Forno, and breakfasting there (off puppy soup and cat's-meat) in a smell you could cut with a knife, suitably prepared the party for a soaking ride for the ladies, and walk for us men, to the head of the Valles Pass. Thence we reached Paneveggio on foot, and San Martino on wheels, wet through, and with some good embryo colds on board.

San Martino di Castrozza strikes one as being wilder and grander than Cortina. There the valley is wider, with mountains all round it; here the beautiful pine-woods contract to a narrow basin at the foot of the Rolle Pass, while overhead and all on the same side, the big peaks of Vezzana, Cimone della Pala, Rosetta, Pala di San Martino, Cima di

Ball, and the twin aiguilles of Sass Maor, stand like a row of giant sentinels. The altitude, too, of San Martino is greater by 700 ft. or more than Cortina, and the air is keener; but, alas! the inns are greatly inferior. At the larger one Panzer lays himself out for Germans, and usually packs off English visitors to the new one, Toffol's. At both, after a little moderate exercise in the morning, a huge meal is served at mid-day, and the remaining daylight devoted to torpidity, tankards, and tobacco; while Toffol (who really wishes to bid for Britons) cannot yet grasp the fact that we love baths, hate stinks, and after a hard day's work want something in the evening more appetising than cold meat.

August 24 was devoted to getting dry and taking our new bearings; and on the 25th (with Tavernaro added) we crossed the Cimone della Pala, the most imposing peak of this group, and, as seen from the Rolle Pass, much resembling a slender Matterhorn. The route was by the Rosetta path, over the Pala Alp, and up the grass ridge running out S.W. from the Cimone, till the extraordinary basin of highly-coloured porphyry, so conspicuous from the road, was reached. Here (after startling some chamois just below us) we traversed right round the basin to a col on the N.W. arête, plainly seen from San Martino. After breakfasting here the real climbing commenced capitially up a steep sort of rock-face to the foot of a huge gendarme, which was turned, and the N.W. arête again reached higher up. The ridge shortly narrowed, and the angle grew steeper till almost perpendicular; and when no longer feasible, a slightly descending traverse was made on the N.E. side till the Travignolo ridge was gained, whence the rocks to the summit were surmounted. These rocks, though easy, proved unexpectedly dangerous, and needed caution in handling; the danger and care required arising solely from broken bottles from the summit.

Our friend Jupiter Pluvius now again appeared, partly no doubt with the laudable intention of washing our bleeding hands; but the good scramble over the magnificent boulders on the long summit ridge would have been pleasanter without the accompaniment of blinding snowstorm and bitter cold. We just got a glimpse of the 3,000 ft. precipice below us, and then hurried down the S. arête, till the steep face (now festooned with a long wire rope, and leading down to a conspicuous gap) was reached. Below this notch it is necessary to burrow like a rabbit through the 'Damen Höhle,' which tunnels through a ridge dividing the S. from the E. face, and a friend had sent a message from the

Montenvers that it was too small for me. Fortunately he proved wrong, for though a tight fit, I followed the others ; possibly had the weather been better and the luncheon interval longer, I might have remained ! The rest of the descent was easy and monotonous ; first by wet rocks to the foot of Travignolo Pass, and then round base of southern spurs to the Passo Bettega, whence you look right down on S. Martino church tower.

The next ascents of any importance were (27th) the twin peaks of Sass Maor and Cima della Madonna, which also made a splendid day. We should have started at 4.30, but after waiting till 5.15 for a good local guide (not Tavernaro) who had been doing himself too well overnight, set off without him, leaving word he was not to follow. However, later on he caught us up very penitent, and we had no cause to regret the forgiveness extended. Traversing round through pinewoods from the Val di Roda into the Val Vecchia, we went up the latter and a steep rock wall to the N. foot of the Sass. We climbed up the rocks to small col between the big mass of the peak and a spur running off in a northerly direction ; thence up couloirs and chimneys more on E. side, till the arête overhanging the Val Pradidali was reached, and then pretty straight up to the summit. The last bit seemed difficult or easy *au choix*, Pryor and his man choosing a smooth perpendicular wall with one hold on it (and that came out, causing a little temporary excitement), while I strolled round an easy winding staircase ! The descent was fairly straight on the other (S.) side, down the usual gullies and rock-faces, intermixed with stony traverses, till the col between the Sass Maor and Cima was reached.

The former peak looks the more difficult of the two, especially from the E. side, where the whole wall overhangs in the most extraordinary way, but the Madonna is rightly acknowledged to be the stiffer climb. After a little rest we started on the latter, and from base to summit found it about as uniformly perpendicular as anything climbable could well be. We went straight up a series of rock faces and good chimneys to the foot of the Winkler Kamin ; then bearing to the right of this famous crack 120 ft. high, up comparatively easy rocks to the summit ridge, which was gained near the top. The return journey was down the Winkler itself, and of this all I can say is that it was easier to descend than it would be to ascend, and perhaps easier still to avoid altogether. From the col we commenced down the S. side of the Cima, chiefly with gullies filled with loose scree and stones,

and then gradually worked round to the W. buttress ; the last bit of rock-face being difficult, and negotiated quickest by sliding down a hitched rope. One feature of this expedition was the absence of water. We wanted it badly, but got none at all till quite low down the Val Vecchia.

The remainder of our S. Martino climbs I pass over rapidly, as a little space must be left for the Campitello Dolomites. August 28 we took our party up Cusiglio, an interesting minor peak of the Rosetta. The first ascent of this was made August 3, 1890,* when Mr. Wood described 'the bad rocks and troublesome falling stones.' What he would have thought of an inexperienced party 11 in number I know not, but what I chiefly thought of was a form of capital punishment (with stones) favoured by the ancient Jews. However, we returned alive, and with a harvest of amusing photographs.

Monday (30th) we did the Pala di San Martino. It might be said of this that, like the curate's egg in 'Punch,' 'parts of it are very good.' We had a capital scramble up the bergschrund on the little glacier between the Pala and Rosetta, some excitement dodging the stones which came down the peak itself (unassisted by mortals), and some really good rocks off the glacier on to the steep wall of the mountain. These rocks gradually became easier, till the ridge was gained ; thence a mere walk, with rope off, up easy ledges to the summit.

Wednesday (September 1) we traversed Cima di Canali from N. to S. This is a shorter expedition when made from the new hut at the head of the Val Pradidali ; but as it had only been opened (with much champagne) the day before, we preferred the tramp over the Passo di Ball. As feared, we found it full of belated revellers, some of whom were also going for the Canali. They went up the usual (S.) route, and we did not meet again till after an hour or more spent on the summit, which we had reached by steep rocks towards the col between Canali and Cima Wilma, and thence by N. arête to top. In descending their way, we found they had turned it into a sort of paper-chase, by placing long strips of coloured paper under (so to speak) stone-infants, at intervals of a few yards all down the couloirs, to make sure of getting back ! This simplified matters for us also, so we hurried down, over the Passo di Ball again, and home in good time.

On the 2nd we all left San Martino, some bound for the

* *Alpine Journal*, vol. xiv., p. 368.

Lake of Geneva, others for Constance; Pryor and I alone preferring to put in our whole remaining time in the mountains. After the parting at Predazzo we got a nice little carriage, which took us up the Fassa Thal to Campitello in time to see a gorgeous roseate sunset. The village is beautifully situated, and is a good starting point for the Langkofel and Sella groups, while the Rosengarten range and Marmolata are quite near. The people here are deeply religious; their church is a landmark for miles; their Sunday processions are longer than elsewhere; and they cultivate more crosses to the acre than any other Catholic community in Christendom. But we did not find them more honest, truthful, cleanly, or courageous than other less conspicuously pious mortals!

The far-famed Fünffinger Spitze was our first fancy, and, as usual, we engaged a local guide. He was absolutely the only one in the place, the others having migrated to the new popular resort, Karer-See, over the Rosengarten range. He had never been up the Fünffinger himself, and though he professed to know the Daumen-Scharte route, flatly refused to go via the Schmidt-Kamin, which was what we wanted. This expedition (September 3) proved a pleasant and short one, and certainly nothing like so difficult as the Popena, Zinne, Punta Madonna, or Grohmann Spitze. It took us about 3 hrs. to get up the steep paths, grass slopes, and rough *débris* to the breakfast place at the foot of the S.E. buttress, where we had a fine view of the unique Sella group and white Marmolata. From here our new man (having made one little wrong turn) was fairly left in the lurch, and Biner led up to the top as if he had done it once a week all his life; taking 1 hr. 6 min. going, and 1 hr. 20 min. returning. The route now usually followed lies first up a stiff chimney, a traverse at its top to the right, and then easy slopes of the S.E. buttress, off which there is a narrow traverse (to the left) into the Daumen-Scharte. Thence quite perpendicular firm rocks are ascended to the top of the first finger; another traverse into an ice couloir (where steps must be cut), and a final very steep bit of rock to the summit, which is reached sooner than expected. We loafed about and photographed a great deal returning, and got back quite early.

The following day (4th) was somewhat of a struggle with the elements. Beginning with a showery daybreak, we had a wind-storm at mid-day and deluges of rain in the afternoon. The plan was to make a round tour down the Fassa Thal, up the Val Vajolet, taking one of the Rosengarten peaks (the

Winklerthurm) on the way, and back by other valleys. By the time, however, we had sheltered several times and got to the foot of our intended climb, the wind was much too high for such an exposed scramble; so we went on instead to the Santner Pass, just managing to get up the comparatively sheltered Rosengarten Spitze without being blown off. From the top we had some glimpses of the Botzen valley, and then, coming down, continued our rund-reise to the Grasleyten Pass, under the Kesselkogel, over the Lausa and several other little passes, to the head of the Val Duron. Down this we got to Campitello with increased geographical knowledge and all the appearance of working gargoyles.

Sunday, the 5th, we saw the most wonderful processions ever beheld, also strolled in the afternoon through Penia and other pretty hamlets to the foot of the Fedaja; and on Monday morning (nothing loth) said 'Good-bye' to Campitello, sending our ruck-sacks and some provisions by a porter over the Langkofeljoch to the hut.

The Grohmann Spitze traverse from S. to N. was to-day's work (6th), and taking it all round, I thought it the most interesting and, indeed, difficult climb in the Dolomites; though, doubtless, its 'bad order' partly accounted for this impression. We did it by a route of which the first part had only once or twice been taken before; up a marked Kamin of considerable length and difficulty, commencing on the E. face, a little below the Fünffinger and Grohmann Col. So narrow was this in one or two places that, fearing to get stuck fast, I preferred the steep wall on its left. From the top of the Kamin, a long wearisome traverse was made right round the E. and S. faces (probably at Mr. Wood's level*) to the foot of Johannes-Kamin. This is well named, and proved a veritable shower-bath; being well iced also, it was no joke. The watchword, however, was 'slow and sure,' and we had the satisfaction of knowing that at its head we should be only 10 or 15 min. from the top of the peak. When there we saw other parties on the Fünffinger Spitze, almost within speaking distance. The descent by the ordinary (N.) route did not turn out easy, owing to the ice, snow, and intense cold on the upper part, and especially down the first long gully near the top. The two higher traverses and another couloir proved ticklish from the same cause, and were left behind without much regret, but below the ladder it got better, and the last rocks down to the col were quite easy.

* *Alpine Journal*, vol. xvi. p. 58.

Going down the S. side, we passed our morning's starting point, traversed the grava under the Fünffinger for the last time, ascended to the Langkofeljoch, and down the wild rock-strewn valley to our quarters at the Langkofel hut. Arriving early, we were delighted to find solitude, but, alas ! this was not to last. Presently heads appeared coming up from below, followed by more heads ; then parties came in sight above, followed by more parties, and all (or nearly all) to stop :

' Yet onward still the gathering numbers cram,
 Contending crowdiers shout the frequent damn,
 And all is bustle, squeeze, row, jabbering, and jam.'

Next day (7th) was our last climb, the Langkofel ; last, but by no means least, or least enjoyable, although I came down barefoot. We started late, not wanting to fight for our breakfast, and the hut being only 20 min. from foot of rocks. The first hour or so, up to the large rock-basin containing the little Langkofel Glacier, was easy enough. Thence a steep hard snow couloir (280 steps to be cut) was ascended, a short descent and traverse followed, and another nasty, wet, open couloir, down which stones certainly fall. Steep but easy rocks followed, then some interesting and not really difficult horizontal ledges, up another steep chimney, on to ridge, and along it, over a first and second summit to the highest point. Here it came on to hail, so we soon hurried down ; the more so as another party of our overnight friends had been overtaken (in ascending) near the top, and mistrusting their close attention to the laws of gravitation, we wanted to get out of their way. For this reason, too, we avoided the stony couloir, descending by some rocks to the top of the long snow couloir. It is worth noting that kletter-shoes should not be put on for this ascent till above the glacier and snow couloir ; mine had seen service, but the wet snow finished them an hour or two too soon. Getting down without further adventure, we made a good meal, and, shouldering our baggage, tramped down the Langkofel Thal to St. Christina in the Grödner Thal, and along the road to the large thriving village of St. Ulrich.

Here we returned to good hotels, warm baths, diligences, pleasant company, and other blessings of civilisation (including the wood-carvings for which the Grödner Thal is famous) ; but here also we had our last near view of the dear rugged peaks ! Next day we drove to the station at Waidbruck, took the rail to Innsbruck, and home without delaying further, finding fragments of family and faithful friends at intervals *en route*.

Our holiday is over, my task is done. That the Dolomite country is delightful and fascinating I can assert; whether the climbing there is really mountaineering in its most complete sense is another matter, and one on which I should not like to be so dogmatic; indeed, I have not altogether made up my own mind. I do not agree with the man who, after some weeks here, is said to have 'pined for a real mountain'; but it is certain that the varied work and the long days of the big Zermatt, Chamonix, or Dauphiné peaks are lacking.

In conclusion, I must thank Messrs. Pryor and Thomson for their photographs, and the first-named for valuable assistance. It has been delightful to recall our scrambles; and if it ever gives anyone half the pleasure to read that it has given me to write these notes, I shall be more than repaid. I hope, too, that the minority who know this district well, and who have forgotten more about it than I ever knew, will pardon my presumption in trying to teach my Alpine grandparents how to suck Dolomite eggs.

THE KIRCHET AND ITS CRITICS.

By PROFESSOR T. G. BONNEY, D.Sc., LL.D., F.R.S.

AN article entitled 'On the Aar Glacier and its Teachings,' by Dr. A. R. Wallace, appeared in the 'Fortnightly Review' for August 1896. In it he objected to some arguments that I had used against the excavatory action of glaciers,* referring to the Hasli Thal, and especially to that part of it above the gorge of the Kirchet, in support of his views. It is a prudent course, as experience has shown me, to make one of the ordinary periodicals a vehicle for questionable science. Criticism is thus practically barred, for the editor does not care to burden his pages with a controversy on that subject. So, as I found this to be the case, I determined to comment elsewhere on Dr. Wallace's arguments, but an unexpected pressure of work obliged me to delay for some months, and then I refrained because I thought it possible that I might have an opportunity of revisiting the district. This occurred last summer, when I spent, with my companion, Mr. J. Parkinson, F.G.S., nearly a week at Innertkirchen, examining the lower part of both the Hasli Thal and the Gadmen Thal (which I traversed in 1888), and the Urbach Thal. Dr. Wallace commences his article by an interesting piece of autobio-

* *Geographical Journal*, June 1898.

graphy, in which he says, 'I visited it [the valley of the Aar] for the first time last summer [1895], walking over the Grimsel Pass to the hospice and the Aar Glacier, and then along the old mule track and fine new road to Meiringen; staying there three days to visit the Reichenbach Falls, the Kirchet hill, the gorge of the Aar, and other interesting localities.' I may remark that this visit to perhaps the most important of the iceworn districts in the Alps was nearly two years after the date of his paper * on the excavation of lake basins in that chain, which had evoked my article already mentioned, and so will myself venture to indulge in autobiography. I saw the valley of the Aar for the first time in 1858, when I twice visited the Grimsel Hospice, at one time spending two or three days in scrambling about the neighbourhood (leaving it by the Strahleck Pass) and at the other walking from Meiringen up the Hasli Thal to the valley of the Rhone. My first paper on the excavatory action of ice was read before the Geological Society in 1871,† and between the two dates I had nine times visited the Alps, and had seen almost every important district between Monte Viso and the Gross Glockner, paying particular attention to the effects of glaciers. It may be an old-fashioned prejudice, but I have always preferred to collect my facts before I commit myself to an hypothesis.

Dr. Wallace's article, as might be expected, shows the experienced controversialist. The method consists in laying down with an air of elaborate precision, as if proof were needed, sundry canons which nobody would think of disputing, and slipping through under that cover the really questionable matters, like a party of invalids under a strong escort of troops.

I shall first deal more particularly with the immediate neighbourhood of the Kirchet, and then make some remarks on a property of glacier ice to which Dr. Wallace appeals, and without which his hypothesis would instantly fall to pieces.

As he has given a rather full description of the Hasli Thal and the Kirchet, and the neighbourhood is well known, I shall only repeat details on which I purpose to comment. I assume a knowledge of the narrow V-shaped valley in the crystalline rocks, of the sudden enlargement near to the incoming of the sedimentaries, of the level plain around Innertkirchen, like an old lake basin, and of the curious lime-

* *Fortnightly Review*, Nov. and Dec. 1893.

† *Quarterly Journal Geological Society*, vol. xxvii., p. 312.

stone barrier of the Kirchet, which would block the valley were it not for the gorge of the Aar. But before proceeding farther I must call attention to two inaccuracies, not so much as important in themselves as being indicative of hasty work. Of the gorge itself Dr. Wallace says, 'We are struck by its extreme narrowness, usually not more than six or eight feet, often not more than four, and in some places even less.' This is an unconscious exaggeration; there are two very narrow places, but putting both together they do not amount to nearly half the gorge; the rest is an ordinary cañon, which for some distance is at least thirty feet wide. Probably Dr. Wallace only went once through the gorge, and entered it from Meiringen; if so, he would naturally transfer the impression produced by the remarkably narrow part near the lower end to the gorge as a whole. The other inaccuracy relates to the rock. It is, he says, 'a hard crystalline limestone.' Neither epithet is correct; the hardness is that usual in a limestone, namely 3, or at any rate under 3.5 of the scale, and the rock is no more crystalline than is usual with one of the same geological age in the Alps—that is, no more crystalline than the ordinary Carboniferous limestone of Derbyshire.

But to pass to more important matters. Dr. Wallace is at much pains to show that the gorge of the Kirchet, together with others of like character to the Alps, is altogether the work of a subglacial torrent. I grant that with such a torrent the conditions are exceptionally favourable to the formation of a gorge, but think Dr. Wallace fails to prove that the existence of a gorge is practically a proof of the former existence of a glacier. He can make little of the absence of gorges in unglaciated districts of Brazil, a country where the rock is notoriously rotten, while he is obliged to admit the presence of cañons in Western America, which are merely the Swiss gorges on a vaster scale. Gorges and cañons also occur in the limestone district about the upper waters of the Lot, the Tarn, and the Garonne; nay, even in Derbyshire* and the Mendips, though on a small scale. The point would be unimportant, because the former presence of glaciers and the enlargement (at any rate) of gorges by glacial torrents in the Alps is not disputed, did I not perceive that it is one of the protective evolutions which I have mentioned above.

Here I must digress for a moment to remove a misconcep-

* I am aware that some persons assert that glaciers have existed in Derbyshire; that however, has got to be proved.

tion, which has been produced by an insufficiently guarded expression in my article. In speaking of the chasm in the Kirchet as sawn by the subglacial torrent, I did not intend to signify that it was wholly made by this any more than that (in the next clause) the ice alone had given shape to every rock on the barrier. As implied through all that follows for nearly two pages—and in one case directly stated—I hold the barrier of the Kirchet, and the main outlines of all the valley above it, to be pre-glacial. I think, however, for a reason to be presently given, that the torrent must have acted very energetically during the time when the ice rested on the Kirchet barrier. But a gorge, though perhaps a narrower one,* must have existed there from a comparatively early time, for the Aar must have been a strong river even before the Great Ice Age. If we pass over the days before the Post-Miocene uplifting, and only assume, as we may fairly do, that the height of the Alps during Pliocene ages was not less than at the present time, there must have been glaciers in the Oberland from early in the Pliocene period. These, as the climate became colder, would increase. A very moderate fall below the present mean temperature would bring the ice a long way down the Hasli Thal, so that it may have rested on, or even passed over, the top of the Kirchet,† even when the caves of the Dordogne were inhabited. But I venture to submit that these gorges, as a rule, do not ‘afford a distinct class of evidence in favour of the large amount of glacier erosion in general, and of the theory of the glacial origin of the Swiss lakes in particular.’ They prove no more than the power of a strong torrent, especially if the rock on which it acts be not seriously affected (from any cause) by subaerial denudation, and can only be cited,

* Perhaps also not quite so deep. It must be remembered that the basin of Innertkirchen occupies exactly the position where from the first I have consistently admitted the possibility of a *slight* excavating action on the part of a glacier.

† The ice in this valley, owing to the physical structure of the district, would be, I believe, rather sensitive to secular changes of temperature. At the present time the glacier-generating line in the Grimsel neighbourhood is lower than in many parts of the Alps. I think we might safely put it as not higher than 8,500 ft. If the mean temperature were raised from 6 to 7 degrees, this line would be at 10,500 ft.—part way up the wall of the Strahleck (10,994 ft.), and the Unter Aar Glacier would be reduced to very small dimensions. If it were lowered by as much, the line would come down to within 300 feet of the Grimsel Hospice, and the resulting glacier might reach the Kirchet.

under any circumstances, in favour of the excavation of a few small tarns, because, in the large majority of cases, these gorges do not sever a barrier, but saw a gradually deepening notch in a rocky step—that is, they prove torrent erosion, but to say they prove extensive glacial erosion is really to beg the question.

The Kirchet is reached from its upper end by a lateral gorge. This, I admit, must have been formed, as Dr. Wallace says, or at any rate greatly modified, by a subglacial stream, for it can never have obtained any large amount of water from the upper part of the Kirchet. There is, however, one difficulty; the bed of this gorge descends rapidly at an average angle of perhaps 35°. Dr. Wallace, I presume, supposes that the glacier first came when the basin of Innertkirchen practically did not exist; that its main stream cut the Aarschlauche, while a lateral one made this gorge, the two sawing down *pari passu* into the barrier as it was gradually developed. If so, what caused the glacier to excavate on a yet more gigantic scale below the present site of the Kirchet—viz., to dig out the whole basin (for it is really but one) from its western base to Thun? To this point I shall return. If, however, the basin was in existence, and the Aar had already cut itself a cañon, though perhaps narrow, down to something like its present level, then, when the glacier was resting on the Kirchet, part of the drainage of the ice might be diverted into the gorge by the slight depression which exists near the summit, and the cascade thus produced would rapidly saw a sloping notch in the rock. A parallel case, if I mistake not, occurs on the right bank a little lower down the main gorge. Here is a deep notch (also practically dry) waterworn from top to bottom, but narrower than that of which we speak. The two gorges are really identical, except that this one does not reach the level of the Aar, but terminates about 50 ft. above it. Hence, so far as we can infer anything from this lateral gorge, it makes more probable the existence of a cañon when the ice first topped the barrier of the Kirchet.

Dr. Wallace affirms that the only escape from his explanation of the erosion by ice of a basin nearly 1,000 ft. deep, is 'to call in the aid of hypothetical local subsidences or elevations.' That we shall see, but I may remark in passing that to assume the absence of any movement in the bed of the valley of the Aar during or since the glacial epoch is equally hypothetical, and that there is no evidence either of the removal of at least 150 ft. of limestone from the top of the Kirchet, or of the rock being at a depth of 200 ft. below the

plain of Innertkirchen. All we really know is that it does not reach the surface.

I pass on to examine the structure of the district in order to see how far it supports or opposes Dr. Wallace's hypothesis of ice erosion. The basin of Innertkirchen is a cultivated alluvial plain traversed by the Aar (now canalised). It is about half a league in length, and for some distance not much under half a mile in width. At its head the river emerges from a glen or gorge, cut into the crystalline rocks, down which it has descended rather rapidly. These, part way down the basin, but rather near to its lower end, rise rapidly from beneath the great mass of limestone (jurassic) of which the Kirchet and the adjoining mountains are formed. The Aar, as it passes through this basin, is joined by torrents from two important valleys, the Gadmen Thal on the right bank, and the Urbach Thal on the left. There is, as usual, a rather rapid descent from each into the main valley, but it is higher and more precipitous in the case of the latter, where it amounts to about 700 ft. ; the torrent in each case dashing down a glen which it has carved in the crystalline rock. The opening of the Gadmen Thal, with Im Hof itself, is slightly nearer to the lower end of the basin, which extends for a quarter of a mile or so above the opening of the Urbach Thal. This, though rather the shorter and steeper valley (for the Gadmen Thal might almost be called a valley of strike), leads up to a large glacier, the Gauli, and into the heart of the *massif* of the Oberland. In former days it must have been the outlet for a huge mass of ice.

After mounting the steep path which leads up from the meadows behind Brugg to the floor of the Urbach Thal, we find before us, on reaching the bridge across the torrent, a rather unexpected feature, which I am suprised Dr. Wallace does not mention, as it would have afforded him another proof of the excavatory power of ice. On the right bank of the valley craggy mountains, consisting chiefly of crystalline rock, but with a sharp infold of jurassic, descend rather rapidly to a perfectly level grassy basin.* This is bounded on the left bank by one of the grandest precipices that I have ever seen in the Alps—a vast wall crowned by the jagged crest, which culminates in the Engelhörner, and falling almost sheer for a couple of thousand feet, and perhaps more.

* So far as I can estimate from the map it is about 2 miles long, and this, from the time taken in walking along it, cannot be in excess of the truth ; the width may be about a third of a mile.

If then the basin above the Kirchet is the work of a glacier, so must this one be, for the two have much in common; and if that be so, then the ice stream which descended the Urbach Thal must have been not less potent as an agent of denudation than that which came down the Gadmen Thal, for in the latter we have hardly any level ground and not the slightest hint of a lake basin. This, as we shall see, has an important bearing on Dr. Wallace's argument. Near the higher end of this Urbach basin, just as in the case of the Innertkirchen basin, the crystalline rocks rise very rapidly, so that its floor probably consists of crystalline rock. In fact, the Urbach stream as it deepened its valley has cut back the basset edges of the sedimentary rock. I conclude that Dr. Wallace did not make this expedition during his 'three days' campaign from Meiringen, for otherwise he would not have passed over a feature which has such an important bearing on his argument.

The mass of limestone mentioned above sweeps round to form the left bank of the Innertkirchen basin and the barrier of the Kirchet. The cliff on this side also is only less magnificent than that already described. There we saw its outcrop; here we have a section roughly at right angles to the other; and the Kirchet extends like a long spur from the western end, the edge of the cliff descending rapidly to it. The slopes from the *massif* of the Engelhörner are less abrupt on the side of the Reichenbach, because the strata dip towards the west, so that the Kirchet itself is formed by the outcrop of the lower part, at any rate, of the same mass of jurassic limestone as is exposed in the great cliff overhanging the Urbach Thal. For a considerable distance on its southern side the Kirchet runs very nearly at the same level, perhaps about 500 ft. above the Innertkirchen basin. It then drops slightly, probably at the basset edge of a bed, but speedily rises again. Next comes a similar but larger hollow, affording a passage to the carriage road from Meiringen, with a bold cliff on its southern side; the Kirchet barrier then rises in a rounded hill to about its former elevation,* and from that slopes down to the edge of the Aar-schlauche; from this there is a short rise to another flattened hill, more plateau-like and perhaps slightly higher than the last, which is at the foot of the abrupt rise to the peaks bounding the right bank of the

* On the map the hill top on the south side of the road is marked 2,572 ft. that on the north 2,585 ft., and the highest point (as I suppose) on the road 2,318 ft.

Gadmen Thal. The outlines of the barrier are everywhere modified and moulded by ice. That can be seen at a glance; but to what extent? According to Dr. Wallace, about 150 ft. have been planed by the ice off the top of the Kirchet. If so, why did it leave the hill between these two glens, namely, the one which gives passage to the road, and that in the bed of which the Aar-schlauche has been cut? Each of these is some 200 ft. below the top of the hill, or the general level of the Kirchet. If a glacier acts as a gigantic plane, then surely the whole ridge should be almost level, as it is at the southern end. The outlines of this part,* if we obliterate the minor contours of the ice-worn rocks, correspond with the ordinary outlines of limestone hill-regions all the world over. The glen through which the road passes, allowing for the slight difference of colour and vegetation, might be in Derbyshire. On the western side of the Kirchet barrier, where the slope is more gentle than on the eastern, this glen seems to be connected with a shallow upland valley (followed for a time by the road) which is ultimately joined (then becoming more distinctly marked) by a tributary from the north. In fact, this slope of the Kirchet is much more irregular in its contours than the opposite one, for it is sculptured by small valleys—which form an ‘erosion’ system. Distinct traces of ice action can be detected only on their flanks, and sometimes rather near their beds. In other words, all that I could discover pointed to the dominant features of the scenery being due to ordinary subaerial denudation, and thus being anterior to the passage of the ice, by which they had been only modified.

Dr. Wallace asserts—and it is a very important point in his argument—that the ice flow from the Gadmen Thal was in former times even larger than that from the Upper Hasli Thal. Proof or disproof of this contention would be equally difficult. I can only say that I could find no evidence in favour of it. The valley, as he states, does descend a little less rapidly, and is slightly more open than the Upper Hasli Thal, but the Stein Inn and the Grimsel Hospice are nearly the same height above Im Hof. and their distances from it differ little. But the drainage area of the Gadmen Thal is smaller and is surrounded by lower peaks than that of the Hasli Thal; for the latter extends beyond the Grimsel, and its

* A depression between two hill-tops (the first mentioned above being the more eastern of them) connects the ‘pass’ to Meiringen with the lateral gorge in the Aar-schlauche, so that this does lead from a small drainage area.

branches are occupied by the great ice streams of the Ober and the Unter Aar glaciers, which descend from some of the highest peaks in the Oberland. The Gadmen Thal, no doubt, when the snow-line lay some three or four thousand feet at least below its present level, would bring down a large mass of ice, but I cannot admit, speaking from an intimate knowledge of the whole district, that its volume could exceed that from the Hasli Thal, while the plunging force of the latter certainly would be as great. At any rate, the basin of Imhof is simply an expansion in the valley of the Aar, and the Gadmen Thal, in order to effect a junction with it, has to make a rather rapid descent * over hummocks of ice-worn rock. Surely if this were the more powerful glacier, and ice such a potent excavator, the floor of the Gadmen Thal should be at least on the same level as that of the main valley?†

The glacier from this valley, as already stated, descended a broad hummocky slope about 300 ft. in height. On the left bank is a projecting ridge or bastion, over which the ice must have passed, and which one would take for a more ancient feature in the scenery. The torrent hugs the right bank and escapes through a deep gorge in the limestone. This in reality is cut into the slope of the hill, some slight object apparently having diverted the stream from its natural course, and forced it to carve a channel in the limestone.‡

But, according to Dr. Wallace, without this predominant partner in the form of the Gadmen Glacier the basin of Innertkirchen never would have existed. Its 'influx from the north-east must have so diverted that of the Aar, that

* It is important to remember that the head of the basin is above the junction of either of the lateral valleys.

† Dr. Wallace does not perceive that when he admits certain parts of the valley to have been originally much wider § he precludes himself from using the U-like form of the bed as a proof of any great erosive action. He (and we) are equally ignorant of the depth of *débris* beneath the present torrent. It may be only a few yards. All that is *proved* is that in this favourable position the ice can exercise a *slight* excavatory action, and this I allowed twenty-three years ago, and have never withdrawn the statement. But the concession of an inch, to use his own proverb, does not justify the taking of the ell. (*Quarterly Journal Geological Society*, 1874, p. 479.)

‡ It joins the Aar nearly a quarter of a mile below the bridge at Im Hof, while the valley opens to the river rather above that bridge.

§ *Ut supra*, p. 176.

the resultant flow would have been across the lower valley, and almost along the steep face of Kirchet instead of directly across it . . . the effect of these great inflows (including that from the Urbach Thal) must have been to cause a heaping up of the ice and to give it an eddying motion, thus producing the powerful grinding tool which hollowed out the rock basin above the Kirchet. The influx of the great ice stream from the north-east will also explain the curious abruptness of the Kirchet hill.' I venture to remark that in his argument the Urbach Glacier seems to appear and vanish like the Cheshire cat in Wonderland, for, if I mistake not, this is Dr. Wallace's meaning. 'The Hasli Glacier was descending along the line now followed by the Aar. It encountered, or was encountered by, the Gadmen Glacier. This drove it right across the valley and made it sweep round in a quarter of a circle under the cliffs of Im Grund (which I suppose are also due to it), and then along the steep eastern face of the Kirchet,* until somehow or other it managed to overflow the barrier,' the deepest hollowing, I presume, taking place on the N. side of the present Hasli valley, that is, near the Aar-schlauche. But what was the Urbach Glacier doing at this time? Was it so exhausted by its efforts at basin making in the valley above that it gave up the struggle, and made no effort to turn the Hasli Glacier into the straight path? Did it form an hypertrophied mass of ice just above the rocky descent to the meadows behind Brugg? or was it dragged along by the Hasli Glacier and made to help in doing erosive work on the Kirchet barrier?

Lastly—and on this Dr. Wallace's hypothesis must stand or fall—what evidence is there that the confluence of these three glaciers would produce an eddying movement of this kind? Is there any evidence of its occurrence at the present day? I have wandered over most of the greater glacier basins in the Alps. I have seen any number of confluent ice streams, not seldom under similar circumstances, and have never found any approach to such a movement. Granted that these ice-streams are small in comparison with those of the Ice Age, yet this would not affect their relative strength, so the more powerful should still act on the weaker in the same way. This is what really happens; the smaller is somewhat cramped and crowded by the larger, but the streams below the junction move on side by side down the valley. More than this, does ice ever possess the properties which Dr. Wallace

* This, I suppose, already existed as a low mound; but if so, when was it caused?

attributes to it in such phrases as these?—An ‘eddy in the old ice stream at the Grimsel’; ‘the portion [of ice] in the valley, fed by ice streams from nearly opposite directions would acquire a slow eddying motion, which would greatly aid its grinding power’; ‘a vast ice eddy’ at the junction of the three glaciers named above. Without this eddying motion, this hypothesis crumbles to pieces, but is ice a substance in which such a motion can take place? I have always maintained (notwithstanding Professor Tyndall’s criticism) that ice to a certain extent is plastic, but I cannot believe it to be capable of a vorticose movement, and have never been able to learn, either from study of it in the field or from reading books on its physics, that such a movement is possible. One passage, penned more than thirty years ago by a very close observer of Alpine phenomena, may be quoted in favour of Dr. Wallace’s argument, but I doubt whether he will care to avail himself of it: ‘There were, we will suppose, rotatory glaciers—whirlpools of ecstatic ice—like whirling dervishes, which excavated hollows in the Alps, as at the Baths of Leuk, or the plain of Sallenche, and passed afterwards out—“queue à queue”—through such narrow gates and ravines as those of Cluse.’*

The rest of Dr. Wallace’s article, so far as it affects the larger lakes, leaves the matter where he found it. He repeats his argument from the regularity of their shore line, and ignores the objection which I made to it—namely, that this was due to the subsequent deposit of *débris* by lateral streams—merely quoting in support of his view the testimony of two American geologists. Of course, foreign-made goods are always preferable to those of home manufacture, but with all respect to his authorities, I prefer the evidence of my own eyes, and should have been glad to know whether, from his personal experience, he could prove my statement erroneous.

The Kirchet barrier, no doubt, is difficult to explain, but after all it is only a rather extreme case of the alternation of narrow and open parts which is not unusual in mountain valleys,† and is probably due to the way in which the rock-masses and the torrent, in consequence of earth movements, have acted on each other. Before the Kirchet existed, the

* Ruskin, *Geological Magazine*, 1865, p. 50.

† We have something of the kind, on a smaller scale, at St. Maurice in the valley of the Rhone, and on a larger one, between the Untere Nase and Obere Nase in the Lake of Lucerne, or yet more nearly at the Klus at the entrance of the Prätigau.

Aar, as it seems to me, very possibly flowed on both sides of the hill between the gorge and the present road. It then deserted the more southern channel, and was checked by some slight disturbance. This caused it to oscillate over the site of the Innertkirchen basin and to work out an open space there, while its waters escaped in a rapid through the barrier and made a gorge; this was afterwards modified by the subglacial (and even postglacial) stream, and the ice, as I have said, possibly may have slightly deepened the basin. This hypothesis, no doubt, is not free from difficulties—these must attend the explanation of every rather exceptional physical feature—but they are far less, it seems to me, than those of ignoring all other evidence and endowing ice with new physical properties.

NOTE ON THE FIRST ASCENT OF THE JUNGFRAU.*

BY SIR MARTIN CONWAY.

THE first ascent of the Jungfrau is admitted to have been made by the brothers Rudolf and Hieronymus Meyer, of Aarau, with two Vallais chamois-hunters, on August 3, 1811. Doubts have been raised as to the route followed by them on that and the two previous days. I proceed to tell their story as interpreted by me.

On August 1, at 5 A.M., they mounted on to the Löttschen Glacier at the head of the Löttschenthal. At 9 o'clock they were on the Löttschenlücke, whence they sent back their three servants. They then proceeded forwards downhill, down the Grosser Aletsch Firn (still called Löttschen Glacier by them) to near its point of junction with the Aletsch Glacier. We may assume that they arrived there about noon, with plenty of daylight before them. They now divided into two parties, and went to look for the Jungfrau. Rudolf and a hunter went S., and climbed some emi-

* The following are the publications referred to in this article:—

1. *Reise auf den Jungfrau-Gletscher und Ersteigung seines Gipfels. Von Joh. Rudolf und Hieronymus Meyer aus Aarau im Augustmonat 1811 unternommen. Aus den Miscellen für die neueste Weltkunde besonders abgedruckt.*
2. *Reise auf die Eisgebirge des Kantons Bern und Ersteigung ihrer höchsten Gipfel im Sommer 1812. Mit einer Karte der bereiseten Gletscher. Aarau, 1813.* This pamphlet was put together by Zschokke from verbal and written notes given to him by Dr. Rudolf Meyer.
3. *Alpenrosen auf das Jahr 1852.* Von A. E. Fröhlich and others. Aarau und Thun. Article entitled *Erinnerungen an Professor Dr. Rudolf Meyer.*
4. Mr. D. W. Freshfield's notes on the Jungfrau in his contribution to Mr. W. Longman's 'Modern Mountaineering' at the end of vol. viii. of the *Alpine Journal.*
5. 'The Early Ascents of the Jungfrau from the Vallais Side,' by W. A. B. Coolidge, *Alpine Journal*, xvii. pp. 392-397.

nence probably connected with the Dreieckhorn, whence he made out the Jungfrau 'bestimmt.' Hieronymus and the other hunter went N., and climbed a point on the S. ridge of the Trugberg, whence they saw up the Jungfrau Firn, and discovered a direct way to the mountain, leading 'zwischen den hohen wellenförmigen Eishügeln hin.' The parties re-united, and camped below a cliff of rock at the N. angle of junction of the Grosser Aletsch Firn with the Aletsch Glacier. From a comparison of the map (in 2) with the clear statements (in 1, pp. 12, 14), I conclude that the exact position where they built their little hut was on the rocks about one mile S.W. of the point 2967 (Siegfried map), though the situation may have been on the rock 2967 itself.

Next day (August 2) they set off at dawn up the Jungfrau Firn and advanced, in about 5 hrs., a distance of 2 Stunden up it. As they considered the mouth of the Grosser Aletsch Firn to be 1½ Stunden wide, this would bring them to somewhat beyond the point 2998. Then they crossed a series of great crevasses by means of snow-bridges, and so approached the actual mountain; but, a Föhn wind arising, they judged it necessary to retrace their steps. At 2 p.m. they were back at their camp.

The weather remaining fine, they decided to devote the afternoon to a search for a higher sleeping-place; so they set off up another valley, described as 'östlich liegendes, sich ebenfalls von der Jungfrau herabsenkendes Eisthal.' As, by universal consent, there exists some error in the published description, I assume the smallest and briefest—the substitution of 'east' for 'west.' This error is quite the commonest in Alpine literature; instances of it might be quoted by scores from almost any Alpine periodical you like to select. They set off, therefore, up the Kranzberg-Firn (as their dotted route on the map, in 2, distinctly shows), and they mounted along its E. bank to a considerable altitude, where they found a convenient place and spent the night.

Next day (August 3) they again started at daybreak, and completed the ascent of this side-glacier, at the head of which, above a long series of crevasses, is a considerable snow-plateau. The fact that this snow-plateau is clearly marked on their map is a most important argument in favour of their having actually taken this route. They were surprised to find the Roththorn in the way, but they climbed over it, descended on to the Roththal Sattel, and reached the summit of the Jungfrau at 2 p.m. by the S.E. arête. They returned in their tracks to their first gîte and went back next day over the Lötchenlücke.

There is only one difficulty in connection with this interpretation of their account. It is that the position of their first sleeping-place, clearly described on pp. 12 and 14 (of 1), and plainly marked on the map (in 2), is on p. 26 (in 1) applied unmistakably to the second sleeping-place. The words are as follows:—'Jetzt vereinigten uns alle wieder an einer etwas hoch liegenden, aus dem Eismeer hervorragenden Felsklippe an der nördlichen Seite des Gletschers, da wo sich der Lötchengletscher' (*i.e.* Grosser

Aletsch Firn) 'mit dem Aletschgletscher vereinigt' (No. 1, p. 12). 'Wo wir unser Nachtlager über dem Vereinigungspunkt des Aletsch- und Lötschengletschers nahmen' (No. 1, p. 14). 'Bei dem Felsen, wo wir unser zweites Nachtquartier aufgeschlagen hatten, eine halbe Stunde südlich von dem Mönch' (*i.e.* from the S. foot of the Trugberg—point 2856—which they speak of throughout as part of the Mönch), 'am Ausgehenden des Jungfrau-gletschers' (No. 1, p. 26). It is probable, I think, that *zweites*, in the third quotation, is a misprint for *erstes*, for all three descriptions appear to apply to the same site.

Thus, I entirely agree with Mr. Coolidge's conclusions as to the route followed in the ascent of the Jungfrau, but differ from him as to the position of the first bivouac—a matter, as he states, 'of comparatively slight importance.' From the geological observations made by the Meyers and carefully recorded in their paper, any competent geologist who would repeat their expedition would easily lay all doubts at rest.

The route followed by Gottlieb Meyer, when he made the second ascent of the Jungfrau, on September 3 of the following year, 1812, seems quite certain. He slept on the Grüneck, and ascended by what is now the ordinary route from the Concordia, thus approaching from the E. the Roththal Sattel, on which he joined his kinsman's route, and so gained the summit by the S.E. arête.

THE ACCIDENT ON MOUNT ARARAT.

THE following narrative is furnished us by Professor H. Fielding Reid, of the Johns Hopkins University, Baltimore, a member of the recent Geological Congress held at St. Petersburg:—

'One of the most attractive excursions offered to the members of the seventh Geological Congress (which met last summer at St. Petersburg) was that to Mount Ararat. Nearly thirty persons made this excursion. They drove in carriages from Erivan to Aralikh, and went on horseback from there to Sardar-Boulag, a Cossack camp near the saddle between the Great and Little Ararats, at an altitude of 7,500 feet. The main party spent the night of September 29 here, ascending Little Ararat the next day; but two subsidiary parties were made up to attempt the ascent of Great Ararat. The first of these parties was organised by Mr. Emanuel Stoeber, of Wladikavkaz, and consisted of himself, Dr. M. Ebeling, of Berlin, and Dr. A. Oswald, of Basle. They left Sardar-Boulag about 2 P.M., September 29, accompanied by a number of Cossacks, and slept out at an altitude probably between 10,500 and 11,000 feet. They all started off together the next morning, but Stoeber, desiring to go faster than the others, pushed ahead and was not seen again by them. The second party also divided up, Dr. Carlo Riva, of Milan, and the writer ascending along a ridge of rocks on the eastern side of the mountain. About 12 o'clock we saw Stoeber on the snow a little above these rocks, at an altitude probably a

little under 15,000 feet. An hour later he was on the rocks, a few hundred feet lower. We could easily recognise him by his light fur coat and white hat; the other members of his party were less conspicuously dressed, and we supposed they were with him, but could not be distinguished against the rocks. About 2 o'clock we had nearly reached the place where we had last seen Stoeber, and shouted to some Cossacks who were ascending a ridge a few hundred yards to our left, and heard their answering shouts, but saw and heard nothing of him, so we concluded that he had descended more to our right. We did not ascend any higher, as it was evident that we could not reach the summit of the mountain that day without being benighted at a great altitude (the mountain is 16,916 feet high), a danger we were unwilling to encounter. We turned back and arrived at Sardar-Boulag about 8 o'clock in the evening. The other members of the second party arrived at various hours of the night. None of the first party returned that night, but this caused no anxiety, as we had all recognised the possibility of sleeping out a second night. The next morning, October 1, the main party left Sardar-Boulag, according to the plan of the excursion, and returned to Erivan.

‘Drs. Ebeling and Oswald reached the summit of Mount Ararat at 5.15 P.M., and were obliged to pass the night, with considerable suffering, at an altitude not much under 16,000 feet. They arrived at Sardar-Boulag at 1 P.M. the next day, October 1, and learnt that Stoeber had not returned. This was the first intimation of any accident. A heavy storm which raged around the mountain during the afternoon made it impossible to reascend at that time, and although Cossacks were despatched from the camp to search the mountain, lack of familiarity with the Russian language made it impossible for Drs. Ebeling and Oswald to direct the search. They therefore hurried on to Erivan, where they arrived the next morning, and reported to Professor Loewinson-Lessing, the leader of the excursion. It was quite evident that Stoeber could not still be living high up on the mountain, and that unless he had descended to the lower slopes there was no hope of his life; so we waited until the next morning, hoping that a telegram might announce that he had been found. As none arrived, Drs. Ebeling and Oswald and the writer determined to return to the mountain, ascend to the place where Stoeber had last been seen, and discover, if possible, what had happened to him. We set out immediately, but the many difficulties which have to be encountered when one attempts to do anything rapidly in this region made it impossible for us to reach the Cossack camp at Sardar-Boulag until 1 o'clock the next day, October 4. By half-past three we were again *en route* to make a camp higher up the mountain, but had not gone far before we met some Cossacks coming down, who reported that they had found Stoeber's body. We returned to the camp to learn more details through our interpreter, and found it unnecessary to ascend the mountain, as the Cossacks received orders to bring the body down to camp, which they did the next day. An examination

of the body and a careful questioning of the men who had found it showed that Stoeber slipped and slid a short distance on rocks near where he was last seen, and was stopped by coming in contact with some projecting masses, breaking his left leg at the ankle; there was no other serious wound on his head or body. He was lying on the slope with his head up; but he had not attempted to make an entry in his note book, nor to get at his brandy flask, nor to draw up his injured leg, and his hands were not clinched as in pain, so that we must conclude that he lost consciousness when he fell, and was frozen without recovering it. The body was taken to Aralikh under the charge of the civil officers of the district, and the news was telegraphed to his family.

'This sad accident is, I believe, the first that has occurred on Mount Ararat. In some descriptions of former ascents the mountain is represented as offering no difficulty to mountaineers, and this is certainly true—at least in autumn; but M. Stoeber was not a mountaineer, and, failing to realise the dangers to one unfamiliar with mountains, he left his companions and attempted the ascent alone. I was in the neighbourhood of the place where he fell, and am sure that a man of fair mountaineering skill would not have been in any danger there; though, indeed, it is never very safe to climb alone.

'The accident must be ascribed to solitary climbing by an inexperienced man. No blame whatever can attach to Professor Loewinson-Lessing or to Stoeber's companions. The former was not a mountaineer and did not attempt to direct the subsidiary parties on Great Ararat. The latter did not desert Stoeber, but he left them, and as he had claimed an experience with mountains which we afterwards found he did not possess, and as they encountered no serious difficulty, they did not anticipate any accident.

'The search was begun by the Cossacks as soon as Drs. Ebeling and Oswald arrived at the camp and learnt that Stoeber had not returned; but even then he had probably been dead for nearly a day.

'HARRY FIELDING REID.

'Geological Laboratory, Johns Hopkins University,
'Baltimore, U.S.A.'

THE ALPINE CLUB PHOTOGRAPHIC EXHIBITION.

AN unusual degree of interest and excellence marked the exhibition of photographs held in December at the Club-rooms. The standard has now grown to be a very high one, and the alpine world may congratulate itself on possessing so many experts in one of the most difficult branches of photography.

Over 250 photographs were sent in, of which the majority were enlargements, which was doubtless quite in accordance with the taste of most of the visitors to the Club-rooms. For our own part, we confess to a feeling of regret that there were so few silver prints,

which, we fear, may gradually disappear altogether from these exhibitions. Certainly no other process shows to the same degree perfect definition combined with the delicate softness so desirable in snow and ice pictures.

A noteworthy feature of the enlargements was the large number of carbon prints in a green tint, which is admirably suited to both snow and rock subjects. It has, perhaps, the slight drawback of somewhat killing grey or black-and-white tints in its neighbourhood. Of the great mountain ranges, the Canadian Rockies, Alaska, and, of course, the Alps were particularly well represented; Norway and the British Hills to a lesser extent; the Caucasus and the Himalayas making a very meagre show. New Zealand and the Pyrenees were conspicuous by their absence. We should like to have seen something of the work of the Aconcagua expedition, which would have added materially to the interest of the exhibition.

Most of our well-known mountaineering photographers—or, to put it more correctly, photographing mountaineers—were represented, Sir Martin Conway and Captain Abney being almost the only notable absentees.

The greatest interest was, perhaps, aroused by Signor Sella's Alaskan views, showing as they did the scene of one of the latest Alpine triumphs, in which we may be permitted to feel a certain amount of pride, since the three leaders of the expedition, although Italian, are all members of the Alpine Club. That the photographs were not all as good technically as we are accustomed to expect from Signor Sella was, without doubt, not the fault of the photographer. There was, however, little fault to be found with the wonderful panoramic view of the Titanic Seward Glacier and its attendant peaks, which included Mount St. Elias and the yet loftier virgin summit of Mount Logan. Other beautiful examples were 'Mount St. Elias from the Newton Glacier' and 'Sunset in Alaska.' The whole series was, of course, of immense topographical interest. Signor Sella sent also a very nice set of stereoscopic views in the Caucasus.

Of equal interest were the numerous photographs taken in the Canadian Rockies by Mr. G. P. Baker and Dr. Norman Collie. Mr. Baker sent what was, pictorially, perhaps the best thing in the room: 'Looking towards the Freshfield Group from Peak Sarbach,' a very artistic rendering of a storm-laden mountain landscape, in which a ray of sunlight breaks through the clouds, lighting up the peaks below with a most picturesque effect. An enlargement of the Freshfield Group, in which the names of five Presidents of the Alpine Club have been happily perpetuated, was very effective, although the glacier in the foreground was, perhaps, a trifle too black. 'Hector in the Bow Valley' was interesting to a geologist as well as a beautiful picture.

Dr. Collie's twenty-eight enlargements were all so excellent that it is difficult to single out any for special praise.

Dr. Grylls Adams also sent an interesting series of small views of the same district.

A frame of three fine views of the superb Kinchinjunga range from Darjiling, kindly lent by Mrs. E. P. Jackson, did duty for the Himalayas.

A very beautiful 'Ushba from the Betsho Woods' was, we regret to say, the only contribution by Mr. Woolley, as well as the only representative of the Caucasus, excepting Signor Sella's stereoscopes mentioned previously.

Professor Kennedy sent several enlargements, of which the best were 'The Dent d'Hérens from a ridge south of Breuil' and two views of the Matterhorn from the south side, one of which was additionally interesting from the fact of its being taken from a point almost diametrically opposite to Zermatt.

Mr. Alfred Holmes' exhibits numbered over twenty, none of which quite equalled his best work in previous exhibitions. We preferred the frame of small silver prints, of which 'Looking N.E. from the Parrot Spitze' and 'The Grand Combin from the Cabane d'Orny' were the most striking. 'The Obergabelhorn and Triftjoch' was imposing, and reminded us of some of Signor Sella's work. The frame of small prints of climbing incidents in the Lake district were well done, but there is a certain monotony in the subject as far as an exhibition is concerned.

Mr. Maclay lent a very beautiful sunlit winter (or Easter) view of 'Bidean-nam-Bian, Argyllshire,' taken by Mr. Boyd.

Mr. Eccles made a welcome re-appearance with two frames of delightful silver prints, remarkable as usual for the lovely cloud effects which are a feature of his work. One of these, entitled 'Clouds about the Chamonix Aiguilles from the Montagne de la Côte,' was repeated in the form of an enlargement, which was one of the best things in the room. He also sent the portrait of an old friend to many members—namely, 'Michel Payot.'

Mr. C. T. Dent once more justified his reputation as one of our finest photographers. His exhibits included a frame of six very delicate silver prints, of which the two ice studies re-appeared on the opposite wall as enlargements, both quite charming and typical. 'Winter in the Saas Valley' was perfect as a study of snow-modelling and hoar-frost. In addition to these, Mr. Dent also showed three fine enlargements: 'The Rothhorn from the Singline Alp,' 'The Aiguille du Plan after Fresh Snow,' and 'The Dent du Géant from the Géant Glacier.' All Mr. Dent's work was, it is needless to say, most artistic.

Dr. Howard Barrett sent a pretty series of small views round the Montanvert.

Amongst Mr. Littledale's six Dauphiné pictures was a striking view of the Ailefroide cliffs from the Tête de Chéret. We think that this is Mr. Littledale's first appearance in our midst as a photographer, and we welcome him as a most promising addition to our ranks.

Messrs. Spitta make also, we believe, their first appearance on our walls. Their three enlargements were technically as good as anything in the room, but we did not quite like the composition of

the two Gornergrat views. They also sent the four telephotographs showing the progress of a party ascending the Südlenzspitze and another of the Dom from Saasgrund.

The remarkable telephotograph of Mont Blanc from Geneva by M. Boissonas has, we think, been shown before at one of our exhibitions.

Mr. Shea's Dolomite pictures were admirable, and characteristic of him and the district. We need give them no higher praise. Nothing could be better than 'Through Swirling Mists,' which, as a picture, is one of the best things he has shown us.

Mr. Hoddinott's 'Mont Collon' was a singularly artistic rendering of a somewhat hackneyed subject. His 'Sunrise over the Jungfrau' was also quite a picture.

Mr. H. Priestman demonstrated his artistic capabilities in a perfectly composed picture of 'The Store Trolldind, Lofoten Islands,' which was an example of what can be done with a not very striking subject.

Mr. F. M. Govett sent three pretty frames, 'Monsoon in the Ceylon Hills,' 'The Dachstein,' and a very good rendering of snow in his Rhone Valley winter view.

'A Sea of Clouds from the Grigna, Lake Como,' was a fine cloud study which has been kindly presented to the Club by Count Lurani.

Another exceedingly good example of a similar subject was shown by Mr. Sydney Donkin in 'The Gross Venediger from the Zillerthal Alps.'

Mrs. Main's three views in the Pennine Alps were in her best style, and displayed once more her mastery of the gradations of shade in snow. Her 'Vengetinder, Norway,' was also excellent.

Mr. Gerald Arbuthnot sent an interesting lot of Norwegian views. The panorama of the Sondmore Alps from the Slogen would have been more effective if the different views had been separated, as the skies were somewhat uneven.

Mr. Anthony Dod's 'Matterhorn from the Stockje' was very beautiful, and might have been taken by Mrs. Main.

Mr. O. K. Williamson sent a charming view of 'The Aiguille d'Argentière and Tour Noire from the Fenêtre de Salemaz,' which was unfortunately hung rather too high to be seen well.

Mr. Morshead lent three frames of good work by Monsieur Du Pontet. We liked especially the 'Mont Blanc Range, taken on the way to the Col des Grands Montets.'

Dr. Tempest Anderson exhibited several enlargements, including a wonderfully effective view of the precipitous summit of the Becca del Deir Verd.

Mr. Sydney Spencer has very rapidly taken a place in the front rank of Alpine photographers, and his exhibits fully maintained his reputation. Most of his views were printed in a blue tone. This method, unquestionably, arrests the attention, but the effect is not altogether pleasing. The negative of a view of the Chamonix Aiguilles must have been perfect, and the circular shape of the

picture is a good innovation. But the deep blue tint of the print cannot do the negative justice, and it seems a pity when an effect of sunlight has been so admirably secured to adopt a tone suggestive of moonlight. On the other hand, Mr. Spencer's 'Avalanche near Zermatt,' an impressive and novel view, is well suited by the paler blue tone of the print. The broken lights of the fallen mass of snow are excellently rendered. Indeed, Mr. Spencer in all his pictures shows true and keen sense of values, and, while avoiding conventionality of composition, secures pictorial qualities. As an instance, his 'View near Saas Fée' may be noted, and the fine landscape from the Aiguille Verte. It would be well for the Club to institute 'si parva licet componere magnis,' a kind of Chantrey collection, and to secure two or three of the best photographs of the year for permanent display in the rooms. Had such a selection been made by ballot this year, Mr. Spencer would probably have been at the top of the poll.

Good work was also sent in by Messrs. Scriven, Goodenough, Calvert, Bullock, Compton, Brushfield, Withers, and Thompson.

Last, but certainly as one of the very finest pictures in the room, we have to mention Mr. Garwood's magnificent 'Kings Bay Glacier, Spitzbergen.'

A melancholy interest was added to the exhibition by the photographs of some of the relics of the Arkwright catastrophe (Mont Blanc, 1866), which came to light this year near the summit of the Glacier des Bossons. We believe that the negatives, taken by a Chamonix photographer, showing the remains of the unfortunate victim, were happily bought up by his relatives. This horrible misuse of a useful science cannot be too strongly condemned. We have been informed, to our great regret, that in the case of the bringing down of the bodies of the unfortunate Dr. Schnurdreher and the Courmayeur guides killed with him, the disgusting photographs, taken also by a Chamonix photographer, found the largest sale amongst our own country people. We can only hope that this is not true, and that the public generally, in whose hands it rests mainly, will prevent a recurrence of similar scandals by refusing to buy such gruesome mementoes.

THE HIGHEST CLIMBS ON RECORD.

A NOTE BY DOUGLAS W. FRESHFIELD.

In an Article on Mountaineering in Part XI. of the 'Encyclopædia of Sport,' now in course of publication, Sir Martin Conway calls in question the claim of the party consisting of Mr. W. W. Graham and the late Emil Boss and Ulrich Kaufmann to have reached a point within 50 ft. of the summit of Kabru (24,015 ft.) in Sikkim in the autumn of 1883.

Sir Martin Conway gives the two following reasons for not accepting Mr. Graham's statement :—

1. That 'it is the matured conviction of English officials who were in the country'—he writes elsewhere 'on the spot' (p. 47)—'at the time, and who discussed the matter with Mr. Graham when his memory was fresh, that he was mistaken, and that he reached no such great altitude.'

2. That 'at the height he did attain neither he nor his companions experienced any of the effects of diminished atmospheric pressure, such as have invariably been observed by all who have reached 20,000 ft. and upwards.'

As to the first point, before I wrote the article contained in vol. xii. of this Journal, to which I must refer those interested, I had myself fully discussed the subject with many of the officials who were in the country (there were, I believe, no officials 'on the spot,' unless this phrase is to be taken to include a radius of about forty miles), and I had read with care the statements of their reasons for disbelief as recorded in writing. The result of this inquiry—independently of my further examination of the travellers—was to convince me that the opinion of officials, none of whom had any knowledge of mountain-craft, was worth no more in the Himalayas than it was in the Caucasus or elsewhere. The point of view of the average official mind is the same all the world over. It has been tersely summarised in these doggerel lines :—

I am *the* old inhabitant,
And what I cannot do you can't.

Before considering the second and more serious objection urged by Sir Martin Conway, it seems proper to take into account all that he says of mountain sickness in a subsequent part of his Article.

On page 47 he refers to the very high ascents made beyond Kashmir in 1865 by a surveyor of the name of Johnson, who received an Honorary Award (as did Emil Boss) from the Royal Geographical Society. After most careful references to Mr. Johnson's superiors, and to his friend and colleague in Kashmir, the late Mr. Drew, of Eton College, I made public all that is known about his travels in vol. xii. pp. 58-60 of this Journal. His highest reported ascent, 23,870 ft., is extremely doubtful, but there are two of over 21,000 ft. which cannot be safely set aside, while it seems certain that a good deal of planetable and trigonometrical work was done by the Surveyor and his assistants at heights of over 20,000 ft. Sir M. Conway however (p. 47) declines to consider these ascents, which were accepted by the Council of the Royal Geographical Society under the Presidency of Sir Henry Rawlinson, and by Colonel Montgomerie, one of the chiefs of the Survey of India—Nor does he refer to the statement of Colonel Tanner, of the Indian Survey (Survey Reports, 1884-5) quoted in this Journal, vol. xiii. p. 27, that in mid-November a party of native surveyors, carrying a sick comrade in a litter all the way, crossed a pass of 'about 20,000 ft.' N. of Kinchinjanga.

Sir Martin Conway goes on to assert that every climber, 'with the sole exceptions of Messrs. Graham and Johnson, whose altitudes are disputed, has experienced, at heights of over 18,000 ft., exactly the same discomforts and impediments owing to the rarity of the air and the consequent imperfect oxidisation of the blood.' 'The level,' he writes, 'where they are not to be overcome, but must be endured, seems to be about 18,000 ft. On the same day, and at the same point, all the members of a party generally begin to feel inconvenience together.' I fully admit that Sir M. Conway's personal experience, extending as it does 4,000 ft. beyond my own, gives him an initial advantage in this discussion. But it cannot, I think, be held to justify the general assertions made above, in so far as they are not in accordance either with my own experience or with that of others. I, it is true, have only been 450 ft. above Sir M. Conway's starting-point; but Dr. Collie's evidence cannot be dismissed on any such ground, and he tells me that Mr. Mummery climbed, and climbed hard, without serious discomfort, between 18,000 and 21,000 ft. in the Nanga Parbat group. Further, the statement as to the simultaneousness of the symptoms in the members of a party might be contradicted by a hundred examples. I will note two only, the party on Nanga Parbat and that on Mount St. Elias, where Signor Sella tells me neither he nor the Duke of the Abruzzi suffered, while some of their companions felt more or less uncomfortable. I am quite unable, therefore, to accept general deductions as to the effect of high climbs on the human frame which appear to be based on the rejection of any experiences that do not support them, if not on an imperfect appreciation of the facts. Moreover, I am led on to inquire how far Sir M. Conway has succeeded both in correctly diagnosing his symptoms and in interpreting their efficient causes. Throughout his argument Sir Martin Conway seems to assume as proved that the symptoms of his party were caused by altitude. In his 'Travels' (vol. ii., p. 524) he tells us: 'I took tracings with a sphygmograph of Zurbriggen's pulse and mine; and here the damaging effect of altitude made itself apparent. Our breathing apparatus was working well enough, but our hearts were being sorely tried, and mine was in a parlous state. We had all practically reached the limit of our powers. We might all have climbed 1,000 ft. higher, or even more, had the climbing been easy, but Zurbriggen said that not another step would he cut. . . . *We were all weakened, not so much by the work of the previous hours, as by the continued strain of the last three weeks.*' The last sentence I have italicised, because it struck me on first reading as significant. But it becomes much more so when we turn to the paper by the late Professor Roy on the climbers' symptoms recorded by Sir Martin Conway, which was subsequently published in the Scientific Appendix to his 'Travels.' Professor Roy writes, 'I conclude that fatigue or excitement (probably the former), rather than the rarefaction of the atmosphere, is the cause of the quick pulse rate which is associated with mountain sickness. Figures 4-12 show that at heights of 17,000-23,000 ft. the heart-

beat need not be greatly quickened. Acceleration of the heart in mountain climbing is a measure of fatigue or nervous excitement rather than of asphyxia from rarefaction of the air, which is a matter of considerable interest, since it shows that when the "nervi accelerantes cordis" are called into play it is not the want of oxygen, but of something else, that brings their reflex mechanism into activity.'

Professor Roy concludes his examination of Sir M. Conway's physiological observations and records as follows :

'There is only one other point: how far, judging from the observations and tracings reproduced above, Conway had reached the highest climbable altitude. . . . There is no obvious reason why Conway and his party should not have gone higher, if they could do it quickly enough, and if they could choose their own times for going on, and campings, &c., which, of course, is the real difficulty. The curves show that they were in a condition to go on, and they agree with Conway's own feeling that they had not come to the end of their tether.' *

Before leaving this branch of the subject I must fortify my argument with the testimony of a witness, probably the best qualified in this country as both a climber and a physiologist to give expert evidence. As recently as 1895 Mr. Clinton Dent laid his opinion before a scientific audience in the following terms:—'There is no doubt about the height of the mountain (Kabru), which has been triangulated, but the question is whether the travellers did not mistake the peak they actually ascended. Whether the party did so or not, seeing that there is conflict of opinion, must remain uncertain. But the Karakoram experience (Sir M. Conway's), the latest, tends to show that it was certainly not physically impossible.' † A writer of authority—it might be rash to say another writer—has, in the 'Edinburgh Review' for July 1897, stated more precisely his reasons for rejecting the conclusions drawn by Sir M. Conway from his own symptoms. For fear of being charged with unfairness, I prefer to give the passage as a whole. 'Sir Martin Conway notes, incidentally, the interesting fact that he was attacked at a height of only 7,000 ft. with the symptoms in a mild form of mountain sickness. Experience in the Karakorams led him at once to recognise the "peculiar fatigue and the discomfort if the regularity of breathing were interfered with." He asserts roundly that the cause of mountain sickness is diminution of the supply of oxygen, adopting the view that Mr. Paul Bert insisted on so strongly. Modern researches seem to indicate that this is only part of the truth. The question is too complex to be fully discussed here, but we may note that the author adopts unreservedly the logical conclusion of his opinions, and he believes that "the vigour of

* *Climbing in the Himalayas*—Scientific Reports, p. 60.

† 'The Influence of Science on Mountaineering,' by Clinton Dent, F.R.C.S., *Proceedings of the Royal Institution*, vol. xiv. See also Mr. Dent's papers 'Can Mount Everest be Climbed?' *Nineteenth Century*, October 1892, and 'The Physiological Effects of High Altitudes,' *Geographical Journal*, January 1893.

every man begins to be diminished at a very moderate height [amount not stated] above sea level, and diminishes further with every increment of height till a level is reached at which even the dullest observer perceives that something is wrong." The explanation is summary, if not hasty, while it takes no account of physiological disturbances of the circulatory and nervous systems, of the altered tension of the gases of the body, or of the conditions that combine to conduce fatigue.'

It appears, therefore, that two of Sir Martin Conway's premises are unproven. Discomforts, if commonly felt in high ascents, cannot be shown to be universally or equally felt, while scientific authorities are not prepared to admit that the diminished atmospheric pressure is the sole or chief cause of the discomforts in question. We do know that such discomforts were associated with all the early ascents of Mont Blanc, and are still felt from time to time by climbers on that mountain, and that they may be experienced in a modified form even as low as 7,000 ft. by so old a climber as Sir M. Conway himself.* Looking to the experience of the past 100 years, it is at least open to argument that in the next century persons of good digestions and stolid temperaments, starting in fine training from tolerably comfortable huts or bivouacs, may hope to disregard the 'rarity of the air' on any mountain on the face of the globe.

Those who think otherwise may make the most of the inconveniences generally endured at the greatest altitudes hitherto reached. They may reinforce their argument by the record of the various feelings of Mr. FitzGerald and his friends on Aconcagua, about to be published. But the fact will remain that most of the arguments which can be adduced now for asserting that the limit of human powers is met with at about 23,000 ft. might have been equally well adduced 100 years ago to prove that that limit lies at about 16,000 ft. I believe that the Alpine Club will in the next century carry that limit 6,000 ft. higher still.

I will now proceed to consider in some detail Mr. Graham's account of his ascent of Kabru. I believe we shall find reason to believe that, though not incapacitated, his party were very sensibly affected by the ascent. Mr. Graham himself describes † certain symptoms. It must be remembered that Boss and Mr. Graham were in the Alps among our fastest climbers. The ordinary pace up Mont Blanc, above the Grand Mulets, is 1,000 ft. an hour. In the first ascent of Elbruz, including a long level traverse, we made 800 ft. an hour, the last 2,500 ft. being done under three hours. From 18,500 to 22,500 ft. the Himalayan climbers made less than 900 ft. an hour. From that point to 23,950 ft., with a good deal of step-cutting, 600 ft. an hour. Sir Martin Conway himself accomplished his last 1,250 ft. in 2½ hrs., though before starting from his 20,000 ft. bivouac he was so exhausted by previous hardship and exposure that 'after lacing a boot one had

* See *The Alps from End to End*, p. 13.

† *Alpine Journal*, vol. xi. p. 40.

to lie down and take breath.' Zurbriggen was able to smoke a cigar on the top, and, according to Dr. Mosso ('Fisiologia dell' Uomo sulle Alpi') he is a man of normal frame. Zurbriggen further told the doctor that, though he had to rest after cutting every half dozen steps, he believed he could have gone much higher! After making all needful allowances, the discrepancy between the experiences of Graham's and Conway's parties seems little, if at all, greater than that between those of the first two parties on Elbruz. It is true our ascent in 1868 has been disputed by Russians!

Even if it be proved—as I claim it to be—that Mr. Graham's story is not *a priori* incredible, it of course by no means follows that it is true. It remains perfectly open to serious argument that he was mistaken in his identification of the peak attained, or that Emil Boss and he deliberately conspired to deceive the public in claiming to have reached a point within 50 ft. of the top of Kabru (24,015 ft.) Let it be remembered that here there is no other question than that of identification. The height is trigonometrically fixed, and not dependent on any traveller's measurements.

The former hypothesis, that of a mistaken identification, adopted by Sir Martin Conway, may at first sight seem plausible and even highly probable. Climbers have frequently made such mistakes in cloudy weather. But it becomes, I think, less probable on examination of books, maps, and photographs, and of the circumstances.

The day was cloudless. Mr. Graham made the ascent on his second visit to Sikkim, when he was already familiar with the country. Kabru, we have Sir J. Hooker's word for it, is very conspicuous, and only 8 miles off from Jongri, and is also seen from the neighbourhood of the Kangla Pass as 'a white screen.' Its position with regard to Kinchinjanga should render it easy of recognition.

The second hypothesis, that of deliberate deceit, has not, I believe, been suggested, at any rate in print. Emil Boss was not himself before his death, and at times told incredible stories. But he was capable of very clear and precise statements when I saw him first, and they were in close agreement with Mr. Graham's. No one, I think, can read Mr. Graham's account without seeing that it is that of a young and casual climber, who wrote quickly and carelessly; of one liable to fall into inaccuracies or hasty assumptions in matters of detail; of one who made the least of his own symptoms, cared more for adventure than for science, and was very apt to record with undue respect uncorrected aneroid readings. For this last failing, perhaps, I am partly responsible, for I begged him to give in his paper any 'observations' he had.

But, as I have said before, the most careful separate examination of Boss and Mr. Graham, immediately on their return, failed to produce in my mind any ground for doubting the substantial accuracy of their story, and I think very few mountaineers who read carefully not only Mr. Graham's paper in vol. xii., but also his private letters printed in vol. xi. of this Journal, will come to

any other conclusion than I did: that to treat his story as unworthy of credence is a most hazardous course.

One word more only. With regard to the sufficiency of the evidence to establish the identification of the point reached, Sir M. Conway is, of course, competent and fully entitled to form and express an independent opinion. The matter is one fairly open to argument. But assertions made in a work of reference, which may naturally be regarded as a work of authority, seem to me to stand on a somewhat different footing from arguments introduced in a personal narrative. I think it is desirable, therefore, that the Club and the public should be reminded of a fact, which I am sure my friend Sir Martin Conway will be the first to admit, that the opinions expressed in the 'Encyclopædia of Sport' are not the summing-up or even the *obiter dicta* of a judge, but the plea of an advocate who is personally interested in the matter, and has moreover omitted to notice the statements of the case for the other side to be found in past numbers of this Journal and elsewhere.

The discussion can only be finally set at rest when climbers such as Mr. Graham's party were attack in earnest the great Sikkim peaks, explore the slopes of Kabru from the direction in which Mr. Graham approached them, and test, as far as they can be tested, the possibilities of mountain-climbing in that region. Until this has been done I shall prefer to run the risk of being proved too credulous to that of having been needlessly sceptical.

P.S.—Sir M. Conway tells me that he has a note from an Indian official, enclosing a photograph which shows that from the crest of the Kangla Pass the summit only of Kabru is visible over a nearer spur or summit. It is inferred that Mr. Graham's description of Kabru, seen from a point near the Kangla Pass, as rising due E., 'its western face almost like a wall,'* must be taken as a proof of his erroneous identification of that mountain. On referring to Sir J. Hooker's 'Travels,' I find the following description of the view from the Yalloon Valley in the immediate neighbourhood of the Kangla Pass: 'Looking E., I had a splendid view of the broad snowy mass of Kubra' (Sir J. Hooker always uses this form of the name) 'blocking up, as it were, the head of the valley with a white screen.' On the copy in the R.G.S. Library an anonymous commentator has erased 'Kubra,' and written Kangla, while a second traveller has written 'Kabru seen over Kangla.' Only the top of Mont Blanc is seen from Sallanches, yet many travellers have described 'the view of Mont Blanc' from that place without injury to their reputation. Mr. Graham may not be always accurate; here, however, he seems to be unconsciously at one with Sir Joseph Hooker.

* *Alpine Journal*, vol. xii. p. 38.

REPUBLICATION OF BALL'S 'ALPINE GUIDE.'

[A circular on this subject has been issued by the 'Alpine Guide' Republication Sub-committee. It is reproduced here with some modifications which have seemed desirable.]

It will be in the memory of many of our members that shortly after the death of Mr. John Ball a circular was issued to the members of the Alpine Club by the Committee, pointing out that the most fitting tribute to the memory of the first President of the Club would be for the Club to take in hand the publication of a thoroughly revised edition of his 'Alpine Guide,' and that for this purpose Messrs. Longmans had liberally offered to transfer to the Club their interest in the work.

The first estimate of the cost of revising the whole work was 750*l.*, and subscriptions closely approaching to this amount were promised, and have, with a few exceptions, been paid. Much to the regret of successive Committees, several years have passed without any portion of the work having reached a state fit for publication. In the first place the revision has proved a much more formidable task than had been anticipated, and Mr. A. J. Butler, who had first undertaken it, felt compelled, by the pressure of other literary work, to give up the editorship. The Committee were fortunate in finding in Mr. Coolidge a person admirably qualified to accomplish such a task; but through his prolonged and serious illness, now happily at an end, further delays were caused. Meantime, it was found that, to make the book in every sense worthy of its original author and of the Club, it was necessary that new maps should be provided for the whole of the South-Western Alps, and that the other maps should be revised as far as was consistent with the costly process of altering the steel plates. Further, the bringing up to date of the text involved references to many articles and books as well as to numerous travellers of various nationalities, so that nearly every page had to be largely rewritten. The total cost of producing the first two volumes will amount to not less than 1,300*l.*

Volume I. is now in the press, and will be in the hands of subscribers in the early summer. A considerable quantity of notes and material has been collected for Volume II., which will be published as soon as possible.

Having regard to the large outlay already incurred, the Committee have not thought it right to undertake any pecuniary liability in respect of Volume III., though preliminary steps have been taken towards its preparation.

Under these circumstances they feel that the cost beyond

the subscriptions already received should not be thrown on the Club's finances, and they think that it will be agreeable to the feelings of members of the Club who have been elected since the last circular was issued, and possibly also to others who have not yet subscribed, to aid in the completion of the work which was set on foot by their predecessors.

If the response to this circular provides the balance between the 750*l.* already subscribed and the 1,300*l.* needed, the Committee think that the sales to the general public of the first two volumes may fairly be relied on to provide funds for the issue of Volume III.

Mr. Coolidge, while preserving, as far as possible, the original arrangement, character, and style of Mr. Ball's work, has brought to its revision not only his own unrivalled general and detailed knowledge of the Western Alps, but also the local experience of a number of explorers—French, Swiss, and Italian, as well as English—in particular districts, as well as the results of the most recent Government surveys. The book, therefore, will be as complete as it can be made in every detail. It is believed that it will fill a gap in Alpine literature, since it treats with the same thoroughness the regions both above and below the snow level; and will, therefore, be equally useful to the traveller and the climber, and indispensable to those who are both. It ought, in this respect, to take a place between 'Murray' and the 'Climbers' Guides'; while, owing to the attention paid to byways and uncrowded districts, it should be—as the original edition was thirty years ago—a valuable aid to those who wish to extend their wanderings beyond the main routes and centres. All details as to inns, &c., being placed in the index of each volume, future editions of the book may easily be brought up to date by simply reprinting the index.

With regard to the maps, the Alpine Club Map has been adopted and slightly revised for the district maps within its limits, and new maps have been prepared of the districts south of Little St. Bernard, which can be combined and published as a separate complete sheet of the South-Western Alps, should it be thought hereafter desirable.

The original circular stated: 'It is intended that subscribers of one guinea and upwards shall receive a copy of the entire work free.' Owing to the increased cost of publication, as stated above, original one-guinea subscribers will obtain the work at much less than the cost of production. The Committee will, of course, carry out the intention therein

expressed with regard to the original subscribers; at the same time they will be glad to accept from them any increase of their subscription they may be willing to give. But for the future the rule will be that new subscribers of one guinea will receive the first volume, and those of two guineas and upwards a copy of the entire work as published, including the scientific preliminary matter, which will be issued separately.

CHARLES PILKINGTON (*President*).

W. A. WILLS (*Hon. Secretary*).

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NEW EXPEDITIONS IN 1897.

Graian Alps.

CIMA DI CIARFORON (11,999 ft.). *July 10, 1897.*—Messrs. E. H. F. Bradby and C. Wilson, with Henri Rey, ascended this peak by the E. arête. Leaving the *Colle della Torre* (10,457 ft.) at 10.20 A.M., the first pitch in the arête was climbed, and the second skirted on its northern side, by which means the snow below the rocks of the N.E. face was reached. Traversing just under the rock wall, the second couloir was selected, and, climbing by this and by the rocks on its true right (left going up), the arête was regained at the top of a well-marked perpendicular pitch, which is probably unclimbable. Hence the arête was followed roughly, first by the rocks on its N., and later by those on its S., until a point was reached about 200 ft. below the summit. Here the party was forced to retrace its steps for some fifty or sixty feet, and to climb out on to the S.E. face, where the grey rocks, which from below looked so very unpromising, were attacked at a point vertically below the summit. These did not prove to be so difficult as had been anticipated, and the ridge was regained at a cleanly-cut notch some 80 or 40 ft. below the cairn, which was finally reached at 12.45 by a short

climb on the N. side of the ridge. The climb is an interesting one, and can easily be taken *en route* from Ceresole to Val Savaranche.

Valtournanche District.

LES JUMEAUX DE VALTOURNANCHE. PUNTA SELLA (about 12,680 ft.). *July 31, 1897.*—Messrs. E. H. F. Bradby, J. H. Wicks, and C. Wilson climbed this peak by its eastern face. The route followed differs altogether from that taken by Lord Wentworth, with Rey and Bich, in 1877,* or from any other of which record exists, and its general trend may be said to lie directly up the cliff from a point vertically below the summit.

Leaving Giomein at 2.30 A.M., the snow patch which skirts the final cliff, and which, on a reconnoitring expedition, had taken seven hours to reach, was gained in five. Here steps previously cut were utilised, and the foot of the rocks followed northwards to a point where a well-marked ledge leads upwards and to the S. This ledge terminates in a shallow couloir, by means of which, and by the rock ridge which forms its southern boundary, a point was reached at noon where the couloir was recrossed and a halt made on its northern buttress, where this ridge terminates in a steep rock-face. At 1 P.M. this cliff was attacked, the party working directly upwards till on a level with the gap between the Twins, when a ledge leading northwards was made use of, at the end of which, by means of a short but difficult climb, the arête separating the Valpelline from the Valtournanche was gained at 4 P.M., to the S. of and about 40 ft. above the gap, the summit being reached at 4.40. The first part of this climb (up to noon) proved somewhat dangerous from falling stones, though the reconnoitring expedition had conveyed an impression that it would be comparatively free from this danger. The upper part of the couloir, which leads on to the summit ridge a little S. of the top, is certainly dangerous from this cause, or it would doubtless have been followed, as it was by Lord Wentworth's party, who, having ascended diagonally upwards and northwards from the foot of the Becca de Guin, first struck the couloir at the point where the present party left it. The latter part of the climb here described was, though difficult, quite free from danger, the rocks being firm and the climbing fairly comparable to that afforded on the more difficult of the Chamonix aiguilles.

Arolla District.

L'ÈVÈQUE (3,738 m. = 12,264 ft.). *July 14, 1897.*—Messrs. F. G. Leatham and G. Lipscomb, with Jean Maitre and Pierre Maurys (of Evolena), made the first ascent of the S.E. face of L'Èvêque. The usual route from Arolla to the Col de Collon was followed till they reached, at 8 A.M., the snow couloir which runs up between the Mitre and L'Èvêque. After climbing up this for 10 min., they turned on to the rocks on the left. Maitre's

* *Alpine Journal*, vol. ix. p. 3.

plan was to make as straight a course as possible for the chimney immediately below the col or first depression on the N.E. arête of L'Evêque. Bearing slightly to their left they kept far below the N.E. arête, and after crossing, at 12.10, a small patch of ice, where a few steps were necessary, $\frac{3}{4}$ hr. climbing, partly on the face and partly in the chimney, or narrow couloir, brought them to a narrow ledge, and then round a very awkward corner to the col at 12.55. Resting here about $\frac{3}{4}$ hr., during which time Maurys built 'stone men' on the two points E. of the col, another 45 min. brought them to the summit of L'Evêque (time, $4\frac{1}{4}$ hrs., exclusive of halts). The climbing from glacier to col was hard work all the way, the rocks, though sound, being difficult, owing to their downward inclination and the consequent absence of good hand and foot hold. Loose stones were, of course, very numerous. They returned to Arolla by the Glacier de Vuibez, Maître avoiding the séracs by guiding down the steep face of the rock in the centre of the icefall.

MÎTRE DE L'EVÊQUE, LOWER PEAK (about 11,950 ft.). *August 3.*—Messrs. T. G. and C. L. Longstaff, with Jean Maître and Pierre Maurys, left Arolla at 4.15. Crossing the Col de Pièce (or de Vignette) and the snow fields of the glaciers de Vuibez and du Mont Collon, they reached the col between the Evêque and the S. peak of the Mître at 10.50. The rocks of the S.W. ridge afforded an interesting half-hour's climb to the summit, above the great cliffs which overlook the Col de Collon.

The two peaks of the Mître are separated by a formidable-looking gap, and the last bit of the N. peak looks very steep. No signs of any previous ascent were found on the S. peak.

The party returned by the same route, reaching Arolla at 6 P.M.

Hautemma Ridge.

BEC D'EPICOUN (11,572 ft.), by La Rajette and the S.W. arête. *August 27.*—The same party left Bionaz soon after four, and walked up to the Berrie Alp. Leaving Mont Cervo on the right, they took to the glacier between this peak and the Bec de Ciardonnet. A steep snow slope led up to the Rajette, which was reached at 9.40. There were no signs of previous visitors to be found. The S.W. arête of the Bec d'Épicoun was followed over snow and rock to the summit in 40 min. from the Rajette. The descent to the Hautemma Glacier by the steep snow arête on the N. occupied 1 hr. 20 min. Fionnay was reached at 6.40.

Grand Combin District.

POINTE DE LA PETITE LYRE (8,509 m. = 11,512 ft.). SIEGFRIED MAP, GRAND COMBIN SHEET.—Messrs. Louis Molly, Philip Coquillot, and W. J. Burford ascended this peak on July 27, 1897. Leaving the hut at Chanrion, they walked up the Glacier de Breney to near the *y* in Breney, when they turned E. and climbed the loose rocks to the left of a narrow snow gully. On reaching

the undulating plateau above (2 hrs. from the hut), they continued E. towards the peak aimed at, and climbed up the rocks to the left of the first gully, crossed it near the top, turned E. again, and followed the ridge to the third and highest point (1½ hr.) No traces of previous visits. The descent was effected by the Glacier de la Petite Lyre and the Otemma Glacier. A pleasant and varied walk with a very fine view. This peak might be called the *Pointe de la Petite Lyre*.

Valpelline.

FAUDERY-CLAPIER RIDGE,* M. BERIO (called Berlo, but not to be mistaken for the Berlon of the Swiss map), 3,086 m. By the N.E. arête. August 25.—Messrs. T. G. Longstaff and T. Ashby, with Jean Maître, Pierre Maurys, and Joseph Georges, left Bionaz at 4.30; traversing the slopes above Chantres and St. Oyace, they reached the foot of the couloir leading up to the col between the Berio and the Clapier at 9.20. The couloir was ascended in an hour, and the party then turned to the left and followed the N.E. ridge to the summit. This arête is very narrow and much broken up; it is distinctly difficult in places, and a reserve rope was once used. The weather was bad, and the summit was not reached till 2.20. The party were surprised to find a stone man there, as they had previously been assured that the peak was unclimbed. Signori Mondini, Vigna, and Canzio made the ascent from the S.W., starting from By on August 21, 1895. The descent on this side to the small snow slopes on the W. took 1½ hr. The walk to Bionaz round the Faga Bella is very long, and the curé's house was not reached till 8 P.M. The maps of this district are curiously incorrect: the ridge marked directly to the E. of the Faudery Morion and Clapier chain does not exist.

Vélan District.

MONT VÉLAN BY THE N. ARÊTE. August 18.—Messrs. C. L. and T. G. Longstaff, T. Ashby, and W. B. Anderson, with Jean Maître, Pierre Maurys, and Joseph Georges (two parties), left Bourg St. Pierre at 2.25. They followed the St. Bernard road for 10 min., and then turned left over the slopes of the Balerona Alp, reaching the glacier du Petit Vélan at 4.35. The ridge running S.E. to the Aiguilles du Vélan was reached by a small snow col near the point marked 3,163 on the Swiss map. The aiguilles were reached at 7.15, and climbed.

The ridge here turns due S.; it is well seen from the Valsorey, and appears to be accessible from that side. This N. arête of the Vélan may be divided into three distinct parts. The first is called 'le Pourri' by the natives: the rock is red, and much disintegrated; a way was found up it slightly on the W. side of the true arête. The second portion of the arête was much more interesting,

* *Alpine Journal*, vol. xv. p. 260.

but great care was required when passing some large loose blocks. On this summit a stone man was found. 'Old' Balley, of St. Pierre, stated afterwards that this had been made by a hunter who reached the spot from the E. (Glacier de Tzeudet).

After crossing the second summit a rather awkward cleft has to be passed, where much time was lost in scraping away fresh snow and dislodging loose stones. Interesting and sometimes difficult rocks led up to the third and principal summit of the arête; it is formed by a great grey rock, having some resemblance to a human face. No signs of previous visitors were found, and a small cairn was erected. A descent of a few feet led to a narrow snow arête, which terminated in a short but very steep snow slope. The snow cap of the Vélán was reached at the signal marked 3,680 on the Swiss map, from which point the summit was gained after a walk of 10 min. (1.12, 8½ hrs. actual going from St. Pierre).

The usual route on the W. brought the party to the Glacier de Proz in ¾ hr. St. Pierre was reached about 7 by the Cantine de Proz.

Kandersteg District.

GROSSES RINDERHORN (3,457 m. = 11,342 ft.). FIRST DESCENT TO THE ZAGENGRAT.—Mr. Harry Runge, with Abraham Müller, of Kandersteg, left the Schwarenbach Inn at 2.45 A.M., August 5, 1897, and, somewhat delayed by prolonged step-cutting (ice), reached the summit of the Rinderhorn by the ordinary route at 8.10 A.M. (20 min. halt *en route*). Starting again at 8.55 A.M., they followed the short S.E. snow-ridge from the summit down to the rocks. The main E. ridge (I.) appeared very difficult; down the S.E. face a number of rock arêtes descend, enclosing couloirs filled with snow and ice. Of these arêtes the one (II.) next to the main E. ridge (I.) appeared likewise uninviting; so, choosing the next one again to this (III.), they climbed down its crest for a short distance only, and then traversed the couloir between No. III. and No. II. on to the latter arête. Finding this arête unpromising, they re-crossed the couloir in the same steps, and continued down arête No. III. They soon quitted the crest of this arête, and climbed down its N. face to a point where the couloir narrows down to a few mètres wide, shortly afterwards practically ceasing. The couloir itself could not be used, owing to falling stones and ice. Traversing from the right to the left, they gained arête No. II. The main E. ridge (arête No. I.) breaks off higher up on a steep wall or buttress facing E., in which is a rock couloir likewise facing E., and visible from the Zagengrat—say, from point 3,042, Siegfried map. Below the buttress the main E. ridge (No. I.) reappears, and it was this continuation they had to gain.

From the point reached on arête No. II. they descended its N. face for a very short distance, and then traversed the rocks below the buttress till they gained the main E. ridge in its continuation. Time 1.40 P.M. (halt till 2.30 P.M.) They descended the main E. ridge to the S. edge of the upper glacier (about point 3,241

Siegfried). Here two snow couloirs seam the S. face of the E. ridge, and after a halt of 20 min. they followed the rock arête dividing these two couloirs till the rocks run out, the two couloirs uniting at this point. Then keeping to the rocks on the right of the couloir, they descended to where the couloir ends, and then turning sharp to the left traversed along the S.E. face to point 3,042 Siegfried map, on the Zagengrat. Time 5.35 P.M. After a halt they followed the usual route down the Schwarz Glacier to Schwärenbach (6.30 P.M. to 7.20 P.M.) and Kandersteg (9 P.M.). Rocks rotten.

In A.J. ix. 493, appears a note without any details of the first ascent of the Rinderhorn by the E. arête—made by Mr. E. M. Lionel Dècle and a porter—described as very easy when the snow is in good order. The route followed must have been different to the above, there is no snow on the E. arête proper.

Bernese Oberland.

HOCKENHORN (3,297 m. = 10,817 ft.).—On August 25, 1897, Mr. H. V. Reade and the Rev. P. M. Barnard, with Josef Rubin, ascended the Hockenhorn, or Schilthorn, by a new route. From Ried, in the Lötschenthal, the usual route was followed nearly up to the S.E. rocky spur of the mountain; then the party bore to the right, went up a moderately steep snow-slope, and struck a sort of rock couloir at the junction of the E. and S.E. faces of the mountain. This afforded an hour of good climbing, and joined the ordinary route on the S.W. arête about 5 min. from the summit. By bearing to the right soon after entering the couloir, one could reach the summit directly from the S.E.; but if this were contemplated it would be necessary to ascertain that no other party was on the mountain, as stones dislodged from the top would be dangerous. This new route is somewhat longer than the very easy one usually taken, but it gives an interesting climb up a mountain which commands a magnificent view. Times: Ried to glacier, 3 hrs. 10 min.; to foot of couloir, 1 hr. 20 min.; to top of it, 1 hr.; to summit, 5 min.

Lepontine Alps.

GALMIHÖRNER, N. PEAK (3,000 m. = 9,842 ft.). August 27.—Mr. and Mrs. C. A. C. Bowlker left Oberwald at 8 A.M., and, after an hour's climb through the fine forest above Unterwasser, ascended gradually along the slopes above the Gönerli Thal, and in about 3 hrs. reached the foot of the snow on the N. side of the Galmihörner. There was a good deal of fresh snow, and it took about 1½ hr. to reach the foot of the N.W. arête, by which they gained the N. peak (3,000 m.), after an interesting scramble of rather over an hour. Here they found that they were cut off from the S. and higher peak by a ridge which, as Mr. Broke describes on p. 590 of the last number of the 'Journal,' is 'desperately jagged.' Not finding any traces of a previous ascent, they built a very small cairn, and descended by almost the same route to Oberwald.

NORTHERN NORWAY.

Lyngenfiord District.

YÆKKEVARRE.—August 26.—Messrs. H. Woolley and G. Hastings examined the southern face of Yækkevarre (Lappish Yække = glacier, varre = mountain) (6,220 ft.), the highest hill in Northern Norway, and hitherto unclimbed. Two large glaciers flow east into Lyngdalen from this face. The lower end of the valley, near the fiord, has a succession of raised beaches, five or six in number.

August 29.—Started at 4.50 A.M. from a bivouac in Kvalvikdal (1,950 ft.) above the Lyngenfiord, ascended the eastern ridge of Ruksisvaggegaissa overlooking Lyngdalen. Reached the first summit at 9.10, built a cairn. This peak has a considerable overhang towards the east. The second peak was reached at 10 A.M. After crossing a flat snowfield towards the west, a long line of steep crags led down to the Lille Yækkevarre Glacier, which is fed from the overhanging glaciers and snow-gullies of Yækkevarre.

This glacier may be said to sit astride of the col. It has at this point but one feeder from the wide-spreading snow-cap of Yækkevarre. This feeder is very steep, and possesses much the character of a glacier, being too much broken and crevassed to be called a snow-gully.

The ice or névé from it spreads out fanwise across the saddle abutting on to Ruksisvaggegaissa opposite, with one leg over the col to the north, where it falls down steeply into the head of Kvalvikdal, and floats off across a lake in icebergs. The other leg on the south receives many feeders from the upper snows of Yækkevarre, then bends to the east, and falls away into Lyngdalen. The glacier was free from crevasses on the col, but lower down, on either hand, long narrow crevasses stretched across all fully exposed, owing to the continuous heat of the Arctic summer. The cliffs leading up to Yækkevarre were cut off from the glacier by a long line of bergschrund.

The glacier col was left at 2.15. The lake outlet (2,800 ft. O.S.) reached at 3.25, and the valley followed down past two other lakes, neither of them marked on the map. The bivouac was reached at 4.55, after an hour and a half's hard going over a wilderness of broken rock.

August 30.—Left bivouac at 6.28 A.M., reached the Iceberg Lake at 7.45, crossed along the northern shore, opposite to that rounded the day before. Ascended over scree, aiming for a rake or traverse, which led through a line of crags up on to the second glacier, which comes down in fine séracs into the Iceberg Lake.

Followed glacier to its head, and then on to the col above (4,050 ft.), on the far side of which the glaciers and wide-spreading snow-fields of Fornøsdal lay. Left at 10.35 for the northern ridge of Yækkevarre, which rises from the col. Halfway up, the ridge becoming steep made it necessary to cross from the western to the eastern face. The snow-cap, which extends all over the upper part of this mountain, was reached at 12.10. The mountain,

as seen from two or three sides, shows a high mound of snow capping a long flat top. High walls of ice and névé frown over the steep cliffs which extend round the eastern, northern, and western faces, and break off in séracs over the crags, and down the gullies on to the glaciers below. The first or northern summit was reached after fifteen minutes' walking up hard snow. Twenty-five minutes' more steady going brought one to the highest point (6,220 ft.) at 1.10 P.M. An extensive view of large glaciers and snow-fields was obtained. The ice-falls of the Fugledal Glacier on the west were very fine. On the north the mountain ranges across the Kjosen Fiord were a maze of sharp-pointed peaks. Left the top at 2.30, reached Fornæsdaal col at 5.35, being delayed by hard and steep ice in a gully close to the top of the ridge. Arrived at the lake outlet at 6.45, and got back to the bivouac at 8.10 P.M. The Norwegian Amt maps are very confusing, as they fail to distinguish the glaciers from the hills, and the upper valleys below the glaciers are in many cases quite wrongly laid down.

SPITSBERGEN.

NORDENSKIÖLD GLACIER. *July 13, 1897.*—Sir Martin Conway and Mr. E. J. Garwood, with two Norwegian sailors having landed near the head of Klaas Billen Bay, commenced the ascent of this glacier, which proved to be very crevassed. Camped at 700 ft. *14th.* Passed through remainder of crevasses and camped in dense fog at about 1,500 ft. at the N.E. foot of Mt. De Geer. *15th.* Howling storm all day. *16th.* Advanced inland towards Mt. Chydenius in dense fog. Camped at about 2,800 ft. *17th.* Fog continuing; advanced to near Mt. Chydenius; compelled by snow storm and gale to camp at about 3,000 ft. One of the men incapacitated by cold and illness. *18th.* Leaving sledges made ski expedition to an eminence above the fog, and obtained extensive views. Forced by man's illness to commence retreat. *19th.* Retreat continued. *20th.* Reached base camp at foot of glacier.

MT. NIELSEN (3,120 ft.). *July 26.*—Mr. E. J. Garwood and the seaman Nielsen ascended this peak by its N.W. arête from a camp at the head of King's Bay.

KING'S HIGHWAY.—Sir Martin Conway and Mr. Garwood, with the two seamen, left camp at the head of King's Bay on July 26, and started S.E. up the King's Glacier, and later up its S.E. branch, the King's Highway. After marching for $3\frac{1}{2}$ days they reached the pass (2,500 ft.) at the head of the glacier (July 30), and ascended a small peak, Highway Dome (3,000 ft.) on the north. July 31: They started south and crossed a range of mountains into another glacier basin which drains S. into St. Jan's Bay. Returning N.W. they crossed another pass and re-joined their previous tracks. August 1: Ascended to Pretender Pass in the midst of the group of hills in the angle between the King's Highway and the Crowns Glacier.

THE THREE CROWNS GROUP.—The same party on August 2 camped at the foot of Pretender Peak (3,480 ft.) and sent the men

back to the coast for stores. August 3 : Climbed about Pretender Peak. August 4 : Moved camp up the left side of the Three Crowns Glacier to the foot of the middle peak of the Three Crowns. Climbed the Middle Crown (4,000 ft.). August 5 : Leaving the sledges and camp behind, went an 18½-mile ski expedition, climbed the Diadem (4,150 ft.), and returned to camp. August 6 : Climbed the Middle Crown again. August 7 : Returned towards the coast. August 8 : Reached base again on the shore of King's Bay.

MOUNT HEDGEHOG.—This mountain is part of the range of the Horn Sunds Tinder, and is the peak partially ascended in 1896 by Messrs. Garwood and Trevor-Battye.* On August 17, 1897, at 8.30 P.M., Mr. Garwood, and Sir Martin Conway left their camp on the E. shore of Goose Haven, Horn Sound, and went up the right bank of Goose Glacier, following the route of the previous year. At 12.30 A.M. on the 18th they left the last year's bivouac place, and after passing over a low craggy point gained the foot of the peak's W. rock arête. The ascent was made up an ice couloir just S. of these rocks, and the final narrow S. snow arête was gained at its head. By this the ascent was completed in about 4 hrs. from the bergschrund. The view was clear in all directions above a wide-spreading floor of cloud. The highest point of the Horn Sunds Tinder was found to be an excessively sharp peak, two or three miles further north, which surpassed Mt. Hedgehog by about 40 ft. Camp was reached again at 10.30 A.M.

REVIEWS AND NOTICES.

Mountaineering. By Sir W. Martin Conway. 'The Encyclopædia of Sport.' Part XI. January, 1898. Pp. 23-48, 53, 54. London: Lawrence & Bullen.

Sir W. Martin Conway's article on mountaineering in this new encyclopædia is an able summary of matters connected with the craft. It begins with a short history of mountain travel. A translation of the account of a passage of the Great St. Bernard by John de Bremble, a monk of Christ Church, Canterbury, in February 1188, given by Bishop Stubbs in his lectures on 'The Study of Mediæval and Modern History' (it, as well as the narrative of another passage in 1128, will be found in Coolidge's 'Swiss Travel,' pp. 5-9) is quoted on p. 24. We reproduce two sentences:—'I have been on the Mount of Jove: on the one hand looking up to the heavens of the mountains, on the other shuddering at the hell of the valleys, feeling myself so much nearer heaven that I was more sure that my prayer would be heard, "Lord," I said, "restore me to my brethren, that I may tell them that they come not into this place of torment."' The story, told in brief, is brought down to the latest achievements of climbers in the Caucasus, Ecuador, the Himalayas, New Zealand, Africa,

* *Alpine Journal*, xviii. pp. 373-82.

Chili, and Spitsbergen. The Italian expedition to Mount St. Elias—in fact, the mountains of North America as a whole—have been strangely overlooked.

We regard the comments on 'The Sport and its Dangers' as excellent. The following remarks are particularly happy—'There is nothing so demoralising as to sit still in a raging gale. Cold then becomes an increasingly potent enemy; the vitality is sapped, the power of initiative is diminished, foolish counsels attain the ascendant, and all manner of misfortunes are likely to ensue. Next to standing still, the most ill-advised line of action is one of frantic haste in difficult places. Never is patience more essential than when the elements are furiously raging. Never is caution more continuously called for' (p. 41). The hints on 'Alpine Climbing for Beginners' are also very good and timely. For instance (p. 42), 'Snowcraft is the thing that takes most learning, and it is with snow mountains, and still more with snow passes, that a beginner should begin.' The sections on 'Equipment' and 'Mountain Exploration' bear evidence of the author's experience. Whilst speaking in the highest terms of Mathias Zurbriggen—such men as Zurbriggen will, he thinks, be always exceptional—he gives it as his opinion that a skilful amateur is in all respects superior to ordinary Alpine guides, who seldom prove good travellers. He concludes by saying (p. 47), 'A party for mountain exploration would be ideally constituted if it consisted of a leader who should be the surveyor, geographer, photographer, and general organiser; an amateur guide, who might also be a geologist; and a third man, who should be a naturalist and collector. Such a party, with the needful local following, may go anywhere.'

Sir Martin Conway's remarks on the greatest height likely to be attained will interest many readers. 'My own experience led me to believe that we might have reached an altitude of 24,000 ft. if our mountain had been so high. We spent two nights at 20,000, and I think we might have slept 1,000 ft. higher without much additional suffering; but I doubt whether men could be found to carry even the lightest camp to more than 21,000 ft., where, by the by, the cold at night is intense, and the need imperative of protection and warmth for bodies in which the blood is feebly circulating. The future will show whether any precautions can be taken, or appliances devised, by which these difficulties, discomforts, and dangers can be diminished. Under present circumstances, I doubt whether a height of 25,000 ft. will be authentically reached. I am convinced that peaks of more than 25,000 ft. will not be climbed for many years to come' (p. 48).

The article is provided with twelve illustrations by Mr. A. D. McCormick, of which we speak with some hesitation. Those entitled 'Climbing a Chimney' and 'Hidden Crevasses' are perhaps the best. We understand that the writer of the article had nothing to do with the selection of the illustrations.

We notice a few minor slips in detail: Dr. Paccard was not one of Saussure's party on Mont Blanc. On p. 24 'roamers' should be

'Romers.' The qualification necessary for the Alpine Club given on p. 44 omits all mention of 'contributions to Alpine literature, science, and art.' Moreover, 'mountain expeditions' should be substituted for 'regular ascents,' for an explorer who has made no 'regular ascents' can be and has been elected. The mistake of writing 'Dykhtau' for 'Koshtantau' we feel more inclined to sympathise with than condemn. The assertion that 'no decently led party should be lost through fog on the upper part of Mont Blanc' is too strong. M. F. Schrader's article in the *Annuaire du C. A. F.*, 1895, referred to elsewhere in this number of the 'Journal,' may afford interesting evidence on this question.

In the Bibliography attached to Sir M. Conway's article, but drawn up by 'A. C. C.,' while we notice several works which we certainly did not expect to find, we miss such well-known books as Mr. Whympers's 'Zermatt,' Mr. Hinchliff's 'Summer Months among the Alps,' Tyndall's 'Hours of Exercise,' Bonney's 'Alpine Regions,' Forbes's 'Travels,' Murray's 'Switzerland,' and three works by former Editors of this Journal—Mr. H. B. George's 'Oberland and its Glaciers,' Mr. D. W. Freshfield's 'Italian Alps,' and Mr. W. A. B. Coolidge's 'Swiss Travel.' Among books published abroad we miss Tuckett's 'Hoch Alpen Studien,' Durier's 'Mont Blanc,' Studer's 'Ueber Eis und Schnee,' Heim's 'Handbuch der Gletscherkunde,' 'D'Anes' (for D'Arve), The 'Penine Alps,' and 'Corlidge' are curious misprints.

The Glossary must not be implicitly trusted. To take examples: There is no such thing as a *glacière-table*, the Föhn is not generally a S.E. wind, a glacier is not 'an accumulation of frozen snow in a valley,' nor is an *arête* definable as 'the highest ridge of a mountain.' Hand-hold, gully, shoulder, cairn, crest, are common words used by mountaineers in their ordinary significations, and hardly deserve a place in a glossary, particularly in one remarkable for its omissions.

Philip Stanley Abbot. Reprints from the 'Appalachian.' Boston: 1897. (Privately issued.)

This volume is a memorial to one of the most energetic and promising young climbers beyond the Atlantic, whose premature death on Mount Lefroy, in the Rocky Mountains, on August 3, 1896, was referred to in a note on p. 227 of our last volume. A short account of several complete ascents of Mount Lefroy, made on the same day of last August from the opposite direction, will be found in our preceding number (vol. xviii. p. 438).

Mr. Abbot, who was 29 years of age, was, by the testimony of all who knew him, a man of singular force and energy. He had climbed much in Switzerland round Zermatt, and had made several successful ascents in the Rockies. He was an enthusiast for the heights, and had set his heart on organising and uniting the mountain clubs of the Far West and bringing them into closer connection with the Boston Appalachian Club, of which he was one of the leading spirits. To its Journal he was a frequent con-

tributor. Several of his articles are reprinted in the volume under notice, which also contains a brief memoir and a portrait of its subject.

Mr. Abbot set out from the chalet on Lake Louise with three friends, Professors Fay and Little and Mr. Thompson, to attempt the ascent of Mount Lefroy by way of the glacier trough known from its exposure at certain seasons to avalanches as the Death Trap. Starting at 6.15 A.M. the party reached the saddle on the main chain without much difficulty at 11.50. After a halt, followed by four and a half hours' step cutting in steep ice-slopes, they gained the foot of the crags of the final peak. From this point we quote Mr. Fay's narrative :—

'At 5.30 P.M. we drew up under an immense bastion possibly seventy-five feet in height, behind which lay the summit of which as yet, owing to foreshortening, we had had no satisfactory view. This frowning face rose sheer from a narrow margin of tolerably stable scree that lay tilted between its base and the upper edge of the sloping ice that we had just left behind us. Looking past it on the right we saw, a few hundred feet beyond, the tawny southern arête, so shattered as to be utterly impassable. In one place a great aperture, perhaps forty feet high and five or six in width, revealed the blue sky beyond. Evidently our course did not lie in that direction. On the left the dusky northern arête rose with an easy gradient possibly an eighth of a mile away, but across an ice slope similar to that up which we had so long been toiling, and in truth a continuation of the same. To cross it was perfectly feasible, but it would take so long to cut the necessary steps that a descent of the peak before dark would have been out of the question.

'But now Mr. Abbot, who had moved forward along the rock-wall to the limit of the rope, cheerfully announced an alternative. His view beyond an angle in the bastion revealed a vertical cleft up which it was possible to climb by such holds as offered themselves. Bidding Thompson and me to unrope and keep under cover from falling stones, he clambered some thirty feet up the rift, secured a good anchorage, and called upon Professor Little to follow. This the latter proceeded to do, but while standing at the bottom of the cleft preparing to climb, he received a tingling blow from a small stone dislodged by the rope. A moment later a larger one falling upon the rope half severed it, so as to require a knot. As danger from this source seemed likely to continue, our leader had Little also free himself from the rope and come up to where he stood. From here a shelf led around to the left, along which Abbot now proceeded a few yards and discovered a gully leading upward, unseen from the point first attained, and this also he began to ascend. To Mr. Little's question, whether it might not be better to try and turn the bastion on the shelf itself, he replied, "I think not. I have a good lead here."

'These were the last words he ever uttered. A moment later Little, whose attention was for the moment diverted to another portion of the crag, was conscious that something had fallen swiftly past him, and knew only too well what it must be.

Thompson and I, standing at the base of the cliff, saw our dear friend falling backward and head-foremost, saw him strike the upper margin of the ice slope within fifteen feet of us, turn completely over, and instantly begin rolling down its steep incline.* After him trailed our two lengths of English rope—all we had brought with us—which we had spliced together in our ascent over the last rock slope, in order to gain time by having less frequent anchorages than were necessitated by the short intervals of one sixty-foot line. As the limp body rolled downward in a line curving slightly towards the left, the rope coiled upon it as on a spool—a happy circumstance amid so much of horror—for not only did this increase of friction sensibly affect the velocity of the descent of nine hundred feet to the narrow plateau of scree above mentioned, but doubtless the rope, by catching in the scree itself, prevented the unconscious form from crossing the narrow level and falling over the low cliff beyond. Had it passed this, nothing, apparently, could have stopped it short of the bottom of the gorge leading up to the pass from the western side of the Divide—a far more fearful fall than that already made.’

Mr. Abbot's friends acted with courage and promptitude in the terrible position in which they were placed. Profiting by the steps already cut they were able in three hours to make their way down to the spot where their companion lay insensible, but still breathing. He expired only a short time after they joined him, but from the nature of his injuries there was no reason to suppose that he had regained consciousness after his first fall. The body was ultimately recovered and brought down for interment.

It has always been our custom in these pages to examine closely into the circumstances of the accidents by which our friends have been lost to us with the object of extracting any lessons or warnings they may furnish. If we follow our usual practice in the present case, our American colleagues will readily understand that no want of feeling or deep sympathy is thereby indicated. This is the first fatal accident they have had to record, and it may prove to be very illustrative of the kind of risk most likely to be encountered by those who have to face untrodden crags and snows in all the enthusiasm of youth and discovery, and without the restraining influences of the lifelong caution and experience of the Alpine peasant.

At first sight the present case may seem one of the mischances

* How the terrible disaster occurred we shall never know. In all probability his foothold, or more likely his handhold, gave way; though it is not impossible that he was struck by a stone descending from above. The facts that no outcry preceded his fall, and that the fatal wound was on the back of his head, seem, however, to argue against this latter hypothesis. I know not how to account for my immediate impression, unless I actually saw something to create it during the momentary slackening of his swift rush past us, but it was an increase of horror lest a large stone, clasped in his arms, should crush him as he struck the slope. The visual memory itself is exceedingly indefinite as regards details. [*Original footnote.*]

incidental to mountain exploration which are deliberately faced by every climber. In a sense it may have been so ; for a loose rock is one of the most subtle forms of danger. Yet when we apply our attention to details, we cannot fail to note that the direct climb up the last rock face was adopted in preference to a more secure route, because time ran short. The start had not been made till 6.15, at least two hours too late. Further, if the rope is ever discarded, it should not be left dangling at the leader's waist, adding to the weight he has to lift, and rendering his companions helpless in case of a slip. Two lengths of rope, all the party had, were, we are told, attached to Mr. Abbot when he fell. It may occasionally be permissible for old climbers to reconnoitre on rocks alone and untied. But to do this they should be endowed with the stolid patience of a veteran guide who tests before he trusts every hold. Such patience is hardly attainable to the natural confidence of youth. Even Emile Rey failed in it at last! Parties of young climbers must learn to stick together, to back one another up, and not to throw down loose stones, if they wish to climb with security. To do this may seem a counsel of perfection ; it may often be hard, it is sure to be irksome ; but it is an essential part of the craft of mountaineering. The proper use of the rope on rocks, and *à fortiori* on snow-covered glaciers and ice, is the beginning of wisdom. We in Europe have learnt these lessons through many disasters, and we hope that American climbers may so profit by our experience as to suffer far fewer losses than have fallen to our lot.

Annuaire du Club Alpin Français, vols. xx., xxi., xxii., 1893, 1894, 1895.

We much regret that, owing to a misunderstanding, so excellent a journal as the 'Annuaire' has not for some time been noticed in these columns. The twentieth volume opens with a very sympathetic notice of M. Abel Lemercier, the founder of the French Alpine Club. The mountain articles are contributed by M. P. Puiseux, 'Round Zinal'; 'The Allevard Massif,' by M. H. Dulong de Rosny; two on the Pyrenees, 'An Excursion to the Néthou,' and an account of the Massif of the Hourgade; a second excursion in the Sierra Nevada by Dr. Bide, and a study of part of the Cantabrian Mountains (The Picos de Europa) by Count de Saint-Saud and M. P. Labrousse, with a map by Col. Prudent.

M. J. Vallot gives an account of scientific work at the Mont Blanc Observatory. M. Emile Camau treats in an interesting way of French Mountain Troops. There is a very appreciative biographical notice of Mlle. Angeville, 'la fiancée du Mont Blanc,' who, in 1838, at the age of forty-four, planted 'le drapeau de l'alpinisme féminin au sommet du Mont Blanc.' The writer, Mlle. Mary Paillon, is herself well known in the Alpine world.

M. F. Schrader contributes a valuable note on sheet 6 of the map of the Central Pyrenees. M. E. Pressoir describes the ascent of l'Akouker in the Algerian Djurjura.

The other articles, *e.g.*, 'Tripoli,' 'The Sioule' (in Auvergne) 'In Corsica,' are rather connected with travel than with mountain-

eering. In the last-named paper M. Th. Salomé (pp. 270-78) describes the trial at Bastia of a famous bandit and assassin. The passage will be found interesting: apparently the multitude at Bastia had the same admiration for this gentleman of the thicket as the lady had for Gilderoy in the ballad. M. M. A. Martel continues the account of his underground triumphs in a sixth campaign.

Vol. xxi. offers the reader a much larger proportion of articles connected with mountaineering than its predecessor. The place of honour is given to MM. Joseph and Henri Vallot's article on 'La Carte du Massif du Mont Blanc' on a scale of $\frac{1}{200000}$.* It contains a very careful study of the Chamonix aiguilles—their heights and their names. It should be read by all who are interested in the subject. On p. 85 is given the origin of the name A. du Fou (to be found on Kurz's map). The variation in names seems great, to take for example the varieties of spelling in Montanvert on pp. 46-7.

M. Helbronner ascends the Aiguilles des Glaciers. M. M. H. Dulong de Rosny relates the first ascent of the Southern Aiguille de la Glière (the highest was conquered by Mr. Coolidge in 1887) in the Tarentaise, a district still too little visited by English climbers. M. Armand Guéry describes the Col de Tenneverge and the E. peak of the Dent du Midi. M. H. Cuënot visits the Binnenthal.

Norway has two articles allotted to it; the first by Mme. Aline Martel on a passage of the Jostedal Glacier, effected with her husband in July 1894; the second, entitled 'A Tour in Norway,' by M. E. Gallois, is a travel, not a climbing paper.

The Pyrenees receive a large share of attention. M. F. Schrader, so well known for his work in these mountains, writes on the extent of the glaciers of the Pyrenees, and is followed by M. É. Belloc, who deals with mountain and lake explorations in the Central Pyrenees, and gives a beautiful 'carte bathymétrique' of the Lac d'Oô. M. Lourde-Rocheblave treats of the snowfall in the Pyrenees in January 1895.

M. Camau follows up his article in the previous volume on the French Alpine Troops by one on the Italian. M. P. Guillemain gives us 'La Meije dans l'image,' 'Cet inventaire vise uniquement les pièces gravées ou les dessins manuscrits.' M. M. A. Martel continues his subterranean labours, and then describes the Col de la Casse-Déserte in a paper illustrated by a beautiful picture from a photograph by Signor V. Sella of the Col and of the Pic Bourcet. This fascinating peak was first climbed by Mr. F. E. L. Swan in 1887. M. Ch. Bioche, who visited the Val de Bagnes on July 6, 1894, describes graphically what he saw on the scene of the *Débâcle* on July 28 in the same year.

Amongst other non-mountaineering papers, M. M. Monmarché, writing on 'Round Lioran,' says that Lioran would be the Chamonix of the Cantal, if the Cantal were not ignored or despised by tourists.

* See *Alpine Journal*, vol. xvii. p. 77.

A long article on the Island of Lemnos is interesting to mountaineers only as mentioning the longest fall yet recorded—that of Vulcan, which lasted a whole day.

In vol. xxii. M. Charles Durier properly holds the first place with a paper on Mont Blanc, entitled, 'Sur les routes du Mont Blanc.' It is illustrated by a very useful sketch after a photograph by M. Joseph Vallot, taken from the Mont Maudit. M. F. Schrader follows with a description of a *Tourmente* on Mont Blanc. This article furnishes exciting reading, and deserves careful study.

The party, including Mme. Schrader, spent two nights at the Refuge Vallot. The first was bitterly cold, and the storm raged fiercely. It was succeeded by a long day of gloom and despondency, during which the storm increased hourly. After a second night of cold and storm, M. Schrader's party decided to attempt the descent to Chamonix. They had a terrible experience. The storm still continued. They found the Petit Plateau covered with a recent avalanche, and on reaching the Grands Mulets learnt that M. Rothe and the guide Simond, who had preceded them, had been overtaken by the avalanche, and that they had, without knowing it, walked over the buried victims. The angry weather pursued the travellers even to Chamonix.

This is but the briefest summary of a most graphic account, but what M. Schrader calls the moral of his paper must be quoted. 'Others,' he says, 'have described how Mont Blanc, good-natured in fine weather, and easier to climb than any of the great summits, becomes formidable in storms. What we would insist upon is that the shelters (observatories or refuges) built on the sides or on the summit ought not to cause us to neglect any of the precautions which used to be observed before these shelters existed.' These are words of wisdom.

To one fresh from reading M. Schrader's vivid narrative the opinion expressed elsewhere in this number on Sir Martin Conway's statement, 'no decently led party should ever be lost through fog on the upper part of Mont Blanc,' will probably commend itself. Nor should the words of so excellent and so experienced a guide as Alphonse Payot (quoted by M. Schrader, p. 31) be forgotten: 'Avec ce temps-là (*i.e.*, the *tourmente*) le plus fin peut y être pris.'

M. G. Bartoli writes of the first ascent of the Ouille de la Balme, 3,020 m., and M. Ernest Brunnarius explores the Bietschthal, and talks of the charms of guideless climbing, and of 'la jouissance incomparable du *campement sous la tente*.' M. Emile Belloc invites his readers to the Pyrenees in an article entitled 'Du plateau de Lannemezan au Glacier des Gourgs-Blancs' (Gourg means lake). The party saw five full-grown isards and a little one.

There are two papers on winter mountaineering: one by M. F. Regaud on the Col du Bouquetin, by which and the Col de Nivolet his party crossed from Bonneval to Val Savaranche; the other a charming narrative of an ascent of La Croix de Belledone by Mme. Jeanne Paillon, who was accompanied by her son and

daughter and the famous English climber, Miss Katharine Richardson.

We have more of 'Mountaineering Reversed' in papers by M. Edmond Renauld on 'Le Jura Souterrain' (third campaign), and the indefatigable M. M. A. Martel, who visits the Marble Arch in Ireland, and Gaping Ghyll in Yorkshire.* M. Cuënot writes of the Swiss Jura 'Round Ste.-Croix.'

There are travel papers on Tunis, Iceland, Asia Minor, and the Caucasus. The last treats of the Dariel and Erivan, and has a sketch of Lake Goktcha by the author, M. Eugène Gallois.

Under the heading 'Sciences et Arts,' the article most generally interesting is perhaps that by M. E. Trumeau (himself a soldier) on the 'Marche du corps d'armée du Maréchal Souvarov du 11 septembre au 5 octobre 1799. An ascent of the Roche Melon in 1588 is curious. M. P. Puiseux has a long article on the mountains of the moon. One inducement to climbers they certainly hold out: 'Les jours de la Lune valent quinze des nôtres.' M. Ch. Durier writes at length on Vesuvius and Capri, and gives a number of reproductions of old illustrations. The volume contains other articles besides those mentioned, but enough has been said to show what varied interesting and entertaining reading the 'Annuaire' for 1895 supplies.

Bollettino del Club Alpino Italiano, No. 62. 1895-6. (Turin.)

This volume of the *Bollettino* opens with two obituaries, both presenting rather more features of interest for English readers than they are accustomed to find under that head in foreign periodicals. The first commemorates our late honorary member, Mr. R. H. Budden, and is practically an amplification of the words used by Mr. Freshfield in his address at the winter meeting of 1895.† Though never a 'high-tourist,' Budden was a devoted lover of the Alps, and his memory will always be cherished among Italian mountaineers. He seems to have been to the last the genuine 'John Bull' suggested by the portrait here given of him. The bushy white whiskers and the firmly-shut mouth, with its somewhat long upper lip, belong to a type more familiar in London than in Turin—unless, perhaps, in the height of the tourist season, when paterfamilias reluctantly accompanies enthusiastic daughters on the road to Rome or Naples. Nor did the features belie the character of the man. We can feel that Signor Vigna has depicted him faithfully. 'His speeches were most original, each representing some idea which he wanted to rivet into our heads, spoken with a peculiar intonation and pronunciation that betrayed his origin, but gave his words something vibrant, ringing, energetic. Characteristic of many of his discourses and not to be forgotten were certain passages of rough but frank eloquence, which permitted him to tell us point blank, and caring only that we understood him,

* The latter was described in these pages in a graphic article by the same writer. *Alpine Journal*, vol. xviii. pp. 120 foll.

† Vol. xviii. p. 3.

some crude truths, which, if said by any other than the apostle of Alpinism, would have ruffled the susceptibilities of not a few.'

A man of ample means and simple life, he threw himself heart and soul into all schemes for the promotion both of interest in the mountains themselves, and of the welfare of the dwellers among them, identifying himself with his adopted fellow-countrymen, while never forgetting his own nationality, and earned the respect and affection which he deserved.

Signor Brocherel writes on Emile Rey. Most of the eminent guide's achievements in his profession are familiar to all students of recent Alpine literature. What is, perhaps, less known, though equally creditable to him, is the trouble that he took, even after his success as a guide was assured, to improve his education. He spent a winter at Meiringen to learn German, and some years later (as M. de Déchy mentioned in a former number of this Journal) had Johann Fischer to stay with him in order to improve himself in that language. It may be pointed out that the peak climbed on September 12, 1878, by Messrs. Dent and Hartley was not the Petit Dru, and that the 'mezzi mecanici' used by those climbers appear to have amounted to one ladder.

The tourist articles are few. Signor Leone Sinigaglia continues the interesting occupation of finding new ways up Dolomite peaks, a pursuit which has the merit of being inexhaustible within any period that need be considered. This time he seems to have been attracted by the south-west corner of the Croda da Lago, but an inspection of the photograph which he gives of that mountain shows at least a dozen gullies and ridges, quite as unpromising as those selected by him, each of which will, no doubt, in due course furnish 'the finest, and at present most difficult, rock-climb in the Ampezzo Dolomites'; subsequently taking the humble place—which we learn that the once famous Grosse Zinne has now taken—of 'a scramble of elementary facility, embellished with a few "rhetorical passages" and "common-places," and, like it, performing the function of "cock-horse" to youthful beginners in the Alps.'

The papers on the glaciers of the Grand Paradis group, and on the Maritime Alps, the former by SS. Porro and Druetti, the latter by Herr Fritz Mader, are rather of the 'monographic' than of the episodic order. No doubt this is the form which Alpine writing, especially in the larger 'organs,' must be expected more and more to take. It is hardly possible to conceive any incident in mountaineering the like of which has not been described a score of times; the charm of detailed exploration, at all events in the most visited districts, has, of course, vanished for ever; but something may yet be done in the way both of systematic investigation of natural phenomena, and of observation, topographical, scientific, and so on, applied to entire groups. The ubiquitous camera is of service here in mitigating what is, it may be feared, for most readers the repellent quality of papers containing a good deal of what is known to printers as 'tabular matter.' For those, however, who will take it as it is meant, Herr Mader's paper, the result, as we gather, of six

years' excursions in the Maritime Alps, will be found full of interesting information. Papers of this kind, reprinted in a handy form, would form excellent tourists' companions.

Dr. Enrico Abbate writes a kind of itinerary of the Terminillo Group, the 'Tetricae horrentes rupes' of Virgil, a part of the Apennines lying in the Abruzzi to the north-west of Rieti. The summit from which the group is named rises to a height of 2,218 m. (7,267 ft.). It offers a fine view, and is described as 'an imposing mass of compact limestone.' The district has been little visited, and studied not at all. The scenery appears to be severe. The nature of the country has passed into Dr. Abbate's account of it, which is also compact and severe, mainly composed of figures and classical quotations. It may be commended to anyone who feels a call to be borne, with Horace, 'in arduos Sabinos.'

The remaining articles are purely scientific. One on the 'glacial problem' is doubtless a valuable addition to the literature of that fascinating subject, but it has hardly more to do with the Alps than with the county of Norfolk. Signor Luigi De Marchi is the author. The other, by Dr. Piero Giacosa, deals with the results of a scientific expedition to Monte Rosa, for the purpose of investigating the waters and the snows of the upper regions. This again appeals chiefly to specialists. There is an interesting account in a note of some electrical phenomena observed at the Capanna Margherita during a thunderstorm; and some observations on the comparative amounts of ammonia found in the water of various glaciers. That of the Mer de Glace—or rather its snow—seems to be unusually rich in that compound. To the ordinary observer this appears no more than might have been anticipated.

Bollettino del Club Alpino Italiano, No. 63. 1897.

The contents of this volume are unusually varied and particularly interesting—at least, to the present writer. First in importance, though last in order, is the paper in which Signor Gallo, Signor Vittorio Sella's companion in the Caucasus in 1896, describes their autumn tour, a short narrative of which appeared in our last volume. Signor Gallo's paper might be studied with advantage by some of our own contributors, for, visiting the Caucasus for the first time, he has not only seen, but knows how to convey to the reader his fresh impressions. He has caught the local atmosphere and characteristics. There are writers, as there are painters, who make all mountains look alike, and whose accounts of mountain ascents in different regions are only to be distinguished by the local names. Signor Gallo is very far from any such dulness. His paper has also the great advantage of being copiously illustrated by reproductions of his companion's photographs. By means of a telephotograph from Teplic, it is conclusively proved that the snowy summit visible over a lower ridge from Rekom and other points in the Ceja valley is Adai Khokh itself. It may further be gathered that while the slopes leading to the ridge S. of

the peak are precipitous, those leading to the gap N. of it are, though steep, practicable, and from this point there would seem to be no difficulty in walking up the N. crest to the summit and descending by Mr. Holder's route—a splendid expedition. There is obviously a great deal more to be done in this group by competent explorers. The panorama from 'Kom,' above Chegem, confirms Mr. D. Freshfield's map as to the importance of the 'nameless peak' in the Urubashi spur, ignored in the Survey, and as to the position of Bashiltau and its neighbours. The summit marked in the panorama as 'Woolley's Sarikol Bashi' would appear to be a crest E. of the Mestia Pass. The Italian explorers will, perhaps, add to their merits in the eyes of their successors by their failure to reach the very highest points of either Tepli or Sugan. From the first ascent of Elbruz downwards Caucasian climbers have shown not infrequently a similar—perhaps not altogether voluntary—consideration for posterity.

Turning to the Alps, we welcome a series of careful studies of out-of-the-way districts, known as yet to only a few of our more eclectic members. Professor A. Viglino writes on the Maritime Alps District—the Switzerland of Nice, as it is sometimes not very happily called—where peaks of pale granite, stained gold with sea-lichens and encircled by clusters of dark mountain tarns, command all that lies between Toulon and Corsica on the one hand and Monte Rosa and the Disgrazia on the other. This region, studded, as it is, to an extent unequalled elsewhere in the Alps, with lake basins, affords an excellent opportunity for applying the test of local scientific observation to popular theories. The result of Professor Viglino's studies is expressed in terms almost identical with those employed by Mr. D. Freshfield.* He dismisses the theory of glacial excavation, and regards these concavities as of tectonical origin—that is, as part of the original structure of the range in its upheaval. He might have gone on to suggest the local reasons which may account for so many more of these concavities having escaped being filled up in the Maritime Alps than in other Alpine regions. The lakes lie, for the most part, near the crests, on ground shown by not very ancient moraines to have been exposed only for a relatively short time to the action of earthslips, torrents and alluvial deposits. Any scientific student who wishes to observe the process by which, when the protection of the ice has been withdrawn, lake basins are converted by these agencies into level pastures, may see it going on under his eyes in the S.W. valleys of the Adamello group.

In Val di Scalve, described exhaustively by Signor Castelli, the gymnastic mountaineer may find little attraction beyond the cliffs of the Presolana. It boasts, however, in the Via Mala Bergamasca, the most picturesque gorge in the Italian Alps, and the situation of its chief villages on upland slopes traversed by a multitude of

* *Proceedings of the Royal Geographical Society*, vol. x., New Series, 'On the Conservative Action of Glaciers.'

hill-paths should have attractions for those who complain of some Alpine resorts as 'too much in a hole.' Signor Castelli mentions a very curious historical fact, which goes some way to confirm the legendary connection between Charlemagne and this district, to which Mr. D. Freshfield long ago called attention in an appendix to his 'Italian Alps.' In A.D. 774 Charles gave to the Abbey of St. Martin of Tours all the property of the Fisc in Val Camonica and Val di Scalve. These possessions remained in the hands of the French abbey until A.D. 1087, when they were transferred to the Bishop of Bergamo in exchange for lands near Turin and Pavia.

The third neglected district described is more severely Alpine, and abounds in glaciers and crags, recently rendered more accessible by the Clubhut erected at the head of Val Grosina. The Cima dei Piazzzi might have been a famous mountain had it not stood between such neighbours as the Bernina and the Orteler. When seen from the heights between Livigno and Val Viola, its glacier slopes are singularly imposing. Since Mr. Coolidge has promised a paper on the district, we must not linger over Signor Sinigaglia's attractive account of his varied climbs.

The remaining articles are a paper on Etna, one on some new expeditions on the S. side of Monte Rosa by Signor G. F. Gugliermine, a scientific article on the glaciers of the Grand Paradis by Signor A. Druetti, and a notice of the life of Michele Lessona, an Italian traveller, who climbed Demavend in 1862, and was one of the first to excite in his countrymen the love of high places. He died in 1894 at Turin, where he had long held a Chair of Zoology. Throughout his life he was a voluminous contributor to scientific publications. He was also the author of an account of an ascent of the Torre d'Ovarda, his principal Alpine feat.

Swiss Jahrbuch.

In this volume (xxxii.) the special district (Ober Engadin) is again very poorly represented. There are only contributions from the same three members as in 1896, and the editor thinks another year might be allowed to it, and recommends especially the Val Bregaglia and the southern slopes of the Bernina. In spite of the unfavourable verdict of the public on the coloured plates (aquarellen) in the last volume he has again ventured to admit two into this volume. He regrets that out of some 80 notices of books in this volume only one is signed by any other name than his: *i.e.* 'Mummery's Climbs in the Alps and Caucasus,' reviewed by Paul Montandon. Of ascents either new or by new routes not already noticed in the A. J. are the following:—On September 18, 1896, M. C. Bosviel, with the guides Petitgax and Estivin, ascended the Aiguille du Tricot (3,681 m. = 12,076 ft.) from the Pavillon des Deux Frères by the W. ridge. On July 29 M. Alex Brault ascended the Aiguille du Moine from the Couvercle by the W. face, opposite the Aiguille du Dru, a difficult climb of six hours. On August 26 S. Giulio Brocherel, from the upper huts in the Allée Blanche, ascended the Aiguille d'Estellette (2,975 m. = 9,762 ft.) On August 24 Mr.

Valère A. Fynn, with F. Bixelx, ascended the Aiguille de la Varappe from the Fenêtre de Saleinaz by the S.W. ridge. In September 1895 the guides Coquoz and Revaz, of Salvan, ascended the Dent du Midi from the side of Salanfe. On August 2 Mr. Theodore Tesse, with the guide Delez, ascended the Pointe Beaumont (2,474 m. = 8,117 ft.) from the Col de Fenestral. On July 15 M. Julien Gallet, with the two guides Bovier from Arolla, ascended the summit S. of Mt. Brûlé (3,576 m. = 11,733 ft.), whence they reached the Aiguille d'Ancien (3,411 m. = 11,191 ft.) and the Aiguille de Lenaie (3,146 m. = 10,322 ft.). They were prevented by a difficult arête from advancing further, and descended by the E. face to the Valpelline and Prerayen. At this place the accommodation is said to be much better than reported by the guide books. On July 16 they ascended the Becca Vanetta (3,337 m. = 10,950 ft.), and on July 20 the Mt. Blanc de Seilon, by the N. arête. On August 19, 1895, MM. Zschokke and Hahn ascended the point of the Diablons (3,612 m. = 11,847 ft.) from Graben by the E. ridge. They found the same peak had been ascended in July by a student from Basel with a Zinal guide. On August 17, 1895, the Petit Dent de Moreles was ascended by MM. Gaud and Veillon by the ridge which is opposite to the Roc Champion. On August 6, Herr A. Baumgartner, with three friends from the Gauli hut, reached the Hühnerlucke, traversed the Hühnerstock, and descended by the N. ridge. On July 13, Mr. W. A. B. Coolidge, with Ch. Almer, jun., made the second ascent of the summits, 3,200 m. (10,500 ft.) and 3,207 m. (10,524 ft.), of the Strahlgrat (Binnen Thal) by a new route from the Turben Glacier. On August 2, H. H. Amberg and Züblin, from All'acqua in the Bedretto Thal, ascended the Poncione Valeggia (2,864 m. = 9,396 ft.). On July 26, HH. Clément and Schneider attempted from Wasen the ascent of the Fleckistock by the S. face. Herr Schneider stopped half an hour below the summit, which was reached in 10½ hrs. On August 30, Herr Alex. Burckhardt ascended the Muttler from Schleins by the E. ridge, descending into the Maises Thal and to Samnaun. On September 10, 1895, Herr K. Bernhard ascended the Fluchthorn by the S.E. ridge, with several variations from the ordinary route. On August 27, 1895, Herr Essich, with Ladner, effected the passage from the Rennspitz (Fluchthorn) to the S. peak. Various new expeditions are noticed in other parts of this volume.

In the Club district Dr. Stokar contributes an account of his ascent of the Tinzenhorn by the E. face. They had to pass some very difficult places, and had one very narrow escape from falling stones. They left the Aela hut only at 7 A.M., on account of bad weather; reached the top at 1.30 P.M., and Bergun at 9.30. He thinks the new route longer, more difficult, and less interesting than the old one. On July 26 he ascended Piz Kesch by the S. face. This route, however, was probably followed by the guide Planto in 1863, and by Herr Lendenfeld in 1887. The ascent from the Club hut took 7 hrs. On the way down they at first followed the W. ridge, and then descended direct to the glacier. Above this they encountered an

ice slope. To avoid cutting steps, Mettier first lowered the two tourists by the rope, and then, in attempting to slide down, he lost hold of his axe and came down anyhow, fortunately shooting over the bergschrund. Herren Ludwig and Imhof, on August 11, in a ridge walk from the Fuorcla Crapalu to the Fuorcla da Mulix (Albula), made the first ascent of the Pizzi delle Crappa (3,060 m. = 10,040 ft.). On August 15, the same two gentlemen, with Mettier, ascended the Piz d'Err from the Err Glacier. This was new, but with the exception of the passage of a steep ice couloir and a steep snow slope which followed it, presented no difficulty.

Out of the special district Herr Gustav Euringer describes a number of excursions in the Tarentaise and Maurienne, the most difficult of which was the Aiguille de la Glière (3,886 m. = 11,120 ft.) from Pralognan, on August 9, 1895, with Bich and Gentinetta. In descending from the Grande Casse to the glacier below the Grande Pente they were surprised by a fall of stones where no cover was to be had, but fortunately escaped unhurt. Herr Robert Helbling (Uto) describes some excursions in the Val de Bagnes, of which the highest was the Combin de Corbassière, but there is nothing new. With two friends he was three weeks in the Panossière hut. On reaching Martigny, on August 27, they were very short of cash. Two had just enough to pay the fare to Zurich, whilst the third found refuge with a sister at Sion. M. Julien Gallet (Chaux de Fonds) describes two ascents in the Lötschen Thal—the Lauterbrunner Breithorn by the N.E. arête, and the Jüghorn. The former had been attempted in 1898 by Messrs. Benecke and Reade. In 1896 Mr. Reade was again at Ried looking for traces of his two friends, Benecke and Cohen, lost the year before; M. Gallet, with the two guides Kalbermatten, and also Joseph Rubin. On August 2 they started at midnight, and instead of mounting to the Schmadrijoch made for the Breithorn ridge more directly; on account of fresh snow this was only reached at 10 A.M. Thence along the S.E. ridge as Messrs. Benecke and Cohen. Arriving at the Gendarme, where these had turned back, they attacked it right in front. It turned out to be less formidable than it looked. Joseph Kalbermatten succeeded in climbing the first 80 mètres, and helped up the others with the rope. Before reaching the summit they had to pass six other gendarmes; also two snow peaks joined by a snow arête so fine that they had to advance with it under one arm. The top was reached at 2 P.M. After 20 min. halt they began the descent, fearing soft snow. Ried was reached at 8 P.M. Herr Biehly (Bern) describes the first ascent of the Klein Lauteraarhorn by a couloir from the Strahleck Glacier. They left the Pavillon Dolfuss July 11 at 1 A.M.; but after gaining the Strahleck Glacier attempted the ascent by a couloir, in which about 12 noon they were surprised whilst resting by an avalanche of stones. They succeeded in gaining shelter, but all their provisions were carried away. They descended in haste, and then found they had tried the wrong couloir and returned to the hut. July 12 they got off at 1.30 A.M., and at eight were at foot of the right couloir. Here they left their bags.

The couloir was in parts no broader than the avalanche furrow, and they had much difficulty in working their way up. The col was reached at 11 A.M., but many difficulties were before them. Twice they had to make difficult traverses, and the actual summit had to be won by a bold leap over a chasm at 8 P.M. After half an hour the descent began, which was equally difficult. Their bags were reached only at 8 P.M., and they made up their minds to bivouac. After a miserable night they started at daylight, crossed the Strahleck, and reached the Schwarzegg hut at 9.30 and Grindelwald at 11.30.

Herr Dr. Jorger (Piz Sol) contributes an article on the Valser Thal (Lugnetz). The principal mountain ascent is that of Piz Aul (3,124 m.=10,250 ft.), which he made by a new route from the Sattelte Lucke (N. of Piz Aul) by the E. face in 1877. He relates many local legends. The most amusing is about the advent of the reformed religion in Lenta. The parish meeting which was called to consider the matter thought there was no room for two religions in so small a parish, but put the matter to the vote. The votes on either side were equal. Great perplexity ensued. At this moment the goatherd came down from the mountain with his charge. Some one suggested that he had a vote, and being in the day-time nearer heaven than most other people, must have special knowledge in religious matters. So said, so done. The goatherd voted for the mass, and the question was thus happily (?) settled. Herr R. Reber (Bern) describes a number of excursions about Poschiavo. The article may almost be said to be a guide to the neighbourhood. There is at least one virgin peak (Pizzo di Sena) over 10,000 feet. The article is illustrated by an original sketch of G. Studer, taken from Cavaglia, below the Bernina Pass, and revised by Herr Reber. Herr Ludwig Purtscheller (St. Gall) contributes an account of the ascent of Mount Elbruz, made by him along with Herr Merzbacher, with the guides Kehrer and Unterweger, of Kals, on Aug. 18, 1891. Starting from a bivouac (3,550 m.=11,647 ft.) at 1.15 A.M., they reached the summit at 9.10. The excessive cold (5° F.) compelled them to return in 20 minutes, and the bivouac was reached at 2.40 P.M. Dr. E. Scherer (St. Gall) contributes a memorial notice of Herr J. J. Weilenmann, who died on June 8, 1896. He was one of the oldest and most active members of the S.A.C. His mountaineering began in 1850, and he made a great number of important ascents, many of them alone. He may be said to be the pioneer of solitary climbing. However, he was very cautious, and never met with a serious accident. He never used an ice-axe, but carried a long alpenstock and a pair of 'steigeisen.' Dr. A. Zschokke (Aargau), in an article on the history of mountaineering, gives an account of one of the earliest mountain ascents since the Christian era, that of Mount Ventoux (1,912 m.=6,273 ft.) by Petrarch on April 13, 1336. Herr Meyer v. Knonan contributes a notice of Josias Simler (1530—1576), with special reference to his works, the 'Description of Wallis' and the 'Commentary on the Alps.' M. F. Correvon (Genève) writes of the means employed to protect

the rarer plants of Switzerland. A society was formed for this purpose in 1888 at Geneva, which now numbers 900 members. An annual bulletin is published, which is distributed not only to members, but to many others, to Alpine Clubs, Scientific Societies, botanists, clergymen, &c., also to hotels and to municipalities in places where the plants grow which need protection. A certain number of protective gardens have been formed, as at Bourg St. Pierre, at the Hôtel Weisshorn in Val d'Anniviers, and elsewhere, where the rarest plants are especially cared for. Herr W. Schibler (Davos) describes the Flora of the neighbourhood. Here there are nine months of winter and three of cold summer. He gives the daily record of plants from March 1 to May 31, amounting to 188. The seventeenth report on glacier variation is given by Dr. F. A. Forel (Morges) and Dr. L. du Pasquier (Neuchâtel). They consider that a great error has been committed in confining the observations hitherto to great glaciers, since the factors which contribute to the increase and decrease of the glacier are far removed from each other. The former, the snowfall at the upper end, the latter, the ablation at the lower end of the glacier, in distance and in vertical height are far apart, and in their effects far removed in time, often 10-12 years, so that a glacier may be actually retiring when snowfalls have been abundant; whereas in a small glacier these actions are carried on in close proximity. No doubt the observations would be more delicate and difficult, but they think the effort ought to be made, and that much might be done by means of photographs taken at regular intervals from the same spot between June and November, and if possible on the same dates each year. During the year 1896 the glaciers of the Eastern Alps show a decrease. The Editor contributes an account of the first ascent of the Titlis in 1744. Herr C. Egger (Davos) gives an amusing account of a 'ski' excursion near Arosa, in order to get a photograph of a herd of chamois. Dr. August Walker (Weissenstein) having ascended one mountain (a peak of the Faulen) whilst intending to climb another, gives a recipe for ensuring the same result. (1) Take no guide in an unknown district. (2) Go in spring, when all the paths are covered with snow. (3) Never mind if the aneroid and the height given on the map do not agree! Herr Paul Montandon describes several new ascents in the Urbachthal. Of these the ascent of the Graugrat (8,192 m. = 10,210 ft.), in the ridge S. of the Ritzlihorn, with descent on the E. side to the Arlen glacier and the Handeck, was the most difficult. He gives a complete list of the peaks and passes which surround the Gauli glacier.

In reply to a demand from Mr. Coolidge for information about all ascents, Herr J. Lüders (Basel) gives an account of his ascent of La Rossa (Unter Alp, near Andermatt). Herr Christof Iselin (Tödi) describes a 'ski' tour from Matt in the Sernfthal to Flums on Jan. 3, 1897. They started from the Winkel huts in the Ranchthal at 7.30 A.M. (temperature 5° F.). The first ascent of 400 m.

(1,312 ft.) required 86 turns. The average inclination of the track they made was 15°. When the slope is very steep they must use 'reifen' (ordinary snow shoes). They reached the top at twelve. In parts of the descent great caution was required on account of the snow cornices which crowned the cliffs. Flums was reached late after a long halt at Prod. The estimated distance was 30 kilom. (19 miles), which occupied 11½ hrs., of which 2½ were halts. It might be done in 6 hrs., but would be hard work. Herr O. Moehly describes two ascents made by him near Zinal, chiefly to elucidate the panorama drawn by him of the upper Val d'Anniviers from the Roc de la Vache, near Zinal. Mr. Coolidge writes to correct misstatements made about the 'Climber's Guides,' &c., in various articles in previous volumes of the Jahrbuch. The Club huts are 44 in number, but many of them appear to be in a very bad condition. The only one well spoken of is the Bêtemps hut on Monte Rosa. But the cost of that was great, amounting to nearly 600*l.*, of which the Club paid three quarters. The Club now numbers 4,959 members, and the finances are in a better condition than at the end of last year.

The folding case attached to the volume, besides the view of the Val d'Anniviers above mentioned, contains a view by Herr J. Knecht of the Alvier group from the Aelplikopf, above Bärschis (Walensee), one by Herr Stocker of the Titlis group from the Roosstock above Altorf, and a Panorama (reproduced) by G. Studer from Piz Languard. This was taken on August 12, 1857, and is said to have been done in 4 hrs. J. S.

Zeitschrift des Deutschen und Oesterreichischen Alpenvereins, Vol. xxviii. 1897.

This volume (xxviii) is richly illustrated with sixteen full page engravings and forty in the text, of which more than half are from the drawings of Mr. E. T. Compton. Herr F. Kronecker describes a tour in New Zealand in 1894. He obtained the services of Thomas Fyfe, one of the boldest mountaineers of New Zealand, and of Adamson, the landlord of the inn at Hermitage, below the Tasman Glacier. With them he ascended the Hochstetter Dom (9,826 ft.) and Mt. Darwin (9,960 ft.), the latter being a first ascent. The former was first ascended by Herr Lendenfeld in 1883. In this, as well as in the two previous ascents, the glacier was found easier than in 1883. On Mt. Darwin the tourist had a narrow escape, having broken through a cornice, and at one point the ridge was so narrow that he and one guide passed astride, whilst Fyfe traversed it with the ease of a rope dancer. Herr Kronecker was struck with the absence of trees. Even on the western slopes they only attain to a quarter of the size of their European namesakes. He was much worried by the rough grasses the Wild Irishman (*Discaria toumatosa*) and the Swordgrass (*aciphyllum*). This was atoned for by various novel beauties, especially the Mt. Cook lily (*Ranunculus Lyalli*), the great white aster (*Celmisia*), and many strange veronicas. He concludes with a summary of Mr. Fitzgerald's ascents in 1895.

Herr Ferd. Lowl contributes a geological sketch of the neighbourhood of Kals. Of this an outsider cannot say much. Old friends of the Groders at Kals will be glad to learn that Thomas Groder is well; one in particular, who was snowed up with him in the Stüdl hut nearly thirty years ago.

In 1895 Herr Albert Penck was deputed by the central committee of the D.Ö.A.V. to instruct some students in glacier observations, and in the summer of 1896 they examined the glaciers of the Sonnblick. For this purpose the Sonnblick House would have been most suitable, but proper space was wanting, and the charges were prohibitive. They put up at Kolm Saigurn. Their attention was mostly directed to the Goldberg Glacier, and the result of their observations, compared with previous ones, showed that the glacier had diminished about 11 per cent. since 1871.

Herr Oswald Redlich discusses the names of places in the Eastern Alps and their meaning. The names were given by the original settlers, partly from family names, partly from their natural surroundings; and these names, though often altered by subsequent events, tell us in a way their history. Nearly all the great changes in Europe swept over the E. Alps, but in the remoter valleys the changes were small. He illustrates his theory chiefly from Tyrol, where the names seem mostly to show the influence of neighbouring tribes. Thus South Tyrol is affected by the proximity of Venetia and Illyria, and North Tyrol by that of Bavaria.

Herr Hans v. Zwiedineck-Südenhorst writes of the E. Alps during the French wars. He discusses the several campaigns of 1796-7, 1799, and 1800-1801, and speculates on various movements which might have been adopted to repulse Napoleon. The campaign of 1801 showed that the possession of the mountains of Tyrol was of no strategic advantage to Austria if the enemy held the valley of the Danube.

Herr Hans Grosberger writes of the region occupied by the ancient tribe of the Taurisci. This lies in the lesser Tauern, between Radstadt, in the valley of the Ens, and Mautendorf on the Mur. The district round this latter place is called Lungau, and to this particular attention is directed. The character of the inhabitants and many peculiar customs are described, those at marriages being almost too strange to be true. Various strange epitaphs are quoted. One of the most curious is that of Countess Anna, of Schwarzenberg, who was born in 1535 and was married no fewer than six times, the last two dates being 1611 and 1617, and died in 1623.

Herr Richard v. Strele contributes a curious and interesting article on the custom of introducing the ass, with our Lord upon it, in the procession on Palm Sunday. First of all a live ass was ridden by a man; later a wooden figure to represent both was drawn along. The custom seems finally to have been discouraged by the clergy, and gradually fell away in the latter half of the eighteenth century, though it is said still to be retained in some places. There are various specimens still to be found in museums, of which two illustrations are given.

Herr Ludwig Purtscheller has come down from the difficult peaks with which he has so often delighted us, and condescends now to explore the lower, but comparatively unvisited, region of the Defereggerthal. Though seldom visited by strangers, it is a populous valley whose inhabitants often leave their native wilds, and are found in all parts of Europe. The trade is mostly in coarse carpets, to which is often added straw-hat making. There are well-known Deferegger firms in Vienna, Gratz, and elsewhere, with numerous branches. The valley is approached directly from Unter Huben, on the Windisch-Matrei road, but it may be approached by easy and interesting passes from the Pusterthal on the South, and from the Virgenthal on the North. The group of the Hochgall (3,440 m. = 11,286 ft.) is approached from the Patscherthal, and the section Deferegger (D.Ö.A.V.) has constructed a path to the summit. A shelter hut is projected. The finest point of view is the Pfannhorn (2,663 m. = 8,737 ft.), N.E. of Toblach. Herr Purtscheller ascended many peaks on both sides of the valley, the highest being the Lasörling (3,096 m. = 10,158 ft.), S. of Pregratten, in the Virgenthal.

Dr. Fritz Kögel describes a number of excursions in the Reichen-spits group. This lies N. and E. of the Ziller Grund. He made the first ascent of the Birnluckekoff (2,870 m. = 9,415 ft.) from the Birnlücke Pass. On the Hohenbergkarkoff (2,761 m. = 9,042 ft.) he was once in a critical position. In a narrow gully a block, resting between the rock and the rubbish, had been passed by the guide without touching it. Herr Kögel having, as he thought, tested its steadiness, grasped its upper edge to help himself up. It began to move, and he was only just able to hold it up till the guide reached him and enabled him to let the block loose. The guide, Franz Hofer, of Krimml, is highly spoken of.

Herr M. v. Prielmeyer contributes an almost exhaustive article on the Alps of the Grosinathal. This lies between the valley of the Adda on the S., the road from Tirano to the Bernina Pass on the W., and the Val Campo and Val Viola on the N. and E. Its highest summit is the Cima di Piazzì (3,439 m. = 11,283 ft.). The principal summits have all been ascended, the most difficult, the Cima Redasco (3,139 m. = 10,299 ft.), having been conquered only in 1896. The tourist is here assisted by three refuge-huts, the Casa d'Eita (1,703 m. = 5,587 ft.), on the Dosso d'Eita, at the head of Val Grosina, the Capanna Dosedé (2,850 m. = 9,350 ft.), on the Passo Dosedé, and the Casa Malghera (1,972 m. = 6,470 ft.), by the church of Malghera in the W. branch of Val Grosina.

Herr Joseph Enzensperger writes on the mountains of the Wilde Kaiser, near Kufstein. This district—twenty years ago one of the least visited—is now perhaps the most frequented in the Eastern Alps. He describes the several peaks and their ascents. Amongst these are two new expeditions, the ascent of the Hintere Gamsflucht (2,150 m. = 7,054 ft.), on June 29, 1895, and the traverse of the Predigtstuhl on the same day in 1896. None of the peaks can be called easy, and many of them are very difficult. The

Hintere Karlspitze (2,284 m. = 7,493 ft.) has the finest view, but is by no means easy to ascend in nailed boots. 'Kletterschuhen' here (and elsewhere in the district) are advisable. He made this ascent with three friends on July 26, 1896, and on this day passed the Stripsen Joch for the one hundred and tenth time (!).

Herr Norman Neruda contributes the first portion of a paper which is to be a monograph of the Rosengarten group, from the Karersee (Caressa, Costalunga) Pass to the Schlern. Each peak and pass is mentioned, the history of their exploration often given, and, as far as possible, the nomenclature put to rights, which in the midst of general confusion is often very difficult, e.g. between the Rosengarten Spitze and the Coronelle Spitze are three passes, whose names appear indifferently to be applied to all three. National jealousy is often the cause of names being changed. He deprecates strongly the naming of peaks after persons, and forebodes the time when all the old names will disappear.

Herr Steinitzer describes a tour in the Alps of Bergamo. Beginning with the Grigna (Settentrionale), whose popularity is shown by there being no fewer than three shelter-huts on it, he passed by the Val Brembana and Val Seriana to Val Camonica, making various ascents, of which the principal was Monte Coca (3,052 m. = 10,014 ft.). It is a district which, though not attractive to the ambitious Alpinist, is second to none in the variety and beauty of its scenery.

Herr Julius Pock, of Innsbruck, who for many years devoted himself to the Sarntal Alps, has for the last seven years systematically explored a district quite unknown to tourists in general. This is a small German-speaking district (Sauris = Zähre) in Friuli, bounded by the Piova, and the Canale S. Canziano on the N.; by the Rio Degano (Tagliamento) on the E.; by the Canale di Socchieve and Val Mauria on the S.; and by the Piave on the W. The principal stream is the Lumiei, whose lower course is an almost impassable gorge. On its upper course lie the villages of Sauris di Sotto (Untere-) and Sauris di Sopra (Obere-Zahre). In the former are three inns, but food and accommodation are very primitive. Herr Pock paid five visits to the district, the first in 1889, on which occasion he was told that he was the fifth German tourist who had been there. Sauris is best reached by a low pass (Monte Pura, 1,499 m. = 4,721 ft.) in 4 hrs. from Ampezzo, in Socchieve, which is about 6 hrs. from the Carnia station on the Pontebba railway. Herr Pock entered and left the district by various passes, and ascended most of the peaks. Several of these reach nearly to 2,500 m. (Clapsavon, 2,463 m. = 8,091 ft., and Monte Bivera, 2,474 m. = 8,117 ft.). Several of the higher peaks were climbed by Italian tourists in 1874 and 1877.

Attached to the volume is a sheet (No. III.) of the Ötztal and Stubai district; two illustrations to the papers by Herr Penck and Herr Kronecker; and panoramas from the Cassianspitze (Durnholzthal) and of the Venediger and Zillerthal Alps from the Glocknerkarkoff (Birnlücke).

J. S.

ALPINE NOTES.

ALPINE DISTRESS SIGNAL.—In the *Times* of January 11, 1898, there appeared the following communication from their Zürich correspondent:—

‘Accident Signals in Alpine Clubs.—The Central Committee of the Swiss Alpine Club has addressed a circular to its different sections in Switzerland suggesting the need for a recognised system of alarm signals in all cases of mountain accidents. After considering the different reports handed in, the committee has decided to adopt the following code, which will no doubt be accepted by the Alpine clubs of other countries, and pass into international use. There are to be two distinct methods of giving the alarm and signalling to guides and rescue parties for relief. By daylight and in clear weather the signal will be a red flag or handkerchief, &c., waved in a half-circle upwards from the ground six times in a minute, with a minute’s interval between the call. The same signal with the same interval will be given by night with a lantern or lighted torch. In foggy weather, or in places where the above signals would be invisible, persons in distress are to raise a sharp, shrill cry, separated by the same interval of time from one another. Guides are, moreover, required to furnish themselves with a horn or alarm whistle for this purpose. The answer is to be sent back by the same methods of communication—by flag, lantern, or sound signal repeated three times in a minute, with a free interval of a minute between. These instructions are to be communicated to all foreign Alpine clubs and posted in all the mountain cabins and mountain stations in Switzerland.’

As the original proposal that a Distress Signal was desirable came from our Club, and all the details of the employment of the signal were worked out by its sub-committee, and as on reference to the ‘*Alpina Bulletin du Club Alpin-Suisse*,’ no allusion to the suggestion having emanated from the English Alpine Club could be found, the following letter was sent to the *Times* on behalf of the Club, and appeared in its issue of January 12:—

‘Accident Signals in Alpine Clubs.—SIR,—In the *Times* of today there is a report from your Zürich correspondent stating that the Swiss Alpine Club have just adopted a system of danger signals in the mountains which they think “will be accepted by the Alpine clubs of other countries and pass into international use.”

‘We should like to draw your attention to the fact that in 1894 a sub-committee of our club, after carefully working out the question and consulting with the various foreign clubs, settled upon a system of danger signalling in the Alps, exactly similar to that now put forward by the Swiss Club as their own invention; and this system has since been adopted by most of the Continental clubs.

‘The essential signal is the repetition of a sound, a wave of a flag, or a flash of a lantern at regular intervals, continued for one minute

at the rate of six signals per minute, and repeated in alternate minutes: the signal to be answered by a similar series of signals in alternate minutes, made, however, at the rate of three per minute.

'Our reason for calling your readers' attention to this matter is that we feel that the knowledge of this simple method of signals should be as wide as possible to make it of real use, and that tourists, perhaps oftener than mountaineers, may find themselves in difficulties within sight of help.

'We are, Sir, yours faithfully,

'CHARLES PILKINGTON, President of the Alpine Club.

'W. A. WILLS, Honorary Secretary.

'Alpine Club, 23 Savile Row, W., January 11.'

[The question of priority of suggestion, however, is of comparatively small importance. No doubt, the non-acknowledgment of the fact that the initiative was due to the Alpine Club is a pure oversight, resulting probably from change of executive in the S.A.C. The chief point is that the S.A.C. has definitely (if somewhat tardily) taken the matter in hand, and seems prepared to introduce the system brought under their notice in 1894 by our Committee. It is satisfactory to recognise that the form of signal originally suggested is universally agreed to. It remains only for the S.A.C. to make the method widely known in the country where it is most likely to be of use, and to ensure that all guides and porters, as well as hotel keepers, shall understand the system. A copy of the instructions should be furnished to every guide and porter to be pasted in their books. As all other Alpine Clubs have already signified their approval, there need now be no question of the system coming into international use, and by next summer the general adoption of the Distress Signal should be a *fait accompli*.—ED.]

DR. EDMUND VON MOJSISOVICS.—We are very glad to say that our report of the death of Dr. Edmund von Mojsisovics in the November number of the 'Alpine Journal' was founded on an error of the Viennese correspondent of the 'Geographical Journal,' and that our distinguished honorary member is in the enjoyment of good health, and follows with great interest the modern developments of mountaineering.

EIGER JOCH WITHOUT GUIDES.—On August 2, 1897, the Rev. Walter Weston and Mr. H. Somerset Bullock, with a porter from the Wengern Alp, left the hotel on the Kleine Scheideck at 2.45 A.M. Reaching the base of the Klein Eiger by the usual route, the party rapidly threaded the lower séracs of the ice-fall of the Eiger Glacier, always keeping well to the left bank until a steep snow slope gave access to the rocks. These were reached at 4.45, and climbed diagonally for a height of 500 ft., as far as a well-marked tongue of snow connecting the glacier with a prominent boss of rock on a level with the top of the ice-fall. Taking to the glacier at this point, at 6 o'clock, a straight course was steered for

the bergschrund at a spot immediately below the highest rocks of the arête between the Eiger and the Mönch. After breakfasting, and photographing, the ascent of the steep slopes began at 8.15 but as these soon turned out to be hard ice, steps had to be cut for nearly 5 hrs. without intermission. The rocks were reached at 1.30, and after a short halt for lunch a climb of 1½ hr. by loose disintegrated rocks and hard ice led to the crest of the ridge. Here a thunderstorm broke, and the various members of the party experienced electrical shocks suggestive of a powerful galvanic battery. The Joch was passed at 4.30 p.m., and after traversing the snow slopes at the base of the Mönch for a short distance a descent was effected directly by the ice fall at the head of the Grindelwald Fiescher Glacier without touching the Mönch Joch or the Bergli hut. Much time was lost owing to a snowstorm and the soft state of the deep snow, as well as to the senseless behaviour of the porter, whom the thunderstorm appeared to have demoralised. The descent of the Kalli in the darkness occupied some time, but the Bäregg chalet was reached eventually at 1 a.m.

PRESENTS TO THE CLUB.—The following presents have been recently given to the Club:—Mr. D. W. Freshfield: a Photogravure of Ushba by Signor Vittorio Sella. Mr. Sydney Spencer: an auto-type enlargement of a photograph taken by him, Mont Blanc from the Summit of the Aiguille Verte. Count Francesco Lurani: a Photographic Cloud Study.

CAVE EXPLORATION.—Attached to the article on Mountaineering, by Sir W. Martin Conway (noticed elsewhere), will be found a summary of what has been done, up to the present time, in cave exploration. Though the summary is of necessity brief, it contains an account of the tackle required, the signals generally employed, and the method usually followed. A sectional diagram of a 'pothole' is given on page 50, to illustrate the method of descent, &c. The authors of the article, Messrs. J. A. Green, E. Calvert, F. Ellet, and T. Gray, are all members of the Yorkshire Ramblers Club, which has already acquired a reputation for enterprise, not only in cave exploration, but in hill climbing generally. An article, entitled 'The Descent of Gaping Ghyll (Yorkshire): a Story of Mountaineering Reversed,' by M. E. A. Martel, the well-known enthusiastic exponent of the sport, will be found in 'Alpine Journal,' vol. xviii. pp. 120-5.

MONT BLANC: DÔME ROUTE.—It may be useful to warn climbers against an obvious and rather inviting-looking variation of this route. On August 7 my wife and I, with Matthias Zurbriggen, Querinus Schwartz, and a porter, left the Dôme hut at 4 a.m., intending to ascend Mont Blanc by the W. branch of the Dôme Glacier. On getting, however, to the foot of the ridge of rocks that divides the upper reach of the glacier into two branches we changed our plans and took to the rocks. These, if sound, would be easy enough, and would offer a good line of ascent; but they were terribly rotten, and in order to avoid danger we had to climb in and out and up and down in a most heart-breaking way. We were

forced to keep high above the glacier, and saw no means of escape to either branch of it, and from the foot of the rocks it took us 8 hrs. (with only two very short halts) to reach the Dôme-Bionnassay ridge. The Vallot hut was reached at 3 P.M., but the weather had become so bad that it was out of the question to go higher. Misled by the luxurious description in the 'Climbers' Guide,' we hoped to spend the night in the hut, and go on to the top next day; but the hut was floored and festooned with ice, and contained neither fuel nor provisions; and, as our own stores were almost exhausted, we were compelled to go straight down to Chamonix. Our route can only be recommended to those who enjoy unsound rocks, and are not particularly keen about getting to the top. Although a smaller and stronger party could, no doubt, very much shorten our time, I think that our ridge would always take longer than either branch of the glacier; and it would certainly be a very evil place in which to be surprised by bad weather.

A. F. DE FONBLANQUE.

WINTER ASCENTS.—From Grindelwald to Rosenlauri by the Wetterhorn Sattel.—On January 8 Mr. Owen G. Jones, with Ulrich Almer and Joseph Pollinger, made an attempt on the Wetterhorn from the Gleckstein hut. Starting at 2.25 they reached the sattel by 7 o'clock, but bad weather and slight indisposition of one of the guides warned them against further advance. Heavy snow began to fall, and it was deemed safer to cross the mountain than to return by the line of ascent. The Dossenhutte was reached at 12.15, the rocks below it were not passed till 3 P.M., and the party reached the hotel at Rosenlauri at 5.15 P.M. Conditions throughout were most unfavourable.

Finsteraarjoch and the Strahlegg.—On January 13, Messrs. Owen G. Jones and H. Foster, with Ulrich Almer and Alois Biner, left the Schwarzegg hut at 2.25 A.M., and had an easy moonlight walk of 5 hrs. to the Finsteraarjoch. They descended the Finsteraargletscher, and crossed to the Strahlegg Firn by the lowest rocks on the left. The Strahlegg was reached at 2 P.M. by the ice gully and bad rocks to the left of the ordinary route. The journey back to the hut took 2½ hrs. of easy going.

Engadine.—Piz Sella, 11,770 ft.—On January 13 Mrs. Main and Messrs. Young and Cooke, with Schocher and Schnitzler, of Pontresina, made the first recorded (?) winter ascent of this peak. Some of the party went up to the Mortel hut on Canadian snow-shoes, which they found of great use; the guides were much impressed by the assistance they gave. Leaving Mortel at 4.30 A.M., they reached the summit at 9.30. The snow was in bad order, the wind high and cold, and the weather cloudless. Pontresina was regained at 5 P.M.

Piz Palü.—On January 19 Mrs. Main, Mr. Cooke, and the guides Schocher and Schnitzler went up this peak from the Boval hut. The heat on the arête was very great.

Piz Zupo.—On January 20 the same partly ascended this mountain from Boval.

Passage of the Wetterhorn.—On Thursday, January 27, Mr. and Mrs. Frederick Gardiner, with guides Ulrich Rudolf, Hans and Peter Almer, and Ulrich Almer the younger as porter, slept at Gleckstein, and next day (Friday, January 28) arrived at the top of the Wetterhorn at 3.20 P.M. The Dossenhutte was reached at 9 P.M., and on the 29th the party descended to Imhof by the Urbach Thal. The weather throughout the expedition was superb. This is believed to be the second winter ascent of the Wetterhorn by a lady, the previous one having been made by Miss Brevoort in 1874.

THE ROMANCE OF THE CAUCASUS.—Mr. Blackmore's last story, 'Dariel, a Romance of Surrey,' ought to have been called a romance of the Caucasus, for his scene is laid mostly in that country; Suans and Ossetes move about in his pages; there are mountain princesses, native villains, and gallant young Englishmen, and, of course, adventures enough to satisfy the Christmas appetites of juvenile readers. The local colour is not very successfully laid on, and the incidents narrated are mostly impossible, having regard to the recent date assigned them.

As announcements are still occasionally to be read in newspapers about 'Brigandage in the Caucasus,' it may be well to mention that two of our members made extensive tours in the mountains last summer without meeting with any hindrance; in one case a lady was of the party.

FROM RIDDES TO FIONNAY. *July 19, 1897.*—I arrived at Riddes by morning train from Sion with Pierre Maitre and Pierre Georges, of Evolena, as guide and porter. We ascended to Iserable in leisurely fashion, so as to lunch there. As we reposed on a fine brow commanding both main and side valleys, we watched a man bringing down charcoal in a hand car with shafts, between which he sat trailing his feet on the ground by way of a drag down the rough incline, a little girl meantime following to hold on the bags. Iserable has a deceptively flourishing aspect, but on nearer acquaintance proves a poor place, the wooden houses having been replaced by stone in consequence of a recent conflagration. Failing to meet with entertainment at the curé's, we were conducted by his house-keeper, by a sort of tunnel under the church premises, to the signless inn close by. A girl was in sole charge, who showed us into a fusty room round which were grouped all the family beds. Prompt escape was made to the benches outside the door, where we had a comfortable lunch. The girl did not know whether to charge a franc a litre for very drinkable wine, and when questioned said that no travellers ever came there, and she did not know what travellers (*voyageurs*) were. A woman came by with a baby in a cradle on her head, who stooped to drink at a fountain, holding the cradle in position with one hand as she did so.

Our aim was the Alp Sachièrè, the proper course to which, missed by ourselves, is to descend from the village to the right, cross the stream, and then ascend by a track on its left bank till the plateau of the Alp is reached, when the stream is recrossed (at Pontet on the map). The scenery of the Alp is pleasing, the chalet folk were

friendly, and I was more comfortably housed than at any huts before. A *salle à manger* was devised for me in a clean room in a separate hut where *seracs* were stored, and a bed was afterwards arranged in the same place, where I slept in comfort. The people said we were the first visitors that had ever slept there.

The weather now changed, and rain delayed our departure till a quarter to eight. Some distance above the huts is the fine *Lac des Vaux*, into whose clear depths we could see far down. It is a striking spot; above rises Mont Gélé, and passes lead in either direction to Val de Bagnes and Val Nendaz. We ascended that mountain by the arête on our left; the weather turned out better than we hoped, but the view, which from the situation must be pleasing, was far from clear. A thunderstorm overtook us in the descent, which brought us directly down to Lourtier. After some welcome refreshment at the restaurant here, we walked on to Fionnay, where there are now hotels, and the children of pensionnaires sail toy craft in a tarn formed by the water of a beautiful cascade, which drops from a lofty cliff in vapour and spray.

In taking this route, Fionnay might be directly reached by descending to the Col de la Chaux, and gaining by a short reascent to the right the western Glacier du Mont Fort. The course then mounts to the Col of that name, which lies over the ridge of the mountain nearly at its W. termination.* For the route from Fionnay to Sion by Val Nendaz, the lower passes of Louvie or Cleuson are probably preferable. For another exploration of a route to Arolla by Val Nendaz, see 'Alpine Journal,' vol. xi. p. 298.

A. CUST.

CORRESPONDENCE.

SILBERHORN AND TELLISPITZEN.

DEAR SIR,—Will you be so kind as to insert the following rectifications in your next number of the 'Alpine Journal'?—

1. *Jubilee flag on the top of the Silberhorn*.—Mr. F. Gardiner, in his article 'Early Summer in the Oberland,' 'Alpine Journal,' November number, page 499, states that the flag planted by him on June 21 last on the top of the Silberhorn 'apparently did not meet the approval of some Swiss climbers who made the ascent shortly afterwards, as they removed it.' A party consisting of Dr. Rob. von Wyss, Mr. A. Bernoulli, and myself (without guides) ascended four days after Mr. Gardiner the Silberhorn from the Guggihut, traversing afterwards the Jungfrau to the Concordia, and nobody else can, therefore, be meant by the reproach of uncivility thrown by Mr. Gardiner upon his successors. The matter by itself is a very trifling one, but, although Mr. Gardiner's

* *Alpine Journal*, vol. xi. p. 116.

assertions are as positive as possible, I wish to say that none of us even touched the said flag, which must have been blown down subsequently by the wind.

2. *Tellispitzen*.—The first ascent of these summits was not made by me, as stated in last number of the 'Alpine Journal' (page 529), but by Messrs. E. Thury, Miney, and Tschumi, S.A.C. Geneva, on August 5, 1888. A short account of this climb was published by Mr. Tschumi in the 'Echo des Alpes,' 1889, pp. 83, 84.

Believe me, dear Sir,

Glockenthal, Thoune,
January, 1898.

Yours truly,
PAUL MONTANDON.

PROCEEDINGS OF THE ALPINE CLUB.

THE ANNUAL GENERAL MEETING was held in the Hall of the Club on Monday evening, December 18, at 8.30 P.M., Mr. Charles Pilkington, *President*, in the chair.

The following candidates were balloted for and elected members of the Club: Messrs. F. Baker-Gabb, E. H. F. Bradby, H. S. Bullock, E. Calvert, H. W. Fowler, C. B. Grant, Hon. W. H. Lascelles, Messrs. C. W. Patchell, W. Rogowine, A. V. Valentine-Richards.

On the motion of Mr. H. Walker, seconded by Mr. F. W. Newmarch, the *President*, Mr. Charles Pilkington, was unanimously re-elected.

On the motion of Sir H. S. King, seconded by Mr. Alfred Williams, the *Vice-Presidents*, Dr. G. H. Savage and Mr. F. Gardiner, and the other members of Committee who were eligible, viz., Messrs. J. Heelis, Ellis Carr, T. L. Kesteven, N. Collie, G. A. Solly, Dr. Claude Wilson, and the Hon. Secretary, Dr. W. A. Wills, were unanimously re-elected.

On the motion of Mr. A. J. Butler, seconded by Mr. H. Woolley, Professor A. B. W. Kennedy and Mr. H. E. M. Stutfield were unanimously elected new members of Committee in place of Messrs. Cockburn and Baker, who retire by rotation.

The *PRESIDENT* moved on behalf of the Committee that in Rule III., second paragraph, be added after the word 'Vice-President' the words 'Editor of the *Alpine Journal*, Honorary Librarian,' and after the word 'or,' 'Honorary,' which paragraph would then read: 'The Committee shall have power to add to their body, as an extra member, the Editor of the *Alpine Journal* for the time being, or the Honorary Librarian for the time being, or anyone who shall have served the office of *President*, *Vice President*, *Editor of the Alpine Journal*, *Honorary Librarian*, or *Honorary Secretary of the Club*.'

This was seconded by Mr. F. Gardiner, and carried unanimously.

The *PRESIDENT* further moved on behalf of the Committee that in Rule VI., second paragraph, be substituted for the words 'January or February' the words 'March or April,' and after the words 'general business' be added the words 'and a copy of the

accounts to be submitted to such meeting shall be sent to members with the circular last issued before the meeting.' Rule VI., second paragraph, would then read: 'A General Meeting of the Club shall also be annually held in March or April for passing accounts, and for general business; and a copy of the accounts to be submitted to such meeting shall be sent to Members with the circular last issued before the meeting.'

This was seconded by Dr. SAVAGE. Mr. F. O. SCHUSTER moved as an amendment that after the word 'members' the rule read 'at least three days before the meeting.' This was seconded by Mr. BUTLER. The alteration, as amended, was accepted by the President, and carried unanimously.

The PRESIDENT referred to the death of Mr. J. M. Hunt, who was elected in 1868. He drew the attention of members to the interesting photographs on the walls, especially those of Messrs. Baker and Collie of the Canadian Rockies, and of Signor Sella of Mt. St. Elias, which latter had been obtained by Mr. Freshfield for exhibition.

Mr. C. E. MATHEWS spoke of the fund raised for the Anderegg family. Locally, the sum of 67*l.* had been collected, 42*l.* of which had been given to Katharina Anderegg, and 25*l.* to Bertha Anderegg. The English fund amounted to 320*l.*; 14*l.* of this had been spent on the funeral, and 80*l.* given to Katharina, the mother of Johann Anderegg; the balance had been invested for Andreas Anderegg's children. It was always difficult to know what to do when a guide was killed. If a man were not known, the subscriptions would be few, and if well-known might be too much. Some day he hoped a scheme of insurance might be devised to which some addition might be made by the Alpine Club.

The Rev. H. B. GEORGE read a paper on 'Progress in the Alps.'

Mr. FRESHFIELD considered that the multiplication of huts afforded a great increase of pleasure, making a fuller enjoyment of the phenomena of the upper regions possible, though he found that the disadvantage of the huts was that guides were unwilling to start from lower stations in the very early hours of the morning. He regretted Mr. George had not referred to the increase in Alpine literature, for he had been the first editor of the 'Journal,' nor to Alpine photography, since he had published the first book illustrated by Alpine photographs. Mr. George had been a pioneer in an art which had resulted in so much benefit to all climbers, which could bring before us the glaciers of Alaska or Canada, and enabled us in imagination at least to plan how we should explore them. As regards democratisation, he had found that the crowds now tended to remain about certain centres, and that the lonely parts, especially in the South-western Alps, were even more deserted than they were 30 years ago.

Mr. C. E. MATHEWS referred to the placing of observatories in useless situations to the damage of the mountains' beauties. He understood that M. Jannsen's observatory on Mont Blanc was

constantly shifting, and the expensive instruments in it were so disarranged by these movements that nothing was recorded. Even if they could record he doubted the utility of what they would register.

Mr. STABLE thought that Mr. George himself was largely responsible for the popularity of the Alps, which he deplored, since by his publications and his invariable courtesy to the younger members he had done much to attract people to them.

Mr. MORTIMER drew attention to the great difference in weight of the photographic apparatus required in Mr. George's early days and that required now. They went over the Lauteraarjoch, a party of thirteen, of whom three were required to carry the apparatus, which weighed $1\frac{1}{2}$ cwt. Moreover, the plates had to be developed on the spot.

Dr. WILLS mentioned that the promoter of the Jungfrau Railway had been at the Club last summer, with the object of interesting the Club, if possible, in his undertaking. His chief argument in favour of his scheme was that non-climbers should be allowed to enjoy the view from the summit. He was prepared to strengthen his arguments with the most profuse hospitality to members of the Club.

Mr. H. T. MUNRO thought that the Club should use its influence with the Federal Government to prevent any desecration of the actual summit of any hill up which they should permit a railway to be built.

Mr. GEORGE replied that he had not taken the photographs himself which appeared in his book, though he had selected them all. He thought, however, that he was the first person somewhat later to take a dry-plate camera to the summit of an Alpine peak.

A hearty vote of thanks was accorded to Mr. George, and the proceedings terminated.

AN EXHIBITION of Alpine photographs was held in the Hall of the Club, and was open to members and their friends from December 14 to 31. Tea was provided for members and their friends on the afternoon of December 14. Exclusive of this private view day, there were nearly 1,000 visitors to the Exhibition.

THE WINTER DINNER of the Club was held at the Whitehall Rooms on the evening of Tuesday, December 14. Mr. Charles Pilkington, *President*, in the chair. Three hundred and four members and guests were present, the latter including Lord Harris, Mr. Augustine Birrell, Sir George Robertson, Major-General Sir William Butler, Mr. C. J. Longman, and Mr. Frederick Jackson.

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THE ASCENT OF MOUNT LEFROY, AND OTHER CLIMBS
IN THE ROCKY MOUNTAINS.

BY HAROLD B. DIXON.

(Read before the Alpine Club, February 1, 1898.)

MY trip last year to the Rocky Mountains might be called a sentimental journey. It was made in fulfilment of a promise to attack Mt. Lefroy in company with my friend Philip Abbot, who, alas! perished on the mountain at the very time I was making plans for our expedition in the following year. A life of more than ordinary fulness and a friendship of peculiar attractiveness to me were cut short in that fatality. In Philip Abbot high intellectual attainments were combined with a singular nobility of character. Simple, courageous, a keen lover of nature, no wonder such a man delighted in the mountains. After a successful season in Switzerland, with Peter Sarbach as guide, Abbot found the scrambles of the Apalachian Club in the White Mountains too tame, and for two or three years had led a party of its members in pioneering climbs among the Canadian Rockies, of which he sent me glowing accounts. His fall near the summit of Mt. Lefroy (the first fatal accident in American mountaineering) cast a gloom over the Club, and it seemed not improbable that the loss of its most active member would lead the Club to renounce its yearly exploration in the West. Luckily wiser counsels prevailed. To clear up the mystery of his fall, and to complete if possible the attack he had planned, were matters of interest to his family and friends. I undertook to bring a party from England, while one of his companions on the fatal day, Mr. Charles Thompson, of Chicago, himself anxious to renew the assault, spared no pains to make the expedition a success.

On receiving the detailed accounts of Abbot's last expedition, it seemed advisable to make our party as strong as possible. I therefore resolved to take with me Peter Sarbach, of St. Niklaus (who had been my guide in Switzerland for some years), and looked round for some suitable climbing companion. It is not an altogether easy matter to make up a new climbing party for so distant an expedition, and even the added attractions of the British Association Meeting at Toronto failed to permanently entice some of those in whose eyes Science and snowfields form a judicious blend. For some months hope and despair alternated, but at length I was fortunate enough to enlist Dr. Norman Collie, who only bargained that he should take over Sarbach to his own use when I returned east to Toronto.

The American continent has not yet superseded the effete countries of Europe in articles connected with the climber's craft. Collie and I spent some serious hours over lists of impedimenta and eatables. Tents, sleeping bags, with spare ropes, nails and ice-axes, were put in hand, and condensed soups and delicacies were ordered from Silver. Scientific instruments took longer to settle. Collie has invented a very pretty (and effective) barometer which folds into his pocket. I rather fancy a sextant. These instruments headed our respective lists. Our American friends undertook to provide a plane table, while a chronometer, telescope, aneroids and compasses were included in our kit. Then came the 'camera' question. Collie had ordered a new one, a dainty thing of aluminium and cunning hinges and foldable qualities. Mine is bulky and feels (to me) uncommonly heavy. For the good of the expedition I struck mine off the list.

Sarbach spent three days with me in Manchester before sailing, and I passed some anxious hours when he went out, for skill in guiding others above the snow-line has not conferred on him the power of locating himself in a large city. In the end, however, he never failed to turn up, full of admiration for civilisation in the shape of shop-windows and more particularly of the fireworks at Belle-Vue Gardens.

On July 24 Sarbach and I left the train at Glacier House in the Selkirk Mountains, after sixteen days' journey. We had been joined that morning by Professors Fay and Michael of Tuft's College, and Messrs. Van Derlip and Noyes, members of the American climbing-party. We found most comfortable quarters at the hotel, which is, of course, owned and managed, like everything else out West, by the Canadian Pacific Railway. Here we spent a very delightful week, making



Messrs. Notman, Montreal, photo.

MOUNT LEFROY, FROM LAKE LOUISE.

Swan Electric Engraving Company.

acquaintance with the Selkirk Mountains in a leisurely and rather distant way. For twenty-three hours out of the twenty-four Glacier House is a quiet Alpine chalet. Once a day the hotel verandah—*i.e.* the station platform—is invaded by a motley crowd from East and West. Worn and travel-stained, consumed with hunger and thirst, this crowd appeared to be always consumed by a still greater curiosity. The fame of our expedition had been noised abroad, and it was rumoured that a party of Swiss guides had been imported by the Government or the C.P.R. (the same thing) for the benefit of the passengers. Once or twice this midday horde had possession of Glacier House when we were going or coming from an expedition. 'Off to Klondike?' was its usual greeting on observing our accoutrements, but the better-informed 'guessed' we were the Swiss guides, and would not permit such *rare aves* to escape without careful examination. I shall long preserve a mental picture of a distinguished member of this club the first day he appeared among us on the platform—newly shod, well greaved, very beautiful. The ladies spied him. Even his almost Indian *sang-froid* could not stand up against the curiosity of these travelling Eves. Next moment his person reclined in a low chair, the centre of an admiring circle, while two fair dames, each supporting on high one of his neatly bandaged legs, tested with dainty fingers the sharpness of his Mummery screws.

Two small paths led from the hotel—one to Marion Lake on a ledge of Mt. Abbott, the other to the foot of the Illecellewaet Glacier. In every other direction a road had to be forced through the primeval forest, and I was soon initiated into the mysteries of following a blazed trail, which Mr. Green has described with no less fidelity than force in his delightful book. My American friends were here in their element. They swung themselves along by the pine-boughs with the practised ease of the 'Bandar-log' of another jungle. Sarbach and I toiled painfully behind. If by a desperate effort we followed them close our eyes were swished by the resilient boughs released by the man in front; if we kept a respectful distance we lost the trail with surprising rapidity. Meanwhile the mosquitoes improved the shining hour, until, hot and bruised, out of breath and out of temper, we emerged into the upper air and our miseries were over.

Between the two great glaciers, whose waters unite near Glacier House—the Illecellewaet and the Asulkan—a ridge of

rock forms an excellent observatory, sufficiently high to be above mosquitoes and forest, and yet low enough to be an easy walk when a path is cut to it. On 'Glacier Crest,' the future Gorner Grat of the Selkirks, we sat and discussed our luncheon and our plans. Opposite to us rose the sharp peak of Sir Donald, with Uto and Eagle and Avalanche on its left. To the N. the Hermit Range closed in the valley with a line of rocky teeth. These peaks would necessitate camping out, and other premature hardships—they were evidently 'not for us.'

To the S. the high snowfield hid the Dawson range, but to the W., across the Asulkan glacier, and within easy reach of the hotel, a long broken rampart of rock and snow attracted our closer attention. One rounded parapet of rock (which had been christened the 'Dome') presented a sheer cliff on the face turned towards us. This cliff looked quite inaccessible, except at one point, where a sharp arête of snow leant against the mountain near its northern end. A little to the right of the arête the sky-line was notched, and two shaded lines indicated cracks in the cliffs leading upwards to the notch. The sun was off the eastern face, and we could not distinguish with the glass whether it would be possible to traverse from the arête to the nearest chimney, or indeed whether the chimney afforded a practicable route to the notch. Still it looked promising, and as no one had yet attempted this ascent, we resolved to try the 'arête and notch route.' At 3.30 A.M. on July 27 we filed out of the hotel. For an hour and a half we pushed up the Asulkan valley, through alder scrub and long grass; then we successfully bridged the stream with a pine trunk, and for a hundred yards had better going. But immediately afterwards we turned upwards into the forest, and life became a burden. I cannot describe the next two hours; I only know that as I stumbled and struggled through the wood I made solemn vows I would go on till breakfast time, but not a step further. At length the trees began to thin out, and at 7 A.M. we emerged into the air. I never remember feeling so exhausted and generally 'out of it.'

Choosing the nearest rock as a seat, I endeavoured to recover my breath, and finally made a poor attempt at breakfast. I felt more interest in the aneroid, but was disgusted to find we had only ascended 2,300 ft. from the hotel. After half an hour's rest we proceeded up the ice, and thence on to the snowfield leading to the col between the Rampart and the Dome. The change from the forest to the ice was delightful,

and I daresay the feeling that one was no longer 'out of it' had a stimulating effect. In a couple of hours I felt remarkably hungry, so we halted for a second breakfast on a patch of rocks 4,400 ft. above Glacier House. Looking upwards at the cliff which we were to attack, we could plainly see the sharp white arête end abruptly against the wall of rock; some distance on the right an unmistakable chimney led up to the notch. As the morning sun fell obliquely on the face a large shadow was thrown by the southern wall of the chimney; and the shadow was as the shadow of a man, and as we advanced, lo! the shadow of the man held in his hand a large bottle. There could be no doubt the omen was a favourable one!

From this point we turned southward to the sharp arête, mounted it, and followed it to the top. Below us, on the left, the snow fell with a beautiful sweep into a kind of bay, on the right it fell with remarkable steepness towards two enormous schrunds. As we advanced the angle of our ridge increased, and we edged over a little on to its southern slope. At 11 A.M. we stepped from the arête on to a flat rock projecting from the face and looked round for a ledge to traverse into the chimney. A few feet below us a practicable ledge was found, and we cautiously lowered ourselves and worked into the chimney. Then followed a scramble up steep but good rock, with no lack of firm hand-holds; it might have been a piece of the Rifelhorn from the glacier.

But the top of the chimney came as a surprise. As each man drew himself on to the rock which formed the base of the notch he looked down a chimney on the other side of the mountain, which fell sheer to the snowfield below. One could literally bestride the mountain at this point. The only thing at all like it that I can remember is on the Tower ridge of Ben Nevis. We had still to extricate ourselves from the notch, and this did not look so easy. One flake of rock partly separated from the mountain seemed to offer first a hand-hold and then a footing from which the wall might be scaled. But Sarbach distrusted its appearance. Balancing himself beside it, he began levering it out with his axe, and finally prized it over into the western chimney. Its empty place afforded a good ledge to stand on, but no hand-holds could be reached from it. Sarbach traversed obliquely along the face to the right, into an angle in the rock overhanging the chimney, and was soon on the top. This was the only bit where hand-hold failed and balance was required. From the top of the notch—reached at 12.30—we followed the ridge

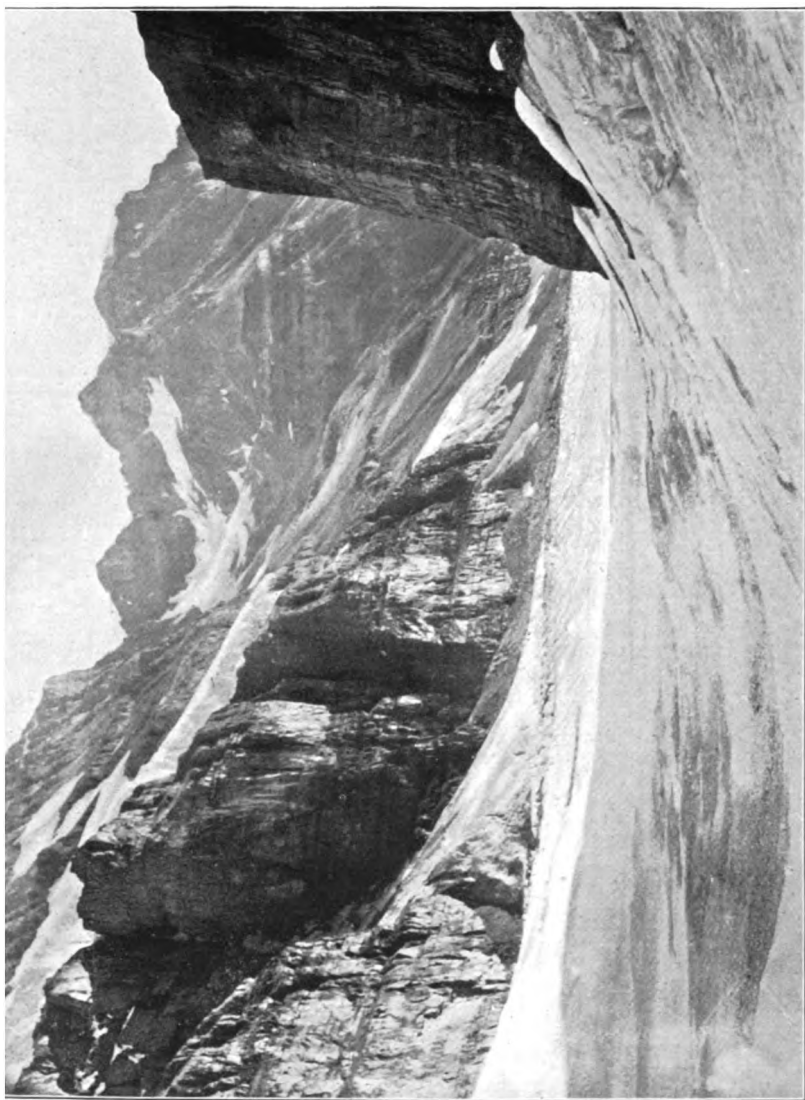
of the mountain, except where easy traverses on the W. face saved time, and in 20 min. more were on the summit.

The altitude of the Dome, 9,800 ft. above the sea, is sufficient to give a magnificent view, not only of the Selkirks, but of the main range of the Rocky Mountains, stretching in an unbroken line of snowy peaks as far as the eye can see from S.E. to N.W. It was hard to tear ourselves from such a spot, and later on that day we regretted the hour's daylight we allowed to slip away so joyously. We made the descent by the W. face, which affords many easy traverses, and reminded me of the Schönbuhl rocks below the ridge of the Dent Blanche. We reached the snow at the highest point of the Lily Glacier, and from there made a line for home by skirting the rocky sides of the Rampart and 'Alfton,' and traversing the long ridge of Mt. Abbott. Light was failing as we began to descend Mt. Abbott, and a mistake extinguished our last chance of clearing the forest by daylight. We reached the hotel at 10.30 p.m. My experience goes to prove that tweed is not a good material for garments intended to be worn in the Selkirks at night, and that surgeon's plaister is an excellent medium for sticking the pieces together again. I have to confess that I did not attempt anything more of a serious kind in the Selkirks, but we just frivelled about and enjoyed ourselves. Nor was there any lack of pleasant guests at Glacier House to aid us in these efforts. Picnics and teas were set on foot by the ladies, with whom Sarbach was soon installed as favourite and prime minister. And, what was of high importance, our hostess, Miss Mollison, entered fully into the spirit of our plans. I have seldom sat down to a better luncheon than one which appeared from several rucksacks on the further side of the Asulkan Pass, probably crossed for the first time by ladies on this occasion. As we sat on the S. slope scanning the steep snows of Mt. Dawson and its wondrous snakelike glacier opposite us, some one pointed to fresh tracks in the snow just below us. We examined the footprints. A large bear had been that way earlier in the day.

On July 30 Collie arrived from England, and on August 1 we turned eastwards towards our rendezvous at Lake Louise, where we were to meet Thompson for our attack on Mt. Lefroy.

The beauty of Lake Louise has not been exaggerated by travellers. Its charm lies in the wonderful contrast of the near and distant view. The deep blue waters at our feet rest unruffled in an amphitheatre of pine-clad hills, which





J. N. Collie, photo.

LOOKING BACK FROM THE DEATH TRAP.

Swan Electric Engraving Co

open out at the further end and frame a picture of sternest precipice and overhanging glacier. Right across the opening in the hills the cliffs of Lefroy and Victoria stretch in an unbroken wall of purple rock, on which scarcely a ledge exists to break the vertical height. From the highest part of the cliff on Mt. Lefroy the snow falls sheer 4,000 ft., while the lower cliffs of Mt. Victoria are crowned by a wall of ice—the edge of a glacier continually being pushed over the precipice to recruit a larger glacier which fills the valley below.

Viewed from Lake Louise Mt. Lefroy looks most formidable. The N. face itself is impregnable, and those who have explored its eastern face report that it is equally unassailable on that side. Three tongues of snow run up from the glacier into angles in the wall near the N.W. corner; in the furthest of these Abbot had discovered an easy path leading upwards between Lefroy and Victoria to a high col, which had been previously reached from the S. by Mr. S. E. Allen, who called this snow-couloir the 'Death Trap.' From this col—fitly named Abbot Pass—the peak could be attacked by snow-slopes and broken cliffs on its western side. It was on this slope that Abbot met his death when a few hundreds of feet only from the summit. On August 3, the anniversary of his death, we completed the ascent by the route he discovered.

Leaving the chalet at 2.40 A.M. we rowed up the silent lake, steering by the stars, which shone with marvellous brilliancy from the cloudless sky. After making fast the boats at the head of the lake we pushed up the valley in the darkness, now jumping streams by the treacherous light of our candle, now struggling in alder thickets, until at length we reached the rough moraine of the glacier as the faint light of dawn stole over the mountains. Then we kept straight up the almost level ice towards the N.W. corner of Mt. Lefroy, but lost much time in getting entangled in crevasses. It is better here to keep well to the right, nearer to the cliffs of Mt. Victoria. The view eastwards along the great N. precipice is extremely striking. A huge trench paved with ice separates Lefroy from Mt. Aberdeen. The end of the trench is blocked by a black mass of rock—the Mitre—leaving two steep and narrow couloirs, one on either side, forming possible passes into Paradise Valley. Passing the two snow couloirs which descend from chimneys in the N.W. cliff, we entered the so-called Death Trap—a wide slope of snow leading up at an easy angle to Abbot Pass. As we breasted the slope we were met by several small erratic pieces from the upper rocks of Lefroy, which came skipping down the snow

with unpleasant velocity, giving us an early warning of the unstable state of the limestone ledges above. After 5 hours steady going we stepped on to the narrow ridge which joins Lefroy with Victoria, and caught our first view of the precipices of Hungabee and Goodsir to the S. The aneroid gave our height as 4,200 ft. above Lake Louise, 9,800 ft. above sea-level.

From the col our route upwards was in plain view. The steep slope was snow-covered, except where limestone ledges cropped out, roughly marking off the ascent into three sections. The slope is best seen in the photographs taken by Dr. Collie two days later, in his ascent of Mt. Victoria. Having breakfasted we roped up in three parties, and struck straight up the snow to the first patch of rocks. The slope gradually steepened as we rose, but the snow was good, and we could kick firm steps in it. After a steady grind we reached the rocks, which proved to be both steep and rotten. For a few minutes we enjoyed the variation of wriggling our bodies over the ledges, though it would have been quicker to go round. The buttress of rock held up the snow above it at a more favourable angle for a little distance, but the slope soon became severer than before. As we approached the second patch of rocks great care became necessary. A bad slip here would have been difficult to check, and our path now lay above the S.W. precipices. On reaching the second rocks we passed up a snow couloir near their right extremity, and found ourselves on the steepest part of the face, lying at an angle of 60° . Above us to the right frowned the cliff which Abbot had tried to scale. Between us and that cliff the snow no longer gave a foothold. It loosely plastered the steep ice, which showed in patches through the surface. But against the outcrop of rock, which formed an overhanging cliff on our left, the snow still clung firmly, filling the angle between rock and ice. We crept round a ledge of snow beneath the overhanging rock and then kicked a ladder up the snow till the top of the cliff was gained. The steps held, but we had a distinctly uneasy feeling that we might not find them so firm on our return, after the sun had been on them for a few hours. From the top of the cliff a little arête of snow led upwards at a gentler slope to the corniced ridge of the mountain, and at 11 A.M. we clambered on to one of the two rocky prominences (some 50 yards apart) which form the highest points of Mt. Lefroy. The aneroid gave the height as 11,600 ft. above the sea, but the mercury barometer brought it down to 11,420 ft.

The air was beautifully clear—for the forests to the west had been singularly free from fires during the summer. Two mushroom-like patches were visible on the northern horizon, the stem produced by the heated column of smoke which flattens out as it cools. Of the mountains near at hand the most striking is Hungabee, which offers a first rate problem to climbers. Looking at it from the commanding height of Lefroy, none of us could suggest an even probable line of attack. Away to the S.E. the black precipices of Assiniboine were distinctly visible. To the N. Mt. Balfour, rising from the great Waputtek snow-field, attracted greater interest, for we hoped to conquer it in the next few days. The thought of our snow-ladder gradually melting in the sun cut short our enjoyment of the summit.

We descended easily to the end of the arête, where, planting an axe firmly in the snow, we paid out an extra rope (with a turn round the axe) attached to each man as he stepped cautiously down the ladder. Sitting on the arête I had leisure to study the broken cliff opposite where Abbot fell, and to fit together the accounts of the accident with the configuration of the rock. The chimney which he climbed is near the profile of the cliff. At the top of the first part of the chimney a snow-covered ledge bears to the left, on this Professor Little stood. Abbot continued the climb up the chimney now seen slightly to the left of the line of the lower portion. The chimney ends at a ledge cut off by a few feet of steep rock from the snow slope above. Abbot must either have attempted to climb this rock or to work round on the ledge. Neither course would appear to present any difficulty to a man who could climb the long chimney below, *had the rock been firm*. But the limestone rock which crops out on this face is extremely rotten. I can feel no doubt that a rock gave way suddenly with his weight, just as he was pulling himself to the top of the cliff. He had taken to the rocks to avoid step-cutting in the ice. A photograph and sketch of Abbot's cliff were taken from our arête.

From the top rocks downwards we were mightily polite to the snow of Mt. Lefroy. I cannot speak for all the party, but I know that three men, including Sarbach, came down 1,500 ft. with their faces to the mountain. A final glissade down the lower slope landed us on the col at 3 P.M. After a second luncheon a rapid descent of 2½ hrs. brought us to Lake Louise.

On August 7 our party collected in the little station at Laggan. Here we were to leave civilisation behind and take

to tents. We had arranged with Tom Wilson of Banff to supply us with a camping outfit. Our 'packer' Peyto and his men had gone on with our camp while we waited for G. P. Baker, who came by train from the east. We left our luggage at the station, but the 'few necessaries' we were loth to leave behind quickly amounted to a goodly pile. Accordingly two horses were requisitioned, one for the 'necessaries' and one for myself, as my leg was stiff from a cut on the knee inflicted by a falling stone—a parting memento from Mt. Lefroy. We started in high spirits after a good meal unexpectedly prepared for our entertainment by the good lady of Laggan.

Our route lay northwards up the Bow Valley. At first we made our way through burnt forest, over and under the fallen



'THE ROAD' BOW VALLEY.

trees, winding round masses of piled up trunks and looking back at the white helmet top of Mt. Lefroy. Occasionally we hit on 'the road,' a cutting made by prospectors, but found it more impassable than the forest itself. At one place we counted eleven large trees piled criss-cross on one another. Meantime the sun beat down on us and the still air hummed with mosquitoes. The hot afternoon passed, and the sun set behind the mountains just as we came to more open ground. Here we advanced rapidly for a time, but the ground became softer and it soon became

difficult to get the horses along. Then the moon cheered us for a brief spell, and we made an effort to get off the swamp into the forest. But the pack-horse sank to his girths and remained immovable, and before we could remove his pack the moon disappeared and progress was impossible. Then two of our American friends volunteered to push on to the camp and send back Peyto. The rest of us prepared to spend the night in philosophic contemplation. But in the course of an hour or so we were cheered by the bark of a dog, and presently Peyto made his way to us through the muskeagh. He told us it was hopeless to get the horses through to the camp, so we unsaddled and left them on a fairly firm patch of ground to be recovered in the morning. Half an hour's wading through bog and stream brought us to the camp about midnight.

Next day we spent in idleness at the Lower Bow Lake, bathing, fishing and photographing. On Monday a steady march of $7\frac{1}{2}$ hrs. brought us to the camping-ground at the Upper Bow Lake. As we rose higher the forest became less dense and the ground firmer. The only difficulty on our march was the fording of a rapid stream which falls into the Bow River, but this was accomplished without mishap. During the day we were made acquainted with one of the vagaries of the Rocky Mountain pack-horse, which has impressed previous European travellers. Wonderfully agile, sure-footed, and knowing, these Indian horses pick their way with great skill over broken and precipitous ground, and through the intricacies of fallen trees. But occasionally a horse will give a shriek (as of fright), rear up and topple over. If this happens on a steep place horse and pack go rolling over and over until brought up by a tree or rock. Authorities differ as to whether the shriek follows on a slip, or whether shriek and fall are consecutive pieces of 'cussedness.' So far as I can learn the horse is usually found not much the worse for his rapid descent; but the scientific instruments, the camera, the kettle, and everything in the pack that the traveller cherishes, are unrecognisable. Dr. Hector describes just such a performance by an 'old grey' in his first passage of the Kicking Horse Pass in 1858; was it a descendant of this old grey whose 'troubled look on his battered countenance' we caught in our camera last year?

The valley of the Upper Bow forms part of one of the series of longitudinal valleys which, lying in the length of the main chain, divide the mountains into successive ranges. In these broad longitudinal valleys the rivers flow nearly N. and S.,

making short breaks to the E. or W. through narrow defiles. To the W. of the Upper Bow lies an extensive snow-covered table-land, hidden from the valley by a precipitous wall which holds back the snow. From this snow plateau several high peaks rise, forming the Waputtek range, the most conspicuous being named Mt. Balfour. Along this range lies the continental watershed. So far as we could learn no one had yet explored any part of this range except by means of photographs from a distance.

At the W. end of the Upper Bow Lake a gap is torn in the mountain-wall, and through this gap the snow is pressed in a fine glacier which descends in two large ice-falls to the valley. From our camp no high peak was visible beyond the crest of the glacier, but in a short reconnoitring walk we descried a sharp peak towering above the cliffs which bastion the snow-field. Since its direction corresponded with the position of Mt. Balfour we resolved to make its closer acquaintance.

The night of August 10 gave no promise of a fine day. The rain beat on our canvas, and the thunder re-echoed from the cliffs, while the lightning fitfully illuminated the interior of our dark tent with surprising brilliancy. But with morning the storm passed off, and our first sleep was broken by Sarbach with the news that the clouds were clearing. We grumbled, but turned out of our sleeping bags. At 5.30 we were fairly off.

Crossing a low wooded spur—once the terminal moraine of the glacier—we descended into a stony valley left by the retreating ice. There was no difficulty in walking on to and up the lower slopes of ice, which we crossed to the left. On the further side we scrambled on to a steep moraine, and walked up its ridge, and by this means passed the lower ice-fall. We were now in a position to study the upper ice-fall. The moraine we were standing on ends in a sheer cliff, and between the ice-fall and this cliff a steep snow-slope leads upwards. From below it seemed that we might reach the upper snow-field by means of this slope, but a close inspection showed it to be very steep and awkwardly crevassed. We looked round for a more enticing route. To the left of the cliff we might have forced a way, but it would have been necessary to make a considerable descent and a long circuit up another glacier. The other side of the glacier seemed hopeless, for the ice-fall seemed to abut on precipitous cliffs. Accordingly, after some delay, we made up our minds to attack the ice-fall by a direct assault. Roping up in two parties, led by Collie and Sarbach, we got half way up without

much difficulty. Then the crevasses became wider and more intricate, and compelled us to make long traverses. And thus it happened that while Collie edged more and more to the left, Sarbach worked to the right, and we presently lost sight of one another amid the seracs. At length, after nearly two hours' exciting work, Sarbach brought our party on to the snow, and we yelled a paean of triumph. In a moment our yell was answered by a faint cry which proceeded from some black dots just topping the snow line at the further side of the glacier. Honours were easy. Both parties could claim that no one had previously set foot on the Waputkeh snow-field.

By converging paths we advanced up the gentle slope, and then, as the view opened out, we saw that a second mountain rose beyond the sharp peak which had been our aim. Meeting on the snow we proceeded to discuss the new claimant. A long snow dome to the right, connected with a sharp rocky ridge which fell away sheer to the left. This corresponded with the distant views of Mt. Balfour, and we immediately turned towards it. Should we attack the snow dome or the rocky ridge? Thinking the snow would be easier to descend, we decided to try the rocks, and began by making a second breakfast on the snow near the foot of a broken rock cliff we named 'Beechey Head.'

An easy snow slope led upwards to a col between our original peak on the left and the rocky end of the second peak. We made straight for this col, and on reaching it scrambled up the easy rocks to the right. At 12.50 we stood on the broken summit. A rapid glance showed us that we were not on Mt. Balfour. That mountain stood up well above us some four miles away to the S.S.E. It had been completely hidden till this moment. Between us and it a wide gulf was fixed—not to be passed in an August afternoon. Though disappointed of Mt. Balfour, we had a new peak of our own, which we proceeded to make the best of. In the first place, a proper cairn had to be built, and there was no lack either of stones or of labourers. Next the mountain had to be christened, and this was duly accomplished by emptying a bottle and placing an inscription within. Unfortunately, the name we selected—Mt. Aberdeen, after the genial Governor-General of Canada—we afterwards found had been appropriated by the Canadian Survey for another peak near Lake Louise. Since American citizens were members of our party, this might have led to international complications; but Lord Aberdeen, on being appealed to, was equal to the

occasion. He suggested that, since our object was to pay him a compliment, he would be equally gratified if we called our mountain by his family name, 'Gordon.' Future travellers who open our bottle will kindly read 'Mt. Gordon' for 'Mt. Aberdeen.'

In Captain Palliser's general map two peaks are marked close together some 5 miles N. of Mt. Balfour. These nearly correspond in position with the two summits of Mt. Gordon.

The E. peak we now stood on rises some 10,600 ft. above the sea. It commands a magnificent panorama, except in two directions. To the N.E. the distant mountains are hidden by the ridge of the near mountain we had first seen, which, from the green colour of its upper rocks, we named Mt. Olive. No doubt Mt. Murchison was hidden from us by this ridge. To the W. the snow-dome of Mt. Gordon itself rose above the line of sight. Just to the right of the snow-dome (and bearing slightly N. of W.) a fine double-headed snow peak is visible. Large glaciers pour down its E. face. We called it Mt. Mummery.

The most striking peak that is visible from Mt. Gordon bears N.W. Its sharp rock summit rises far above the snow peaks between it and us. If the average height of the higher snow peaks in this region lies between 11,000 ft. and 12,000 ft., as most observers agree, then Mt. Forbes (with which this peak was afterwards identified) must be not far from 14,000 ft. in height.

An hour quickly passed away in sketching and photography. Then, while Collie and I set up the barometer, the Americans went off along the broad snow ridge to complete their work with the plane-table from the higher snow summit. And then occurred the only accident in our expedition, one which might have been serious but for the skill and resource shown by Collie. Stretching across the ridge, a little below the summit, a snow-covered crevasse crossed our route at right angles. The party in front, who were without ropes, saw the crevasse, and proceeded to leap it. All crossed in safety but the last man, who broke through the snow and disappeared. Through the hole the wide mouth of the crevasse was revealed, showing the danger of trusting to the frail bridge. It was obviously dangerous to recross without a rope, so his companions signalled to us for help, but for some time we failed to observe their signals.

Though stunned by the fall, our friend was not materially damaged, but he was in a sufficiently awkward fix. Jammed between the narrowing walls of ice, he was unable to move a

limb except his right arm. The crevasse did not drop perpendicularly, but the ice wall bulged out from the side we stood on, and then curved over out of sight; we could not see down more than 18 ft. We stood in a little semicircle at the hole, and one short sentence was spoken: 'Some one must go down.' We looked at each other. Sarbach and Baker are large and heavy men: it was obvious they must 'pass.' I am of lighter build; I proclaimed my eleven stone and readiness to go. But Collie went better. 'I am nine stone six' was his deliberate statement. There was no means of seeing if this was a bluff, so we threw up our hands—the trick was his. Tying a stirrup loop for one foot and a noose round his waist, Collie attached himself to one rope, which was then joined to a second. Meanwhile the Americans were brought across the crevasse by the aid of another rope, and axes were fixed deep in the snow in suitable positions to fasten the rope to. Then we let Collie down as far as he would go. An anxious moment followed. 'I can't reach him,' came Collie's voice from below. Then, after a few minutes, 'Send down a slip knot on the other rope.' We made the knot and lowered the rope. How Collie managed it I don't know, for he could not reach his man, but he threw the loop round the prisoner's right arm, and then called to us to pull. At the second haul we felt something give, and our friend was pulled into an upright position, where Collie could just reach him with his left hand, and with this he tied a knot above the elbow of his right arm. By this knot we hauled him out of the narrow crevasse and on to the bulge of ice without difficulty. But as we pulled the rope cut into the snow, and we could not raise our burden within 6 ft. of the surface. Then, while the rope was held taut, one of us worked the handle of an axe along under the rope by sitting on the snow and pushing it forward with his feet. In this way the rope was loosened, and we could haul up another 3 ft., and then Sarbach, leaning over, reached his collar, and our half-frozen friend was deposited on the snow with an assortment of flasks while we fished out Collie from his uncomfortable position. They were both very wet and cold, but no bones were broken, so two of us roped up with the wet ones, and the quartette raced down the snow towards the glacier. In an hour warmth was completely restored by our rapid motion.

In our descent of the glacier we took the upper fall on the extreme left (looking down)—in fact, we avoided the steepest part by climbing down the rocks at the side. In the morning these rocks had looked most uninviting from a distance, but

Collie found a way down them, and so on to the ice. Sarbach following with the rest found a still quicker way between the rocks and the ice. We reached the camp at dusk, as a thunderstorm began muttering along the rocky wall we had succeeded in scaling.

And now the time had come for me to return to the E. We retraced our steps down the Bow Valley, and I left Sarbach with Collie and Baker, who resolved to explore the ranges we had seen to the N. from Mt. Gordon.

I had had a dip into a new and wonderfully interesting region. A few miles from the railway track scarcely a mountain has been scaled. To the N. whole ranges are still unmapped. This happy hunting-ground will be annexed (in a climbing sense) by our cousins of New England, for I fear that the Canadians have not yet reached that state of over-civilisation which drives people to climb for the mere fun of the thing. And judging from those I have seen, I believe the Americans will make good use of their opportunities. They are quick, wiry, and confident. They don't make such a solemn business of it as we do, nor do they stand quite so punctiliously on the order of their going. But they enjoy roughing it, and with practice on snow mountains I feel sure they will work out suitable methods, and the Canadian Rockies will be opened up by their enterprise and energy. I envy them their chances.

Two months later I saw Sarbach off from Manchester on his return to Switzerland. I can speak most highly of his conduct, skill, and temper during all his work with us. No *contretemps* disturbed his equanimity; his constant care never slackened. I think the new conditions of travel unconsciously altered some of those views on climbing that are traditional with Swiss guides, and I sincerely hope that his experiences with us will do something to modify the alarm with which he faced the prospect of a distant journey. Thinking of the many grand effects we had witnessed by sea and land, I asked him at parting: 'What is the finest thing you have seen, Peter?' He had crossed the ocean, he had threaded the wonderful islands of the St. Lawrence, had passed the Great Lakes, he had even scaled an unknown peak and left his name in memory thereof on 'Pic Sarbach'—but he answered without hesitation: 'Oh, sir, the finest thing I have seen are the fire-works at Belle-Vue'!

THE DOM GRAT AND THE FLETSCHHORN RIDGE.

By OWEN GLYNNE JONES.

SIX years ago I crossed the Rossboden Pass from the Simplon to Saas. Ours was a large party, and might have been a merry one but for our want of training. On the pass mountain sickness harassed the majority, with but the slightest assistance from the bad wine that we had unwisely brought, and all our gaiety vanished. Our topographical zeal was quenched, our longings were for the valley. But I remember we looked dimly at the S. ridge, leading to the distant Fletschhorn, and wondered whether the time was near when we should become personally acquainted with this beautiful peak and its neighbours, with the queer hole through the Portiengrat and the glorious glissade on the Weissmies.

Arrived at Saas Fée we rested awhile from our labours. Eager for information concerning the neighbourhood, we learnt from a communicative youth, who knew all about these things, that the Saas peaks were designed in pairs, requiring really only five or six working days to visit double that number of summits. The simplicity of this scheme of Nature appealed to our own, and we set ourselves the task of meeting Providence half-way.

It is, perhaps, to our credit that we took an easy pair first—the Mittaghorn and the Egginer—but our stay at Saas that year was to be short, and we could not afford to fail at higher work. A couple of Saas loafers undertook to guide us, but proved to be lamentably weak. They shed tears and ice axes, and required much help from us dismayed amateurs. Then we left the district, and before my next visit my comrades were scattered over the globe, beyond the seductive influence of axe and rope.

Three years later, in August 1895, Elias Furrer took me from the Täsch Alp to the Mischabeljoch, and thence over the Täschhorn and Dom to Randa, a course of $17\frac{1}{2}$ hrs., including halts. Shortly afterwards Mr. W. E. Davidson followed our route from the Mischabeljoch. During the same week Furrer showed me a third pair of the Saas peaks. We bivouacked on the Eggfluh rocks one bitterly cold night, and next day traversed the Sudlenzspitze and Nadelhorn. The usual *grande course* is to include the Ulrichshorn, and descend to Saas again; but Furrer had business and I fresh raiment at Zermatt, and we hastened over the Stecknadel-

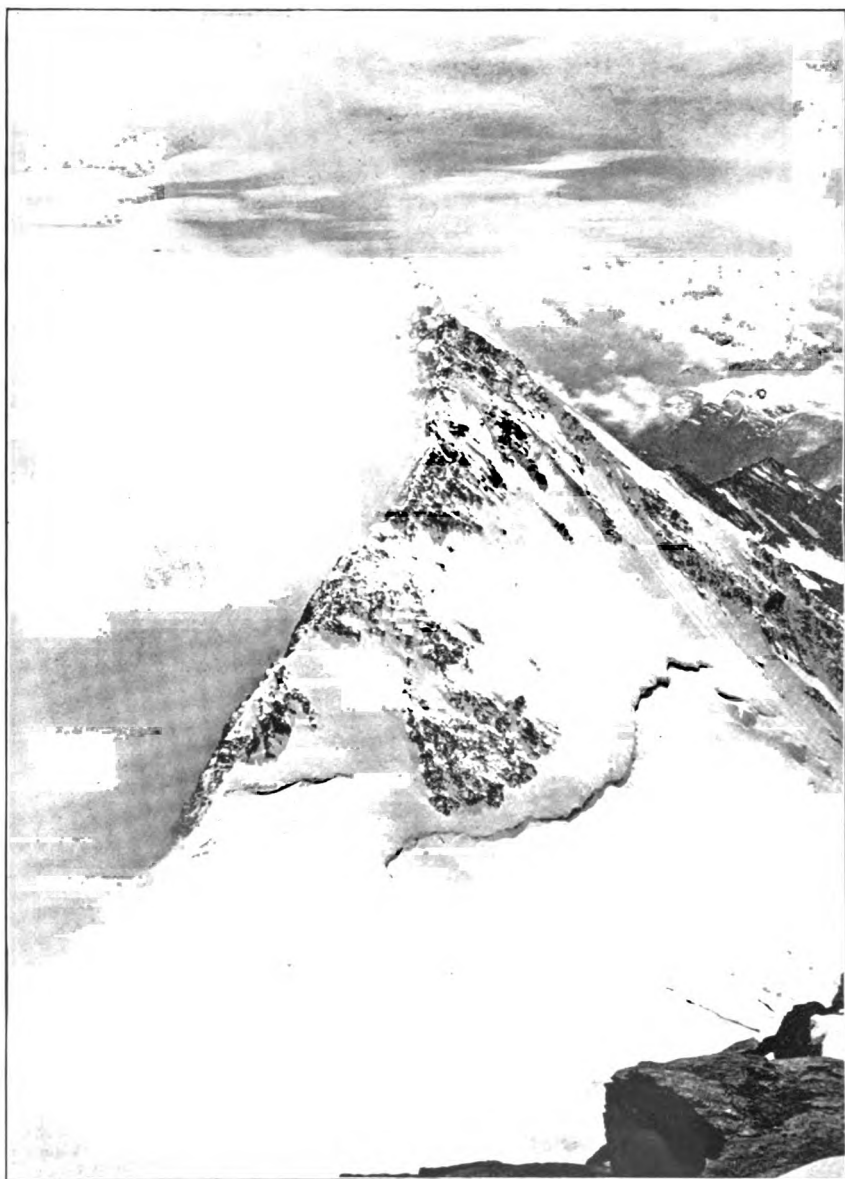
horn (or was it the Hohberghorn?), and thence by the Hohberg Pass and Festi Glacier down to Randa in 14 hrs. from the start.

The best epithets have long since been exhausted in reference to the weather of last autumn. Towards the end of August I migrated mournfully from Montanvert to Saas Fée, in search of blue sky and mountain adventure. The latter we tasted on the Tête Noire during a perilous night ascent from Chamonix, on our way to Martigny. Our lumbering old *voiture* broke some of its bones in a collision with the tunnel walls, and we fearfully expected to be pitched over into the rushing stream below.

At the Stalden station I met Peter Venetz, who hastened forward to greet me, and to beg of me to go up somewhere with him, anywhere out of the accursed valley. I promised that if the heavens would only cease telling the glory of humidity for a day I would telegraph for him; and he vowed blankly to come. He got the telegram in a week--late one Sunday night. He started from Stalden at midnight, and reached Fée half an hour after I had departed for the Portiengrat with young Emil Imseng. The telegram had been despatched early in the afternoon; but obtaining no reply I had concluded that Venetz was elsewhere engaged, and called up Imseng at 2.30 A.M. on the Monday morning.

Imseng knew both the Weissmies and Portiengrat, and said he could take both in the day if I could; but he little knew how ravenous for peaks this long abstention from climbing had made me. We left Fée at 3.15 A.M., and went off at a good pace across the main valley and up in the direction of the Zwischbergen Pass. Towards 7 o'clock we had breakfast at the glacier foot, and, bearing to the ridge on our right, we made short work of the heavily crystallised rocks that led straight to the highest point of the Portiengrat. This we gained at 8.15, and enjoyed a grand view southwards. Our 20 minutes' halt chilled us through, and we gladly started off again in the direction of the Weissmies. The remaining rocks on our ridge were passed in a few minutes, and we shot across the long, smooth snow-slope that marks the usual descent. Near its lower end we traversed across easy rocks till the Zwischbergen Pass was in sight. It was almost at our level, and we contoured along good snow to the cairn by 10 o'clock.

Then Imseng suggested that we had had enough for one day. Yes; but not enough for a month! I called a little halt and deposited most of our traps at the cairn. Then we



Sydney Spencer, photo.

Swan Electric Engraving Co

LAQUINHORN, FROM THE FLETSCORN.

went up the long south ridge of the Weissmies and into the clouds. The snow-slope on our right was occasionally taken, but for the most part we kept to the rocks. In $2\frac{1}{4}$ hrs. from the col we reached the summit, and saw nothing in particular. We did not feel the need of a view. I had wanted a training walk, and had obtained it. That was a sufficient point of view. We became hilarious and saw humour in everything, even in Inseng's now vanished fatigue during the last hour up.

The wondrous glissade in the descent was not fully enjoyed, for the way was misty, and the slope icy in parts. But we reached the pass again in an hour at 2 P.M. and hurried home to Fée in heavy rain by 4.30.

Venez was waiting with a sorrowful face to tell his tale of woe. I thereupon made an arrangement on the spot to take the Fletschhorn and Laquinhorn on the morrow as a consolation. In consideration for my probable weariness the weather interfered, and gave us two days to think over the plan. Then on the Thursday we got the opportunity, and starting off again at 3.15 A.M. (How significant these odd minutes are in Alpine notes! Of course we had meant to start at 3) we took our way towards the Fletschhorn. We were nearing the little Weissmies hotel when the splendours of sunrise clothed in crimson the high peaks of the Dom Grat, and half an hour later we halted for breakfast at the foot of the glacier. By 7.40 we reached the rib of rock that leads down to the Jäghörner, and followed it up till we could conveniently bear away across the upper fields of the Fletsch glacier to the N.W. ridge. The snow was heavy and our pace very slow, but fortunately the wind had swept and garnished our final ridge, and we had no further trouble. The summit was reached unexpectedly at 9.15, and we felt justified in taking our perfect ease in the bright sunshine.

The N. ridge of the Laquinhorn, across the way, rising to a level 13 ft. above our own, was, as Venez explained, an easy scramble of less than an hour from the Fletschjoch when in its palmiest condition. But appearances were threatening as we beheld them. The ridge was plastered heavily with ice and snow, and to ensure success we determined to hasten across and give plenty of time to the work. So packing up our traps we cut a few preliminary steps on the S. side of our summit and then ran down to the Fletschjoch in 20 min. The ridge commenced easily, but gradually became very troublesome. The cornices on our left drove us on to the icy western slopes, and we both worked as hard as we were able

for 2¼ hrs. before the angle eased off and the summit of the Laquinhorn gave us a convenient halting-place for lunch at 12.30.

We ostentatiously opened our bouvier, and with exaggerated gestures partook of our remaining provisions, for the possible delectation of the observing friends at the further end of the Fée telescope. Then when in half an hour the wind blew cold we looked longingly towards the Laquinjoch at the magnificent S. ridge below us, and turned resolutely down the western face. To avoid the icy parts we zigzagged a good deal at first, making much of the small excrescences of rock in the steep face. The route became easy when in an hour we struck the W. ridge and kept it to its base. We halted an hour for tea at the hotel, and then scampered happily down to Grund by 4.30, and thence on to Fée by 5 o'clock.

Venez was appeased, and forgave me for my base desertion on the Portiengrat. On the whole I was well satisfied at having so far realised the hopes that had been first entertained five years earlier on the Rossboden.

THE EXPEDITION OF H.R.H. THE PRINCE LOUIS OF SAVOY,
DUKE OF THE ABRUZZI, TO MOUNT ST. ELIAS (ALASKA).

BY DR. FILIPPO DE FILIPPI.

(Read before the Alpine Club, March 29, 1898.)

EARLY in February 1897 H.R.H. the Duke of the Abruzzi decided to attempt the ascent of Mount St. Elias in the following summer. The expedition under his direction consisted of Lieut. Umberto Cagni, his A.D.C., of Francesco Gonella, president of the business section of the Italian Alpine Club, of Vittorio Sella, and myself. There were also four guides of the Val d'Aosta—Giuseppe Petigax and Antonio Croux, of Courmayeur, Antonio Maquignaz and Andrea Pelissier, of Valtournanche, besides Erminio Botta, formerly porter of Mr. Sella in the Caucasus.

We left Turin on May 17, and arrived at Seattle, in Puget Sound, on June 11. On the 13th we started for Sitka on the steamship 'City of Topeka.' There is no need for me to describe once again the passage through the wonderful canals of the Archipelago of Alexander.

Sitka is the northern limit of the regular shipping service. The archipelago comes to an end between the 58th and 59th degrees latitude. Beyond this the coast runs N.W. for about

300 miles, with no break of any importance except the Bay of Yakutat, everywhere exposed to the fury of the surf, which renders landing dangerous and often impossible. This coast is dominated by the great chain of the Fairweather Mountains, from which the Pacific Glacier flows down to the ocean. About 50 miles N. of Sitka the great isolated Peak of St. Elias makes its appearance on the horizon, rising little by little out of the sea. Further eastwards the peaks of Logan, Augusta, Cook, and Vancouver begin to show themselves clearly.

The steamship of the Alaskan Commercial Co., which brought us from Sitka, had in tow the 'Aggie,' a schooner hired by the Prince, conveying the American porters, with Mr. Ingraham at their head, as well as our equipment and provisions.

We reached Port Mulgrave, in the Bay of Yakutat, on the evening of the 22nd. Leaving two barometers for the purpose of control observations with Mr. Hendricksen, the missionary residing in the little Indian village, we proceeded to cross the bay and land on the shore at the foot of the Malaspina Glacier.

This glacier covers a vast tableland extending from the foot of the chain, southward to the Pacific Ocean, eastward to the Bay of Yakutat. The average height above the sea level is 900 ft., the width about 30 miles by 50, giving an approximate area of 1,500 square miles. The frontal moraine extends for a distance of some 80 miles along the shore, from which it is separated by a strip of forest, which here and there covers the moraine itself with a luxuriant vegetation. Only for short spaces is the coast barren, and at one point the glacier reaches the water. From this vast frontage of ice issue innumerable streams, which deposit huge accumulations of glacial detritus.

Four previous expeditions had attempted the ascent of Mount St. Elias. Messrs. Libbey, Schwatka, and Seton-Karr in 1886, and again the brothers Topham, George Broke, and W. Williams in 1888, made the attempt from the western and southern slopes. They explored the western part of the Malaspina Glacier, but found the face of the mountain so steep as to make the ascent impossible from that side. The two following expeditions, directed by Professor Russell in 1890 and 1891, yielded important geological and geographical results. Russell crossed the Malaspina from E. to W. and from N. to S., prospected the Seward, Agassiz, and Newton Glaciers, ascended the col between Mount St. Elias

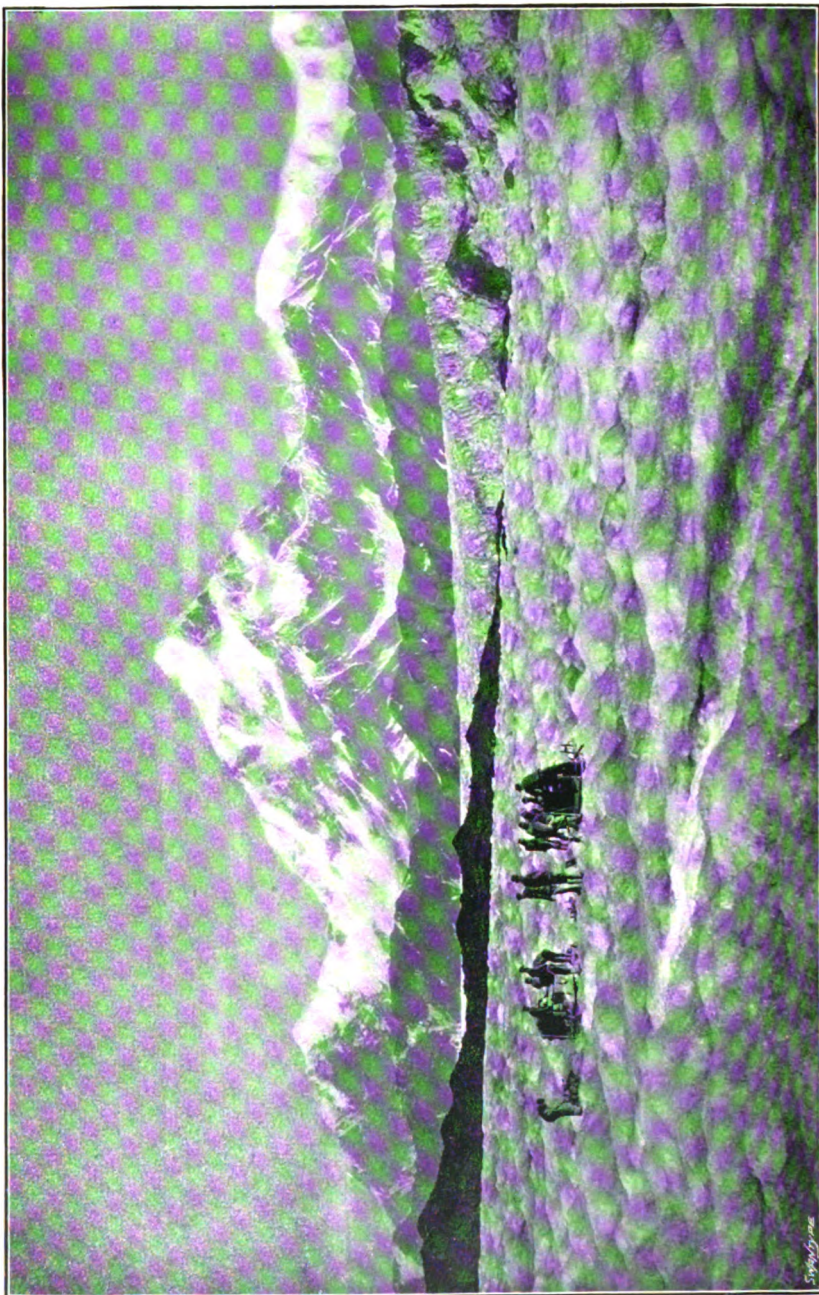
and Mount Newton, and reached a height of 14,500 ft. on the ridge which leads direct from this col to the summit. The sketch map constructed by him was a very valuable assistance to our expedition, and will long serve as the basis of the future exploration of that region. Following Professor Russell's advice, the Prince decided to land on the west side of the Bay of Yakutat, a few miles N. of Cape Manby, at the mouth of the Osar stream.

Our route, after crossing the belt of forest and the wide frontal moraine, traversed the Malaspina in an oblique direction; next skirted the foot of the spur formed by the Hitchcock Hills, followed up the east side of the Seward Glacier as far as the ridge which bounds the Pinnacle Glacier on the N.; from this point crossed over the Seward Glacier; thence by way of the Dome Pass, a depression in the Samovar Hills, reached the right bank of the Agassiz Glacier, and ascended the long valley of the Newton Glacier. This valley terminates in a snowy col, from which an ice ridge leads by a moderate slope to Mount St. Elias. By this ridge we reached the summit. Our return route was the same. The Prince gave the name of Russell to the col at the head of the Newton Valley, and of Columbus to a great glacier dividing the Mount Logan group from the Newton-Augusta chain.

We left Port Mulgrave on the morning of June 23, but owing to the dense fog, it was not until 5 in the evening that we succeeded at last in recognising, on the Malaspina coast, the point selected for our landing. We could just distinguish the fringe of forest ending abruptly at the foot of the steep moraine which terminates some 350 ft. above in the faint white line made by the margin of the vast glacier plain. The process of landing began at once, and by 8 o'clock all our cases were on shore safe and dry. We established our first camp on a small plain close to a branch of the Osar, and a few yards only from the forest. Not before midnight did we seek our tents, tired with our efforts to bring about order into the chaos of our things, and in a ceaseless struggle with the most ferocious mosquitoes.

The 'Aggie' left that night for Port Mulgrave, there to await our return. An expedition consisting of seven Americans, led by Mr. Bryant, had landed at the same point a fortnight previously, also with the object of ascending Mount St. Elias.

The belt of forest separating us from the moraine is about 3 m. wide. On the morning of the 24th the Prince set out with a few men to look for a practicable route. We crossed the branch of the Osar on an improvised bridge of trunks



Squire V. Sella, photo.

MOUNT ST. ELIAS, FROM MALASPINA GLACIER.

Steam Electric: Engraving Co.

of trees, and followed up the right bank on the sand and fine gravel of the bed, or among the fallen trunks, the brushwood, and the luxuriant growth of ferns and of mosses which cover even the trunks and boughs of the firs. Animal life abounds. We saw hawks, crows, gulls, ducks, and wild geese, and numerous trails of bears. The forest ends abruptly at the foot of the moraine, which slopes upward, barren and undulating, a waste of shingle, mud, and stray boulders of granite, intersected by streams and dotted with pools which disappear into crevasses, leaving beds of fine sand in their place. The moraine is about 4 m. wide, and ends abruptly at a height of 450 ft. at the brink of the glacier, which was still covered with deep snow. By the evening of the 25th we had got our equipment to the top of the moraine.

All our subsequent camps were on snow. On July 1 we started on the Malaspina Glacier at about 3 in the morning. The air was mild, the temperature being about 36° F. Before us extended the vast white plain as far as the eye could reach. To our right, stretched the long spurs of the Mount Cook chain enclosing great glaciers in their valleys. Before us, some 25 m. away, under Mount Augusta, is the great icefall formed by the Seward Glacier flowing into the Malaspina from its huge bed between the Hitchcock and the Samovar Hills. Far behind looms up the towering crest of Mount St. Elias.

It took us three days to cross the Malaspina Glacier. The heavily-laden sledges, in the bad condition of the snow, required the united and unremitting exertions of the whole party. The snow was deep and furrowed, no crevasses being anywhere visible. The inclines, though gentle, were distinctly perceptible in dragging the sledges, and the hollows were often full of water or melting snow. Luckily the streams were few and not wide, and we succeeded in getting the sledges across them on bridges made with the ice axes.

The scenery is grand but monotonous; all element of contrast is lacking, while the abundant snow destroys any boldness of outline in the peaks and ridges. The sunshine and dazzling glare of the first day were succeeded by fogs and mists. The Prince took the lead, and occupied himself with the dull and ungrateful task of steering our route by the compass.

We reached the Hitchcock Hills at half-past 3 P.M., July 3, tired and wet through, after a ten-hours' march in dense fog. We had at last crossed the Malaspina, and proceeded to pitch our tents in the hollow between the glacier and the hills, at an altitude of 1,670 ft.

July 4 was spent in prospecting for a route to get on to the Seward Glacier. Crossing its left moraine we reached the foot of the icefall which flows into the Malaspina.

Between the spur of the Hitchcock Hills and the séracs is a narrow couloir full of snow, about 300 ft. high. Up this the guides cut a track in short zigzags, and before midday of the 5th our loads were on the Seward Glacier, in front of a vast amphitheatre dominated by the peaks of Mount Augusta, Mount Matasona, and Mount St. Elias.

If the Malaspina Glacier resembles a placid lake the Seward is like a stormy sea. Enormous blocks of ice lie piled in the wildest confusion over a breadth of about six miles. The whole glacier rings with the tinkle of streams in the crevasses, with the sharp repercussion of falling stones off the séracs. You have the sensation of a mysterious energy, a force of disintegration, a slow but unceasing convulsion of Nature, while all looks calm and immovable in the huge coherent mass, and no sign betrays the enormous strain of the millions of tons of ice gliding slowly down.

On the precipitous flanks of Mount Augusta hang glaciers which look like torrents of frozen foam. Mount St. Elias, clearly in view, looks diminished by the vast proportions of everything around, and we can scarcely realise its true height. Fantastic clouds curl around the summits; the sky is wild and broken, flecked with red, and a mass of deep gold covers the western horizon.

The state of the ice obliged us to ascend the left bank of the glacier, sometimes dragging the sledges over the levels formed by the foot of the glaciers and névés that flow down from the Hitchcock chain, sometimes carrying our packs on our shoulders over steep ice slopes or around spurs of rock which project nearly to the séracs of the Seward. On July 8, by ascending couloirs full of snow and steep grassy inclines covered with violets, saxifrage, anemones, and lupins in full blossom, we surmounted a glacier-fall formed by the Pinnacle Glacier, flowing into the Seward. Crossing the great smooth plain of the Pinnacle, we pitched our tents, on the evening of the 9th, on a snowy hummock at the foot of the ridge which forms the northern side of the Pinnacle, at an altitude of 3,180 ft. This was our twelfth bivouac, and we had spent sixteen days in reaching this comparatively insignificant height, covering, however, a distance of 35 miles from the coast. In the neighbourhood of our bivouac we found traces of Russell's passage in 1890. We were now alone with the

guides, our American porters having gone back in relays to fetch supplies.

On the 10th we crossed the Seward by the route reconnoitred two days previously by the Prince. The sky was overcast, the temperature mild, and the condition of the snow extremely bad. Our route skirted enormous crevasses on narrow strips of ice, often scarcely wider than the sledges. Sometimes the track lay on mere isolated blocks connected by snow bridges, fortunately very solid. We passed the base of Mount Augusta, and now had before us the glacier valley which leads to the Dome Pass, a saddle at an altitude of 4,030 ft. between two symmetrical domes of snow. On the 12th we reached this saddle, and on the following day bivouacked on the left bank of the Agassiz Glacier, at an altitude of 3,480 ft. The Agassiz is covered with pools and watercourses. The water is wonderfully limpid, of a dark cobalt colour. The crevasses are very large, and the séracs assume the most fantastic shapes, sometimes forming bridges over the blue water, and here and there presenting a truly architectural appearance.

On the right bank of the glacier we made a halt. We now knew that we were at close quarters with the mountain itself. In front of us the Augusta chain forms the rampart of the Agassiz Glacier. Down every side of the vast amphitheatre stream pale blue icefalls. The Newton valley opens up behind the spur at the foot of which we camp. Here we leave behind us the last sledge (the American porters have taken the rest) and every thing which is not absolutely indispensable. From the Seward up we had had several hours of rain daily, and more fog than sunshine.

The Newton Glacier terminates in a steep ice wall leading to the col between Mount St. Elias and Mount Newton. It is 7 m. long, and rises from an altitude of 3,850 ft. to one of 8,960, forming three terraces divided by icefalls of gigantic séracs. The sides of the valley are precipitous, heavily laden with snow, and crowned with bold peaks of rock and dizzy pinnacles of ice, whose ridges are fantastically wreathed by huge overhanging snow cornices.

The ascent of this valley took us thirteen days. We made six bivouacs, and our stages averaged about 1 mile 500 yards. We had to contend almost incessantly with a heavy snowfall, which went on without interruption for days together. Enveloped in a blinding mist, we toiled laboriously through the powdery snow in which we often sunk to our waists, patiently seeking our route among a labyrinth of ice blocks,

over insecure ice bridges, amid the deafening roar of the avalanches and the crash of falling stones that resounded almost incessantly on the edges of the glacier.

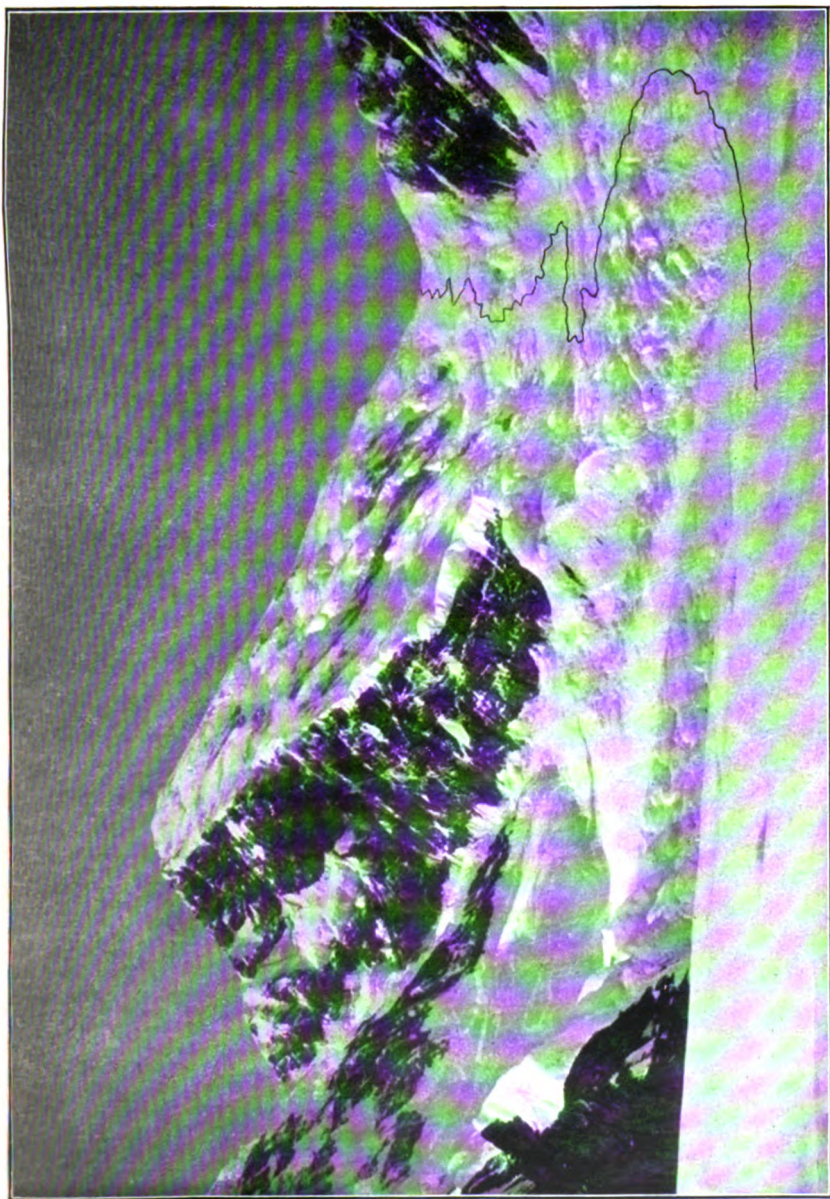
Out of thirteen days only three were fine. But such are the resources of colour in that atmosphere that nearly every day presented new pictures of indescribable tints and hues. The glacier is almost uniformly of an indigo blue, not greenish, as in our Alps, and bluer in the mist than in the sun. I do not know whether this is a result of the enormous snowfall, which leaves no point of the ice bare, not even in the deepest crevasses, or of peculiar conditions of atmospheric transparency.

Often we awoke in the morning to find our camp half buried in snow, and the tent walls bent in with the weight, whereupon we would all set to work and dig out a ditch, shake off the snow, and stretch the cords. Luckily bad weather in Alaska is very calm. Neither storm nor wind accompanies the rain and snow, nor did we once see a flash of lightning.

The surface of the glacier is extremely unequal, and dotted with blue lakes; the crevasses are numerous, and the routes between them and the great séracs so tortuous and narrow that we could scarcely get through with the loads. The snow bridges were very heavy and insecure, and at every stage one or more gave way. The guides at last found a field for their skill; they worked perseveringly, advancing little by little through the treacherous fog, treading down the track through the loose snow; sometimes it took a couple of hours to cross a distance of 400 yards.

On the Newton Glacier we first heard news of Mr. Bryant. He had reached the foot of the Agassiz Glacier, had ascended it, and at the upper end, at the foot of the Newton, met our guides, and sent back word by them to the Prince that he was obliged to abandon his undertaking, owing to the illness of one of his party.

On the evening of July 28, in settled weather, we pitched the last of our camps on the Newton, not far from the ice wall leading to the col. Overhead rose the great peak of Mount St. Elias, which looks low, owing to foreshortening. The steep wall of rock is thickly clothed with small glaciers, from which at intervals volleys of ice blocks crash down into the valley 6,000 ft. below. The north ridge rises in an almost straight line from the col, at a moderate slope, broken at two or three points into séracs, which do not look formidable. About the middle and lower three dark projecting rocks break the white line. Above, the arête extends without interruption



Sigmar V. Sella, photo.

MOUNT ST. ELIAS, FROM THE 2ND PLATFORM OF THE NEWTON GLACIER.

'Route to Russell's Pass.

Swan Electric Engraving Co.

as far as a gigantic 'gendarme' of ice, beyond which rises the smooth dome of the summit.

On the day following three guides set out to cut steps on the *paroi* of the col; the Prince, with a few men, descended to the lower camp to fetch supplies. The evening was very clear. Though outwardly calm we all felt the excitement of our nearness to our goal.

On July 30 we set out at 4 A.M., divided into three caravans. The morning was bright and cloudless: the snow on the actual track was tolerably good; outside it powdery, with a thin crust that would not bear. We crossed the last stretch of the glacier swept by the avalanches of Mount St. Elias, and after $1\frac{1}{2}$ hour's march we reached the foot of the wall. Here we began the ascent up a series of snow slopes, rather steep, broken at the base by crevasses, three of which, in the upper part of the wall, are distinctly visible from below. Into the first Sella took a header. Next one of the guides dropped his coat, and we wasted $\frac{1}{4}$ hr. in recovering it. We skirted to the left a rocky island which projects from the centre of the wall, crossed without accident the second bergschrund (whose upper lip we reached over the shoulders of a guide), then the third, and by 10 o'clock we all met on the col, and pitched the two tents we had brought with us directly under the crest on the slope facing the Newton, at an altitude of 12,287 ft.

Southward the col leads direct to the broad ridge of St. Elias; northward to a snowy arête, edged with a great cornice, leading to Mount Newton. At our feet stretched the majestic expanse of the Newton Glacier. For the first time we caught sight of the sea, and recognised all the peaks around us. Westward, beyond a great level glacier, covered with snow, lay an endless series of mountain chains and seas of ice as far as the horizon—a chaos of peaks, an intricate labyrinth of broad domes and soaring pinnacles of rock and ice. From St. Elias and Mount Newton fell incessant and prolonged avalanches of snow, rock, and ice. The sunset was bright and long. Temperature, $17\cdot5^{\circ}$ F. A cold N.W. wind drove us into the shelter of our tents. The nights had begun to give a few hours of darkness now, and were lengthening rapidly. We lay down crowded into the tents. But the thought of the coming day allowed few of us to sleep on this last night.

By midnight we were all up, and, after a bowl of hot coffee, proceeded to form the loads—provisions for one day, the meteorological instruments, and the camera. The night

was absolutely calm and clear. Venus shone brightly over the summit of Newton. We roped ourselves in three parties; first the Prince and Cagni with Petigax and Maquignaz, next Gonella with Croux and Botta, last Sella with me and Pélissier.

We marched in silence and deep excitement. Our minds were entirely taken up with the near attainment of the goal towards which we had been labouring for so many days in restless anxiety.

Where the col joined the arête we found an ice gap, which we skirted to the right. The snow was powdery and uneven, leaving bare spaces of hard old snow, in which the guides cut steps. Petigax and Maquignaz took turns of half an hour or an hour as leader. We ascended rapidly, at an even pace, soon crossing to the E. side of the arête, where the snow was better. As the light grew stronger the peaks around us shone like silver. We reached the first rocks, black broken masses of diorite, and, while we skirted about a crooked crevasse above them, sudden gusts of icy N. wind drove the fine snow against our faces. Overhead the white dome turned golden in the first rays of the sun, and soon the huge disc of gold itself appeared over the right shoulder of Mount Newton. Presently the summit of Newton was at our feet. We continued our ascent rapidly. The air was absolutely calm, and the temperature ideal, neither too hot nor too cold. We passed the second cluster of rocks, then the third. Here, at 8 o'clock, we set down the instruments, and Cagni took observations. The temperature was 17.5° F. We were now no higher than the summit of Augusta, which preserves the bold daring of its outline, and the view eastward was extraordinary.

We are the first to see the whole majestic mass of Mount Logan. From its rocky western peak an arête descends, and seems to join the Newton-Augusta chain, dividing from the upper basin of the Seward a vast glacier (perhaps the greatest in the region after the Malaspina), which reaches S.E. to St. Elias, and N.W. to a lower and very intricate chain, expanding far to the W. On the western horizon, beyond a chaos of low ridges, névés, and glaciers, at a distance of some 100 miles, tower up three great snowy groups, emulating in height Mount Logan and Mount St. Elias. The furthest W. of these is Mount Bear, seen by Mr. Russell in 1891; the other had not been viewed before.

About 9 o'clock the Prince ordered a halt for breakfast under a sérac, at an altitude of 16,400 ft. From this point onward the ascent became more and more trying; one after another

we felt the effects of the rarefied air, some complaining of headache, others being affected with difficulty of breathing and general lassitude. The Prince slackened the pace or stopped his party altogether to wait for those of us who followed more slowly. The ascent is monotonous, without the smallest difficulty, now on the wide crest of the arête, now on one or the other of its slopes. In our fatigue we began to take every point of ice we saw for the great 'gendarme' we distinguished so clearly from below. We were forced to halt five or six minutes every quarter of an hour. At last we sighted overhead a sharp pinnacle of ice, and a little beyond it to the right the great snowy dome of the summit.

We climbed the slope in zigzags, pausing for breath every ten minutes. At the top of the arête we halted again. The advance party started once more up the now gentle incline. We followed, tired out and unable to believe that we were close to the summit. Suddenly Petigax and Maquignaz stop and stand aside, and the Prince is the first to set foot on the summit of St. Elias. We hasten up, panting and exhausted, to join in his hurrah. I will not attempt to describe our sensations. Difficulty of breathing, throbbing at the temples, exhaustion, all disappeared instantaneously in the excitement of that moment. It was now a quarter to twelve. In another moment the Italian flag fluttered on an ice axe, and we crowded round our chief to join with all our might in his cheer for Italy and the King.

The thermometer recorded 10·5° F., and the barometer 15 inches, 15 lines. The height determined, after corrections, is 18,092 ft., in remarkably close agreement therefore with Russell's calculation of 18,100 ft., based upon triangulation. All previous calculations are widely divergent from each other and from this result. One only approaches accuracy, that made from the sea in 1792 by Malaspina, giving 17,847 ft. The ascent had taken 10½ hrs., and covered a height of 5,800 ft.

A few feet below the summit we halted to eat something. Before us stretched the marvellous panorama glittering in the intense noonday glare.

At 1.15 we started on our descent. We came down rapidly by long glissades over the slopes we had just ascended with so much toil. Between four and five o'clock we were back again on the col. On the following day, August 1, we reached our bivouac on the Newton. On the 3rd we found our excellent American porters, as pleased as ourselves at our success. The descent was rapid, in spite of the bad

state of the snow, in which we sunk to the thigh at every few steps. The bridges, too, had grown more insecure, and we were often obliged to modify our course in consequence. On August 5 we took our last leave of the Newton Glacier, which saluted us with a parting volley of avalanches. We now resumed the tedious labour of dragging the sledges across the Agassiz and the Dome Pass, forcing them over open crevasses which had been hidden under the snow during our ascent. On August 6 and 7 we recrossed the Seward Glacier, and skirted its left side in alternately rainy, foggy, and sunny weather. The guides contrived to drag the sledges down the steep slopes without unloading them, winning the admiration and wonder of the American porters by their skill and strength. The Seward was still covered with a heavy coat of snow at an altitude of 8,000 ft., thus giving Mount St. Elias a height of over 15,000 ft. above the snow line, a state of things unknown in any other part of the world. The winter snow, which still covered the mountains on our way up, had now totally disappeared; the névés of the Hitchcock Hills had melted, giving place to a profuse mass of blossoming plants reaching to our knees. The rocky spurs which project into the Malaspina were bare and black, and the imposing aspect of the great peaks gained greatly by contrast with the dark foreground.

On the morning of the 9th we found ourselves once more on the Malaspina, now for the most part bare, seamed with long, narrow crevasses, and traversed by innumerable rivulets and streams. Wherever the snow still lingered were numerous pools and patches of melting snow, covered with a thin crust of ice, through which we broke one after another, to find ourselves up to the waist in freezing water. The tracks of our sledges were no longer visible, and the Prince was obliged to resume the direction of the expedition by the compass in order to reach the coast at the point where we had landed. About noon on the 10th we at last came in sight of the moraine and the Bay of Yakutat, where the 'Aggie' was awaiting us. It took us six more hours to cross the rest of the Malaspina, over which the sledges glided swiftly, crossing the inequalities of the ice with shocks and jerks which seemed calculated to shatter them to bits at every moment. We halted to rest among the rocks and mud of the terminal moraine, near the remains of the last bivouac of Mr. Bryant's expedition.

For the first time, after forty days on snow, we slept on rocks and ice. It took us ten days to descend the glaciers we had ascended in thirty. On the morning of the 12th we

were all on board of the 'Aggie,' the Prince being the last to leave the shore.

We spent the afternoon at Port Mulgrave, and on August 13 set sail from the bay which we had entered fifty-three days before, bidding adieu to the great peaks glittering in the sunlight.

I will close with some general considerations that reflect our common opinion upon the undertaking.

The ascent of St. Elias is easy. In no part of it did we find ourselves confronted by real mountaineering difficulties. Upon the Newton Glacier the chief difficulty was caused by the fog, which rendered it difficult to find our way among the numerous crevasses in the labyrinth of séracs, and from the abundance of fresh snow which does not harden even after several days of fine weather, because the temperature is almost always under the freezing point.

We were obliged to make continual use of the rope. Even crossing the Malaspina in our ascent we were roped. Enveloped by fog, with a thick layer of snow upon the ice, it was not prudent to trust to the unknown glacier. And again in crossing the Seward and the Agassiz glaciers, a roped caravan preceded the sledges, trying the snow bridges. On the Newton Glacier no caravan went forward without making use of the rope.

We never suffered from cold; on the Newton the temperature always remained between 35° and 25°-21°, with a few degrees between the maximum and the minimum in the twenty-four hours. The dampness of the climate is the chief source of trouble in an expedition to Alaska, and renders necessary very great care in the choice of the equipment. The weather is rarely fine; I believe that we had not more than ten fine days out of the fifty we passed on land. Fortunately, as I said, the weather, though bad, is not stormy, and in Alaska, as in the Alps, abundant snowfalls only take place in the low districts. If we had found on the ridge the enormous quantity of snow that rendered the Newton Glacier so laborious we should not certainly have been able to terminate the ascent in one day, and perhaps not even in two.

The real difficulty is that of preparing the equipment and organising the expedition. On this preliminary work, more than anything else, success depends. It is necessary to foresee everything in a campaign where we found ourselves completely isolated for a couple of months. And when once started it is essential to have an accurate and well-studied system of bringing up provisions by means of caravans of porters, who

keep up a line of communication, whilst the caravan at the head is occupied in seeking out and preparing the way. The base of the mountain is more than sixty miles from where we landed—sixty miles of ice, where thick fogs, snowfalls that conceal the track, or a fallen bridge, may delay the porters considerably.

The commissariat must be so organised that the foot of the mountain can be reached with food for several days in hand. The caravan of his Royal Highness had the fortune of being able to make the ascent immediately, but it could have waited from eight to ten days if the weather had proved bad.

From what we were able to observe from the summit of the St. Elias perhaps the best way of reaching the Col Russell would be to ascend to the upper part of the Seward Glacier, round the Corwin cliffs, thence to the foot of the west slope of the col on the Columbus Glacier to the foot of the col. Sledges could probably be taken; an advantage which, bearing in mind the difficulty found in carrying our things up the Newton Glacier, would more than compensate for the longer road.

During the ascent we were able to see perfectly well the great west ridge of St. Elias, which is broken down, and in part rocky. This ridge seems to separate the Columbus Glacier from the ice streams that descend on the S.W. side of the St. Elias, and flow down on the south toward the Pacific.

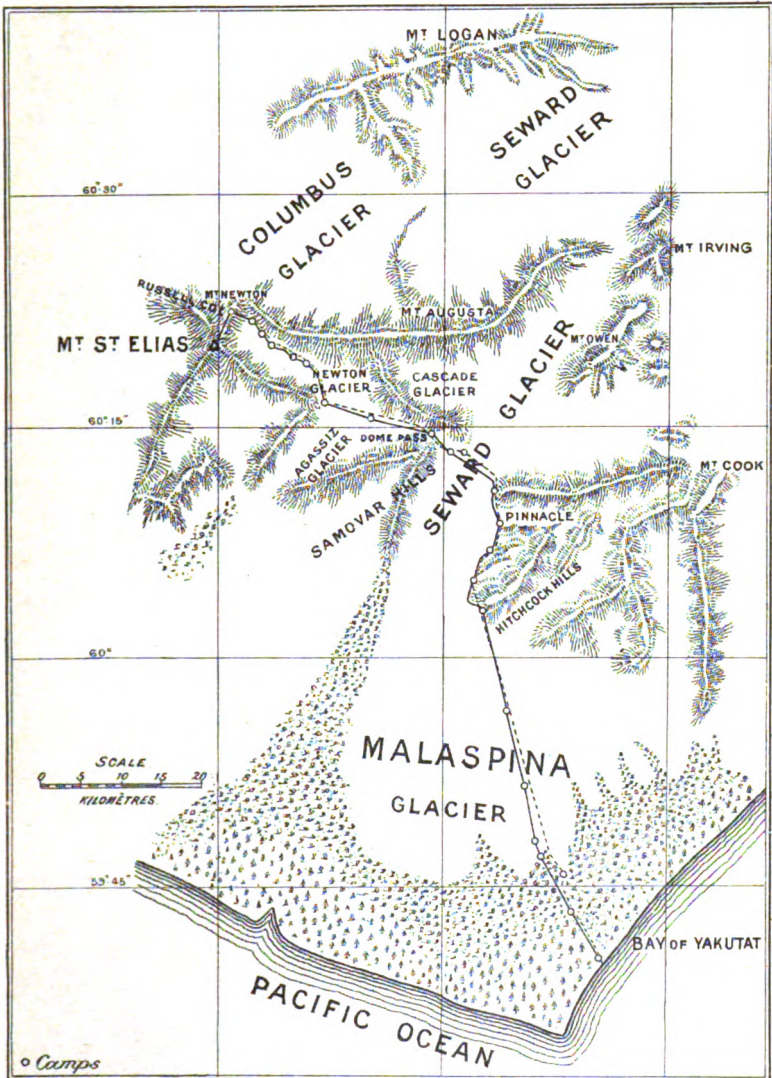
The south side of the Logan, being probably more than 12,000 ft. high, rocky, very steep, and apparently swept by avalanches of ice and stones, is not likely to be practicable.

Besides the photographic illustrations of the group we have explored we brought back a series of meteorological observations, continued for two months, and a mineralogical collection now under study.

THREE NEW WAYS IN THE CORTINA DOLOMITES.

By J. S. PHILLIMORE.

MR. BROOME, in his interesting paper 'A Dolomite Holiday,' in 'Alpine Journal' for February last, concludes with a doubt whether Dolomites are real climbing at all; and I am afraid it is hopeless to contend that scaling the wrong sides of Dolomites is anything but a decadent perversion of taste. However, Dolomites have the effect of making other climbing appear quite insipid; and the comparatively insig-



THE ROUTE TAKEN IN THE FIRST ASCENT OF MT ST ELIAS.

nificant heights of most of the peaks cause the climb itself to outweigh immensely all the other objects of the climb. The Dolomite climber is perfectly happy and content if he can get his 7 or 8 hrs. rockwork in the ascent of a thing which hardly gives you a clear view beyond the valley where it stands, when you are up. And I confess I know no kind of climb so fascinating and complete as to spend (as in the case of the Civetta) 11 hrs. on a really stiff face when there is a 'right side' to the mountain which you can trot down conveniently in four.

The Tofanas, like the Pelmo, like the Civetta, like almost every one of the great points of that region, are splendid mountains with a weak spot in them. Those who, thirty years ago, made the first ascents, quite naturally took advantage of the weak spots; for the object was to get up, and nothing else. But for the younger generations who follow, it is impossible not to feel that when you climb the Pelmo or the Tofana by the scree wastes where they have weathered, you are not playing the game. The Pelmo is a big thing—a thing which strikes and captivates the imagination when you see him from, say, the turn of the N. road into the Ampezzo valley, standing like a fortress-cathedral, gradually to get masked behind the Becco Lungo as you descend into Cortina. What one wants, then, is a climb up the Pelmo worthy of the looks of the Pelmo. You make it gratuitously difficult: quite true. You make shooting gratuitously difficult by shooting birds on the wing and not sitting. You make it worth doing: which must pass for the philosophy of 'wrong sides.'

The Tofana, hard though it be to get a really adequate view of his greatness and beauty, is a great and beautiful mountain; high enough to command a view from the Gross Glockner to the Adriatic, and standing within easy reach of the most frequented centre of the Dolomites. Yet, in 1896, the Tofana was climbed, I think, only three times: simply because the climb is no climb, but a mortal grind over unbounded screes. You can do the three Tofana peaks in a day from the Hut; but, as a matter of fact, you don't, because a climb is not worth doing which, like this, can be done by a man without hands and with only a roadster's feet. That being so, the problem was to find a way up the Tofana worth climbing—namely, up the faces and not by the slope. This problem my friend Raynor and myself devoted the second week of our holiday to solving. Antonio Dimai and Giuseppe Colli were our guides, and Arcangelo Dibona did not disdain to act as porter.

After the preliminary exercise of traversing the Sorapis by

the greatly overpraised Müllers-Weg, and inventing an interesting variation on the Grosse Zinne, we went up to the Falzarego Hospiz on *August 8*. The landlord had reserved a room—the room, in fact—for us with such zeal that we could hardly get him to admit even ourselves when we came. The night was spent in listening first to a Polish officer (quartered on the Pass), who described with needless particularity the physical satisfactions of living at 6,700 ft., and then to a storm which made any attempt for the morrow audibly impossible. Fresh snow and a biting gale, however, suddenly ceased at midday, and in the afternoon we prospected with Colli from the biggest of the Cinque Torri, while Dimai and Dibona did so from a spur of the Lagazuoi. The Gran Torre commands both Tofana di Razes and Tofana di Mezzo. The partial view of the latter was much less encouraging than the nearer peak; and as we hoped to study it better from the top of the di Razes, we were more concerned with thinking how that vantage was first to be gained. Two chimneys of enormous length are here the landmarks—one very large, the other narrow, roughly parallel to it. Otherwise the S. or S.S.E. face seemed impracticable. The W. cliffs are considerably shorter, but of the kind known to Toni Dimai as ‘only for flies.’ The line of least resistance is the angle.

We left Falzarego at 4.40 next morning, *August 10*, and by a few minutes after 10 o'clock were on the top. The climb is given in brief detail in ‘Alpine Journal,’ No. 138, and there is no need to repeat it here. On the whole, we were rather disappointed not to find it harder; but you get 3 or 4 hrs. of respectable rockwork, and the route, mainly following an angle of two great faces of the mountain, is rich in sudden revelations of scenery and picturesque surprises. I think one might rate it as rather more difficult than the Croda da Lago; and, of course, the scale is bigger, the point better worth gaining, and the whole thing had an extra glamour of novelty. We were two hours on the top, waiting for Dibona and the boots: time to look well at the Tofana di Mezzo. Before us stretched an immense face of yellow and black rock, diversified in bulges and vertical stripes of colour; much the conformation that the concrete sacks of an Upper Thames towpath embankment present. The colour was suspect (it looks waterworked), the texture apparently slabby, the ‘faults’ by which one might hope to negotiate the long bulges, few and precarious. As you face it (looking rather E. of N.) the opposing wall is bounded to the left by the long couloir up which the ordinary way goes before turning round the sloped

W. flank; and to the right by another, terminating in a natural rock arch, through which we saw a herd of a dozen chamois disappear after scaling the stiff *débris* slope in a long line at an enviable pace. The descent made by Messrs. Heywood and Mackintosh ('Alpine Journal,' 184), which has left a memory of awe among Cortina guides, was, I believe, near this extremity. Our line is quite at the opposite end, and only diverges from the ordinary way a few minutes short of the *forcella*.

In $\frac{3}{4}$ hr. from the top of the Tofana di Razes, by an exhilarating process of short glissades and ledge-jumps, we were at the Tofana Hut, with an afternoon to spend watching chamois, throwing stones at a cockshy, studying the very scanty entries in the book, and listening to an excellent story of Toni's about a Teuton who declared himself anxious to do the Tofana, Pelmo, and Antelao in a day, and eventually was shoved, with the butt-end of an ice-axe and great labour, up the Nuvolau instead!

We were off at 5.10 next morning, with the promise of a really fine day; and at 6.22 we took the rock a little below the *forcella* on the ordinary way. The face to be climbed can hardly in all exceed 1,200 ft.; 20 min. over a slabby shoulder brought us fairly to the wall. We trusted chiefly to a great projecting column, or, more properly, semi-detached buttress, which joins the face in a chimney, and is itself cut by another. The climb ran round this buttress towards the right, struck the latter chimney and followed it up; we stood on its capital at 7.50, after one very ugly piece of work, where you have to climb out, round, and up a bulge, on finger-tip holds, over something like a clean drop. Two or three yards of iron rope would make the place safe. From the top of the pilaster, where one passed really on to that main wall which had such an unkindly appearance, things became decidedly more tragical. First, one of those uncomfortable chimneys which fall away below, so that fourth man up, unless he is six-foot-three and a jumper, has to start by heaping a little ignominious heap of stones (and stones are few on a ledge only about a yard wide) before he gets within reach of any kind of a hold; then a malignant blockstone; and you emerged within some 30 ft. of the crest. But this conclusion of the climb has a most dramatic uncertainty, for it is a 30 ft. which makes one think seriously what it would be like to descend some parts of the way hitherto made. A chimney—at least, a vertical cut shallowly notched in a precipice, with a ridiculously small ledge for take-off. Toni started up it—and failed after about 6 ft.; the second try did it. The cut runs oblique, so

that the correspondence from side to side of the chimney is extremely difficult. You wedge your back into the left side, which is broken into jagged downward points (almost every hold is a downward projection here), your foot scrabbles painfully on the right side, which is smooth, and opens at an awkward angle to the other. The great difficulties are the hollow roughness of your back-rest, and the impossibility of getting any purchase for the foot on the opposite wall because of its obliquity; and you cannot face the other way, because the right side would not hold your back from slithering straight out towards the Tofana Hut. The rock is not above suspicion; small pieces fall out on your head as you scuffle; probably a spiky bit catches your cap, and you lose it. We were all up at 9, on the crest; proud, but exhausted. We both agreed with Toni, that for an individual, picked bit of rock-gymnastic we had seen nothing like this last. The bad bit on the Delago Turm, which is no trifle, is not so bad; there you are climbing in a deep, close chimney; while here there is the most ample scope of descent outwards.

A trot of 20 min. to the top, then a great view, with an admirable sunshine for smoking in; and as we reflected upon Müllers-Wegs and Darmstädter-Wegs and the like, we saw no reason why this way up the Tofana di Mezzo should not be named 'Via Inglese'; and so it was. The descent to the Hut, a joyous proceeding of leaps and slides, took an hour; and we returned to Cortina in the afternoon.

The two expeditions are much to be recommended; they are most conveniently taken with a night between, slept at the Tofana Hut, because—though, as far as time goes, one could start from Falzarego, do both peaks, and regain Cortina in the day—the exertion of the di Mezzo climb is so great [out of all proportion to the length] that it goes better with fresh muscles and a matutinal enthusiasm. The guides were going to move the Ampezzo section of the D.Ö.A.V. to put a few yards of iron rope at the two cruces of the ascent. The ethics of iron rope need not here be discussed; one may say, though, that the climb would still be well worth doing. The Tofana Hut is quite a nice place to stop a night or so in good company. There is a pretty little pinnacle just behind it (the Punta Marietta), said to be a respectable climb; the scenery there, inside the Tofana, as you are, is very noble; and since Mrs. Potts, who owns the shooting, made the Tofana a refuge ground for chamois, one has the rare pleasure of seeing them in considerable numbers. I know some people think Cortina one of the most charming places in the world, if only there was more

to climb from there, without going days' marches to get to your peak; the Tofana is an addition to the immediate resources of the place.

As we had the services of the incomparable Toni till the 15th only, we started in very questionable weather from Cortina on the evening of the 13th to try the Pelmo. Diligence to S. Vito; then a showery walk, to the tune of two thunderstorms, up the pleasing valley of the Orsolina, which brought us in 2 hrs. to an alp dairy known as the 'Tabia Corotto.' The various paronomastic significances of the name only appeared later. We had meant to sleep out beside a big fire, undeterred by an unhappy experience of such a bivouac at the foot of the Civetta three years ago. But, with all the goodwill in the world, you cannot start out wet through to a climb of this scale; so we accepted the hospitality of the inmates of the Tabia. The dairy is a fortress entrenched in a great rampart of fertilising substances; the inhabitants four men, three boys, two pigs, a puppy, a donkey, thirty cows, and minor fauna as the sand of the sea for multitude. All contributed in their measure to the compound miseries of a deplorable night. One had never perhaps properly realised before how important it is for repose that the bench on which you sleep should not have one plank 3 in. higher than the other, that a cow's tongue should not come through holes in the bedroom wall with a sound like a file, and that large obscene grubs should not fall at stated intervals from the woodwork upon your head. However, the morning was fine, and we departed with alacrity just before daylight, and before 6 we were admiring a glorious sunrise from the Forcella Forada. A great spur divided us from the Nevaio di Val d'Arcia; topping this by a pretty stiff hour's scramble, we were on a point of vantage to survey the Pelmo himself, full in face. He had still that wonderful air of a great castle which had first inspired our attempt when we saw him from the top of the Civetta, but we were surprised to see that the height of rock face was very much less than distant views suggest. Enormous wastes of scree and snow, filling the basin of the Val d'Arcia, encumber the foundations of a wall only some 1,200 to 1,500 ft. high, bounded by the Forcella Rossa (E.) and the deep cut between Pelmo and Pelmetto (W.).

But if the quantity of rock to be climbed was a surprise, the quality was a shock: a rotten cliff consisting of precipices, pale and sickly-coloured from the constant scaling away of stone, connected by narrow horizontal ridges heaped with their debris. We crossed the Nevaio, left our boots and axes

with Dibona, to carry round by the Forcella Rossa and the ordinary way to the top, and at 8·15 were in the bergschrund, at the head of the longest of the snow couloirs running up into the rock, not far from the Forcella Rossa. Toni started up; and a nastier start need not be wished. A great wrinkle in the rock (too shallow and open to be called a chimney), polished by water and steeply pitched: the only real holds were got by jamming your fingers into the central crack, down which fell a small icy stream that ran straight up your arm as you levered yourself painfully forward. We were forty minutes doing 100 ft., measured by the rope. Colli's stature gave him rather an advantage in flinging out for footholds, but nobody thought it an agreeable place; and a rule-of-three sum for 1,500 ft. at that pace gave a discouraging figure.

However, we found nothing afterwards of the same order at all for gymnastic difficulty. This cold, wet place was at least sound rock; we now entered the region of rottenness, which extends in varying degrees up the whole climb. A minute description of the detail would convey nothing of interest or information. Now it was the broad, tilted basin of a watercourse, now a rib of the sugar-candy formation; straight pitches of crumbling face alternated with narrow traverses along encumbered ledges. For a continuous exercise of the balance and the climbing touch I know nothing like this climb, where you are constantly in the presence of—and, indeed, trusting to the good offices of—masses of insecure rock. Occasionally it was discouraging work, pulling away rotten piece after piece in the hope of eventually finding something to support even a part of your weight; but we experienced no spontaneous stone-falls. Long intervals were necessary, and while waiting one had splendid views; no place commands the Tofana face and the Cristallo to the same advantage.

We aimed generally for a high patch of snow, after which success seemed assured; short of this the only great landmark was a huge red pilaster crowned also with snow. Some way E. below this point we halted from 10·45 to 11·5, and exchanged stentorian counsels with Dibona, who had climbed up on a shoulder by the Forcella Rossa, to watch if it was worth while to carry up the boots and axes or not. Five hundred yards distance in an oblique direction rather disqualifies an adviser. Toni, quite unusually anxious, eventually picked his own line, and after a highly critical passage, consisting of an exposed shaly traverse of about 25 yds. and a disintegrated face, about 11·30 the rock improved a little. The

red snow-headed pilaster was passed westwards; more of the same kind of work, diversified by a very stiff 8 ft. of chimney and a final exciting traverse, and at 12 o'clock we stood on the desired snow patch. From here onward the rock was better broken, and the traverse ledges less sensational. Pushing on briskly, we reached the crest at 12:50, emerging between the two most easterly of the three little blocks which break the horizontal line. A driving rain saluted us, and we sheltered under a rock till 2:13. Twenty minutes more along the ridge to the peak, where we had laughed with Giorgio Bernard seven years before at the idea of the North Wall being practicable. So do mountains degenerate. Still rain, though, and still no Dibona and no boots. So at 2:45 we took the first snowfield at a sitting glissade in kletter-shoes. Meeting our accoutrements at the bottom, we all hopped down cheerfully over the scree ledges to the once terrible Lange Band, and then, by a stony glissade over unduly hard snow, to the Rifugio Venezia at 4:25. Hence in an hour and thirty-five minutes S. Vito was reached in a deluge. This expedition is described with even greater rhetorical amplitude in the *Rivista Mensile* of the Italian A.C. for March.

The dangers from the condition of the rock make it impossible to recommend the climb as a regular way up the Pelmo, though parts of it are very interesting for their difficulty. The problem remains of finding a way not 'simplified for families and very young persons,' nor unduly risky. Such a way might very possibly be found up the E. ridge, starting from the Forcella Rossa. Meanwhile that North Wall is no longer an insult and a challenge to the mountaineering world.

LOFOTEN, 1898.

By HOWARD PRIESTMAN.

WHEN the mail steamers leave Bodö, on the mainland of Norway, the first point at which they touch in the Lofoten Islands is the little fishing town of Svolvær and it was there that Messrs. Woolley and Hastings and I landed near the end of July last year. We had travelled as fast as possible from England and had occupied exactly six days on the journey. During that time we had only spent one night ashore, at Trondhjem, and a few hours in Bergen.

There was no mistaking that we were in Norway. It was a dull grey evening and, though the wind had dropped, the waves lapped ceaselessly against the rugged shores ; the quaint wooden houses clustered round the sheltered harbour, on which floated many of the elegant Nordland boats ; and just behind the town the wet grey crags rose steep and grim, their heads still buried deeply in the clouds.

In this latitude the sun never sets from May 28 to July 16 ; but as that date was passed, the sun was not now visible at midnight from the North cape and the tourist traffic was therefore over for the season. In winter, on the other hand, the sun is never visible at all from November 29 to January 13 ; and the islanders and their many visitors who come to take part in the great cod fishery, think themselves fortunate if the dim winter twilight is clear enough to enable them to read at midday without artificial light. Whilst we were in camp we were much more troubled by the heat than by the cold ; but in winter the thermometer sinks many degrees below zero and the hardships which such a temperature must entail on those who fish from open boats are very severe indeed.

During the few hours which we had to wait at Svolvær we found a little hotel standing close beside the quay, where we got some plain good food. It was nicely furnished ; and when, on our return, we had to spend a night there, we found the bedrooms clean and comfortable.

We left again the same evening in the little local steamer and threaded our way through the dangerous channels towards the northern part of the island. The weather cleared somewhat as the night advanced ; but though we had occasional glimpses of a towering pinnacle or a shattered ridge, we never saw a summit and we arrived at Digermulen about 12 P.M., in the grey twilight of a dull summer night, without getting any idea of the grouping of the mountains.

Digermulen is the only station of any size on the Raft-sund. It lies on the southern extremity of the large island of Hindö and is well known to most people who have visited the North cape, as many of the tourist steamers call there for a few hours on their way north or south.

There is no hotel, but visitors are taken at the house of the landhandler ; and although the advent of ourselves and three other people without any kind of notice caused some consternation on the night of our arrival, we received very comfortable bedrooms and made the house our headquarters all the time we were in the neighbourhood. We were supplied

by the Normans with as much bread, butter, cheese, eggs and cream as we required and we also hired our two boats from them. Of other dwelling-houses there were but few and they were very small, but all were well built of wood and nicely painted, having an air of comfort about them which is often absent in similar houses in southern Norway.

Besides the dwelling-houses, there was a large wooden warehouse on the quay which was stored with firewood; there was a telegraph office and a shop where one could buy rifle cartridges or cigarettes, chimney-piece ornaments or treacle, as well as an unusually varied assortment of other goods.

The harbour contains a very good anchorage; and as it is well protected from the S.W. by a long promontory, it is largely patronised by the fishing-boats which are always passing up and down the sound.

The advantages of stopping at a private house are not without their drawbacks, for, although the visitor is allowed to pay, he is treated as a guest and takes his meals with the family; and as these were often very late, we were frequently delayed in starting, because we did not like to ask for too many special breakfasts.

For two days after our arrival the weather remained dull and the clouds low on all the hills, so that we never saw a peak; but the third day brought a welcome change and in the brightness of the early morning the splendid peaks which form the crowning beauty of the world-famed Lofotvaeggeu stood up in serried ranks against unclouded blue. The steep bare crags and slabs, still dripping after days of rain, shone as they caught the level sun and long blue shadows picked out in strong relief the endless pinnacles and deep ravines which seam each mountain side. Beneath them all the Raftsund lay—a long, still lane of light, reflecting in its placid surface the bright green lower slopes, the bare grey crags and the now glittering snows.

As we had made preparation for a start the day before, it did not take us long to get our things together and by 11 o'clock both our boats were loaded with tents and sacks, a small canteen for cooking and a week's supply of food.

For the first time since our arrival we found that rowing was uncomfortably hot work and we went but slowly in consequence; for there was not a breath of wind and sailing was quite out of the question.

As we crossed the sound and drew near to the foot of Store Troltdind, the many pinnacles which at a distance are merged against the face of the mountain began to bristle up against

the sky and we perceived for the first time how much the mountains are riven into detached towers and splintered ridges by gullies and chasms, which were often quite impassable to beings without wings.

When we entered the splendid portals of the Trold Fjord, we were glad to get into the shade of the mighty crags and to idle along over the deep green water, whilst at every stroke the wonderful prospect opened wider before us. It gave us our first view of many of the remoter mountains, with their smooth, steep sides and jagged ridges, as they rose above the intervening crests.

It proved to be no light task to find a suitable place for our two small tents, for the floor of the valley seemed to be composed entirely of fragments fallen from the crags above and, to a height of 500 ft. above the sea, everything was covered with a dense growth of ferns and flowers, which stood fully 4 ft. deep. After spending an hour in trying to discover a level place, we finally decided on a site close to a huge boulder about 50 yds. from the head of the fjord and we made a clearing in the ferns, using many of those we cut to improve the uneven floor where we proposed to put the tents.

We had no difficulty in getting a good supply of small firewood from the dwarf birch-trees; but the weather was so fine and warm that we were not inclined to hurry and after dinner we sat enjoying the bright sunshine and our beautiful surroundings till 6 p.m., when Ole left with the smaller boat and we were ready to start for our first expedition.

We had hopes that the sun might still be visible at midnight from a height of 3,000 ft. and we therefore decided to ascend Store Troldtind, which is one of the four highest points on the island and is the only mountain which has been previously ascended.

So many of the tourist steamers now visit this wonderful fjord that a landing-stage has been erected on the southern side for the benefit of passengers who wish to see the Trold fjordvatn, a lake 500 ft. above the sea, on which there are nearly always icebergs floating: there is also a rough foot-path as far as its eastern end and we ascended by this track until we reached the outlet of the lake, whence the water falls in a long series of cascades to the fjord.

We struck the ice at a point where it had piled up a moraine of big boulders, right on the edge of the crag, and after climbing over these we got on to the glacier at an altitude of about 1,500 ft. The surface was very little crevassed and free from snow; and as the angle was slight, steps were seldom

necessary as we turned westward up the ice. Above us, on our left, the wall of rock rose almost vertical for about 1,500 ft. and in vain we scanned the broken face for a possible line of ascent. Three big gullies afforded the only hope of a direct route and as we got below them each in turn proved to be entirely out of the question; so we continued to the highest visible point of the ice, in hopes of finding some other route.

Here a new surprise awaited us, for we found that there was no feasible way up the rocks and at this point the wall and the terrace, still nearly 100 yds. wide, ended abruptly and fell away for two or three hundred feet on to a second glacier, very similar to the one we had ascended. The rocks were steep, glaciated and impossible; but, as seems so often the case, there was just one line of escape and by creeping down a very narrow gully we reached a ledge covered with snow on the face of the final buttress. We had then only to cut a few steps in a steep and very rotten slope in order to make our way on to the *névé* of the second glacier.

We had now come considerably to the west of the summit for which we had started and as we had also lost much ground, we began to debate as to climbing another peak, which lay about a mile further along the same ridge. Our enthusiasm about the ascent of *Store Troldtind* was also damped by the sight of a long steep slope which formed the only route to the summit and, as the snow was now fast hardening, this meant heavy step-cutting; so, as it was already about 16 hrs. since we began our day's work, we took what seemed the easier course and turned once more westwards over the snowfields in the gathering twilight.

Our hopes of seeing the sun at midnight proved quite unfounded, for it had set whilst we were taking supper on the highest rocks, about 10.30, and now the sky was glowing with all the splendour of a northern sunset. It was difficult to keep one's attention fixed on such sublunary matters as crevasses, when all the peaks we had come so far to see, were beginning to show above the ridges round us. All were alike deep purple and in the north the wild and shattered outlines stood up against an orange sky, on which the brilliant crimson clouds were faintly streaked by long thin lines of black. It was midnight when we reached the steepest ice we had to cross, but there was ample light to see; and after we had climbed a very rotten ridge we had no further trouble and we reached the cairnless summit of the peak, which we named *Troldsadel*, exactly at 1 A.M. The northern sky was still ablaze with colour such as I have vainly tried to describe

and we found it impossible to decide when the waning colours of the sunset ended and the new glories of another day began. Around on every hand rose the bare purple hills with wreaths of night mist resting on their lower slopes; between were lanes of water and then more distant mountains, range on range, where the mighty ice-caps over Lyngen were glowing in the splendour of the now quickly coming sun. Southward from them, in long array, an endless chain of mainland peaks stood up against the blue—unknown, almost unnamed; and in the south the great ice-sheet which rests on Sulitelma shone pale roseate beneath a pearl-grey sky.

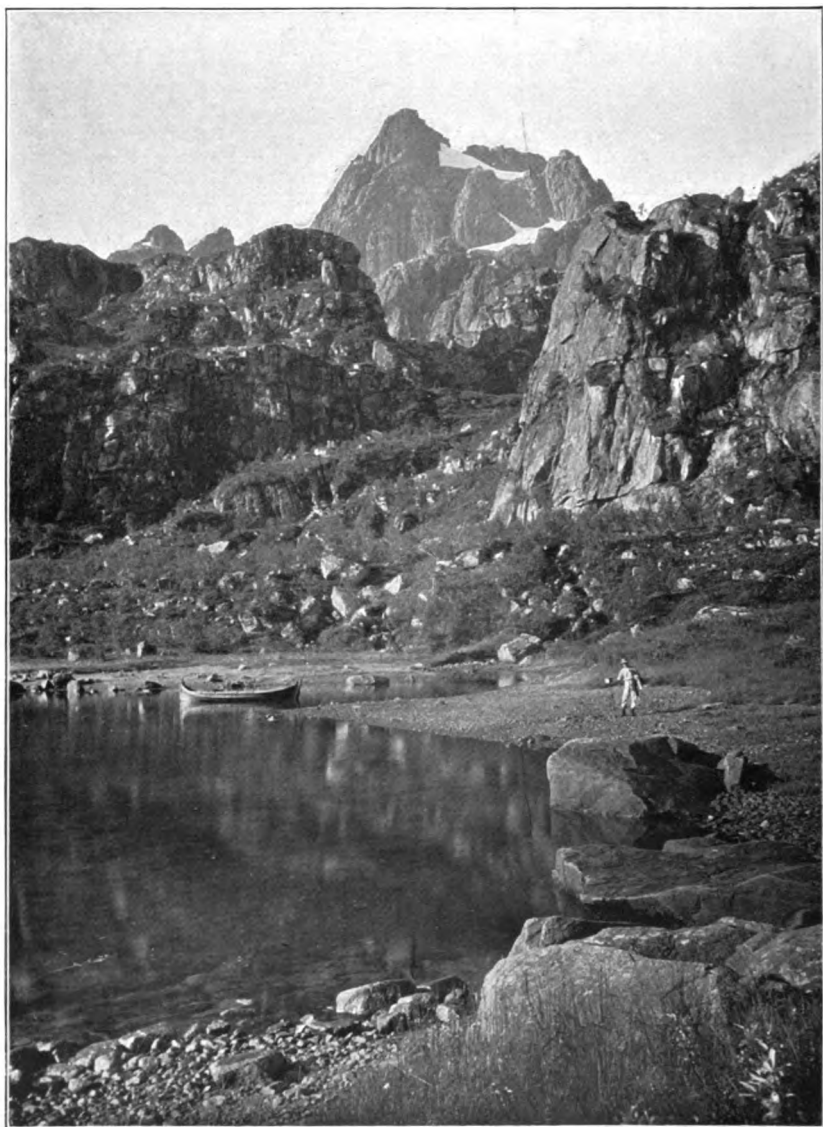
From S. to W. and W. to N. the distant rim of the deep blue ocean encircled all the intervening sea of island peaks, from the low hills of southern Rost, to where the skerries of the far north-west break the fierce fury of the winter storms on the rugged coast of Andö.

It has not been my fortune yet to stand on high Caucasian summits, or on India's giant mountains, but, as I had the company of those who had seen both, I think it can with truth be said that such a view as we enjoyed can claim a place amongst the best this world can show.

When we reached the upper snows, we were surprised to find that there had been sufficient frost to harden the surface considerably; but we found no difficulty in the descent and we arrived again in camp about 5·0 A.M.

There is a well-known passage in 'Three in Norway,' where they say that, like the Snark, they would frequently breakfast at 5 o'clock tea and dine on the following day. I suppose that this is a usual occurrence with all Arctic travellers, but as mountaineers we did not find it satisfactory. We were never on the summits at the time of day when the atmosphere was clearest, or the light best suited for successful photography; but on more than one occasion we dined about 6 o'clock the following morning and, in order to economise time and the necessity of washing-up too often, we ran the next breakfast and 4 o'clock tea into one meal about 3 o'clock in the afternoon.

On the day in question we took early to our bags, again intending to start betimes for our next climb; but the weather failed us and we only got as far as the lake before we were stopped by heavy rain and mist. It was 8 o'clock on Thursday morn when we started again, intent on the conquest of Store Troltdind. We had yet to learn that shortest routes are not always the quickest and after some debate we made direct for the lake which lies immediately between the



Howard Priestman, photo.

Swan Electric Engraving Co.

STORE TROLDTIND FROM TROLDGFJORD.

fjord and the summit, instead of going half a mile along the shore before striking up beside the stream.

To describe the country over which we went would be difficult. The ground, which we could not see for dense vegetation, must have consisted wholly of large rocks which varied very much in size; and on the lower slopes they were thickly interspersed with dwarf birch-trees 8 to 10 ft. high. It was a splendid place for the habitation of bears, or for breaking one's legs; and when the birch-trees gave place to a dense growth of ferns, which waved well above our heads as we fought our way upwards, we had to clear every step with the butts of our axes and then pull ourselves up by the stems of the ferns beside the track we made. When an hour and a half had gone, we were still on the slope below the col, in a labyrinth of huge blocks, amongst and over which we clambered slowly upwards to the gap. Here we found we were too high above the lake and after a short halt for photography we scrambled forward again, but now downwards, going over and under and between great masses of rock which lay piled in the most chaotic confusion.

We intended to skirt the shore to the eastern end of the lake, but we had not gone far before we found that this route was stopped by a huge glaciated headland, the cliffs of which plunged straight down into the lake and, under a blazing sun, we were again driven 400 ft. up, amongst ferns and boulders, by a series of awkward traverses. When at last we reached the outlet of the lake, we found that we had wasted $2\frac{1}{2}$ hrs. of the best part of the day and done an enormous amount of hard work over a distance that we could have walked by the track in $\frac{3}{4}$ hr.

It was not till noon that we reached the place at which we crossed the moraine on our first night's expedition. To our right rose the long wall of uncompromising crags, up which we had in vain searched for a route from the ice; but directly in front of us, to the south, a long broad tongue of névé ran steeply up to a little col between the main mass of Store Troldtind and a lower summit to the east.

As the snow was hard enough to make steps necessary, we took to the rocks about half-way up and ascended quickly to the col we had seen from below, where we stopped for lunch. As we approached, we drove away a covey of ptarmigan which were there before us. In these unfrequented places, as is much more the case still further north, man's usually accepted provivities for killing are not realised by the rest of creation and, in lieu of other murderous weapon, our sportsman had to

upset one old bird with a stone before he would get out of range and the bird then sat grumbling at us from the other side of the gully until we went away.

Hitherto we had been ascending entirely on the north face ; but when we reached a little col on the ridge, we traversed some snow patches until we were on the south side, which is not nearly so steep. We ascended by slanting, rounded gullies and slabby rocks, until we reached the summit ridge and found the cairn erected by the only previous climbers.

The summit is a nearly level ridge about 100 yds. long, falling in almost vertical crags on the north on to the snow slope which we had seen from below. At its highest point the snow was only about 60 ft. from the ridge and earlier in the season it would doubtless run so far into the gullies as to be easily accessible ; but at that time we could find no possible route for a descent without engineering and, as the weather was changing and wreaths of mist already sailing about the summit, we decided to return by the way we had come.

We found a substantial cairn, which was built by Miss Jeffrey's party and their record was contained in a well-corked bottle. Although it was upside down, it was nearly half full of water ; and as we could not draw the cork, we smashed the neck and extracted the papers, which were almost in a state of pulp. We separated them with great care until we found an entry in Norwegian, written in pencil and dated. Had it been in ink it would have been illegible. It gave no indication of the route adopted ; but as the ascent was made direct from Digermulen, we concluded that they had come up the opposite side of the mountain to that we climbed and we probably only joined their route very near to the top. We carefully re-wrote the names and left them in a tin box, together with our own. Failing to find a route down on to the northern snow-slopes we returned without adventure by the way we had ascended.

On turning in that night we had our usual conflict with the mosquitoes. We closed up every opening in the tent before we went to bed, but they found ways to get in. No smoke or any ointment proved of the slightest use against them and they bit me through my head net where it rested on my forehead. When we got desperate, a great slaughter began, which continued at intervals through the weird stillness of the summer night, until the enemy withdrew, as usual, at 3 A.M. Next morning the tent was strewn with the corpses of the slain, but whilst we counted the enemies' losses we had

a painful consciousness that there were many stains of gore which had not originally been the property of the mosquitoes.

On the day when we ascended Isvandtind we again had perfect weather and started due west from camp until we reached another lake about 1,000 ft. above the fjord. A glacier flowed into its western end and small icebergs floated on the water. From where we stood, the peak was perfectly bell-shaped; both sides were very steep indeed and the only feasible route was therefore by the ridge running east towards us. This ridge is very much rounded and ice-worn and lies between the two high lakes.

We passed the first obstacle by a snow-slope on the northern face and then joined the ridge again where it merges in the final face of the mountain. As we advanced, the angle became so steep that it was desirable to rope; for the whole face was covered with a thick growth of moss and turf, which adhered but lightly to the rounded rocks below it. The climbing was extremely insecure and we had to move slowly and use every precaution to prevent a slip becoming serious, for large patches of the surface covering would peel clean off when any weight was put upon it. To avoid descending this awkward face we decided to try another route; and when we saw that the western ridge fell away at a gentle angle to the top of a long snow-slope, we started down that way. Things went well until we reached a bergschrund running right across the slope. It was far too wide to jump and was crossed by only one flimsy bridge of snow, which the leader was exhorted by the other two to try. They said they would pull him out if he went through; but as this offer was declined with thanks, No. 2 came down to form his own conclusions. When on the lip, he was invited by No. 3 (still up above) to try the bridge himself; but his ideas underwent a sudden conversion and we were obliged to try the rocks for a route. The only possible way was down a narrow chimney, almost vertical, with a jammed stone at the top.

We thought that from the bottom we could see a way, down easy snow-slopes, right to the névé of the glacier and we made no calculations as to getting up the gully again in consequence; the last man helping the other two down and then following himself on a double rope hitched on a point above the pitch.

For about 1,000 ft. we went merrily down easy slopes until, to our chagrin, we found that the snow on which we stood was separated from the glacier by a belt of vertical rocks

which were quite invisible from above. On either hand descent was made impossible by the vertical walls of gullies, but in the bottom of one of them there was a long slope of old hard snow, down which we proceeded to cut our way. We soon discovered that the water from the slopes above ran down beneath this snow and undercut it in the centre to a dangerous extent ; so we kept close to the left wall, until we were forced to cross to the other side, when we tried the strength first with a boulder. For many feet it hurtled down in ever-lengthening bounds, awaking nasty echoes from the hollow crust ; but when it reached a point about 300 ft. above the lake it crashed right through, together with many tons of snow, leaving a yawning chasm which we could not pass and taking with it our hopes of seeing either food or tents that night.

At 10 P.M. we turned to ascend once more and when we reached the rocks we ate our few remaining scraps of food. We had then to decide whether we would try to force a passage across the snout of a small hanging glacier to a snow-slope which traversed the northern face of the mountain, or without more delay retrace our steps over the summit and tackle in turn the bergschrund gully and the treacherous slopes up which we had made the ascent of the peak. It was quite clear that very heavy work would be necessary to cut steps across the steep blue ice in order to reach the snow ; and as we were uncertain if we could then descend direct, we decided to face the difficulties which we knew, rather than run the risk of others which might be even worse.

We got to the foot of the gully about twenty minutes to 12 and as we had no option but to get up it, we tackled it in the twilight without delay. By means of a combination, in which the leader was ably steadied from below by No. 2, the vertical portion was safely negotiated and without more adventure we arrived again on the summit, hungry and tired, at 1 A.M.

The view was much the same as that we had seen from Troldsadel three nights previously, with the same wonderful colouring in the sky ; but I regret to think that we would willingly have exchanged the æsthetic pleasures of the exquisite prospect, for the solid consolation of a very little food.

With great care we descended the treacherous grass-grown face without mishap and, though the journey back to camp seemed very long, we reached the tents before 5 A.M. next day, but not before we were all drenched by the dew with which every fern and birch leaf in the valley was laden.

It was late that afternoon when we finished breakfast and the tide rose high enough to float our heavy boat quite close in shore. Camp was dismantled and all things on board by 6 P.M. and we turned our backs on one of the most beautiful fjords in Norway, in the stillness of a cloudless summer evening, with the long shadows of the peaks falling across the dark green water and the brighter greens of the fern-clad shore.

In many parts of Norway the Government are now making a series of new maps and that evening at Digermulen we met the officer in charge of the survey of Lofoten. It had been my good fortune to meet Captain Angell at Kristiania on a previous winter visit and it was entirely due to his kindness that we were in possession of a beautiful, accurate and as yet unpublished map, which aided us greatly in finding our way about.

After our night on Isvandtind we were glad to spend a beautiful Sunday in comfort and idleness and on Monday we crossed the Raftsund and ascended one of the Langstrandtinder to reconnoitre the southern portion of the range.

On Tuesday we left again with all our things by boat for Grundfjord, for the purpose of climbing Svartsundtind.

We surveyed the mountain as carefully as possible next day before we left the camp; and as it looked very difficult, if not impossible, by any route on the north, we went up Blaa fjeld to reconnoitre. This mountain has four very sharp peaks and after trying to decide which was the highest we finally chose the wrong one. Near to the top of the eastern peak the granite of which it is composed is so disintegrated that large masses of the solid rock seem ready to come away at any moment and every ledge gully is so deep with sand and gravel that many square feet will move in places whenever one takes a step. The top itself is very solid, but the whole peak is a striking contrast to the next summit, which stands slightly higher and appears to consist of the hardest rock; it is very steep and smooth and almost conical.

The view of Svartsundtind convinced us at once that it was no use making any attempt from Grundfjord; so we decided to go round to Falvik, on the Raftsund shore, and make an ascent from there. We had not enough provisions for many days and we had to put back to Digermulen in consequence before we could move the camp.

The voyage proved a very rough one and the S.W. wind was so violent that we found it difficult to make any way against it. The rain was driving across the sound in blinding

showers, the hills were deep in mist and every now and then a heavy squall would take the breaking crest off every wave and send the spindrift whirling past our ears and in the coxswain's face. By hard rowing we got under the shelter of Ulvö and after passing through a narrow strait we crept along under the lee of Brattö until we had to make straight down the sound for home.

Here we got the full force of the wind in our teeth and with a tide under us there was very soon a short but heavy sea running right against us. We had not 2 miles to go, but it took an hour of desperate rowing and required all our strength to reach Digermulen at all. When we got there, we were tired out and drenched; but such is the effect of usage that the natives thought nothing of our arrival in such weather, whilst, on the other hand, climbing was such a new departure in their eyes that we never started for the simplest climb without their using their best English, with very pointed gesticulations, to tell us that we should certainly break our necks.

Two days later we borrowed the lightest boat and left early, as we did not wish to face the inundation of our quarters by 200 tourists.

It was a beautiful morning and we intended to make the ascent of Svartsundtind and return without camping. We had not gone 2 miles up the Raftsund before the enormous steamer *Augusta Victoria* hove in sight off the point and announced her arrival by firing four small cannon. As each puff of smoke rose from the ship, it was followed by the dull boom of the gun and that again by echo after echo from every hill within range; and as a climax of incongruity there came as well the strains of a jiggy tune from the German band on board the ship. After 6 miles of rowing we landed on the eastern shore to get a good look at the mountain and finally decided on a route.

As on the descent of Isvandtind, we found our greatest difficulty in crossing the steep glaciated rocks which form the lower slopes. We had to make a long detour to get above them and then the route was easy for some way. We ascended over two small glaciers till we joined the East Arête above a pinnacle on the ridge, which forms a conspicuous hump on the skyline when the mountain is seen from Digermulen. Above us the ridge was composed of huge blocks of granite; they were very firm, but so smooth and rounded as to make progress slow, though we encountered no great difficulty on the way to the highest point.

The weather had clouded in, but fortunately the summit was clear, although it was damp and cold and we tried to keep warm by building a good big cairn.

As far as we could now see, any ascent on the N. or W. or S. was quite impossible, but there are probably several variations of our route as well as more difficult climbs on the N.E. and S.E. faces. We were interested to hear later, that the only previous attempt to ascend the mountain had been made by a Norwegian gentleman, who established a camp on Grundfjord and made several futile efforts to climb the northern face.

The weather began to improve as we descended, but the thick growth of bilberry shrubs and ferns on the lower grounds were dripping with the rain and ere we reached the boat we all were wet through again. The northern sky was once more clearing of the heavier clouds before we got afloat and if the glorious radiance we had sometimes seen was absent, the crimson which we could not see tinted grey clouds upon an orange sky as silently we rowed and drifted homewards with the quickly ebbing tide.

It would convey a false impression were I to close my paper here, for our last week was by far the worst and was mostly spent in camp. We pitched our tent on Öihelsund in very heavy rain, on ground that was wet as a sponge, and before many hours were over we had a small waterfall dripping on the tent from a rock which we thought would give some shelter. We rigged a sail to cover us whilst we cooked and struggled with fires of wet green wood for the whole of our sojourn there. We hardly ever left the camp and, as we had no books, we spent our time in dodging drippings from the flapping roof and mopping puddles from the sodden floor. But the climax only came when a stream developed and flowed right through our kitchen grate and we had to subsist on cold collations until we dug a new course for the water.

We never dreamed of climbing in such weather, but waited doggedly for a change, which never came, until I had to leave to catch my steamer home. The moral of that week is obvious. Heavy waterproofs, sou'westers and a perfectly waterproof tent are necessities for camp life up there.

It is fortunate for us that discomforts such as these leave little in our minds but added interest in the tour they mark, whilst recollections of successful climbs and lovely summit views grow brighter as the weeks and months go by.

The climbing in Norway is very different from that of Switzerland; but if the hills be lower, there are many compen-

sations. There is ample room as yet for years of mountain exploration, with a total absence of conventional hotel life; and when I think of Norway, I always think as well of many kindnesses received from every class of people there.

Memories of Justedals shining snowfields, of rugged Jotun mountains, or sunlit winter landscapes, all bring with them unbidden, happy recollections of a quaint, if quiet, life among a simple kindly people, which only grow more pleasant as they mingle in the past.

VAL FORMAZZA REVISITED.

By A. CUST.

WHILE staying at Binn and Tosa Falls, in 1897, I explored the ridge between the Forno Group and the Scatta Minojo. All the cols on the ridge are easy and agreeable on the Lebendun side when there is plenty of snow, but mostly steep and disagreeable in the upper part, with rickety *débris* gullies, on the Devero side. The foot of all of them is reached on the latter side from the Upper Alp Forno by a pleasant ascent, with a good view of Monte Rosa over the vista of the valley, to a large tarn, omitted on the map, which this year was partly full of snow, and on that account taking beautiful colours. This tarn lies in a bay in the mountains formed by side ridges, of which the longer separates it from the recess of the Scatta Minojo route. Above the tarn are snow slopes followed by *débris*.

Beginning from the N.W. the first gap, which I visited from both sides,* although easy enough, is too high and disagreeable to make it of use as a passage. The next gap, which I reached from the Devero side, is not so high, but steeper and more disagreeable. From it I reached (July 31) a rock summit to S.E., on which I found neither cairn nor place for one. It is the highest point after the Forno group, and I suggest for it the name Punta di Curzalma, from the hut below. After this another snow-ravine follows on the Lebendun side, at the head of which, on either side, are two remaining passes of about equal height, lower than those previously mentioned, but still considerably higher than the Scatta Minojo. Of these, the first (in the same order) I reached from Andermatten in 1879, and this year crossed from the Devero side. A steep and rotten *débris* gully leads to it on this side, terminating in a little cul de sac in the rocks, allowing escape (unless previously avoided by diverging to the left) by a curious hole, through which I dragged myself extended flat on the ground. The other, and last, pass in order is the most practicable, but the direct passage of it

* Also the higher gap S.E. of pt. 2,904, on which summit I found an engineers' cairn.

(which was that taken by myself) leads, on the Devero side, from the recess of the Scatta Minojo. It can, however, be reached from the recess of the snow-tarn by mounting, by an easy grass and shale ascent, to the intervening side ridge near its junction with the main ridge, whence a traverse may be made to the col without intermediate descent. This last course being taken, the pass is the only one over the ridge offering any inducement as an alternative to the Scatta Minojo. I suggest the name Passo di Curzalma, north and south, for this and its companion pass.* In ascending the low summit between them, I inspected a singular block of rock some twenty-five feet high, which stands up on its end, resembling that on the Gallo Pass. It seems difficult to account for its being perched on the ridge-top in that position.

Passes at the Head of the Gries Glacier—Siedel Rothhorn Pass.—('Alpine Journal,' vol. xviii., pp. 175, 176). In revisiting the Siedel Rothhorn Glacier, I found the best course to be to traverse obliquely up to the Gemsland plain from above the lower hut (Zum Stock) instead of going on to the Zum Sand hut. The glacier appeared little changed after an interval of 15 years. The pass at its head lies, not as described in 'Climbers' Guide' (p. 56), but between the Siedel Rothhorn and the terminal point of the rock ridge between it (the glacier) and the Hohsant Glacier, this point, to which the figures 3,151 on the I. map apparently apply, being only a few feet from and above the lowest gap of the pass.†

Gries-Hohsant Joch.—('Alpine Journal,' vol. ix., p. 369).‡ From the last-mentioned pass is a gradual descent for some little distance to the broad and undefined depression which forms the passage connecting the Gries and Hohsant Glaciers, and which may be more correctly described as lying between the Blindenhorn and the gap at the head of the Siedel Rothhorn Glacier (not the Siedel Rothhorn, as in 'Climbers' Guide'). The name Siedel Rothhorn

* All these routes pass or come near the Curzalma hut, whence to Tosa Falls three courses are open:—(1) by the Neufelgiu Pass, the shortest way in time from Lago Srur; (2) by the Gallo Pass, the shortest way from the Lago Vannino; (3) by Fruthwald or Canza, longer than the last, but preferable in bad weather.

† 2,480 I. Map denotes a cairn on the above ridge part way up the glacier, but must be a misprint (for 2,980?), there being no point on the glacier so low. It is unfortunate that the S. map, ordinarily reproducing the I. map across the frontier in its own excellent style, goes quite astray this side of the Siedel Rothhorn ridge by deserting its guide. But the discrepancy between the two maps on the Hohsant and Gries Glacier frontier shows that there is still surveying work to be done. The position even of peaks like the Blindenhorn, Siedel Rothhorn, and Bettelmatienhorn is not yet settled, the variations amounting to from 150 to 250 mètres, while on the south side of the Gries Glacier the two frontier lines overlap to a maximum extent of $\frac{3}{4}$ kilomètre.

‡ The Lebendun Pass there mentioned is over the watershed between the glacier streams which flow respectively into the Hohsant and Lebendun ravines. The latter, which takes part of the névé from the Ofenhorn, and has an upper and lower outlet (see *Ibid.*, vol. xviii., p. 174) should be called Lebendun Glacier.

Pass accordingly seems more appropriate to the latter passage, and for the other the name Gries-Hohsand Joch is now suggested.*

Blindenhorn.—In driving through Reckingen (down the valley), I was curious to observe the appearance of this mountain. The vista of the ravine first discloses the Blinden-Joch, from which in advancing along the road the ascending ridge comes gradually into view, till a culminating point is reached, which, as it fell away again beyond it, I was convinced was the summit of the mountain; but just as the village was left I saw the true summit begin to appear from behind this to the right, and then recognised the other as the second summit (pt. 8,334), while lower and to the left was the third summit (see 'Alpine Journal,' vol. xviii., 176, note). The gable end of snow on the latter gives it prominence as seen from the north—from the Furkahorn, for instance—and owing to the defect of the earlier map it has been ascended from the Gries Glacier Pass by mistake for the highest point (S.A.C. Jahrbuch, xx., p. 169, where curiously no mention is made of the higher of these two inferior summits).† The mountain is known to Italians as Blinnenhorn, and the people at Tosa Falls Hotel, who spend most of the year at Reckingen, assured me that this and not Blinden was right for both mountain and valley.‡

Kleine Banhörner.—Between the Ban ravine and the broad basin of the Ban Glacier, and parted from the former by a lofty ridge of rocks over which the only passage is at the upper end, is a narrow ravine of the most desolate description, inaccessible from the Neufelgiu ravine below, unless it be by an unenviable battle with the torrent course. At its head rise twin peaks, and entering the ravine from the Hohsand Glacier by the gap between the two, I first inspected the N. summit from the top of the ridge over the Ban ravine,§ and finding it not suitable for a solitary person, re-

* The route to this pass from the Blindenhorn is ascribed in 'Climbers' Guide' to Rev. S. Taylor, as well as the possibility of the first passage of the pass itself (pp. 54, 56), on the occasion of his first ascent of the Blindenhorn ('Alpine Journal,' ii., 410), who, however, informs me that he could not have crossed the pass, his object being to reach the Hohsand Glacier from the summit of the mountain by the quickest and easiest route. This course probably avoided the pass altogether, below which lies a crevassed glacier of which the local *chasseur* with him would no doubt be aware, and followed the easy snow slopes leading directly down from the summit to the Hohsand Glacier.

† *Ibid.*, xiv., p. 605, notices an expedition from the Gries Pass to the Blindenjoch, including Gross u. Klein Blinnenhorn, without further definition of the latter.

‡ They also told me that Val'dösch Pass, as applied to the passage from the Gries Glacier to Val Corno, is erroneous, Valdäsch or Faldäsch being the local name for the St. Giacomo Pass and pastures. This note is endorsed by Herr Waeber, to whose courtesy I am further indebted for the following information. Blinden and Blinnen are the same, Blinden being the correct, Blinnen the dialect form. Ulrich, *Seitenthäter des Wallis*, 1850, writes Blinnenhorn and -thal. Woerl's Map 1835 has no name, Weiss 1800 'im Blinen.' March- and Markhorn are the same, being respectively South and North German; Marek is wrong.

§ The pass crossed by me at the head of this ravine ('Alpine Journal,' vol. x., p. 98) immediately abuts on this peak. The path to this ravine from the

descended to the glen, and reached from it the other (pt. 2,948). This is quite easy of ascent, and has an agreeable rounded top with vegetation and even bluebells in flower. There was no trace of previous ascent. I had often speculated which was the higher of the two peaks, but concluded that the advantage lay with that whose height was given on the map, and which once bore the name of Banhorn, now assigned on the map to the culminating peak on the range, otherwise Thälhorn, 3,028 m.* I was curious therefore as I neared the summit to watch the other point, but it rose with me to the last, and so far as I have means of determining, the northern peak seems slightly the higher. Returning to the ravine, I explored for a short way the rocky ridge parting it from the Ban Glacier, the top being pleasant to traverse with nooks of vegetation among finely-weathered rocks. I reached Val Vannino by the pass adjoining the Gemsgrat, 2,978 m. on the east, for which, as the only pass from that valley to the Ban Glacier, I suggest the name Gemsthor.†

The further explorations which I had promised myself were cut short by the unhappy weather which closed the season, and, finally, after I had patiently waited for weeks, hoping to tire it out (I paid a record visit of nearly six weeks at Tosa Falls!), drove me away defeated. The hotel is enlarged and improved since my early visits, and *chef* and waiter play innumerable games of bowls in front, with Revenue guards looking on. Who would have expected to see a waiter in a white tie here? But Madame Zertanna had broken the apparition to me by introducing him as her son. Like others of his class he had followed the sensible habit of going to our country to learn English. A kinder or more considerate hostess is not in the Alps. Morning after morning she called me herself, hoping against hope like me; if the sky was *couvert* at one window it was not at another; a consultation was held at my

Neufelgiu hut which then existed seems, so far as I could observe from below, to have disappeared, and a fresh one to have been constructed, traversing a cliff face with a somewhat precarious appearance. Persons descending should not reckon on finding a path in this direction, and the ground is awkward in parts, but the steep declivity of grass and scrub in which the ravine falls below the foot of the Neufelgiu ravine may be directly descended.

* The first ascent of this peak was made by three soldiers employed in making cairns in advance of the new military survey. Pietro Zertanna accompanied them to within a few feet of the summit, when the rope being too short for four he had to stop. In his attempt on the Neufelgiu horn ('Alpine Journal,' vol. xviii., p. 174, foot note) I find that he did not reach the summit.

† Signori Gerla, Casati, and Turrini, with a guide, August 6, 1896, found by it the only available access to the glacier from Tosa Falls. They made the first Italian ascents of the Gemsgrat (ascended by me, together with the east summit of the ridge over the Neufelgiu Pass, September 6, 1880, on which occasion I reached the glacier by Messrs. Gardiner and Pilkington's snow couloir from the Neufelgiu ravine part way up the final ascent to the pass; ('Alpine Journal,' vol. ix., p. 63), and left it by the Gemsthor, and pts. 2,926 (*Ibid.*, vol. xviii., p. 169) and 2,931 (reached by me 1881), for which last two respectively they propose the names Punta di Costone and Punta di Lebendun (Visitors' Book at Tosa Falls).

door, and if I turned out into the cold and darkness, on my lonely way, she bid me *au revoir* as she stood in the doorway, light in hand. These were the lucid intervals; at other times, day after day unchanging, the pitiless clouds seethed up from the lower valley, driving the spray from the Falls the wrong way. Then it veered round, and blew down the Fall, so that you could cross the bridge dry, and you prophesied a week of north winds. But they came with fresh snow, and lasted two days. The weather exhausted epithets, passing from *cattivo* to *bruto*, and thence to *tempo di diavolo*, where it remained. At this rate it would not be worth while to go to the Alps at all.

Tosa Falls, with its many minor and accessible peaks, is good training ground for those who like to begin by getting hill legs. The pedestrian, also, who likes the hillside off the track, can here enjoy with ease a close insight into the world of snow and glacier. You are said to be able to drive a cow to the top of the Blindhorn (two calves, by the way, climbed the Campanile Alla Chiesa, and when vainly searched for one of them was sighted looking out from the bells!) which offers to the unsatiated in mountain views an exceptionally good view of the Oberland. Italian undergraduates coming up for the ascent thereof are to be seen in the hotel passage with held-up feet shoeing each other with wondrous mechanical appliances.

The Hohsand Glacier is the recognised highway between here and Binn. This season, two minutes after putting on the rope, one of the local 'guides,' in constant acquaintance with the glacier, while conducting a party, two of whom were young ladies, suddenly disappeared down a crevasse, where, wedged in by his pack, he could not free himself. The gentleman of the party had to unrope himself and haul him out.*

IN MEMORIAM.

EDWARD SHIRLEY KENNEDY.

ANOTHER link has been broken in the chain which binds the present generation of mountaineers to the cherished memories of the past. Edward Shirley Kennedy—one of our founders and our second President—died in Devonshire on the first of March, 1898, in the eighty-first year of his age.

Kennedy was the son of John Hadfield Kennedy, of Snaresbrook, and was born in 1817. He was educated at King's College, London. The father died when the son was only sixteen, leaving him amply, even abundantly, provided for. His friends desired

* In descending Val Antigorio I inspected the handsome new Hotel Veschi at S. Rocco; it is fitted up with an unusual taste and refinement which merits encouragement. At Baceno the Agnello has given place to a more roomy Albergo Devero, but the *ménage* is still primitive.

that he should become an architect, but after serving his articles he found himself unsuited for that profession, and thought of entering the Church, an idea which also he abandoned, though he worked hard in the slums of Liverpool, and thereby acquired a knowledge of the poorest, and also of the criminal, population, which he turned to good account in his later life.

Many years after leaving school he became a Fellow Commoner of Caius College, Cambridge, where he graduated in 1857. He was, of course, much older than the majority of undergraduates, but was a general favourite with all. He was fond of athletic pursuits, and was an expert swimmer, and rowed in his College boat. Subsequently he rowed in the first Henley Regatta, and was for some time Captain of the London Amateur Sculling Club.

Kennedy became an enthusiastic mountaineer in those early days when the sport in which he afterwards attained so great a proficiency was regarded by the public with more ridicule than admiration. But his tastes were also philanthropic and literary. He was the first Honorary Secretary of the London Ophthalmic Hospital, and took an intense interest in the Discharged Prisoners' Aid Society.

In 1850 he published a book of considerable merit called 'Thoughts on Being,' and in later years several miscellaneous pamphlets which, although showing great culture and a wide range of thought, demand only a passing reference in the pages of this journal.

In the month of August, 1855, in the company of Charles Hudson, the Rev. Grenville Smyth, the Rev. Christopher Smyth and Mr. Charles Ainslie, he made his celebrated ascent of Mont Blanc without guides, starting from St. Gervais and climbing by way of the Dôme du Gouter, descending to the Grand Plateau, and reaching the summit by the ordinary route of the Corridor and the Mur de la Côte. This expedition, which attracted a good deal of attention at the time, is recorded in a delightful little volume written by Kennedy and Hudson, and published by Longman & Co. in 1856, under the title 'Where there's a Will there's a Way.' A second edition was published in the same year and contains the account of an ascent of Monte Rosa by Kennedy in 1854, and of another by Hudson in the following year. The Mont Blanc excursion was planned in May, 1855, and I have the satisfaction of placing on record a letter from Charles Hudson to Kennedy on the subject, which will prove of considerable interest to Alpine readers:—

Kirklington, Ripon,

May 19, 1855.

DEAR KENNEDY,—

For so I hope you will allow me to call you, though I have not yet had the pleasure of a personal introduction. I hope you will decide to go to Suisse, that we may have the advantage of your experience. It is necessary to have four or five good men and true in a party. Birbeck wrote me a few days since, and said that he purposed

being at Zermatt some time the first week of July. He proposes staying there until August. The two Smyths, who ascended Monte Rosa, are to be at Zermatt about the 25th of July. You make a fourth, and I a fifth. Another gentleman, also a tough walker, is to be in Suisse about that time, and he intends joining us. Now, with six, if we cannot do all that man may dare it will be time to shut up. I shall start from England about the 9th or 10th of July, and go direct to Zermatt.

I had not long since a letter from the landlord of the inn at St. Gervais, where I stayed when I was attempting Mont Blanc in the winter, and he tells me that a party of guides gained the summit of Mont Blanc by the Aiguille du Gouter, the route I was trying. If you leave the Pavillon de Belle Vue at 1 A.M., there is plenty of time to gain 'la cime du Monarque' and descend before 7 or 8 P.M. By sleeping at the foot of the aiguille, the climb is brought down within very narrow limits. How I should luxuriate in having as companions men who were pluck to the backbone, and who would not 'retrograder' except before impossibilities or actual danger. With you, the Smyths, and Birbeck there would be no fear.

Birbeck thinks, from his observations upward from the Col du Géant and downwards from the foot of the Mur de la Côte, that Mont Blanc can be ascended from Courmayeur. You would be game to try this as well as the Aiguille du Gouter.

I am, yours faithfully,

CHARLES HUDSON.

I had the pleasure of rowing stroke to the Johnian boat when we were head in '51.

It is now well known that the first suggestion for the formation of an Alpine Club was made by Mr. William Mathews, but Kennedy was the man who was chiefly responsible for carrying the idea into practical effect.

On August 13, 1857, the first English ascent of the highest peak in the Bernese Oberland was made, the party consisting of William and St. John Mathews, Kennedy, Hardy and Ellis. During this expedition the formation of the new club was actually determined upon, and it is not too much to say that the infant's cradle was rocked by Kennedy on the summit of the Finsteraarhorn.

On returning home Kennedy communicated with many gentlemen he thought likely to join. The replies of all of them are now before me. R. B. Hayward, Lightfoot, Isaac Taylor, Eustace Anderson, John Tyndall, T. W. Hinchliff, G. V. Yool, J. F. Hardy, and Albert Smith were some of the writers. All the letters are of great archæological interest, and Mrs. Kennedy has most kindly and considerately suggested that they should become the property of the Alpine Club.

'Peaks, Passes, and Glaciers' was projected in 1858, and published under the editorship of our first President, Mr. John Ball. Only six of the fourteen contributors to that volume still survive, but not the least interesting of the contributions is that called 'A Night Adventure on the Bristenstock,' of which Kennedy was the author. In 1862, a second series of 'Peaks, Passes, and Glaciers' was published, of which Kennedy, who had succeeded Ball as President, was the editor, and to which he contributed an article on 'The Ascent of the Pizzo Bernina.'

In the same year he made the first ascent of the Monte della Disgrazia, accompanied by Mr. Leslie Stephen, and his account of that expedition forms the first article in the first number of the 'Alpine Journal,' which was published in March 1863.

Kennedy's last contribution to Alpine literature was a graceful article which appeared in the 'Journal,' in May, 1889, under the title of 'May and December on the Faulhorn.' The excursion was made in 1887. Kennedy was then seventy years old, and his only companion was his daughter, who was under twenty when her father took her to the old Swiss hunting grounds. They reached the summit with some difficulty, as the weather was stormy, and they had no guide. They crossed the mountain from Giessbach to Grindelwald, and Kennedy records with amusement that having studied his 'Murray,' he found 'that there is a footpath from the top of the Faulhorn, passing the waterfall of the Giessbach, but it is difficult, and even dangerous, slightly marked, and not to be attempted without a guide.'

It is delightful to note that his joy in the Alps was as keen at seventy as when he was young, and that his literary style, always interesting and often humorous, had in no sense deteriorated.

Kennedy was a man of high ideals. 'Is it right?' he often used to say, and that question was the keynote to his character. He was honest, fearless, and unselfish, and many of those who knew him in old days will bear willing testimony to the simplicity and purity of his private life.

He was not a good man of business. Companies of which he was a director obtained loans from him which proved to be worse than useless, and unhappily he 'went under' in the great financial crash which startled London more than a generation ago. A high sense of honour led him to give up funds which he might legally and honourably have retained, and he lived in comparative poverty during his later years. Losses, however, which would have soured most men affected neither his spirits nor his temper, and alike in fair weather and in foul,

'He kept the noiseless tenour of his way.'

He was the father of the Alpine Club, and no father ever regarded his offspring with a deeper or more lasting affection. Quite recently he was engaged on an Alpine paper for this journal, but age and infirmity prevented his completing it. His failure preyed upon his mind; he fancied that to break his promise would involve his resignation as a member, and in a burst of grief he said to his wife, 'If I have to give up the Alpine Club it will kill me.' Such loyalty and devotion deserve grateful record. He loved his craft, and almost his last words were of the Alps.

To the younger or even middle-aged of our members Edward Shirley Kennedy has been little more than a name, but they will not read without regret of the loss of the Editor of the second series of 'Peaks, Passes, and Glaciers,' and of the most active and zealous of our founders. To those of us who have entered upon

their seventh decade his loss is a personal sorrow; we recall his early achievements, his courteous manners, his genial presence, and his high character, and we reflect, not without a sigh, on the dwindling number of those who loved him and worked with him in 'the days that are no more.'

C. E. M.

REPUBLICATION OF BALL'S 'ALPINE GUIDE.'

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Grant, C. B.	2	2	0	Shea, C. E.	2	2	0
*Gruber, G.	1	1	0	Slater, C., M.B.	2	2	0
Harrison, H. E. B.	2	2	0	Slingsby, W. Cecil	2	2	0
Hartree, J. P.	2	2	0	*Solly, G. A.	1	1	0
Hicks, J. C.	2	2	0	Somers, J. P.	2	2	0
*Hopkinson, C.	1	1	0	Spence, W. M.	2	2	0
*Hopkinson, E.	1	1	0	*Spencer, S.	1	1	0
Hughes, R.	2	2	0	*Stallard, G.	1	1	0
Kelly, E.	2	2	0	Stutfield, H.	2	2	0
Kennedy, Prof. A. B. W., F.R.S.	5	5	0	*Taylor, Rev. C.	1	1	0
Kesteven, T. L.	2	2	0	Thompson, C. M.	2	2	0
King, C. S.	2	2	0	*Townley, C. H.	1	1	0
King, Rev. J. R.	2	2	0	Thorold, A. B.	2	2	0
Kingdon, G. F.	2	2	0	Valentine-Richards, A. V.	2	2	0
Littledale, F.	2	2	0	*Wagner, H.	4	4	0
MacGillivray, C. W.	2	2	0	*Watson, P.	1	1	0
Maclay, J.	2	2	0	Watson, S.	2	2	0
*Majendie, Rev. H. W.	1	1	0	Wethered, F.	3	3	0
Marcet, W., M.D., F.R.S.	3	3	0	Williams, R.	2	2	0
*Mathews, W.	5	5	0	Williamson, O. K.	1	1	0
*Mills, F. C.	2	2	0	*Wilson, Claude, M.D.	2	2	0
Muir, W.	2	2	0	*Winterbotham, W.	1	1	0
*Mumm, A. L.	1	1	0	*Woolley, H.	5	0	0
Munro, H. T.	2	2	0	Worthington, A. H.	2	2	0
Murray-Browne, T. H.	2	2	0				
Nicholson, C. N.	2	2	0				
Nicolay, Comte de	2	2	0				
Osbourne, J. S.	2	2	0				
Parish, J. B.	2	2	0				
Pasteur, H.	2	2	0				
Peech, S. B.	3	3	0				
Carried forward	127	4	6				

					£220	9	6
Amount previously sub-							
scribed with additions,							
&c., as per previous							
page					719	9	0
Total received to April 20,							
1898					£939	18	6

ALPINE NOTES.

'ALPINE JOURNAL.'—The following parts are for sale at the Club-rooms, price 2s. 6*d.* each, except those marked with an asterisk, which are 5s. each, viz.:—Nos. 28, 50, 53*, 54, 56, 60, 61, 69*, 73, 76*, 77*, 80*, 87*, 89*, 90*, 91, 92*, 93*, 96*, 97*, 100*, 104-6, 107-14, 115-22, 123-30 (these three latter in sets only, price 20s. each), 112, 117, 118.

There is also for sale a set complete to Part 109.

No. 101 is required by a member, who would be glad to obtain it from any member having a copy for sale.

Members wishing for further particulars as to the above, or desiring either to dispose of or purchase back numbers, are requested to communicate with the Assistant Secretary at the Club-rooms.

ALPINE HONOURS. — Mr. Edward Whymper, Mr. Douglas Freshfield, the Revd. W. A. B. Coolidge, Sir Martin Conway, and Mr. C. E. Mathews have been nominated Honorary Members of the Club *Alpin Français*.

BALL'S 'ALPINE GUIDE.'—The first volume of the new edition of the 'Alpine Guide,' comprising the Western Alps, which has been revised and reconstructed by the Rev. W. A. B. Coolidge, will be delivered to subscribers and on sale to the public in the course of the present month.

MR. FITZGERALD'S 'MAP OF THE SOUTHERN ALPS OF NEW ZEALAND.'—In our review of Mr. Harper's work on the New Zealand Alps, vol. xviii., p. 348, an unfortunate oversight, which we much regret, occurred in the printing of the following sentence:—

'The map is excellent, but it is a pity that in this case (as with Mr. Fitzgerald's map) there is no imprint to show that it is in fact based, not on the work of any one or two men, but on that of a staff of Government surveyors.'

The words in parentheses ought to have come after, instead of before, 'there is no imprint to show.' The intention of the reviewer was to call attention to the fact that on Mr. Fitzgerald's map there is a conspicuous imprint, 'From the latest Government surveys, with additions by E. H. Fitzgerald.'

THE 'CHALET DES DEUX FRÈRES.'—Count J. de Nicolay has written to ask us to inform members of the Alpine Club that he has transferred his chalet, built in 1864 for the use of himself and his brother in their sporting excursions, to Louis Mollard, the son of his old guide, by whom it will be kept as an inn—open from June 25 to September 15. The chalet is placed on the Col de Tricot, at the foot of the Aiguille de Bionassay, and between the glacier of that name and the Chalets de Miège, at a height of 2,133 m., and is conveniently placed for excursions in this part of the chain of Mont Blanc. It will be fully provisioned, and has an excellent water supply. Guides and porters can be procured at La Villette, an hour and a quarter above St. Gervais le Village, or

from St. Gervais itself. Count J. de Nicolay particularly recommends Louis Mollard (at La Villette), Estivin and A. Magnin (at St. Gervais), and François Perroud (at Bionassay).

THE MONTANVERT HOTEL.—We understand that A. Simond is keeping on this hotel, having taken it for another term of years.

PRESENTS TO THE CLUB.—A mounted chamois-head, which has been very finely set up by Zollikofer, of St. Gallen, has been presented to the Club by Mr. G. Stallard. Mr. A. B. Thorold has presented to the Club two very interesting coloured prints of 'De Saussure's Ascent of Mont Blanc.' One is entitled 'Montée de M. de Saussure sur la Cime du Montblanc au Mois d'août 1785,' publié par J. P. Lamy à Berne, Basle et Genève; the other, 'Descente de M. de Saussure de la Cime du Montblanc au Mois d'août 1785,' publié par J. P. Lamy à Berne, Bâle, Lausanne, Genève—Grundmann del. The size of each plate is 12 in. by 9 in. Their interest lies in the fact that, though they closely resemble the coloured prints of the same subject already in the possession of the Club, which were published by Ch' de Mechel in 1790, yet they are not exact copies, for the figures, though in much the same attitudes and positions, differ in number, and the arrangement of the crevasses and seracs differs slightly. Mechel's well-known plates also measure 18 in. by 14 in. Curiously enough, none of the De Saussure prints are mentioned in Ebel's 'Switzerland,' 1809, which contains a very complete list of contemporary prints.

CORRESPONDENCE.

HIGH ALTITUDES.

To the Editor of THE ALPINE JOURNAL.

SIR,—In the February number of the 'Alpine Journal,' at the Geographical Society's meeting on March 28, and at the Alpine Club meeting on March 29, Mr. Freshfield has taken opportunities to put forward his views about certain matters connected with some high mountain ascents in opposition to published opinions of my own. In the preface to my 'Climbing in the Himalayas' the following passage occurs:—

'The expedition made by the brothers Robert and Adolph Schlagintweit in 1854-56 into Nepal and other portions of the Himalayas was not properly a mountaineering expedition, though some mountains were climbed, and a height of 22,239 ft. was reached. But Mr. W. W. Graham's expedition in 1883 to the mountains of Kumaon and Sikkim was a mountaineering expedition, because Mr. Graham was a trained climber; he was accompanied by two Swiss guides of repute, Emil Boss and Ulrich Kauffmann; and the making of ascents was his object. Unfortunately, he was not acquainted with the use of instruments, did not take photographs, and was thus without means for fixing his positions

with certainty, or for measuring the approximate altitudes of points reached by him. He believed that he ascended Kabru, a peak of about 24,000 ft., but his experiences differ so widely from those of Dr. Güssfeldt, Mr. Whympy, Captain Bower, and all the members of my party at altitudes of 19,000 ft. and upwards, that it is more than likely he was mistaken as to the point he climbed. Though hereafter he may be proved to have accomplished what he thought he accomplished, his ascent cannot for the present be accepted as authentic.

This passage was not attacked by Mr. Freshfield, nor, as far as I know, by any opponent. Its conclusion has been frequently restated, and continually implied. The other day, in an article on 'Mountaineering,' in the 'Encyclopædia of Sport' (January, 1898), I had occasion to approach this question again, and wrote as follows:—

'Mr. Graham was accompanied by Swiss guides, but he used no scientific instruments of precision, made no survey, and relied for information as to his position on his interpretation of the map. It must be remembered that the map makes no pretence to being a mountain map, or, save as to the position of the summits of peaks, of rendering, with even approximate correctness, the form of mountains above the level of cultivation; it would, therefore, be extremely easy for a traveller, especially if he were not a topographical specialist, to mistake his position, and believe (as men have often done*) that he was on one peak when he was actually on another. Mr. Graham thought that he climbed a peak 24,000 ft. high, named Kabru, but it is the matured conviction of English officials, who were in the country at the time, and who discussed the matter with Mr. Graham, when his memory as to the things he had seen was fresh, that he was mistaken, and that he reached no such great altitude. At the height he did attain neither he nor his companions experienced any of the effects of diminished atmospheric pressure, such as have invariably been observed by all who have reached 20,000 ft. and upwards. Mr. Graham's ascents are not, from a scientific-geographical point of view, thoroughly identified and authenticated. He did not measure his altitudes, and he did not fix his positions; the omission to do so deprived his expedition of some of the importance it deserved.'

It is this second statement that appears to have provoked Mr. Freshfield to a protest, which the first failed to elicit either from him or from anyone else. If he had protested sooner, evidence would have been forthcoming, which is forthcoming no more. It was Colonel Tanner, R.E., who had the conversations with Mr. Graham, above referred to. Colonel Tanner was himself no mean climber. He had probably ascended oftener to a height of 18,000 ft. and thereabouts than any member of the Alpine Club. He knew Sikkim, he was an excellent topographer, and he was one of the best mountain-

* Instances might be quoted from both Alps and Caucasus.

draughtsmen that ever lived. He was a passionate lover of the mountains, and was the last man to be compared with Russian officials in the Caucasus and other incredulous lowlanders as Mr. Freshfield has compared him. In most parts of the world there is a *primâ facie* willingness in the minds of residents and officials to doubt the reality of mountain ascents. Amongst Anglo-Indians there exists no such prejudice. They tend rather to be over credulous about human achievement. The existence in such a society of the incredulity I have mentioned is a fact that cannot be lightly passed over. Unfortunately, Colonel Tanner, who might have given his detailed reasons for the conclusion he came to, which he did not hesitate to assert, has recently died.

In 'Good Words' for January, February, and March, 1885, Mr. Graham published articles on his Himalayan journey. On page 98 he described an ascent to an altitude which he *estimated* at 22,700 ft., where, as he says, 'we had set at rest, as regards ourselves at least (*i.e.* Graham and Boss), the vexed question about the rarity of the air.' 'Boss and I,' he continues, 'ascended certainly to 22,700 ft., and neither there nor at any point of the ascent did we feel any inconvenience other than the natural loss of breath consequent on every ascent. Nor was the ascent a mere uphill walk; on the contrary, it presented quite as many difficulties as any ordinary Alpine peak, and on the rock occasionally demanded very great exertions. It is my deliberate opinion that any man in sound health and fair training may work and be capable of great muscular exertion *with no more inconvenience when the barometer stands at 13 in. than when it marks 30 in.* At any rate, we could not detect any difference.' The italics are mine. On page 177 Mr. Graham describes his climb on Kabru. 'Kauffmann led all the way, and at 12.15 we reached the lower summit of Kabru, at least 23,700 ft. above sea. . . . The last 300 ft. were the hardest of any, yet no more difficulty in breathing was noticed than if they had been 10,000 ft. below.'

We have thus as precise a statement as could be required to the effect that at 22,700 ft., and again at 23,700 ft., neither Mr. Graham nor either of his companions experienced any effect due to the rarification of the air. Against this observation we have the more or less carefully recorded observations of the Schlagintweits, Mr. Johnson, Mr. Whympfer, Dr. Güssfeldt, Captain Bower, my party of 1892, Mr. Mummery's party, and the FitzGerald party—in all over a score of persons who have been at 20,000 ft. and upwards. These people, though they differed in the degree in which they suffered and in the symptoms of their suffering, agree that at such altitudes certain disagreeable effects are felt. These effects, in their mildest as in their severer forms, in no wise resemble the effects of fatigue. They differ from fatigue in kind. It is easy for those who have not been to 20,000 ft. to deny their existence. At 28,000 ft. I feel convinced that no man could fail to experience them.

I am therefore compelled to the conviction either that Mr.

Graham was mistaken as to the heights he reached, or that he was an inaccurate or forgetful observer, and has incorrectly reported the experiences of his party. Mr. Freshfield devotes attention to the topographical details of Mr. Graham's story. I have other work on hand which leaves me no leisure to work up the topography of the Sikkim Himalaya. Moreover, arguments which I might draw from book and map learned topography would convince nobody. Mr. Graham and Emil Boss may have been men of exceptional physique, but Ulrich Kauffmann, with whom I have climbed, though a strong man, is not in any sense exceptional. Mr. Graham's claim involves the assumption that the chance that brought him and his two companions together (for the tale of his journey shows that it was chance, not careful selection), brought together three men so exceptionally constituted that their experiences are utterly at variance with those of over a score of men, several of whom were amongst the most powerful and enduring that have ever been out on a hillside.

Such a strong *prima facie* case against any given ascent might, of course, be upset, but could only be upset by the direct evidence of scientific observations systematically made. We are now arrived at a time when, in consequence of the approaching exhaustion of unexplored regions of the earth, the great mountain ranges are destined to attract the attention of explorers. Mountain exploration is sure to be much carried on in the coming century. It should be the business of the Alpine Club to watch over that exploration and be identified with it. But mountain exploration will not obtain the respect of men of science if it is carried on in a slipshod fashion. It is the easiest thing in the world for a man to mistake his peak in a badly-mapped region, and to estimate his altitudes wrongly by several thousand feet. Unless he makes a series of observations by which his route can be controlled, or unless he is a man of such tried veracity and skilled and proved topographic sense that his word carries quite exceptional weight, his mere assertion that he climbed a certain remote peak in the midst of a vast mountain region, where mistakes are probable, does not suffice to establish his ascent as a scientific fact from which to deduce arguments as to the effect of high altitudes upon the human frame.

MARTIN CONWAY.

London, April 14th, 1898.

DEAR SIR,—In Mr. Douglas Freshfield's article in the 'Alpine Journal' for February last, he has opened up an entirely new view in the study of mountain sickness, when he says, 'Looking to the experience of the past hundred years, it is at least open to argument that in the next century persons of good digestion and stolid temperaments, starting in fine training from tolerably comfortable huts or bivouacs, may hope to disregard the "rarity of the air" on any mountain on the face of the globe.'

May I be permitted to point out at least two difficulties in reconciling the descriptions of various observers?

First, the confusion of the symptoms of mountain sickness with those produced by any other form of diminution of atmospheric pressure. There are three ways, other than by mountaineering, in which reduction of atmospheric pressure may be made to produce its effects on the body. These are aëronaut experiments; experiments conducted in a laboratory under metal cylinders from which the air is exhausted; and in cases where the atmosphere of the caissons is exchanged for that of the ordinary atmosphere, often producing caisson disease. The conditions under which these cases occur can be shown to be totally different from those which exist in mountaineering; and the symptoms complained of in each case are precisely the same, differ in every particular from those of mountain sickness, and suggest in a very obvious way an entirely different pathology.

M. Paul Bert did not experiment, as the authority quoted by Mr. Freshfield from the 'Edinburgh Review' states, to prove that the symptoms of mountain sickness were due to diminution in the supply of oxygen, but that the symptoms produced by aëronaut and laboratory experiments were due to this cause; a point which he failed to prove, as in all his experiments inhalation of oxygen did not remove the symptoms, though they were relieved.

The symptoms occurring in these three classes of cases are due mainly to the reduction of atmospheric pressure being produced very *rapidly*, a fact which can be clearly made out in all the recorded experiments.

Reduction of pressure in mountaineering is very *gradual*; and I fail to see how it is possible for gradual reduction of atmospheric pressure *per se* to produce any symptoms. It is only the diminution of oxygen, which runs concurrently with the diminution of pressure, that can by physiological action produce any effect.

Secondly, the similarity of the symptoms produced by fatigue and those of mountain sickness.

Now, fatigue may be produced in two ways—either by the circulation of fatigue products (whatever they may be) through the muscles, the blood supply originally being good and containing proper nutriment, or by supplying the healthy muscle with deficient nutriment, so that it is unable to perform its work properly. It is easy to see how fatigue may thus be produced by unhealthy organs, or by insufficient or unsuitable food.

The symptoms of fatigue (at ordinary sea level) are exactly the same as those of mountain sickness, with the exception that in fatigue vomiting occupies a prominent place, which it does not in the case of true mountain sickness; and this fact accounts for the earlier observers describing symptoms at altitudes lower than 17,000 ft.

The one point which has yet to be settled in connection with the relief of mountain sickness is whether inhalation of oxygen removes the symptoms.

I will conclude by saying that as long as it is an acknowledged physiological fact that when blood is exposed to gradually decreasing oxygen pressures it at first gives off only a small quantity of oxygen, but that when the pressure reaches 60 mm. of Hg a sudden dissociation takes place and a large quantity of oxygen is suddenly given off from the blood, it will be hard for us to accept with confidence the delightful prophecy mentioned in Mr. Freshfield's paper.

I am, Sir,

Your obedient servant,

MALCOLM L. HEPBURN, M.D.

28 Marine Parade, South Lowestoft,
April 11, 1898.

SIR,—It would, I think, save both themselves and your readers some confusion and trouble if those who feel moved to take part in this discussion could find time previously to study what has been written in past volumes of the Journal. Since we have the aid of Mr. Wallroth's excellent index, the recommendation can hardly be thought an unreasonable one. Had Sir Martin Conway's various avocations allowed him to act in accordance with it, the present note would probably not have been called for.

As it is, I must state plainly that in my recent article I made no comparison affecting the late Colonel Tanner. The writers I expressly referred to and compared to my Caucasian critics were the anonymous and other correspondents who in 1884 wrote to the Indian newspapers asserting, amongst other things, 'that the Indian school of mountaineers maintain their belief that no Himalayan summit of over 20,000 feet has yet been reached.' These were the persons—writers who contradicted their own Survey Reports—whom I lately accused of prejudice. I made this clear by a specific reference, which I here repeat, to the paper on 'Himalayan and Alpine Mountaineering,' in volume xii. of this Journal, in which I commented in detail on their criticisms. As regards Colonel Tanner, I have no knowledge that he has expressed anywhere in writing any 'conclusion' as to Mr. Graham's ascents. I knew him well, for he served with me for two years on the Council of the Royal Geographical Society, and at my instigation wrote a paper on his Himalayan travels. Neither to the Council nor to myself, officially or privately, did he communicate, in writing or conversation, any opinion on the matter in question. But had he done so, I am bound to add that I should not have attached any great weight to it. For though Colonel Tanner was, as Sir Martin Conway says, a true mountain lover and an excellent draughtsman and engineer, he was not, in the European sense of the word, a mountaineer. In the Himalayas, where the snow-level is 17,700 feet, ascents of 18,000 feet do not count for more than climbs of 9-10,000 feet in the Alps, and they can be made without mountain craft. Moreover, Colonel Tanner in his paper ('Geographical Proceedings,' 1891, p. 410) has expressly stated that he never visited the glacier region of the Kinchinjanga group. Indeed, in an official

report, reprinted in vol. xii. of this Journal, he declared that Kinchinjanga had 'no glaciers worthy of the name,' which, of course, is very much the contrary of the fact. I must refer to this paper and my comments on it for confirmation of the view I take of Colonel Tanner's competency as an observer and a critic with regard to the physical features of heights above the snow-level and *à fortiori* of mountaineering in that region. I am confirmed in it by a friend of Colonel Tanner's who knew him more intimately than I did, and who is also an ex-President of our Club. In these circumstances it was impossible for me to imagine that Sir Martin Conway, when he quoted 'English officials' who were 'on the spot,' meant only Colonel Tanner.

I do not wish to be needlessly controversial, but I can hardly allow to pass altogether without protest the groundless suggestion that—because Colonel Tanner happened to die about the time when I thought it expedient to notice the matter at issue—I have done Sir Martin Conway any injury or deprived him of evidence which might have supported his views. I ought, I think, to state that Colonel Tanner died on March 16 last, after only three days' illness—a month, that is, after the publication of my note, and nearly two months after proofs of it had been in Sir M. Conway's hands and a reference to him had been possible. As I said in the last number, it was the appearance as a judicial utterance in a work of reference of what had previously been only an expression of a personal opinion in a book of travel which decided me to reopen the discussion.

With regard to Dr. Hepburn's letter, I am quite content to leave him to settle any physiological questions with the 'Edinburgh Reviewer.' I desire only to disclaim the originality he credits me with. In the sentence Dr. Hepburn quotes, I have said no more than has been said often before by a physiologist, Mr. Clinton Dent, F.R.C.S. Some readers may remember his dictum, cited in these pages (vol. xii., p. 133), 'I believe most firmly that it is humanly possible to climb Mount Everest.' I can only suppose that Dr. Hepburn has read into the time-honoured phrase *rarity of the air* (which I purposely used, in inverted commas, because, so much being still in dispute, it seemed to me preferable to any more particular and controversial form of words) a much narrower sense than I intended it to bear.

The conclusion of the whole matter, to my mind, is that the sooner some competent climbers go to Sikkim the better. No one probably can prove or disprove with absolute certainty past ascents. But when they have been outdone, they and the personal questions involved in 'a record' will sink to their proper importance. Let me further express my hope that young mountaineers will not be deterred by any asseverations of their elders that they must make a business of a pleasure. 'A series of observations' is a most admirable thing, but to get to the top of your mountain is still better, and the two are not always compatible. First ascents may, without being scientific, open the way to science. Saussure would hardly

have got up Mont Blanc had not Balmat been there before him. I have so often preached the scientific mountaineering I have myself very indifferently practised that I may be forgiven if for once I confess that there are times when a mercurial barometer may be a burden, and even a small plane-table a bore, and that mountaineering pure and simple has joys and leaves memories which no other form of recreation, much less any serious pursuit, can equal, and from which even the incredulity of a scientist can take nothing.

I am, sir, yours obediently,
DOUGLAS W. FRESHFIELD.

DEAR SIR,—Dr. Hepburn charges me, in the fourth paragraph of his letter (*supra*), with an inaccuracy of statement. The only passage quoted by Mr. Freshfield ('Alpine Journal,' No. 139, p. 51, from the 'Edinburgh Review' (July 1897), in which reference is made to M. Bert, is as follows:—

'He [Sir Martin Conway] asserts roundly that the cause of mountain sickness is diminution of the supply of oxygen, adopting the view that M. Paul Bert insisted on so strongly.'

I am unable to see how this sentence justifies Dr. Hepburn's remarks. If he had some other passage in mind, I should be glad if he would cite the words. I did not say that M. Bert 'experimented to prove that the symptoms of mountain sickness were due to diminution of oxygen.' I merely stated that M. Bert adopted this view strongly. Dr. Hepburn must have forgotten the passage in M. Bert's book ('La Pression Barométrique,' Paris, 1878), in which he deals with the subject of 'Voyageurs en Montagne' (p. 1096, *et seq.*), especially the concluding lines of the chapter (pp. 1104, 1105). If Dr. Hepburn refers to this expression of M. Bert's opinions, I am sure he will admit that the passage quoted from the 'Edinburgh Review' is a correct statement of M. Bert's views.

I am, sir, yours obediently,

THE WRITER OF THE ARTICLE IN THE
'EDINBURGH REVIEW.'

[MR. HINCHLIFF ON ALTITUDES.—Owing perhaps to its title, 'Over the Sea and Far Away,' Mr. Hinchliff's last work, published in 1876, while he was President of the Alpine Club, is much less known than it deserves to be, and probably many of our readers are unaware that it contains a picture and an eloquent description of Tupungato, one of the great peaks recently climbed by members of Mr. Fitzgerald's expedition.

Our immediate object, however, in referring to a volume which should take its place in every Alpine library, is to call attention to the example it affords of the risk run, even by an eminent mountaineer, when he takes a man's highest in the decade in which he chances to write as a limit likely to be permanent. The following passage needs little comment (p. 90). Mr. Hinchliff wrote:— 'Lover of mountains as I am, and familiar with such summits as those of Mont Blanc, Monte Rosa, and other Alpine heights, I

could not repress a strange feeling as I looked at Tupungato and Aconcagua, and reflected that endless successions of men must in all probability be for ever debarred from their lofty crests. When we used to look at the highest peaks and passes of the Alps, the only question which suggested itself was "which is the best way to get there?" In the presence of the huge peaks of the Andes I could but think of the great probability that no one would ever get to them at all. There they reposed in divine dignity, too great for mortal approach, and suggesting the abode where the "gods of Epicurus" sit careless of mankind and careless of the tremendous calamities dealt out to men by the fires concealed beneath the feet of these glorified monsters. The Alps have been conquered, and Mont Blanc has been obliged to bow down to the monarch of the Caucasus; but nature proclaims the existence of an impassable limit somewhere, and the latest conquerors of even Elbruz and Kasbek have been compelled to admit the effects of the rarefaction of the air. Those who, like Major Godwin Austen, have had all the advantages of experience and acclimatisation to aid them in attacks upon the higher Himalayas, agree that 21,500 ft. is near the limit at which man ceases to be capable of the slightest further exertion. [Since this was written I find that Mr. Johnson, of the Indian Survey, has crossed a pass at 22,000 ft. above the sea, but the slope was probably long and gradual.] Even this has only been attained by halting after a very few steps and lying down exhausted in the snow. Mr. Simpson, whose pictures of Himalayan scenery are so well known, tells me that he and his party suffered severely in crossing the famous Purung Pass, which is 19,000 ft. above the sea; and that some of the natives from the plains declared that they were not only dying but dead! None could advance without more and more frequent halts. There is reason to believe that, from some climatic reason, this difficulty of breathing, called *puna* in South America, is experienced with greater severity in the Andes than in other great ranges. When Mr. Darwin crossed the Portillo Pass to Mendoza, at the height of 13,000 or 14,000 ft., he found that "the exertion of walking was extremely great, and the respiration became deep and laborious." With their 9,000 or 10,000 ft. above this, Aconcagua and Tupungato may probably defy intrusion, unless through the medium of a balloon.'

[The writer was an expert, the evidence he adduces is considerable and fairly related; yet his conclusion has been proved erroneous. One point raised, the exceptionally deleterious quality of the atmosphere of the Andes, deserves investigation. It is a branch of a general question—how far local conditions modify the effects of altitude?—which has not hitherto attracted the attention it deserves.—ED.]

THE ALPS IN 1864.

To the Editor, 'ALPINE JOURNAL.'

DEAR SIR,—By the courtesy of Major Moore I have obtained permission to reprint and publish the Journal of his brother, the

late Mr. A. W. Moore, so well known under the title of 'The Alps in 1864.' The publication will be undertaken by Mr. Douglas, of Edinburgh, the editing by myself. I propose that the book should be illustrated by the best photogravure reproductions of original photographs, illustrating Moore's route, which I can obtain. I write this letter in the hope that through the 'Alpine Journal' I may come into communication with some members of the Club, or perhaps other climbers, who have, or might be willing this summer to take, photographs such as are required, and who would afterwards be willing to give me the opportunity of seeing them with a view to their reproduction, if suitable.

The route taken by Moore in 1864 was in outline as follows:—

St. Michel—Col des Aiguilles d'Arves—Bec du Grenier—Brèche de la Meije—Col des Ecrins—Les Ecrins—Col de la Pilatte—Mont Blanc, from the Belle Vue Pavilion to Chamonix—Col du Chardonnet—Fenêtre de Saleinaz—Grand Cornier (unsuccessful)—Col d'Hérens—Rympfischhorn—Dom—Bies Joch—Morning Pass—Aletsch Horn—Beich Grat—Wetter-Lücke—Eiger (from the Wengern Alp)—Wetterhorn.

I may remind any gentlemen who are willing to help me in this matter, that the views which are wanted are not those *from* the places I have named, so much as views *of* those places, which therefore may sometimes require to be taken from quite different points to those actually traversed by Moore himself. The most convenient size would be half-plate, but smaller negatives can be enlarged if necessary.

I remain, yours faithfully,

ALEX. B. W. KENNEDY.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held in the Hall of the Club on Tuesday evening, February 1, at 8.30 P.M., Mr. Charles Pilkington, *President*, in the chair.

The following candidates were balloted for and elected members of the Club:—Messrs. C. S. Ascherson, F. Ball, P. M. Barnard, W. G. Edwards, F. de Filippi, E. J. Mazzuchi, H. J. Mothersill, J. S. Phillimore, A. G. S. Raynor, H. J. Synnott.

The *PRESIDENT* announced that while the Exhibition held last summer had unfortunately been but poorly attended, the recent Exhibition had been very successful, as 500 to 600 people had been present on the opening day, and about 900 afterwards, which was very gratifying. The credit was greatly due to the exhibitors, who had sent a very beautiful and interesting set of photographs; and also to those who had managed the Exhibition, especially to Mr. Carr and the Hon. Secretary. Mr. Carr had managed the Exhibitions for several years, and had done much hard work, and the Club owed him hearty thanks for his trouble.

With reference to the circular in regard to Ball's 'Alpine Guide,' the *President* called special attention to the last paragraph, in which it

was stated the cost of the first two volumes would be considerably more than one guinea. He said it would be discourteous and unjust to ask those who had previously subscribed this sum, and had waited so long, to subscribe further; but, at the same time, the Committee would be very happy if they chose to give more. The circular had been sent out by a small sub-committee, consisting of Messrs. Freshfield, Cockburn, Wills, and himself. It stated that the old Committee had worked on too low an estimate of costs. This was true. But it was to be remembered that at that time the mass of information available for the 'Guide' was not so large as at present. The new maps would contain much new information, and the total cost would be much greater than originally contemplated.

He then referred to request made by the Committee for additional subscriptions to the publishing fund. The first volume would be the most thorough and comprehensive work on the Western Alps ever produced, and he appealed especially to the younger members not only to remember Mr. Ball's literary work, but also that in the early days of the Club he set an example that tended towards all that was noble and good, both physically and intellectually, in mountaineering, and that, for the honour of the Club, this memorial must be made worthy of one to whom it owed so much.

He trusted there would be a hearty response to the circular, and that now, when we had Mr. Coolidge's immense knowledge of the Alps brought to bear on the task, the work of the Editor would not be hampered by lack of funds.

Further, the President drew attention to the splendid panoramas of Spitzbergen exhibited by Sir Wm. Conway, and to a very beautiful photogravure of Ushba, taken by Signor Sella, and presented to the Club by Mr. Freshfield.

Mr. F. O. SCHUSTER wished to say a few words with reference to the paragraph in the circular commenting on the action of the Committee which had initiated the republication scheme, and invited subscriptions on the understanding that subscribers of one guinea and upwards should receive a copy of the work when issued. That understanding had been a distinct promise, which the present Committee could not depart from. The views of the Committee then in office had been clearly stated in their circular, and had been arrived at only after mature consideration. They had not acted hastily, but, after bringing the negotiations with the publishers to a successful issue, had based the financial part of the scheme on an estimate from the publishers themselves, which put the whole cost at 750*l.* The Club had answered generously to their appeal, and subscribed 725*l.* in a very short time, and that amount was obtained from 242 subscribers, who had a claim for one copy each; so that an average of 3*l.* had been obtained for every copy; in fact, very considerably more than the cost of production. If the original estimate had been exceeded, it was because a great deal more work had been put into the publication, and a great deal more expense

incurred for maps, than was originally contemplated. He had no doubt whatever that the younger members of the Club, to whom the present appeal was made, would respond as liberally as the older ones had done. In any case, we were now bound to go on with the work. It was one worthy of the Club, and he was glad they had undertaken it, and had no fear of the ultimate result.

Mr. A. J. BUTLER said that he had been largely responsible for the estimate of 750*l.*, which had been very carefully calculated. It had been based, to the best of his recollection, on the supposition that the Club would be its own publisher. Any other arrangement would, of course, be more expensive.

Mr. D. W. FRESHFIELD was largely in sympathy with Mr. Schuster. He had always considered the action of the Committee in undertaking the republication of 'The Alpine Guide' to have been somewhat lighthearted, without due appreciation of the difficulties of the task. It had, however, been undertaken, and must be carried through in a manner worthy of Mr. Ball and of the Club. The present circular entirely endorsed Mr. Schuster's view that the promise in the first circular should be adhered to; but it was clearly undesirable to offer for one guinea a work the bookseller's price for which would be 3*6s.* With regard to what had been said by Mr. Butler, the plan of publication on which the estimate formerly given of 750*l.* was based was still adhered to. The Committee was itself carrying out the work and paying its own bills, as Mr. Butler suggested.

The PRESIDENT was certain that there was no intention to attach any blame to the former Committee; but that to ask, as the circular did, that new members who subscribed one guinea should be content with one volume required some explanation.

Mr. WOOD asked what the position of original subscribers of one guinea would be in regard to Vol. III., if the complete work should not be published?

The PRESIDENT replied that, unless the funds allowed, Vol. III. could not be published; but the Committee hoped that the profits on Vols. I. and II. would allow of the publication of Vol. III.

Professor H. B. DIXON read a paper entitled 'Ascent of Mount Lefroy, and Other Climbs in the Rocky Mountains,' which was illustrated by lantern slides from photographs taken by Dr. Norman Collie.

Mr. G. P. BAKER said that a certain New York paper, in referring to the ascent of Mt. Lefroy, had claimed the glory of the expedition for the Americans in the party. A report of the actual facts had been sent by one of the party, but had been garbled in the office of the New York paper in the way characteristic of much American journalism. Professor Dixon had spoken of mosquitoes; but there was an almost worse torment in the bulldog-fly, which punctured the skin with scissor-like mandibles. He wished to testify to the very expeditious manner in which Mr. Collie effected the rescue of their American friend from the depths of the crevasse.

Professor COLLIE said that he considered much of the scenery in

the Canadian Rockies very beautiful, especially in the valleys, where the lakes, the pine woods, and the rivers combined in forming strong and picturesque foregrounds for the mountains. The mountains themselves afforded excellent climbing of all kinds, snow and rock peaks, great glaciers, and ice-fields; besides which hardly a peak yet had been touched if one went ten miles N. or S. of the Canadian Pacific Railway. The further north one went the higher the peaks became, the average height of those near the line being about 10,000 to 11,000 ft.

On Dr. Hector's map, however, peaks far higher than this were marked, Mount Forbes and Mount Murchison (about 14,000 ft.), and further north Mounts Brown and Hooker (about 15,000 ft.). These two last mentioned peaks have lately been discredited, and probably not seen since Dr. Hector's time. Professor Collie's party had encamped at the foot of Mount Forbes, and Mount Hooker, or at least a vast snow-peak quite 15,000 ft. high, had been seen to the northward, from the slopes of Mount Freshfield, in exactly the position assigned to Mount Hooker by Dr. Hector. Dr. Hector was not an Alpine climber, but explored most thoroughly the valleys of the district, and everything Professor Collie's party had come across had confirmed the wonderful accuracy of Dr. Hector's report.

The PRESIDENT thought that expeditions should be got up to go to the Rockies, as there seemed to be plenty of work to be done. The accident in the crevasse was another lesson in the danger of going over snow unroped. He wished to remind members of the way of using the 'Distress Signal,' which would have been useful on this occasion.

Professor DIXON said that they came a considerable way down Mount Lefroy face to the mountain, which he believed was novel. The expedition was well equipped with instruments. Especially useful was a mercury barometer, designed by Professor Collie, which was portable, foldable, and packable, the readings with which were much more reliable than those of an aneroid at high altitudes.

With a hearty vote of thanks to Professor Dixon, the proceedings terminated.

A GENERAL MEETING was held in the Hall of the Club on Tuesday evening, March 1, at 8.30 P.M., Mr. Ellis Carr, senior member of Committee, in the chair, in the unavoidable absence of the President and Vice-Presidents.

Mr. H. Huntly-Gordon was balloted for and elected a member of the Club.

The Honorary Secretary and Treasurer submitted the accounts for 1897. He said that, as the late Treasurer had forecast, the income of the Club had been less in 1897 than in 1896, but the amount of decrease was only 30*l.*, and not 50*l.* as expected. It was due to the diminution in entrance fees, which was probably owing to candidates being prevented from qualifying by bad weather. The decrease in entrance fees was 42*l.*, while the increase in subscriptions amounted to 16*l.* 16*s.*, leaving a decrease of 25*l.* 4*s.*

Turning to the item 'excess of income over expenditure,' the two years stood at 27*l.* 7*s.*, and 162*l.* 12*s.* 1*d.* respectively, so that 109*l.* 14*s.* 11*d.* less was saved in 1897 than in 1896. Deducting the diminution in income of 30*l.*, there was 80*l.* extra expenditure to account for; 39*l.* 11*s.* 6*d.* of this was due to the increased cost of the 'Alpine Journal,' which had always been a curiously fluctuating item in the club expenditure. There were fifteen more pages in 1897 than in 1896, including an index, and a system of packing with a board for postage was adopted last year. Those items fully accounted for the difference of 8*l.* in the cost of printing and publishing. There was an increase of 12*l.* in the cost of illustrations, an expenditure which it was hoped was justified by the results. There had been a falling off in sales of current numbers of 3*l.* 1*s.* 10*d.*, of back numbers of about 5*l.*, and in advertisements of 10*l.* Those amounts together accounted for the increase of 40*l.*

The remaining 40*l.* was an almost natural increase of expenditure. The biggest item was 'repairs,' an increase of about 26*l.* This was pretty equally divided between repairs to the roof, which, being some acres in extent, may prove permanently rather expensive, and summer cleaning, carpet beating, &c. In 'furnishing' there was an increase of about 15*l.* The two exhibitions in 1897 cost 13*l.* more than the three in 1896. This was due to some differences in the arrangements. Electric light was 7*l.* 12*s.* 6*d.* more. That was not due only to an increase in the cost of current, but also to including the cost of lamps under this heading. As to the financial position of the club it was necessary to say very little. 162*l.* 12*s.* 1*d.* had been paid off out of the 285*l.* 15*s.* 10*d.* which the Club had, so to speak, overdrawn, and there remained the sum of 123*l.* 3*s.* 9*d.* to be paid out of excess of income for 1898 in order to get rid of the liability incurred by moving into the new premises. It was to be hoped that by the end of 1898 Mr. Wicks's predictions of two years ago, that the Club should in three years get rid of its liability of 558*l.* 2*s.* 10*d.*, would be justified.

The accounts as submitted were then adopted.

There was some discussion on the question of the printing of the accounts in the Club list, and the date of its publication, which was referred to the Committee for their consideration.

Mr. H. J. T. WOOD read a paper entitled 'From the Scesaplana to the Terglou,' which was illustrated by lantern slides.

Mr. A. J. BUTLER drew attention to the attraction of boating on the Lunersee.

Mr. DOUGLAS FRESHFIELD said it was always interesting for an old member to listen to a paper which revived ancient memories as well as gave modern information. He must, however, point out that the Dolomite district had not been at any time neglected by our Club. Ball and Tuckett, Gilbert and Elijah Walton had discovered the Dolomites for Europe. The first ascents of Pelmo, Antelao, Rosengarten, Cimon della Pala, Saas Maor, and many other peaks had been made by our members. He had been glad to hear the

Zillerthaler Ferner again favourably mentioned. He had visited them with Mr. Tuckett in 1865, when things were very different to what they are now. They had heard one valley described as leading to various Club huts. After making the first ascent and traverse of the Möselenock, his party had walked 5 hrs. down that valley, the Zemmgrund, without coming to any human habitation. He thought members who visited the Tyrol would be well repaid. The photographs shown being mostly limited, after the new fashion, to the summits of mountains, 'climbing problems,' or sensational situations, hardly gave an adequate idea of a region where the valleys with their abundant verdure and picturesque steeples were a characteristic feature.

Sir W. MARTIN CONWAY referred to his last visit to the Dolomites in 1873, and to the danger that one ran of being over-crowded and suffocated with tobacco-smoke in the Club huts.

A vote of thanks was then heartily accorded to Mr. Wood.

A GENERAL MEETING was held in the Hall of the Club on Tuesday evening, March 29, at 8.30 P.M., Mr. Charles Pilkington, *President*, in the chair.

The Prince Scipione Borghese and Messrs. C. E. Thomson and Stuart M. Vines were balloted for and elected members of the Club.

The PRESIDENT: Since our last meeting the Alpine Club has lost two of its older members. The death of Mr. Edward Shirley Kennedy reduces the small band of original members to five. There were many of us who knew him, though most only slightly, and few of the younger members will have seen him; but so closely was he connected with the early history of our Club that his name will remain with us in kindly sympathy so long as the Club exists. On September 22, 1859, Mr. Kennedy issued a circular inviting those interested in mountaineering to meet in London, and many of those who responded were afterwards known among the first members of the Club. Mr. Longman, in speaking of the early history of our Club, says that, although to others may belong the honour of having first put forward the idea of the Club, to Mr. Kennedy belongs the merit of actively carrying that idea into execution. He edited the second series of "Peaks, Passes and Glaciers," and he was elected second President of this Club in 1860. His most important ascents were the ascents of the Bernina with Mr. Hardy in 1861, on the return from which the victors were met by the local band and conducted in triumph through the streets of Pontresina; and in 1864 the ascent of Monte Disgrazia with Mr. Leslie Stephen. He was one of the Committee appointed (in 1864) to inquire into 'Ropes, Axes and Alpenstocks,' and their report was the standard authority for many a long day. The last time he was at the Club was in May, 1889, but he retained his interest to the end, and at the last was engaged in writing papers in connection with the early history of the Club. He was a kindly, friendly man, a clubbist of the right sort. A paragraph of his paper on the ascent of the Bernina shows the man. 'As we recall the incidents

of the day, and dwell on the difficulties which with mutual trust and mutual aid we had together overcome, we feel that a kindly feeling had been established.' It was this 'kindly feeling' established this Club, which has given us many an enduring friendship, and it will long, we hope, be one of the chief characteristics of the members of the Alpine Club.

Last Wednesday, Mr. James Heelis, of Manchester, died in Yokohama. He had been a member of this Club for twenty-one years; and the North of England has lost one of its staunchest supporters of all that belongs to mountaineering. He was essentially an Englishman, ever more ready to help than to pose as a benefactor. He was a shrewd, well-read man, whose loss will be felt by many in Lancashire, and which creates the first gap in a mountaineering circle of northern men who have been comrades for more than twenty years.

The PRESIDENT then intimated that a letter had just been received from Mr. Coolidge, which announced that the first volume of the *Alpine Guide* would be ready for publication in May. He also drew attention to a photograph of Mont Blanc which had been presented to the Club by Mr. Spencer; and to a photogravure of 'A Hot Day in the Graian Alps,' by Signor Sella, which was exhibited by Mr. Freshfield. In introducing Dr. F. de Filippi, he said that all our members had watched with great interest the progress of the Duke of the Abruzzi's expedition to Mount St. Elias, and had been much gratified to hear of its success, for two of the members of the expedition were members of the Alpine Club, and since then a third member of it had been elected to the Club—namely, Dr. Filippi himself. They looked upon the reading of Dr. Filippi's paper as a kindly compliment from the Italian Alpine Club, and regarded it with feelings of great gratification.

Dr. F. DE FILIPPI read a paper entitled 'The Expedition of H.R.H. the Duke of the Abruzzi to Mount St. Elias,' which was illustrated by lantern slides by Signor Vittorio Sella.

Mr. DOUGLAS FRESHFIELD, in the absence of any members who had been in the neighbourhood of Mount St. Elias, referred to the literature of the mountain. It had been discovered by navigators who fancied they had seen smoke issuing from its summit. Hence it was still described in the 'Encyclopædia Britannica' as an active volcano. Tennyson, a great reader of travels, had it in his mind (he had told the speaker) when he drew one of the pictures of landscape in 'The Palace of Art.'

And one, a foreground black with stones and slags,
Beyond a line of heights, and higher,
All barr'd with long white cloud the scornful crags,
And highest, snow and fire.

Physically the mountain was remarkable as offering the greatest vertical sweep of snow and ice yet discovered on the face of the globe, 15,000 ft. from the top to the snow level and 18,000 ft. to the sea level, to which its glaciers descended. The story of the successful expedition led by H.R.H. the Duke of the Abruzzi, which the Club had just heard, was noteworthy, amongst other things, for

the extraordinarily perfect working of the arrangements for the equipment and provisioning of the party. Such a result could only have been obtained by great personal care and forethought in the leaders in all matters of detail. A lesson might be learnt by English explorers, who were, perhaps, too apt to leave such things in the hands of outfitters and professional packers. He desired to join in most warmly congratulating the Duke and his companions on their complete success, and particularly Dr. Filippi on the admirably clear and graphic paper he had read, and Signor Vittorio Sella on the series of artistic and beautiful as well as interesting pictures he had obtained of the strange features of these Arctic heights. The Italian mountaineers were also, he thought, to be congratulated on their prudence in having escaped from personal interviewers, and the futile and fulsome adulation in the press, of which some recent climbers had been made the victims in this country.

The Alpine Club, he felt sure, highly appreciated the compliment paid to it by its Italian members in coming to lay before it, as the first and highest authority on all matters of mountain exploration in this country or in Europe, the results of their travels.

There was one matter of the first importance to the future of mountaineering on which Dr. Filippi had only touched, but which he (Mr. Freshfield) should like to discuss briefly at this meeting, since he might not be able to be present when Mr. Vines read his paper on Aconcagua, and also because it had been raised by Sir Martin Conway before the Royal Geographical Society on the previous evening. He referred to the effects of high altitudes on the human frame. Sir Martin Conway had reaffirmed his incredulity as to the ascents in Sikkim made by Mr. Graham's party, and he had given as his reason that the recorded sensations of the climbers were totally at variance with those of the other travellers who had reached the greatest elevations. Sir M. Conway's starting-point seemed to be that climbers' experiences were generally consistent; but he could find no foundation whatever for the suggestion. 'Quot homines, tot sententiæ': the old proverb seemed exactly to hit the situation.

The one thing clear was that there was no identity in symptoms. As most present could bear witness, the same climber on the same peak would often be differently affected on different days. A very inadequate proportion of the human race had as yet been experimented on. The construction of tunnels in the Andes might lead to an extension in this respect. He understood labourers were found, chiefly men drawn from the eastern or Argentine slope, who could do as fair a day's work at 15,000 ft. as at the sea level. Mr. Dent, he hoped, would pursue this inquiry.

No one, he must add, denied that great heights affected the human frame. The problem before them was to examine the causes of so-called 'mountain sickness,' and to find out how far it was due to exposure and diet, how far it could be avoided or diminished by attention to these matters.

Sir MARTIN CONWAY continued the discussion on the altitude question. He also wished to draw attention to the vast area to

the north of Mount St. Elias which was still to be explored, the exploration of which could only be carried out, in his opinion, by the use of dogs to draw the sledges. He hoped that the paper might stimulate some members to visit the vast glacier region round Mount Logan, which had as yet remained unexplored and unmapped.

Dr. WILSON was interested in noting that the descent and return to the coast took just one-third the time of the ascent, which was the usual average when there were no special climbing difficulties.

The PRESIDENT most heartily congratulated Dr. Filippi. He thought the Americans must have been astonished to find that a Prince could conduct so successful an expedition. The members of the Club were not surprised, for they knew what the Duke had done in the Alps. He heartily congratulated the expedition on planting the Italian flag on the top of Mount St. Elias. The Alpine Club, he thought, owned a small corner of the flag, as some of the members of the expedition were members of the Club. He was much struck with their having been able, near the summit, to climb 10 hours at 500 ft. per hour, a thing never before done. There had been no great climbing difficulties, but much glacier work requiring constant care and knowledge of icecraft. They had proved the uselessness of Canadian snowshoes in mountaineering, for they threw away those they had taken. He trusted that when Dr. Filippi returned to Italy he would convey to the Duke and to the other members of the party the most sincere congratulations of the Alpine Club, and its thanks for the great kindness of the Duke in arranging that Dr. Filippi should come over to read a paper, which he could assure Dr. Filippi the Alpine Club regarded as a strong mark of friendship on the part of the Italian Club, to whom they wished every success in the future.

A hearty vote of thanks was accorded to Dr. FILIPPI, who in reply said that it was with the deepest feelings he thanked the Club. He considered that he had been fortunate in having been chosen by the Duke to represent the expedition. He thanked the Club very heartily in the name of the Duke of the Abruzzi and his companions for the way in which he had been received. The real difficulty of the whole expedition had been one of equipment and organisation, for there were few technical difficulties in climbing. The provisions had been divided into boxes, each containing sufficient for twenty-four hours, including coal, oil, and even matches. Everything had been very accurately chosen.

Six out of ten of them had suffered from mountain sickness, but that was due largely to fatigue and excitement and consequent want of sleep on the preceding night. The effects they found wore off as they went on. They had never been exposed to danger, except for half an hour during the last 400 yards of the Newton Glacier from avalanches falling from the eastern wall of Mount St. Elias, but they were never unroped while traversing the Newton Glacier, as bridges frequently gave way. Signor Sella had thought that Mount Logan was higher than Mount St. Elias, but all he could say with certainty was that it was about the same height.

The proceedings then terminated.

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THE NEW EDITION OF BALL'S 'ALPINE GUIDE.'*

By F. F. TUCKETT.

BY the members of the Alpine Club, as well as doubtless by a far wider public, the appearance of this goodly volume, so long and eagerly looked forward to, will be hailed with general acclamation and a feeling of warm gratitude both to those fellow labourers who have so ably assisted the editor and, in an especial degree, to Mr. Coolidge himself, whose modest preface serves only to enhance the sense of our deep indebtedness to him for his services under conditions of health which might well have discouraged one less enthusiastic and persevering.

It is no injustice to the classic work of our first President—a marvel of comprehensive grasp, scientific grouping, and accurate detail—to say, as he we know was the first to admit, that growth of knowledge and lapse of time must inevitably necessitate numerous additions and rectifications. But it would be falling short of the praise due to Mr. Coolidge if we did not fully acknowledge that, without so far remodelling the original as to lose the benefit of its most valuable and permanent characteristics, he with the aid of his associates has yet so expanded, and enriched, and revived it as to have made it practically far more than what is ordinarily understood by a merely new edition.

Having gone through the whole of the proofs of those three original volumes, I can form some faint estimate of the labour

* *The Alpine Guide: the Western Alps.* By the late John Ball, F.R.S., &c., President of the Alpine Club. A New Edition, reconstructed and revised on behalf of the Alpine Club by W. A. B. Coolidge, Fellow of Magdalen College, Oxford, and formerly Editor of the *Alpine Journal*. With new and revised maps. Pp. xlix and 612. (London: Longmans, Green, & Co. 1898.)

which must have been devoted to this new issue, and all the more so when, bearing in mind the well known minute and conscientious accuracy of the editor, one realises how much time, and thought, and patient research are embodied in his work. Probably to no other so competent hand in Europe could the task have been entrusted with such undoubting confidence; and, energetically backed by the unfailing support and encouragement of Mr. Douglas Freshfield as President, and aided, as Mr. Coolidge loyally and warmly acknowledges, by a band of highly qualified specialists, without whose co-operation even his encyclopædic and practical knowledge of the region described would hardly have ensured such a brilliant success, he has erected around the central structure of Mr. Ball's great work a monument which, in conjunction with his previous publications, will give his own name as high a place in the history of Alpine literature as it has long held in that of Alpine exploration.

Since the volume has for some time been in the hands of the subscribers to the fund, and ought to be already in those of every member of the Club, as well as of those other readers of this 'Journal' whose misfortune it is to be not yet enrolled in our ranks, it may seem almost superfluous to expatiate or offer remarks in detail on the merits of a performance which each one can test and appreciate by an examination of those districts best known to himself. But it would be doing imperfect justice to the labour and care devoted to its production, if I omitted to point out that in bulk the new exceeds the original text by nearly 200 pages, whilst the Introduction has been judiciously curtailed and supplemented, as the very valuable original one prefixed by Mr. Ball is obtainable in a separate form. Amongst the improvements of system I note with special satisfaction that the former arrangement of three indices, in which one was constantly balked by finding oneself straying into the wrong section, has been abandoned in favour of a single one, which for all practical purposes is infinitely more handy, and which has the added convenience of containing the names of inns, after the example of the 'Guides' published by MM. Hachette et Cie.

The addition of the heights in mètres to those in feet throughout the text is a most useful one, and valuable for comparison with foreign surveys, whilst of course involving a very large amount of extra labour to the editor. Then, too, the maps show a vast stride in advance of those previously supplied, and represent the results of much patient and detailed study; for, besides the district maps of the Pennines

extracted from that published by the Club, the editor has given us an excellent general map of the entire region described in the volume, and six—entirely new—of the country S. of the Little St. Bernard, on the very useful scale of $\frac{1}{250000}$. The compilation of these maps from different and frequently divergent surveys is an important contribution to Alpine Cartography of which the credit is due to Mr. Coolidge. I may, perhaps, note in passing that when he, in his reference to 'General Maps' at p. xxxix of the 'Preliminary Notes,' remarks that 'there exists at present no one map on a fairly large scale of the whole chain of the Alps,' he appears to have lost sight of the—for their date and scale—really excellent nine sheets, including the entire region from W. of Dauphiné and S. of Nice to Croatia, on a scale of $\frac{1}{450000}$, by J. G. Mayr, published in 1858 by Perthes of Gotha, under the title of 'Atlas der Alpenländer.' These cover nearly the same extent of ground as Andrée's excellent little map referred to, but which is only on a scale of $\frac{1}{250000}$, and not ' $\frac{2}{300000}$ ' (or ten times as large), as stated in the 'Notices.' Perhaps Mayr's scale may be considered too cramped, as it undoubtedly is for actual climbing purposes, for at p. xxxvii the Italian map of $\frac{1}{100000}$ is characterised as 'too small for practical use,' though the scale is the same as that of Dufour's. May I venture to suggest that, in view of the difficulties to be encountered in passing from Italy to France, and *vice versa*, it might have been well to insert in the general map the line of the frontier, though that is, perhaps, less necessary as it has been done in the six new special ones.

The bibliography contains a list of some 260 works, and though it 'makes no pretension to even approximate completeness' we may be very sure that the selection has been well considered, and accept it confidently on the high authority of the author of 'Swiss Travel and Swiss Guide Books.'

To those of us who look back affectionately to our genial and zealous President Mr. William Longman it is an additional source of satisfaction that the name of his firm continues to be associated with this reconstruction of Ball's 'Alpine Guide,' as are Messrs. Spottiswoode & Co. in the printing and Stanford's geographical establishment in the creditable execution of the maps.

No one can be more conscious than myself of the very imperfect justice which can be done to such a labour of love, and skill, and hearty co-operation in a brief notice like the present, and until one has had time more thoroughly to digest the 600 pages, which combine as much careful and well considered

work as has, perhaps, ever been brought to bear on such a subject. I am sure, however, that in thanking Mr. Coolidge and his trusty associates, as well as all others who have contributed to further the object in view, for the great boon which they have conferred on their brother mountaineers, and the worthy memorial which they have constructed, with what is felt by Mr. Ball's family as a pious regard for the work, to the memory of one for whom we all feel such affectionate veneration, we can warmly congratulate both them and ourselves on the completion in so admirable a manner of this first stage of the formidable and responsible task they have undertaken, and wish them an equal measure of success when dealing with the subsequent portion of it.

FROM THE SCESAPLANA TO THE TERGLOU.

By H. J. T. WOOD.

(Read before the Alpine Club, March 1, 1898.)

MY apology for this paper is taken from the 15th chapter and the 373rd page of the 'Alpine Journal,' where you will find these words written: 'But when we come to districts like the Silvretta and its northern division, the Fervall group (reported to offer some of the best rock-climbing in the Alps), or to the ranges east of the Glockner, we shall find plenty of work for our missionaries.'

Probably most climbers who go to the Tyrol make for the Dolomites. Now this is by no means a good district for getting into training in; for, though the good climbs there are undoubtedly very short, they tax the nerves very severely, and I think it is decidedly advisable to be in thorough training before attempting them. So I will give you a short account of some moderate but interesting mountains which may be conveniently taken on the way to the Dolomites—the Scesaplana group and the Zillerthal peaks.

On the usual Arlberg route to Innsbruck the first stop of the express from Basle after crossing the Austrian frontier is at Feldkirch. About ten miles beyond this and the same distance short of Bludenz (where the ascent to the tunnel begins) is Nenzing. Here the expresses sometimes cross. If they do not it is best to drive from Feldkirch. From Nenzing an excellent path leads through one of the most beautiful valleys I have ever seen to the Nenzinger Himmel. This Himmel is not up to the expectations which may have been

formed on the way up, perhaps the common attribute of such places. In this Himmel, an easy $3\frac{1}{2}$ hrs. from Nenzing, is a rough but quite comfortable Alpine inn. Last season it was the meeting place of several gentlemen who had taken the shooting, and great were the hunters' tales in the evening. A well made path leads most comfortably in about $3\frac{3}{4}$ hrs. from the inn to the Panüler Schroffen, a north-western offshoot of the Scesaplana, whence an easy glacier is crossed and the Scesaplana ascended over 'Geröll' in an hour. It is probably not very difficult to climb the rocks of the N. or N.W. faces, but should this be attempted it would be advisable to send a porter up to the top to prevent stones and bottles being let down by the numerous tourists to be found there nearly all the day. The view is magnificent, extending from the Tödi group to the Oetzthal.

With luck one can glissade nearly all the way to the Douglas hut on the Lünér See. Last year when there was little snow we got down in about $1\frac{1}{4}$ hr.—very slow time; $\frac{3}{4}$ hr. would be ample. Now this hut is one of a certain number in Tyrol which should in the high season at all hazards be avoided. These may be known by their lying at the bottom of the easiest and shortest route up to the easiest and shortest peaks and passes. Others are the Dresden hut, in the Stubaital, the Payer hut, in the Ortler, the Erzherzog Johann hut, on the Glockner, the Prager hut, on the Venediger, and some few others. They are generally full of what are known as 'Thalbummler,' whose capacity for food, drink, smoke, and noise is practically unlimited. The only thing to be done is to secure a room which your own party will fill, to arrive and dine as early as possible, and not to think of an early start. After the great caravans have set off you will get a very comfortable breakfast practically alone, and there will be no need to start with the ruck, as *your* guides will not want to do a peak, get down to the valley, and bring another party up to the hut the same night.

From the Douglas hut last season I strolled down the valley to Brand in about $1\frac{1}{2}$ hr., where the first inn on the right (Kegele) is most comfortable (*pension* $2\frac{1}{2}$ fl. per day), and the next day started for the Zimbaspitz. Going further down the valley for about $\frac{1}{2}$ hr., we doubled back to the Oberr Savotta Alp, and ascended to the basin at the E. foot of the peak, in which chamois abound. The proper way from here is to keep under the N.E. arête, not striking it till close to the top; but by keeping on the face the screes are fewer and the climbing more interesting; the time from Brand to the

top, 4½ hrs., exclusive of halts. We had intended to descend by the usual route down the E. side of the S. face, but, profiting by our experience on the way up, we kept straight down the face, starting from the highest point and keeping to the right when the direct descent was impracticable. By this means we got some really pretty climbing, one Kamin in particular, which could only be entered by climbing round and under a large overhanging block, being somewhat sensational, and proving quite beyond the powers of the local guide, who was with difficulty dissuaded from going straight home the way we had come, or rather by the usual way, and when we got off the rocks appeared for a considerable time to be unable to make up his mind whether his prayers should consist of thanksgivings for his personal safety or execrations on the foreign devils who had taken him into what he considered such frightful peril. He had his revenge, however, in taking me through a quantity of *Krummholz*, which he declared had grown considerably since he was last there, and which, he assured me, was quite easy to go through (it was about 6 ft. high); and so it appeared to be, if one knew how to do it, but most certainly one had got to know it first. From the Sennhütte on the Alp Vilifau, in the valley where excellent coffee is to be had (50 kr. for the three, including bread and butter), a pass leads in about 1½ hr. to the Douglas hut; but a little mist came on and we could not find the path; so, after wandering about for some time, we had to go back and take the marked path over the Lüner Joch, not reaching the Douglas hut till 8 P.M. The result of a large amount of abuse apparently was that Obermüller took counsel with his friends as to what mountain would prove too much for Barbaria and myself, and late in the evening suggested that the best thing we could do next day was to ascend the Drusenfluh from the Schweizer Thor by the Rote Gang, which he assured me was a first-rate climb (he afterwards admitted that he really believed it quite impossible), descending by the usual route on the N. side, and go to Schruns or the Tilisuna hut, and thence to the Arlberg railway. This fell in with my views, as I was anxious to see the Tilisuna hut, which was said to be riddled with bullet holes, as there had recently been an exciting fight between the smugglers and the Finanzers, the latter having been besieged in the hut for three days, and one man having been killed. None of us had previously made the ascent by this route, so on reaching the Verra Joch we ascended the slope to the N. for a few minutes, and soon got an excellent view of the Rote Gang, along which the 'Hochtourist' said we

must go. It is a great ledge traversing the S. face of the mountain, and is quite unmistakable, owing to its red colour. We hurried down to the Schweizer Thor, left two rucksacks there, scrambled down the rocks, and crossed the screes to the foot of the Rote Gang, 2 hrs. from the Douglas hut. Here we put on the rope, as the ledge was inclined at a considerable angle, the earth and stones seemed very loose, and we had no wish to make a rapid descent to Switzerland. We followed the ledge to its end without any real difficulty, and then turned sharp to the left up easy and pleasant rocks. All went well till about within 80 ft. of the arête, when a convenient gully turned to the right, but it ended in a cave which apparently had no exit, and the face got steeper and smoother every foot, so that we were forced to try a crack which led up the face from the bottom of the gully. For the first 50 ft. this was good enough; one foot could be kept in it, and both hands, and there were sufficient projections outside for the other foot to make progress fairly easy and quick; but afterwards the crack narrowed, the holds outside became fewer and further between, till finally it was only owing to Barbaria's abnormal length of limb that he was enabled to get up. We then followed the arête to the E., but it would have saved time to have gone down about a hundred feet on the N. side and traversed the face, not touching the arête till the last gendarme before the final group of peaks, which is easily turned by a ledge on the S. side, after which the final summit is reached by some scrambling and easy rocks. We got to the top at 11.5, in 6 hrs. 5 min. from the Douglas hut, exclusive of halts.

After our experience on the previous day I cross-examined Obermüller very severely as to his ability to find the way down; he swore by all his favourite saints (I knew them well enough by this time) that in a couple of hours we should be in the valley.

I might suggest that a very fine expedition, which appeared quite possible, would be to follow the E. arête and ascend the Grosser, Mittlerer, and Kleiner Turm. The last mentioned peak affords 20 min. excellent climbing, but is too far from the Douglas hut to make its ascent worth doing alone. We started down at 12, and found no difficulty, except some platten getting into the snow couloir, and descended this till about 300 ft. above the valley, but on turning the bend in the couloir we were pulled up dead; instead of the easy snow slope continuing, as it normally should have done, we found about 150 ft. of perfectly smooth limestone rock, which was obviously impossible, and after reascending a little, and

getting out of the couloir only to find nothing but horrible platten and ledges with no exit, we were obliged to go up to the top again and back the way we came. We were lucky enough to get down the difficult crack by daylight, but found the rocks under the Schweizer Thor not too convenient by lantern light. We reached the Douglas hut at 10.30.

I passed through the Fervall group last season, but the weather prevented my making any ascents there; as far as I was able to judge the rock-climbing was not of a high order, though some pleasant scrambling is probably to be had there. It should always be borne in mind that the German-speaking rock specialists confine themselves almost entirely to the Dolomites, with the result that the difficulties of the rock climbs in other districts are comparatively exaggerated in the German guide books. The Fervall group seems a good instance of this.

The two huts from which its peaks are climbed are each about 3 hrs. from St. Anton, on the Arlberg, where there is a very good hotel. The Konstanzer hut is *proviantiert*, and the Darmstädter hut *bewirtschaftet* and very comfortable. A very pleasant tour can be made from Klosters. From the Silvretta hut cross the Gross Litzner (an excellent climb) to the Madlener Haus or Wiesbadner hut, thence (taking in the Piz Buin if fine) to the Jamthal hut, ascend the Renner Spitz, traverse the Fluchthorn to Ischgl, and cross the Seebichl Joch to the Darmstädter hut. The Jamthal and Wiesbadner huts are most luxurious.

The most convenient valley to take on the way to the Dolomites, which has also the advantage of being 'echt Tirolisch,' is the Zillertal, the first valley of any size, running N. and S., E. of the Brenner.

It is reached from Innsbruck by taking the train on the Vienna line to Jenbach (about $\frac{3}{4}$ hr.), thence driving (a railway is in progress) to Mairhofen, where the road ends. The scenery from here onwards is of the highest order, and there are small but excellent inns about every 2 hrs. along the path till the Berliner Haus—the model Alpine hotel—is reached in about 8 hrs. from Mairhofen. An alternative route, by which the mountains are sooner reached, but the grand scenery of the lower part of the valley is missed, is to take the Brenner train to St. Jodok and walk to the new Geraer hut, thence cross the Olperer or Schrammacher to the Domenicus hut, and either down the valley to Breitlahner and up the Zemmthal or *via* the Furtschagel Haus and over an easy pass, or preferably the Grosse Greine, to the Berliner hut. The mountains

here do not call for a detailed description, the work, whether rock or ice, being of a mild order, unless, of course, the wrong ways up the mountains are taken ; but still the district affords an excellent training ground, and the side valleys will well repay exploration.

There is just one other ascent which I should like to describe shortly before going further S.—that of the Gross Glockner by the N.W. arête. With the exception of the routes up the great ice couloirs of the N. face, this is, and always will be, the only one of the recognised routes up this mountain that is free from wire ropes or crowds of climbers.

On August 25, 1895, with Johann Unterweger, of Kals, an excellent guide, and Mansueto Barbaria, I left the Studl hut at 3.40, and, crossing the Teischnitz Glacier and cutting up the steep snow and ice slopes above it, which later in the day would be swept by avalanches and stones, reached the arête just at the N. of the Glockner Horn at 6.40. Here we stopped $\frac{1}{2}$ hr. to breakfast and pull ourselves together ; for the next 150 yards our route was sensational in the extreme : hard blue ice falling over 1,500 ft. each side at a very steep angle, and an absolute knife-edge at the top.

We negotiated it in a very unorthodox fashion, Unterweger cutting steps along one side about 5 ft. below the edge, and Barbaria doing the same on the other, while I followed in Unterweger's steps. The unusual order was caused by our not knowing whether it would be possible to change places when we got to the rocks ; the Tyrolese unvarying custom is that when a Herr has two guides on difficult rocks they both go before him going up and behind him coming down. The difficulties increased when we got to the rocks, which were thickly glazed with ice (I believe we ought to have traversed on to the S.W. face). We reached the top at 9 A.M., and basked there in the sun alone till 10.30, enjoying an absolutely clear view of the glorious panorama.

We now come to the Dolomites, and perhaps I may be allowed to make a few general remarks on these mountains, as they have been almost entirely neglected by our members, with a few notable exceptions.

Firstly, I think I may safely say they are less dangerous than other mountains. Personally I am only conscious of having been four times in real danger on them, three times entirely owing to my own fault, and once in making the perfectly simple direct descent from the Tofana di Razes to the Tofana hut. We had got to the top to see the sunrise, and the 'Geröll,' which had been frozen in the night, was loosened

by the sun, and came down the face like hail. Had we stayed another $\frac{1}{4}$ hr. on the top we should have seen what was going on and come down in perfect safety by the arête.

Of course there are dangerous places which are well known and can be avoided, though in making new ascents one may readily get into them.

Since 1880 there have only been five fatal accidents in the Dolomites—that on the Cristallo, by which Michael Innerkofler was killed, and that on the Marmolata being on easy ice or snow. Herr Pemsel fell from the Euringerspitz when climbing unroped; he possibly died from heart disease. Herr Behr fell when climbing the Becco di Mezzodi alone; Herr Stuckler and his guide were killed on the Fünffingerspitz, which they attempted when in a very bad condition and when the Herr was in no fit state to attempt a serious climb (my private opinion is that the last two accidents were caused by slips on rock so covered with small stones that its smoothness cannot be seen, a danger which is often overlooked).

I would also point out that Dolomite climbing is very special work, a good proof of which is, I think, to be found in Mr. Sanger Davies's book, which seems to me a most excellent and accurate account of the first impressions of a climber in these mountains. I venture to say that if Mr. Davies had repeated his climbs that season the comparative difficulty of the mountains he so well describes would have been very differently set forth. At that time it was generally accepted that the Fünffingerspitz by the Daumenscharte was the most difficult of the peaks he mentions. I say at that time, for I, personally, am quite certain, and am borne out in this opinion by the experience of others, who have been several times in the Dolomites, that the ascents become really easier each year. I am sure that it was not only increased experience that made the traverse on the Kleine Zinne seem so much easier to me the second time I ascended that mountain than the first, and I really doubt whether the hold for the right foot which now takes away the chief difficulty from the Kamin existed in 1880; again, I am told the chief difficulty on the Daumenscharte route up the Fünffingerspitz now lies on the very steep rocks above the Daumenscharte, whereas formerly it undoubtedly was to be found in the ascent of the ridge and the traverse into the ice couloir. This sort of thing, of course, is to a great extent owing to the amount of loose stones removed by successive parties, but I am inclined to think that foot holes are really enlarged by the action of heavy boots on the rocks.

I have often noticed that when members of the Club are to be found in the Dolomites as often as not they are in the wrong places, so it may be as well to mention some of the best centres, and coming from the W. St. Martino is the first; here the hotels are good—perhaps not as good as formerly—and the climbing first-rate, the best climbs being the Cimone by the N.W. arête, the Sasso Maor from the N., the descent being made to the S. over the cave; the Cima della Madonna and the traverse from the Campanile di Val di Roda to the Cima di Ball, and for first-class ascents the traverse of the Pala and the W. face of the Rosetta. I have not been there since the two huts recently built by the Dresden section of the D.Oe.A.V. have been opened, and do not know what the peaks are like which can conveniently be ascended from them. The view from the Sasso di Muro is worth going that distance to get, and the Rosetta plateau should certainly be explored.

The Rosengarten group is taken from the new hotel on the Caressa Pass from Tiers or from Campitello, but the night must be spent either in one of the smaller inns or the Grasleiten hut. The Winklerthurm will probably attract most climbers; it is a first-class ascent.

The Langkofel group is generally taken from Campitello, but the inns at St. Ulrich are much more comfortable, and it is less tiring to get to the S. side from the Langkofel hut than from Campitello. The best ascents there are the Fünffingerspitz by the Neruda Kamin (from the N.) or the Daumenscharte; the Langkofel, avoiding the upper snow couloir by taking the Felsen-Weg and the Zahnkofel. For first-class ascents the Fünffingerspitz by the Schmittkamin, the Langkofel from the E., and the Grohmannspitz by the rocks to the Johannes Kamin. The Geislerspitzen, on the N. side of the St. Ulrich valley, should not be omitted; from the Regensburger hut three or more can easily be done in the day.

Cortina is only used as a centre because of the good accommodation to be found there, the Sorapiss from the N. and the Croda da Lago being the only good mountains to be done from here. The N. arête of the latter is extremely interesting for a short time, but on the whole I much prefer the usual route. The most interesting way from Cortina to Caprile is over the Passo da Lago, and the view from the Becco di Menzodi, $\frac{1}{2}$ hr. from the pass (though when it was iced we took $2\frac{1}{2}$ hrs. over it), is one of the best in the Dolomites. For first-class ascents there are the Popena from the Cristallo Pass (pleasanter from Schluderbach), and those described in the November number of the 'Alpine Journal.'

The Pelmo will not, of course, be omitted by any one who goes to the Dolomites. The ordinary route by the Untere Pont is the best for the ascent, but the descent may be made by the Grohmann or the Obere Pont; for those who do not want to go so far the descent from the Sorapiss may be made by the Cengia del Banco, an interesting ledge.

The Sexten Thal always seems to me to have been neglected. The inns are decidedly good, and the Drei Zinnen and Zsigmondy huts better reached from here than elsewhere. The best climbs are the Kleine Zinne from the S., Drei Schuster from the N., and the Grosse or Kleine Zwölferkofel by any of the various routes; first-class, the Kleine Zinne from the N.

Before going further E. I should like to make a few general remarks on the Tyrol, and I will follow the model of one who came from the stock of the truest mountaineers, Giraldus Cambrensis, who divides his description of Wales into two parts—'de laudabilibus' and 'de illaudabilibus.' I say of the stock of the truest mountaineers; for while those who possess the best mountains from a climber's point of view have allowed aliens to conquer them without protest, the answer of the Welsh to the articles exhibited against them in 1201 by John Peckham, Archbishop of Canterbury, is a matter of history. 'As to the clause that the Prince should give the King a perpetual possession of Snowdon, we only affirm that, seeing Snowdon essentially belongs to the principality of Wales, which the Prince and his predecessors have enjoyed since the time of Brute, the Prince's Council will not permit him to renounce it and accept another estate in England to which he has not equal right.'

To begin with the *Laudabilia*, in the first place I will put the people, simple, obliging, honest, unspoiled by tourists. In the hotels you are treated more like a guest of the family than one who is valued only for what can be got out of him; they give you freely of the best they have got, and are really anxious for your comfort. Their honesty is surprising. I will give two instances. The first year I had Barbaria he was with me for a fortnight, at the rate of 7 fl. a day, he, of course, providing all his food and paying all his expenses. The next year I engaged him for a month, and said I thought 6 fl. a day enough. 'Certainly,' was his answer, 'and I will give you back the extra florin a day I had last year.' In 1890 I took Zecchini, then a struggling guide with a large family, as second guide up the Sasso di Muro from San Martino, and on our return paid him 14 fl., which he said

was the tariff. Barbaria and I left next day, and, as I had done practically all the ascents that had then been made from San Martino, there was not much chance of my coming back. About a week later at Cortina Barbaria got a letter from Zecchini to say that he had found out the tariff for the Sasso di Muro was only 12 fl., and that if Barbaria would give me 2 fl. he would repay him next time they met.

The travellers one meets in the Tyrol are of the best kind. Such parties as Mr. George described at our December meeting are absolutely unknown, and the company to be found at the hotels—German, Austrian, Italian, and English—is always extremely pleasant, though, with a few notable exceptions, it seems to be a general rule that the higher class foreigners (I mean higher by birth) do not frequent the mountains.

The climbers too, with the occasional exception of a student whose poverty may be the excuse for the slenderness of his wardrobe, though not for his disregard for the rules of cleanliness, are of the right sort. Mountains are climbed for the love of climbing them, not because it is the thing to do. Curious exceptions to this I have met with in the case of the Glockner and Venediger, of which I have seen more than one ascent made for the sake of handing down to the climber's children and grandchildren the prowess of their ancestor; and in the case of the Langkofel, which is a favourite subject for bets.

The guide Luigi Bernard, one of the best rock-climbers in the Dolomites, who hates 'Geröll' like poison, and is vulgarly known as the Bergteufel, was one year at San Martino employed, as far as we could see, in alternately exercising an unfortunate Herr up and down the most abominable 'Geröll' slopes to be found in the neighbourhood, and hauling him up the small rocks near the hotel. It appeared he was putting him through a fortnight's training for the Langkofel, which they eventually successfully ascended, Luigi getting 2,000 m., part of the 6,000 the Herr got by winning his bet. Another party was not so fortunate. After a few preliminary walks they bivouacked under the rocks (this was before the days of the hut and the rock route), and, making an early start, triumphantly reached the top at about 7 A.M. After a long rest they started down, but on reaching the snow couloir found the stones going down, and had to wait till 8 at night before the stones got sufficiently frozen to make the descent safe.

The freedom in climbing in the Tyrol is also a very great

advantage. The guide will, of course, take you up a mountain by the usual route, but if you feel inclined to try another, or prefer rocks to snow, or *vice versâ*, he will always eventually fall in with your proposition, though if he seems reluctant without good reason it is sometimes a little difficult to persuade him that you will not be extremely annoyed with him if, as not unfrequently happens, especially in the Dolomites, you fail to reach the top by the route you have chosen.

But the greatest virtue of the Tyrol is its cheapness; if you do not take more than one guide it is quite easy to do mountaineering for 1*l.* a day, including guide and provisions, from the time the railway is left. The *pension* price at the good inns varies from 1 *fl.* 80 to 4 *fl.* 50 a day, exclusive of wine, of which you will get in the valleys quite as much as is good for you for 1 *fl.* a day. They do not run you up in the way of extras or provisions, and the guides will always bring you any of the latter that are over, and are really grateful if you give them to them; and here I will earnestly—most earnestly—ask any of you who may be tempted to go to the Tyrol to be very careful not to send the prices up. It would be hard on members of our Club who, not blessed with a superabundance of this world's goods, find in the Tyrol a happy hunting-ground, and it would be a real wrong to most of our brethren of the Austrian and German-Austrian Clubs, to whom Switzerland is now a *hortus inclusus*.

And now for the Illaudabilia.

The snow mountains in the Tyrol are on a very much smaller scale than those in Switzerland, though the snow level is lower the further E. one goes, and therefore the ice and snow work to be done is in point of amount and difficulty inferior. The journey to the Dolomites is long and expensive, and when there one certainly misses the glacier air, and does not derive so much physical benefit from a short holiday.

In a German guide-book I found in the Stubai that the conclusion of a long argument, into the details of which I need not enter, was that it was conducive to health and economy to take one's wife with one on a holiday. Now, except in a few of the larger centres in the Tyrol, the climber's wife who does not climb with him undoubtedly fares badly, though in most cases her husband gets back by tea time. The Austrian inns are perfectly clean and the food good, but if a party arrives shortly after an animal is killed no other meat is to be had till that animal has been finished. There is not such a thing as an easy chair in the whole district; the value of an English book to the tourist is greater than that of the Schmidt Kamin

to a guide; the general absence of a *table d'hôte* adds to the dulness of the day; and the traveller in outlying places must be prepared to speak nothing but German for days at a time, and be absolutely hardened to smoke of the worst description at all times and in all places.

I find it difficult to decide in which category to place the Tyrolese guides. Speaking here, I should say the former, for a member of this Club generally knows a good guide from a bad, and if by chance he gets hold of a bad one can take care of himself. They are extremely sober and obliging, will carry heavy loads without complaint, and are most reasonable in their demands: 6 fl. a day is rather too much to pay for a tour of more than fourteen days; in some of the valleys the tariff is about 4 fl. a day over five days. Of course for the very formidable Dolomite ascents more is asked. The best guide in the district wanted 120 fl. for ten days, to include the Schmidt Kamin, Kleine Zinne traverse, Winklerthurm, and anything else I liked. When these tariffs by the day are taken the guide pays for his food and lodging, but it is customary for the Herr to find food on the mountains and the *nicht bewirtschaftet* huts. On the other hand the guides lack those finer touches which are only to be acquired by contact with 'Herren' extending over a considerable time, and as a rule they have no knowledge of mountains beyond their immediate districts.

In the list of guides published by the D.Oe.A.V. a considerable number will be found who are 'authorised' for a large number of peaks in various parts of the Tyrol. This, however, only necessarily means that they have ascended those peaks once, and possibly only as second guide; and if (as may happen) an inferior guide has been taken by a tourist, because he happened to be a pleasant fellow, through all his tour, it does not at all follow that he will find his way up the mountains again.

I do not suppose many travellers will go further E. than Cortina; the Sappada group is not specially interesting, the Lienz Dolomites are on a very small scale, and there are very serious drawbacks to mountaineering in the Julian Alps, where there are some very fine peaks indeed.

Firstly, the language. This is too terrible for words. I was told that if one learnt enough to say 'I am an Englishman,' most of the people would talk German to one. They so hate the German-speaking people that they will have absolutely nothing to do with them.

The difficulty in getting provisions and accommodation is

very great. From the Baumbach hut, which lies in the middle of a village in the Trentathal, I sent men 2 hrs. up and 2 hrs. down the valley without getting either milk or bread. At four out of the seven huts I was in there was no water (we had to drink melted snow), and no water is to be found on the mountains.

The greatest drawback from a climber's point of view is the way in which the peaks have been engineered. No less than three paths lead to the top of the Terglou, and steps have been cut in the rocks and wire ropes fixed on the way up all the chief summits. The great difficulty, and one which renders a local guide absolutely necessary, is to get out of the deep, narrow valleys. When that has been done, as a rule there is only a 'Geröll' slope to be ascended; and then on getting to the rocks is seen a large tablet—a safety board giving details as to the maker and construction of the path.

The best climb I had in the Julian Alps was the Jof di Montasio. Leaving the Recovero Nevea we followed a fair path over grass slopes to a pass on the W. of the peak leading into the Dognathal, from which a track led up 'Geröll' and some easy rocks to the arête. This was quite simple, and across what might have been a somewhat difficult 'Scharte' a causeway had been built suitable for learning bicycling on. We reached the top in 3½ hrs. from the Recovero. We retraced our steps along the arête and followed it to the Vert di Montasio, then turned N. down easy rocks to a long and very delightful 'Kamin,' which one could descend with great comfort by wedging oneself tight in and putting one's feet on the projections, of which there are several on both sides within convenient reach. Some more easy rocks led to the top of *the* Kamin. This was about 120 ft. long, very steep, and about 5 ft. wide, with smooth walls, and three great blocks stopping it up. I had to go down first, and found no difficulty with the first block, as it was fairly easy to climb into the cave below between the block and the wall; but on getting out into the Kamin again I discovered I had left behind and above me a large loose stone which was certain to be sent down by the next man, so there was nothing for it but to climb up again. This was a very different matter, and was only safely accomplished with the aid of more than moral compulsion. We all arrived safely at the top of the second block, and there the serious difficulties began. It proved just possible to stretch across the Kamin with toes and shoulders, the block itself affording a certain amount of handhold; and

when by these means one had got below the block to get under it and into the cave in a more or less horizontal position until it was safe to jump on to the floor. The third block was managed in a similar way, but was not so difficult. The descent of the party of three down the whole Kamin took over 2 hrs.

On the rocks just below I was unfortunate enough to get a stone on my head; we had not thought it worth while to shorten the rope, as we contemplated a halt, and were climbing rather carelessly. As an instance of the difficulty I have just spoken of I may add that we were 1 hr. 50 min. zigzagging about on easy ground on the top of rock walls before we got down the 500 ft. to the Spranje, though José Komáč knew the way well.

In conclusion I have to express my thanks to Mr. Sydney Donkin for the loan of the Zillerthal slides; to Messrs. Shea, Jones, and Friedmann, members of our Club, for the Dolomite slides; and to Herr Geyer, late President of the Austrian Alpine Club, for the views of the Sappada group.

THE NOASCHETTA GLACIER AND THE BECCA DI MONCIAIR.

BY THE EDITOR.

‘**WHAT!** another paper on the Grand Paradis group?’ Gentle reader, I will not conceal from you that I am : trespasser on your kindness, if not on a field which younger men should cultivate. But there are reasons which I could lay before you which might plead for me. You should have been entertained to a narrative by a successor—nay, to two narratives by two successors—of Prometheus, that demigod who anticipated the triumphs of the Alpine Club in the frosty range which it so soothes us to read of when the dogstar rages. (I admit, parenthetically, that he has not greatly raged of late.) You should have been regaled with great deeds on peaks whose very names strike a chill into the marrow of anyone who fears an imputation on his spelling. But here the kindest of readers breaks in upon me with the unanswerable question, ‘Then why are we not so entertained and regaled?’ Well, I cannot put the case more forcibly than in the words of a lady of great beauty and experience—‘No one can be more wise than destiny.’ Destiny prevented it. Of your kindness, blame destiny and forgive me.

I never enter one of the southern side-glens of the great Valley of Aosta without a little thrill of satisfaction and

expectation. So many happy memories haunt them, and there is even yet something for the lover of new routes to be found there. Last year my friend Dr. Tempest Anderson and I, after a few rain-marred days at Courmayeur, descended with sudden resolution to Villeneuve, where, by the way, we met with clean accommodation and reasonable prices at the ancient inn of The Stag.

The guides, thanks to the telegraph, were awaiting us, and next day saw us at Dégioz, and the day after found us established at the Victor Emmanuel Refuge on the flank of the Grand Paradis. The inns at Dégioz and Pont both now deserve recommendation. The one at Pont we found very satisfactory, and the travellers, some of them of Caucasian renown, whose names we read in the Visitors' Book, were without an exception eulogistic in their remarks both about the inn and the mountains; perhaps as one who is, to use Lamb's words, 'on some little footing' with most of them, I may here offer the thanks of the Grand Paradis and his neighbours to the visitors for the kind way in which they have spoken of them.

We are assured by a shrewd judge that 'new-made honour doth forget men's names'; it requires little shrewdness to observe the strange incongruity with which men's names are bestowed, but of all incongruous titles the name of this little inn, and of that at Dégioz, have the pre-eminence. At Dégioz, under the very shadow of the Grivola, mine host calls his house the Hôtel du Grand Paradis, while here, at the foot of the Paradis, the signboard proclaims as it creaks in the wind 'The Hôtel de la Grivola.' At the Refuge we spent four nights in peace and plenty. Anderson's stores would have sufficed for a modest field force or a flying squadron. Soups, raisins, chocolates, biscuits, gingerbreads, preserved meats and tongues jostled one another in wild profusion on the mule's back. The humble tea and lemon never failed us, and fowls, eggs and very fair wine arrived from time to time from the Pont inn. Mora, the mule who carried them up to us, was a source of great pride to her owner, and of admiration to us. Though advanced in years, she was robust and willing, and won me a totally unexpected compliment, for when I said, 'Though your mule has a few white hairs she is still in her prime,' her owner replied, 'Yes, therein she resembles Monsieur himself.' Could a courtier have been readier? By the way, one dish at the Hôtel de la Grivola deserves mention. It verges, perhaps, on the 'strange flesh' supposed of old to be eaten on the mountains, but yet does not displease, to use Elia's phrase, 'the critical-

ness of the censorious palate.' A mess of frogs and kidneys is this dish. The coffee, too, is praiseworthy. You may behold it roasted in the roadway *coram populo* in a time-honoured apparatus and a drizzling rain.

On the morning of August 8 we divided our forces, Anderson and Sylvain devoting themselves—with very satisfactory results, by the way—to photography, whilst François and I made for the Col du Grand Paradis. I had started with the intention of exploring the Costa Parasseus, but I found it difficult to make the map agree with the glacier and ridges before us. The huge size of the Noaschetta glacier, which I had not visited for some years, surprised me. At last, however, we made up our minds, and eventually reached the lower end of the Costa. At starting the weather was very cold and the wind biting, and we found the little lake on the top of the col frozen over, and indulged in a little stone-throwing to test the ice and warm ourselves.

We reached the Costa nearly at its eastern end, and then climbed along it to its western extremity. About the middle of the ridge we found a ruinous cairn. Between this cairn and the highest point there were one or two bits of amusing climbing. I remember in one place wriggling sideways, with my legs extended over the Val Ciamoseretto. The Costa may be said to end on the eastern side of a big tower—the extremity of the Tresenta ridge.* When we sat down to lunch at the end of the Costa were about on a level with La Tour, 10,578 (Paganini), so that the Bochetta Goj, which I crossed with Séraphin Henry on August 19, 1883, must be well over 10,000 ft. The views had been glorious. The Charforon and his neighbours I have never seen to such advantage, and far away, to the Maritime Alps, every range stood in more than martial splendour before us, as if they had just taken up their positions in review-order and the dust of their march still clung to them, for scarves of mist lingered at intervals from our feet to the far distant Apennines. To add to our enjoyment, we found rocky armchairs on the sunny side of the ridge, out of reach of the still biting wind. The Val d'Orco, with its climbing forests, seemed to challenge comparison with the rocks and snow, and a little lake in the Ciamoseretto valley, ruffled by the wind and sparkling in the sun every now and again, attracted our eyes and bade us, as it were, measure the depth of the great precipice below us.

On the next day, August 10, the whole party started to

* For details see *Alpine Journal*, vol. xviii. p. 524.

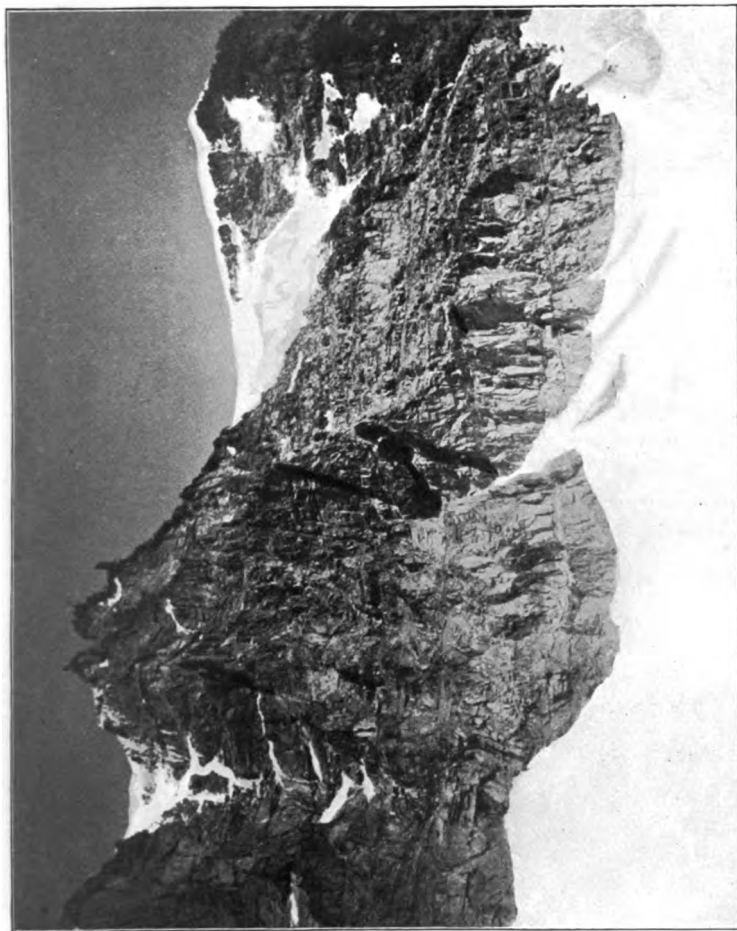
examine and photograph the eastern portion of the Noaschetta Glacier. Anderson began operations with the little lake on the top of the Col du Grand Paradis, and then took the imposing picture of the Cresta Gastaldi, Col de l'Abeille, and the mass of the monarch of the Cogne mountains which faces this page. The day was all that could be wished; the cold had gone, and only a few clouds, lost wanderers from the tempest's fold, were to be seen at a great height.

We were lucky enough to come upon four full-grown chamois and a little one as they raced down the lower part of the Noaschetta Glacier. We eventually reached at our leisure the lower point of the Becca del Deir Verd, 10,457 ft. (Paganini). The views we here enjoyed were most interesting, both orographically and for their variety and beauty. Anderson was soon very busy. Meantime, Pession and I took off our coats, put on the rope, and went off in great glee to conquer if we could the higher point of our peak, 10,598 ft. (Paganini). This point is quite startling in its boldness, and gave us a quarter of an hour's very enjoyable amusement. Amongst the rocks flourished the tiny foliage of many Alpine plants, with here and there an occasional flower. *Chrysanthemum alpinum* seemed the most plentiful, though gentians were not wanting. The one side of our little peak overhung, and its precipices were awesome. As to the view, I shall not attempt to describe it, but the following lines of Milton will give a general idea of its magnificence :

It was a mountain at whose verdant feet
A spacious plain outstretched in circuit wide
Lay pleasant; from his side two rivers flowed,
The one winding, the other straight, and left between
Fair champaign, with less rivers interveined,
Then meeting joined their tribute to the sea.
Fertile of corn the glebe, of oil, of wine;
With herds the pasture thronged, with flocks the hills.

François and I, I am afraid, behaved more like two boys let loose for an extra half-holiday than like sober men. When we reached, on our way back to the lower peak, the big tower that forms its summit, I said to François, 'That's a fine rock.' 'Yes, it is,' he answered; 'we'll go up it.' So we did. Pession climbed it in fine style, and then sent down the rope for me; so I tied myself on, and then climbed up comfortably, with the two guides holding on at the top in case of need. In the descent we had followed a much easier way.

It takes a good deal when mountaineering to drive out the desire of meat and drink, as Homer puts it. We now had an



Tempest Anderson, photo.

Swan Electric Engineering Co.

COL DE L'ABELLE AND CRESTA GASTALDI

From the Noaschetta Glacier.

illustration. The red wine was nearly exhausted, but François, by help of a reservoir extemporised by his ice-axe, succeeded in largely diluting the little that remained. Where was the sugar? All gone. Despair was imminent, but a counsellor was at hand. 'Why don't you try that half-finished pot of strawberry jam?' 'A very good idea.' The jam, the wine, the water promptly fraternised, as, indeed, they could hardly help doing under the vigorous persuasion of the shaking François gave them, and the result proved highly satisfactory to the three toppers. I meantime had constructed a humbler reservoir, and with the help of a lemon and a few drops of Marsala mixed a somewhat thin drink, not to be despised under the circumstances, though far removed, I was boldly informed, from the excellence of the strawberry brand. We raced down the Moncorvé side of the Col du Grand Paradis in a perfect torrent of stones; and admiring on our way the distant Grande Casse, Tsanteleina, and Sassiére, as well as the high pastures on the other side of the Val Savaranche, which were of a very beautiful dark green with lovely shadows, we reached the Refuge in good time.

To revert to our arrival at Pont. No sooner did we reach the end of the little hamlet than

Straight mine eye hath caught new pleasures,
Whilst the landscape round it measures.

There is the inn. There is, above all, the beautiful Becca di Monciair. I do not think that I know any mountain in the Alps which for its height asserts itself more proudly, or wears a more majestic mien, than this rock-peak of 11,627 ft. Whether glistening in the sunshine or, as was more often the case last summer,

Kerchiefed in a comely cloud,

it attracted me so strongly that at the sight of it the vague design I had formed in the preceding winter crystallised at once into a resolution to lose no time in trying the northern ridge, so well seen in the accompanying illustration from one of Anderson's excellent photographs.

On the morning of August 10 we started to make this climb. Anderson came with us to the middle of the Monciair glacier and then remained to photograph. When the apparatus had been duly arranged and the provisions divided, we left Anderson to reap a rich harvest, and set off.

From the spot where we separated, the great sights were Mont Blanc, pure white, and the self-assertive Gran Nomenon, black, with a tint of red.

To reach the northern ridge of our mountain we had to descend a steep slope of ice, raked in the afternoon by stones and ice. One great green-glimmering sérac seemed to watch us threateningly, but one small stone was all that fell. François cut steps as quickly as possible, and we were soon out of danger. We were unanimously of opinion that it would have been better to have struck the ridge at its actual foot. We now reascended over ice and snow to the rocks on the east side of the ridge. We went up these rocks to the right, and then, after turning considerably to the left again, inclined to the right, and so reached the little projection, or shoulder, the first that shows prominently on the ridge. I have recollections of some bare slabs without cracks, but so rough that it was not difficult to get up them. The piece before this was worse, as it was steep, there was ice in the cracks and we were moving slantwise.

For a good part of the time we kept the actual ridge. Sometimes we diverged to the right, occasionally to the left, as Pession deemed best. Once or twice, after trying to the left, he came down again and we got up on the right. In places the stones were unstable, and met with many abusive epithets.

Below the most prominent tooth in the ridge we stopped for a slight refectation. There did I bestow benedictions on the Pont innkeeper, who had had the enterprise to provide us with excellent Aostan peaches. Nor did he afterwards spoil their delectable memory by asking an exorbitant price for them. The iccled peak always pleases me best when the glen underneath it opens out into some great valley like that of Aosta, where the peach and the vine revel in the warm sunshine. The nearer the fruit-clad valley the more austere and stern appear the walls and pinnacles of ice which clothe such giants as the Grand Paradis and his attendants.

Memory brings back to me the passing up of axes, the climbing on Sylvain's shoulders, or the prayer for a good shove as I stuck a foot as high up as I could, and, scraping my hands against the rock, found a precarious handhold, good enough for one who has the faithful Pession above him with the cord ever tight.

We saw for some time Anderson at his photographic toil, and had glimpses of the Pont inn with its background of rock and its green meadow in front. Then we measured with our eyes the huge mass of the Paradis, admired the majesty of the Grivola, and thought no scorn of the bold bare rock wedge of the Nomenon.



Tempest Anderson, photo.

BECCA DI MONCIAIR.

From the Moncorvé Glacier.

Swan Electric Engraving Co.

By-and-by we came to the shoulder with the big patch of snow which is so conspicuous from the Moncorvé Glacier, and here I admit my enthusiasm was somewhat dashed. The rocks, which always inclined to be unstable, and sometimes attained their ideal, were here exchanged for a slippery shale—without good foothold, without danger, but exasperating in the extreme. Every second step was wasted by a slip backwards; but this change in the tactics of our foe, though it annoyed us, could not delay us long. We were soon over the depressing bit, and, gripping the last crags with energy, found ourselves on the top almost before we expected. The climb on the whole had furnished much interest not unmixed with excitement, for, as I have mentioned before, our leader had several times had to descend and try another route. Pession was more complimentary than usual. A good climb, as it always does, had made him happy. Nor was his Monsieur less joyful; to have climbed the new ridge of a beautiful peak was a great satisfaction—to have climbed it not without severe exertion a greater; for though the view is dear, a good hard tussle to gain it makes it dearer. We did not, as on the previous days, enjoy the great view over the Italian plain. The lazy billows of a great cloud-sea had rolled over all; but one little opening was left through which we could see perfectly a portion of the plain with trees and streams; then, even as we gazed, the clouds closed over it.

When Coolidge and I with young Christian Almer and Séraphin Henry had ascended the Monciair by the N.E. ridge from the Col du Charforon in 1885, the snow was in such a perfect state that we had actually walked straight down it towards the Col, but in 1897 this was out of the question. We therefore descended by the rocks, which are not difficult, though, of course, they took more time.

One patch of ice some few feet below the level of the Col gave us a little trouble. Sylvain, who was leading, cut down to his right against a bare wall of rock, though I think Pession was in favour of the left-hand side of the slope (I certainly was), so that when a great flake of ice fell off in such a way as to make the right-hand route still more difficult to engineer, and Sylvain was recalled to try on the left, I was well satisfied. We got down all right, for Pession, who had the last man's very awkward task, managed with his usual skill. After this the snow was very steep, but in excellent condition, and we soon came to the big ice moat which runs across the upper part of the glacier. I paid the rope out to Sylvain, while Pession held it tight between us,

so that if the snow had given way under Sylvain the shock would have fallen on us both as one man. Presently Sylvain called out that he was all right and ready to jump. I advanced near to the edge of the chasm, gave him rope, and saw him land in the soft snow. I followed, nothing loth, for the jump, though perhaps a little formidable in appearance, involved nothing more than a sousing in the snow. Pession joined us, and we made at a good pace for the big moraine between the Monciair and Moncorvé glaciers, two hours from the summit. There we found Anderson, had a little pleasant refreshment, and afterwards strolled into the Refuge, after a most enjoyable day. By taking the north ridge for the ascent, and descending by the north-east ridge, the Monciair becomes perhaps the most tempting of all the many climbs that can be made from the Refuge.

Lovers of the Alpine flora will be interested to hear that about half-way up the north ridge of the Monciair I found a plant of *Ranunculus glacialis*, with two lovely blossoms, smaller and with less pink in them than one usually sees, but the perfection of shape and symmetry, and with centres of the brightest gold. It was interesting to notice the difference between this and the large plant of the same flower which I found in 1879 close to the top of the Pointe de Ceresole on its *south* side. Though born in the teeth of the bitter north, the tiny blossoms excelled in beauty their brothers of the sun-favoured south.

IN MEMORIAM.

JAMES HEELIS.

THE news of the unexpected death of Mr. James Heelis from dysentery at Yokohama, on March 23, while on a tour of pleasure round the world, came as a great shock to a large circle of friends, to whom his genial character had greatly endeared him. He was a keen mountaineer, and one who did not confine his operations to great centres, such as Zermatt, but loved to visit the Eastern Alps, the Dolomites, and the at that time but little frequented Graians. Nor were his efforts confined to the Alps. The hills of Cumberland and Westmoreland, North Wales, and the Cuchullins, in Skye, all served as fields for his favourite pastime. Not the least sad part of his unexpected death lies in the fact that he had but a little over twelve months retired from practice as partner in one of the best known firms of solicitors in Manchester, and was looking forward to a future which, free from business cares, should allow larger opportunities for mountaineering and travel. His loss

will long be felt by those who had the good fortune to enjoy his acquaintance, and he will be deeply regretted by the few to whom he was more intimately known.

James Heelis was the possessor of exceptional abilities; his advice was always shrewd, and he was not a man of words only. He was more given to do acts of kindness than to talk of them. The Committee and the Club generally have sustained a great loss by his death. He had been a member for twenty-one years, and had ever shown himself a staunch supporter of the best traditions of mountaineering. Amongst the mountains he was all that a climber should be, always considerate and genial, and ready to make the best of the troubles and annoyances which, though afterwards the cause of much mirth in retrospect, are at the time sufficiently irritating. His mountain tastes were catholic. As early as 1878, in company with Mr. G. Yeld, he made a month's tour through the Graians, during which the Levanna, Sassièrè, Granta Parei, Punta Galisia (first ascent), and Albaron (by a new route), not to mention other peaks, were ascended, and several new passes accomplished. He was also of those who never forget the risks to which guides are liable, and no one was more ready to help liberally in times of misfortune.

CHRISTIAN ALMER.

THERE passed away on May 17, 1898, one of the two men whom common consent places foremost among the pioneers of the Alps; the other, though slightly an older man, happily still survives. Christian Almer's mountaineering skill, like that of many of his contemporaries, grew out of chamois-hunting; there was no prospect in his young days of making a comfortable livelihood as a guide in the High Alps; in fact he was not enrolled as a guide until he was thirty years old. His first appearance chronicled in literature was as a voluntary associate in Sir Alfred Wills's classic ascent of the Wetterhorn; his last expedition was, as it happened, nearly on the same ground, being a passage of the Lauteraar Joch late in last summer. For some years Almer never went beyond his native district, though from the beginning he stood first among the Grindelwald men in reputation and in achievements among the Oberland peaks. To a man of his powers the chance of distinguishing himself on a wider field was sure to come sooner or later; as a matter of fact the year 1861 proved to be the turning point of his fortunes. In that year a casual meeting with Almer led me to begin mountaineering, and through me he became known to A. W. Moore, and so to the other Englishmen whom he led in the many great expeditions which established his fame as one of the greatest of guides. During the next few years he rapidly became acquainted with the high peaks and passes already known, and had a very large share in the new expeditions. Not that it made much difference to him whether he had seen a place or not. His

first near view of Mont Blanc was with me in 1861; on that occasion he led a party, consisting of two novices and another Swiss guide who had never been on the mountain, straight up from Chamonix, without any help from old tracks above the snow line, to the great disgust of the Chamonix guide bureau. So too he had never crossed the Col du Géant till 1862, and some local guides with another party tried to show off and lead the way for us; but they were soon glad to let Almer steer them through the séracs, which happened to be exceptionally cross-grained. The same thing applied to many other expeditions. I hardly remember to have made one in that period, except common things like the Strahlöck, which Almer had made before, and yet he certainly never had to play second fiddle for lack of local knowledge.

Christian Almer's list of new peaks may perhaps be equalled; it comprised the Mönch, Eiger, Ecrins, A. Verte, Grandes Jorasses, Jungfrau from the Wengern Alp, Lyskamm from Gressoney, besides many others of less note. But he also led the way over nearly all the great passes made in 1862-7; the Jungfrau Joch and Agassiz Joch in the Oberland—the Sesia Joch, Moming, Schallen Joch, Mischabel Joch round Zermatt—the Col Dolent and Tour Noire on the chain of Mont Blanc—the Brèche and Col de Pilatte in Dauphiné—these are but specimens. In the same period was included an expedition with Mr. Tuckett in Tyrol, full of new things; and the number of first ascents afterwards made by him with Mr. Coolidge, mainly in the S.W. Alps, is legion. It was in 1868 that he first travelled with Mr. Coolidge, who for many years employed him during a great part of each summer. Mr. Coolidge's record for number and variety of high expeditions is entirely unrivalled; and this is one reason why Christian Almer excelled all other guides in the extent of his practical knowledge of the Alps. A guide travelling with many different employers finds himself called on to repeat very often the favourite ascents; a single employer naturally tends to vary his experiences; it is the exception rather than the rule, that he makes a given expedition for a second or third time.

Christian Almer retained his vigour almost to the end. Several years ago he lost some toes by frost-bite, and it was supposed that he would never climb again, being then well past sixty, but he soon belied that prediction. Every one remembers how he celebrated his golden wedding in 1896 by taking his wife up the Wetterhorn. The last time I saw him, late in the same summer, at the end of a week in which he had ascended four Oberland peaks, he took my companion a round on the Eismeer and Zäsenberg at a pace (time happening to be short) which few men of half his age would have cared to keep up.

The men who led successfully the expeditions of the first age of mountaineering, when all was new, required many of the qualities of a great general—power of grasping thoroughly all the conditions of the task before him, prompt and decisive judgment, unflinching courage in pressing on, with an accurate perception how

and when, if necessary, to retreat, besides the power of recollecting, when they were no longer visible, details ascertained by previous reconnoitring. Christian Almer possessed these gifts in a very high measure, especially the last. When he guided Moore and myself over the Sesia Joch in 1862, he had seen that long ascent through a break in the clouds for about ten minutes two days before; yet he led the way without hesitation, never turning back except once, when the great couloir, which looks from a distance the natural route, proved too icy to be feasible, and not being in the least disconcerted by having to alter his whole plan of operations. Three or four years later we were returning to Zermatt by the Schwarz Thor in cloudy weather, and Almer, who had crossed it for the first time a few weeks before, told me that he had then noted a different route on the Italian side, which he thought would prove shorter than the usual one, though it seemed to involve a great *détour*. We naturally assented, and sure enough we reached the pass very quickly, though for most part of the way we could not see a hundred yards. On another occasion he led us diagonally down a stony, featureless hill-side, in darkness so great that we could barely see one another at a few yards' distance, straight to the only spot where a chimney enabled the cliff below to be passed, and this on no further acquaintance with the locality than having come up the previous day.

Almer's daring on occasion was remarkable; there is, perhaps, nothing on record more audacious than his leaping across a gap in the final ridge of the Ecrins to clutch a rock which might have given way under him; and most of his habitual employers can recall similar feats not much less trying. The perfection of his balance enabled him to be secure, and to give others the impression that he was secure, in positions which, if they could be described, would suggest that a touch must be fatal. Difficulties were with him merely things to be conquered, and his fertility of resource was as remarkable as his personal strength and skill. At the same time he never wilfully faced danger which skill could not avert, or ran a needless risk in order to save trouble, or neglected to carry out the established precautions to the full. No one ever saw Almer slow to put on the rope or hasty to take it off. I remember his astonishing an unlucky porter by the energy of his rebuke for not keeping to the steps; we were returning down an extremely steep snow-slope that had grown soft, and Almer would not allow, for the sake of saving a little time and trouble, any careless going which might possibly lead to a slip. He was not specially quick at step-cutting, but his workmanship was simply perfect; up or down, straight ahead or round a corner, every step was placed as accurately as if all had been marked out beforehand, and every step was exactly of the size which the occasion required. He was unwearied in his exertions, always ready to take on himself any amount of extra work. I have seen him transfer to his own shoulders the load of a local porter who, half an hour before, had been boasting that he would show us all the way to go uphill, because he saw

that the man did not know how to walk, and was suffering for it. Another time we were crossing the Lauteraar Joch late in the year, and found a yawning chasm where there should have been snow to descend from the rocks to the glacier. Almer not only discovered a way down, round a very queer rocky corner—that was his proper business—he went down the bad place with every man of a large party, including two heavily laden porters, telling each in succession where to feel for one finger- or toe-hold after the other. He was very ready to pick up new ideas—sharp, for instance, to find flowers, of which he knew nothing, for a traveller who was interested in them. He had never, I suppose, seen a photograph taken before Mr. Edwards accompanied me in 1865 to take the views for my Oberland book.* Almer had learned in a day or two not merely the requisites for setting up the apparatus—a much more serious thing in the days of wet plates than now—but also what sort of views were feasible, and was always ready to make the camera, and the photographer, firm in the most unpromising positions, if so only a desirable view could be secured.

A more equable temper, a kindlier nature than Christian Almer's have seldom been possessed by mortal. No *contretemps* ever put him out, no amount of fatigue ever made him neglectful of the slightest thing that could conduce to the comfort of his *Herrschaft*. No jealousy of another ever entered his mind. Many will remember Mr. Whymper's account of how he and Michel Croz worked together. I have seen him working along with a variety of guides, including some of the best of the old school; sometimes one or another would try to push himself forward, Almer never, unless it were to bear the brunt of the labour; and time after time I have heard them say afterwards that he was a better man than they. I don't know whether any other living man has seen what I saw once, Christian Almer and Melchior Anderegg together in a really tight place. They were not old associates, they had hardly ever been employed together before, each knew that the other was his only rival in reputation; and their co-operation was so perfect that one might have almost imagined one soul to animate the two bodies.

The younger generations have turned out some excellent guides; some of their performances have perhaps surpassed, as feats independent of the environment, the deeds of their fathers. But the first group, the veritable pioneers of the Alps, were a class apart. As one by one they pass over to the majority their place cannot be filled, and among them all there can hardly be a greater gap than that caused by the death of Christian Almer. H. B. G.

In the early morning of May 17 last 'Vater Almer,' as he was affectionately called at Grindelwald, passed away peacefully, at the age of seventy-two, after a long winter of suffering and failing strength. Three days later, on the morrow of the festival of the

* The portrait in the present number was taken on the Wengern Alp during this expedition.



CHRISTIAN ALMER

Ascension, he was borne to his last resting-place, in the little churchyard of Grindelwald. As the long procession left the house, and again as the body was being committed to the grave, the roar of avalanches, thundering down the precipices of the Mettenberg, seemed to some to be, as it were, the farewell salute of the great mountains to one who all his life had been engaged in a peaceful conflict with them. A large assembly of friends and relations gathered around while the 'Gletscherpfarrer,' Herr Strasser, said the last prayers over the grave of probably his best known parishioner. The Grindelwald guides were there in full force, as well as deputations from those of Meiringen (one being Melchior Anderegg) and Lauterbrunnen, representatives of the English and Swiss Alpine Clubs, and all the visitors then staying in the village; while by the graveside there clustered his faithful life's companion for nearly fifty-two years, his five sons, one of his three daughters (the others being in America), and a number of his thirty-one grandchildren. And then the throng melted slowly away, deeply impressed with the thought, often openly expressed, that they had just witnessed the closing scene in the earthly career of one whose name was a household word wherever lovers of his dearly-loved mountains are to be found.

In these pages his name occurs as early as the first and second numbers of the 'Journal,' and later on, it is probable, more frequently than that of any other guide or traveller, so that it is not necessary to describe his Alpine career at any length here, while I have elsewhere sketched its outlines up to 1885. But it is hard to realise that till within a few weeks back we had amongst us one who tried the Jungfrau as far back as 1851, and, save that fatal year 1885, went on climbing till in the late autumn of 1897 he made his last expedition, the passage of the Lauteraarjoch, so that at the time of his death he was probably the senior living mountaineer, whether professional or amateur. The list, too, of his early first ascents reads almost like a fairy tale, and carries one's thoughts back to the time when the Alpine Club itself was still unborn, or but an infant—Wetterhorn, from Grindelwald (1854), Mönch (1857), Eiger (1858), Gross Viescherhorn or Almerhorn (1862), Jungfrauojoch (1862), Sesiajoch (1862), Pointe des Ecrins (1864), Aiguille Verte (1865), and so on almost to infinity, for his is undoubtedly the most prominent figure in the history of the systematic and complete conquest of the Alps. Later on he wandered from one end of the Alpine chain to the other, from the Dachstein (1866) to the Maritime Alps (1879). And even after it was supposed that his Alpine career was closed, in consequence of severely frost-bitten feet on the Jungfrau in January 1885, he astonished everyone by resuming to a considerable extent his former activity, the crown of his later Alpine achievements being perhaps the ascents (when seventy) of the Meije and of the Bietschhorn, both having been previously attained by him but once many years before, and his celebration of his golden wedding on the summit of the Wetterhorn in June 1896.

It was my privilege and joy to travel with him from 1868 to 1884, both years inclusive, so that our unbroken friendship had lasted all but thirty years. I was only a schoolboy when we first came together, and it was but gradually that I learnt to appreciate his marvellous and unsurpassed qualities as a guide, particularly after we took up the exploration of little-known mountain districts, and so were brought together far more closely than is usually the case with a guide and an amateur. After his mishap our journeys had to be given up, as he could no longer climb continuously nearly every day for three months or so; but he was always most interested in what I accomplished among the mountains under the guidance of his second son and namesake, who from 1876 onwards had been our companion, and also one of his aptest pupils, and he was a capital if a somewhat severe and exacting instructor.

Looking back over the happy memories of the seventeen summers and three winters during which he was my companion—and no amateur ever had a longer experience of him in the High Alps—and trying to put aside as far as possible all natural prepossessions in his favour, I would dwell briefly on some of the characteristics which struck me most in my old friend and companion. First and foremost were his remarkable daring and courage in striking out a new line, controlled at the same time by his scarcely less remarkable prudence and carefulness, so that no accident of any kind ever befell any of those placed for the time in his charge. Who but Almer would have conceived or executed the notion of *vo'untarily* bivouacking in the Silberlücke (1871), so as to combine the Silberhorn with the Jungfrau? or thought of a bivouac on the Sattel, between the two highest summits of the Wetterhorn (1872), in order to see the sun set from one and rise from the other? or carried out the *descent* (1872) of the Jungfraujoch to the Wengern Alp, with a large party, including a lady, several porters, a tent, and a dog? On the other hand, I have a most clear recollection of how he resolutely enforced retreat on the Aiguille Verte (1875), when his party was but 90 feet from the summit, but would have had to traverse a layer of fresh snow lying at a high angle on a smooth face of rock, this snow slipping off a few minutes later before the very eyes of the whole party, then marvelling at its narrow escape; and, again, on the Gabelhorn (1878), when but five minutes from the summit, from which we were separated only by a doubly-corniced upper snow crest, with precipitous couloirs descending on either side. If it requires pluck to achieve a difficult climb, it requires even greater strength of mind to acknowledge defeat, albeit only temporary, when so near the goal.

Yet on occasions when there was no unavoidable danger in making an ascent Almer's iron resolution and determination merged into what one must call obstinacy, in the good sense of the word. Neither I nor his son are ever likely to forget how, when an unclimbed though insignificant peaklet, the Pointe de la Mariande, in 1880, declined to yield to his first summons, he took his ice-axe and gave the obnoxious smooth rock wall that defied

him such a sound thrashing that somehow or other, I never could quite make out how, it allowed its weak point to be discovered, so that victory was soon his. It was, too, a thing to see how, when by the aid of a map we had gained the foot of some virgin peak, he would sit down for a while, and stare the poor mountain almost out of countenance, and then get up and lead his party straight up to the summit, with scarcely any hesitation as to the choice of the route. That was instinct, not to be acquired by any amount of practice; and it was only when I had a guide other than an Almer that I fully appreciated his astonishing power of tracking out, with those marvellous blue eyes of his, a route up some untrodden face or slope.

Combined with all these manly qualities, he was most painstaking as to every detail that could contribute to the comfort of his companions in the case of a bivouac, whether voluntary or not; I had many opportunities of seeing this when my aunt was of the party, and yet he had never travelled with a lady before, while in later years I profited often by his *petits soins*.

Then, too, his love of the mountains was deep and genuine, quite apart from the fact that they enabled him to gain his livelihood; and those who never saw his face light up and his whole mien alter when he had once more attained the higher snow regions can have no conception of the extraordinary fascination which the mountains can exercise, particularly over a man like him, who knew them as few have ever done, whether as a hunter or as a guide. And now he sleeps among them, and as long as they stand will his name be held in honour as that of one of their most successful explorers, of their truest lovers, and of their worthiest sons.

W. A. B. COOLIDGE.

THE SUMMER EXHIBITION.

THERE seemed grave danger last year that, owing to the apathy of the members, the apparent want of interest of the artists of the Club, and the deplorable lack of visitors, these summer exhibitions were doomed to failure, notwithstanding the many advantages offered by the Club Rooms as a picture gallery. This danger was recognised and faced with vigour. To organise the Art Exhibitions of the Club a permanent sub-committee has been appointed, and on this the artist members are largely represented, and have given ready and loyal help. The present summer exhibition is the first-fruit of their efforts, and the committee is to be congratulated on the successful result.

To organise with success one of these pictorial exhibitions is a much more troublesome task than that presented by the photographic exhibition; it is more difficult to obtain adequate contributions and more difficult to secure a reasonable attendance. The impersonal record of the lens appeals to a much larger public than does the translation of a scene through the artist's individuality. There are, too, many reasons wholly unconnected with art which secure that the photographs shall not be neglected—

personal interest in a friend's or a rival's work, or a desire to see themselves, often in strange attitudes and attire, as photographed on some pleasantly remembered expedition.

The committee have gone back with most satisfactory results to the old plan of opening the exhibition with a private view. They recognise, too, that these picture exhibitions must be supported by professional artists, and that if they are held in the summer months the claims of the public galleries clash too directly with those of the Club, to the detriment of the latter. It is, therefore, proposed to hold the picture shows in the winter months, notwithstanding the fear of dark days. Should this change be carried out, as is probable, the annual influx of members at the time of the winter dinner will secure the picture exhibition from neglect, while there is but little fear that the photographs will suffer even if the show is held at a less crowded time.

The character of the present exhibition betrays the influence of the new committee. It appears to indicate a broadening of view as to the form of art suitable and appropriate to the exhibition of a mountaineering club. It is not a collection of pictures of mountains and mountaineering, but of landscapes in mountain districts; of the flowers and meadows and many minor beauties of the foot hills, such as may be beneath the notice of the mountain gymnast, but which, as witness the pages of this 'Journal,' are still dear to members of the Club, and add not a little to the literary value of the descriptions of their climbs.

It almost falls into the category of one-man exhibitions, supported as it is entirely by the two artists J. MacWhirter, R.A., and Alfred Parsons, A.R.A., to whom the Club owes much gratitude. It is to a large extent a collection of sketches and studies, and has all the freshness and charm which attach to the first vivid record of a scene, a freshness so often vanishing in the finished work. Such an exhibition, too, is always of great interest to those who care to study an artist's technique and method.

On the walls of the Academy, for some years past, Mr. MacWhirter's pictures of the flowers and pastures of the Tyrol have been conspicuous, and in the present exhibition are the sketches and studies which form the basis of these pictures. A drawing—'Lake of Geneva'—is a sketch for a picture in this year's Academy. Studies of Alpine field flowers, strong in colour and delicate in drawing, form a large part of Mr. MacWhirter's contribution and appear from the sales to have been very practically appreciated by the members. There are many beautiful sketches of the meadows of the mid-heights, such as that of the 'Fields at Finhaut,' with its clever drawing of the winding field-path, sketches at Saas Fée, and many others, while the views from these middle heights, both in Switzerland and Scotland (Loch an Eilan and the Grampians), are full of outdoor lighting and beautiful atmosphere. An oil painting of a silver birch reminds us of the early predilections of the artist.

Mr. Parsons's sketches take a very wide range both geographically and artistically, passing from the familiar English lakes and

Switzerland to Japan and the New World, and ranging from the rapid sketch to the highly finished drawings of 'Lake Hamana' and 'Autumn Grass on the Hakone Hills.' They differ from Mr. MacWhirter's drawings in that they are more strictly sketches—complete though summary records of a view—rather than unfinished drawings and studies, and they are remarkable for the accomplished skill of their composition, their suggestiveness, and the strict economy of means employed, as witness 'Esk Hause' and other lake-district sketches. The evening effects of 'Lake Biwa,' and 'Fujisan at Sunset,' and the reflections of cumulus cloud in 'St. Mary's Lake' are charming and delicate, while 'Bourg St. Pierre' and 'Cogne' are strong and realistic.

It is pleasant to record that not only was the exhibition excellent, but that the number of visitors present and the sales effected were also most satisfactory.

REVIEWS AND NOTICES.

Mountaineering and Exploration in the Japanese Alps. By the Rev. Walter Weston. (London: John Murray. 1896.)

To most of our readers the idea of mountains in Japan is probably limited to a recollection of a picture of the cone of Fuji-san, with a cloud floating away from its summit, and an account in some traveller's journal of a rather wearisome ascent of that mountain; so that Mr. Weston in telling us in detail what the Japanese mountains really are like, and how a holiday may be spent among them, has had the good fortune to find new material for his work. In the centre of the principal island, N.W. of Fuji-san and about 100 miles W. of Tokio, there is a range of mountains, running nearly N. and S., in which many of the summits are about 10,000 ft. in height, the highest, Yarigatake, which is the second highest peak in the empire, being given as 10,300 ft. In this range and the lesser ranges connected with it the author, who was at the time resident in Japan, spent four holidays (1891-94) climbing the principal peaks and crossing the range in many places. Several of his climbs have already been described in this 'Journal,'* and of the others, as pieces of mountaineering pure and simple, none need special mention here; where an ice axe and rope are unnecessary, and any hunter or porter will do for a travelling companion, the climbing cannot be difficult. Still there were obstacles to be surmounted from bad weather and the scarcity of suitable provisions, and in some instances from difficulty in getting information as to the routes, which no doubt added to the charm of the holidays and gave the author memories which it has evidently been a sincere pleasure to him to record.

* *Alpine Journal*, vol. xvi. pp. 377-390, 'Mountaineering in the Japanese Alps,' and vol. xvii. pp. 493-510, 'Mountaineering and Mountain Superstitions in the Japanese Alps.'

We think the result of this book has been to settle finally that there are no mountains in Japan for the sake of which any climber need organise a special expedition. They do not give us a new playground, like New Zealand, or the Caucasus, or the Canadian Rockies; but to those who have the true mountaineering spirit, and wish wherever their lot may be cast to explore the highest ground within reach, Mr. Weston has shown that even in Japan they may find an outlet for their energies.

Of the method of the book we cannot speak very highly, for in a work claiming to describe exploration or scientific travel there should have been more attempt at classification. One has to turn backwards and forwards to find the relative heights of the peaks, and there is no general description of the range, or, except in a short paper in the appendix, by Mr. W. Gowland, of its geological or geographical features. The passages relating to the spirits supposed to dwell in the mountains are interesting, and show that in Japan, as in so many other countries, the tops of the mountains are associated with the dwelling-places of the gods; but to the Japanese there is less of the mountain gloom and more of the mountain glory. Many of the hill-tops are the sites of shrines, which are annually visited by multitudes, and if the highest points have seldom been reached by the natives it is more from laziness or indifference than from fear.

The book is pleasant reading as a truthful account of travels by a genuine lover of mountains, and gives abundant evidence of Mr. Weston's pluck and enterprise.

Victor Puiseux et la Première Ascension du Mont Pelvoux. (Gap. 1898.)

Under the above title M. Paul Guillemin has printed (in the 'Annales des Alpes,' number for May-June 1898) a letter addressed to him by M. Puiseux in 1877. Hitherto no details of that savant's ascent of the Pelvoux in 1848 had been published, so that this letter possesses considerable historical value. The date of the ascent was August 9, 1848. M. Puiseux and his guide, P. A. Barnéoud, of Les Claux, started from the well known boulder of Soureillan (later dignified by the name of 'Refuge Puiseux'), and seem to have taken the old route by the Rochers Rouges, as no mention is made of the traverse of the Clot de l'Homme glacier. Barnéoud stopped when the snow was attained, but M. Puiseux went on alone. He first visited the 'Pyramide,' or second summit of the Pelvoux (attained in 1880 by Captain Durand), and then went on to the higher summit, now called 'Pointe Puiseux,' of which this was the first ascent.

The article is adorned by a portrait of M. Puiseux, who was born in 1820 and died in 1883, while the itineraries of his journeys (for botanical purposes) in 1847 and 1848 add some precise details as to his attempts on Monte Rosa in 1847 and 1848, the first made. Alpine historians are much indebted to M. Guillemin for this paper, and will await eagerly the publication of the other interesting Alpine documents which he tells us are carefully preserved among his Alpine archives.

W. A. B. C.

CORRESPONDENCE.

HIGH ALTITUDES.

To the Editor of the ALPINE JOURNAL.

DEAR SIR,—Mr. Freshfield's view regarding *mal de montagne*, which I ventured to criticise in my letter, is still original, in spite of his reply in the May number of the 'Journal.'

I, also, am well aware of Mr. Dent's conclusions with reference to Mount Everest, and I entirely agree with him; but Mr. Dent has never said, so far as I know, that *mal de montagne* may at some future time be *disregarded*. Mountain sickness must be *treated* if Mount Everest is to be ascended, and the treatment, in my opinion, is by the inhalation of oxygen.

As to the 'time-honoured' phrase 'rarity of the air,' the sooner this loose use of the expression is discarded by those who wish to study and avoid the symptoms resulting from it the better, and the sooner shall we arrive at some satisfactory form of treatment.

Sir W. Martin Conway says, in his letter in the May number, 'These effects (at high altitudes), in their mildest as in their severer forms, in no wise resemble the effects of fatigue. They differ from fatigue in kind.'

In Dr. Pavy's paper in the 'Lancet,' 1876, where he describes his experiments on two great walkers, Perkins and Weston, under the title of 'The Effect of Prolonged Muscular Exercise on the System,' we find that one of the walkers (Perkins), after accomplishing 65½ miles at about 4½ miles an hour, had to give in on account of fatigue, which showed itself in the following symptoms: a tired feeling in the limbs, rapid, feeble, irregular pulse, general malaise, slight rise of temperature (not always constant), and vomiting. I cannot help thinking that these symptoms very much resemble those of mountain sickness; in fact, to my mind they are practically the same, with the addition of vomiting.

I apologise most unhesitatingly to 'the writer of the article in the "Edinburgh Review"' for accusing him of inaccuracy in the way I did. I very much regretted the wording of that part of my letter long before it appeared in the 'Alpine Journal'. Partly from being compelled to write my letter hurriedly, and partly from being concerned more particularly with the laboratory and aeronaut experiments, I did not refer to, nor had I read, the passage in M. Paul Bert's book which he reminds me of, and therefore had no right to make such a statement; besides which it was not necessary, since my criticism of M. Bert's experiments has the same significance without it.

I am, Sir, your obedient servant,

MALCOLM L. HEPBURN.

Lowestoft, July 11, 1898.

SIR,—Dr. Hepburn's last letter is largely concerned with phraseology.

I do not quite know what the 'symptoms resulting from' 'the

loose use of an expression' may be! But let this pass. My reason for thinking it premature to search for a substitute for the phrase 'rarity of the air' is very simple. Until doctors, or physiologists, know more accurately than they do now what we are all talking about any new form of words they may invent must be more or less vague and unscientific, and, therefore, more or less of a fraud and a snare to the unwary. 'Rarity of the air' is at any rate English, which is more than can be said for 'mal de montagne.' That expression has hitherto covered many symptoms for which the mountains were only in a minor degree responsible. Dr. Hepburn now proposes to use it in a novel and restricted sense, for sufferings for which, from his point of view, a more exact definition would seem to be desirable.

Dr. Hepburn's main argument—I should, perhaps, rather say, standpoint—is, I confess, not quite clear to me. But he appears to define the 'true mountain sickness' (p. 163) as an indisposition, caused by a deficiency of oxygen in the atmosphere, and only felt at heights of over 17,000 ft. Though Sir Martin Conway asserts the contrary, he 'cannot help thinking' its symptoms closely resemble those of over-fatigue.

This view is not only original, but, I believe, unique. By his audacious limitation Dr. Hepburn dismisses at once all the *Alpine* experiences and experiments of travellers and men of science, and excludes any evidence I might myself have given that the sickness I have seen or felt on mountains in no way resembled the results of fatigue, but rather those of indigestion. For on the one occasion on which I have been over 17,000 ft. (up to 18,400 ft.) none of my party suffered at all from any kind of sickness.

Dr. Hepburn now further states, or rather implies, that I have given as my own opinion that "mal de montagne" may at some future time be disregarded.' This citation is an imperfect and inexact summary of my sentence, which he quoted in full in his last letter (p. 162). I am compelled to quote it once more. What I wrote was:—'It is at least open to argument that in the next century persons of good digestion and stolid temperaments, starting in fair training from tolerably comfortable huts or bivouacs, may hope to disregard "the rarity of the air" on any mountain on the face of the globe.' I did not, it will be seen, commit myself to any positive opinion. I did not use the words 'mal de montagne' which Dr. Hepburn substitutes for 'rarity of the air.' I had better, doubtless, since the word has been misinterpreted, have used another expression in place of 'disregard.' But when a man expresses his intention to 'disregard the weather' he is not, I think, generally understood to imply that he will not take a water-proof, or even a whisky flask!

I believe that Mr. Dent's view that Gaurisankar will be climbed is a reasonable one, and should be acted on; but I have myself neither the data nor the authority to assert it as a certainty. It is the view, as far as I can make out, of Dr. Hepburn, provided his treatment, or system of training, which will include oxygen

refreshers, is adopted. Let him by all means test his treatment, and that on no *corpore vili*, but, if not too late, on Sir Martin Conway himself on the Bolivian Andes.

I have written in the desire to further, as far as lies in my power, a full, exact, and fruitful discussion of the whole question. To my own opinion, however, I attach no great importance. As I have often said before in these pages, the researches involved call for physiological experts, who, unlike Dr. Hepburn, are 'concerned particularly' in the matter to be investigated. But they must also be practical mountaineers and patient readers of mountaineering records, as well as of the researches of foreign observers, otherwise their dicta can be of very little scientific value. When the results of Mr. Dent's stay at the Cabane Vallot are given to the world we shall possibly know more than we do at present, and may even be provided with a scientific and final substitute for 'rarity of the air,' which I shall be the first to accept. For I cannot believe that Dr. Hepburn's theory that the human frame is not frequently affected by the condition or composition of the atmosphere at heights under 17,000 ft. will meet with any acceptance among mountaineers or physiologists.

I am, Sir, yours obediently,

DOUGLAS W. FRESHFIELD.

Appin, Argylshire: July 25, 1898.

ALPINE NOTES.

MOUNTAINEERING IN THE ANDES.—We take the following from the 'Daily Chronicle' of July 16:—

'*Mountaineering in the Andes.*—Reuter's Agency is informed that Sir Martin Conway left Southampton by the Royal mail steamer "Don," *en route* for Bolivia, where he intends to explore the high group of the Andes containing the peaks Illimani and Illampu (or Sorate). He is accompanied by the Alpine guides Antoine Maquignaz and Louis Pellissier, who made the first ascent of Mount St. Elias, in Alaska, last year with the Duke of the Abruzzi.'

MONT BLANC BY MONT BLANC DU TACUL AND MONT MAUDIT.—This route is likely to be more often followed in the future, since the Midi hut has been rebuilt and furnished by M. Vallot. And it is obviously the natural route to take from Monteverve. On the first day, instead of the tedious way by the Plan des Aiguilles to the Grands Mulets, you have the séracs of the Géant (always 'interesting' in the ordinary, if not in the special, sense of the word), and then the splendours of the Vallée Blanche, and the wonderful view from the Aiguille du Midi, where you may linger at your pleasure, for the hut can easily be reached in an hour from the summit.

This hut is now in excellent condition, furnished with rugs and every requisite by that benefactor of his kind M. Vallot, so that one only needs to take up food and fire wood. It may be worth while to mention this, for Mr. Whympers's 'Guide to Chamonix' (1896) merely states that 'the cabane is said to be uninhabitable,' and in July last I could get no information as to its condition from

the Bureau des Guides at Chamonix. The only drawback is that it is floored with ice; and unless a broken hinge has been made good it is to be feared that the winter's snow will find its way in through the doorway. On July 19 we spent a night there in comfort, though a violent storm came on, which drove us down again to Montenvers next morning. The furious gusts, with intervals of breathless calm, and the driving snow, certainly tested the stability of the hut most thoroughly, and proved that it was quite weather-proof, in spite of its exposed position. But in its position lies its great charm, and when we returned there ten days later the weather so favoured us that we spent the day, from 10 A.M. till dusk, basking on the rocks and enjoying the splendid and varied view. The hut, it should be mentioned, stands 1,686 ft. above the Grands Mulets, and commands a wide prospect to the N.W. over the hills of Savoy to the Jura, and to the S.E. over Mont Emilius into Italy, while close at hand are the fine precipices of the Aiguille du Midi, and the 2,000 ft. of snow-slopes that fall steeply from Mont Blanc du Tacul. The magnificent sunset was of the type with which M. Loppé's pictures have made us familiar.

Next day (July 31), the snow being for the most part in fair condition, we gained the top of Mont Blanc du Tacul in 2 hrs. 10 min., and next the spacious col to the S.W. of it, over those vast, wind-swept downs of snow that are so characteristic of the upper slopes of Mont Blanc. Here the 'Climbers' Guide' is certainly misleading. 'Follow the ridge for some time' (p. 105) I judged could only mean, 'Follow the N.E. arête of Mont Maudit.' This we proceeded to do, though Albert Supersaxo shrugged his shoulders; and this variation from the usual route—which lies away to the right—entailed much labour in step-cutting on him and his brother Benedikt. In fact, the passage of this arête from the col to the summit of Mont Maudit cost us 3 hrs.' work, and I fancy it has not often been followed. Midway rises an intermediate summit, to gain which we had to traverse some formidable slopes, the snow lying loose on ice or on very steep rocks. Beyond it the arête was still more heavily corniced, which compelled us to cut our way across a steep ice-slope in a chilling wind. Our reward was in the wonderful glimpses we got from time to time of the Brenva Glacier, far below, but it was a relief to find that the last slope leading to the sharp rocky summit of Mont Maudit was of good, firm snow. We basked there for an hour in the sunshine, and I fancied all was now plain sailing, but it cost us nearly an hour and a half of step-cutting in hard ice to win the Col de la Brenva. However we found a staircase ready hewn for us up the Mur de la Côte, and gained the summit of Mont Blanc at 1.30. The wind had fallen, and we lingered there till nearly 3, visiting the outcrops of rock of La Tourette and the Courmayeur ridge, and marvelling to see a large crevasse open just below the summit on the N. We came down by the Bosses and Grands Mulets route, reaching the Pierre Pointue in exactly 3 hrs. from the summit, without in any way unduly hurrying ourselves. The actual time spent in going (from the Midi hut to Chamonix)

was 18 hrs., to which must be added $3\frac{1}{2}$ hrs. for halts on Mont Blanc du Tacul, Mont Maudit, Mont Blanc, and the Pierre Pointue. An expedition of more varied interest it would be difficult to devise.

J. S. M.

THE FIRST ASCENT OF JÆKKEVARRE.—Mr. Hermann Woolley writes to us to point out that he did not take part in this climb, though the account in the 'Alpine Journal,' No. 189, p. 65, conveys the impression that he was one of the party.

MR. WHYMPER'S 'GUIDES.'—We are glad to see that the 'Chamonix Guide' has reached a third and the 'Zermatt Guide' a second edition. They seem as far as possible to have been brought up to date—*e.g.* on p. viii of the latter we find a notice that the inauguration of the cabane on the Col de Bertol is fixed for August 6, 7, and 8.

MONTE ROSA.—The Rev. F. T. Wethered writes to us to point out that the statement in 'Alpine Journal,' vol. xix. p. 153, that Mr. E. S. Kennedy ascended Monte Rosa in 1854 is liable to misapprehension, as the point really climbed was the Ost Spitze, the lower pinnacle of the Dufour Spitze.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held in the Hall on Tuesday evening, May 8, at 8.30 P.M., Mr. Charles Pilkington, *President*, in the chair.

Messrs. G. L. Collins and R. F. Norton were balloted for and elected members of the Club.

On the motion of the President, seconded by Mr. Horace Walker, Sir H. Berne was elected a member of Committee in place of Mr. J. Heelis.

The PRESIDENT said: 'When at our last meeting I spoke of the death of Mr. James Heelis, as creating the first gap in an old circle of Lancashire mountaineers, I little thought that there was even then another name to be added to the list, and that the breach was wider than I thought. Frank Hartley was an active mountaineer and excellent cragsman, whose name was better known some fifteen years ago, when the brothers Hartley were two of our most energetic and successful members. He was one of those happy men who never had an enemy. His cheerful face was the outward sign of a kind and sympathetic heart, and brought forth a responsive smile whenever he came amongst us, and those who knew him well in the days gone by will long regret that that bright and genial nature has passed away.'

The PRESIDENT considered that the Picture Exhibition Subcommittee was to be congratulated on the excellent show of pictures now hung upon the walls, and he was sure the Club would express very hearty thanks to Mr. MacWhirter and to Mr. Parsons for the interesting sketches they had sent, which showed that for good art it was not necessary to be untrue to nature. He also drew

attention to two gifts to the Club, the one a very fine specimen of a chamois head, presented by Mr. G. Stallard, and the other two very interesting coloured prints of Saussure on Mont Blanc, presented by Mr. A. B. Thorold.

Mr. STUART M. VINES read a paper on 'The Ascents of Aconcagua and Tupungato,' which was illustrated by lantern slides.

Mr. FITZGERALD thought he could add nothing to the paper, as he was himself obliged to give in after reaching 20,000 ft., owing to digestive disturbances.

Mr. HUNTLY-GORDON said that he had been over the same ground eighteen months ago, and could quite agree with all that had been said of the hardships. He took some credit to himself that what he had told Mr. Lightbody of his trip had perhaps fired him to take part in Mr. Fitzgerald's expedition. He thought that the determination shown by Mr. Vines was little short of heroism.

Mr. WHYMPER had no doubt the Club would agree with him in heartily congratulating Mr. Vines on his ascent, and themselves in receiving Mr. Vines as a member.

Mr. FRESHFIELD mentioned that Mr. Hinchliff and Mr. Ball had both seen Aconcagua, but had been uncertain whether it was volcanic. He heartily congratulated Mr. Vines and Mr. Fitzgerald.

Mr. MATHEWS thought it would be interesting to know Mr. Vines's experiences at 22,000 ft., with reference to the possibility of ascending to 29,000 ft., the greatest mountain height.

Sir MARTIN CONWAY thought that in the case of a big expedition far from a base as much credit was due to the organiser as to those who took part in the ascents. He yielded to no one in his admiration of Mr. Vines's pluck and endurance. Neither Mr. Vines nor Mr. Fitzgerald made any claim with reference to the comparative heights of Pioneer Peak and Aconcagua, but he had no doubt that Aconcagua was the higher, and that Mr. Vines had reached the greatest height yet climbed. The Club ought not to forget to put on record their appreciation of Mr. Fitzgerald's organising capacity, and the mere fact that he had not been able to climb the last 1,500 ft. by no means detracted from his merit in carrying through a most important expedition. He drew attention to the excellence of the survey work which had been done, the difficulties of which he well knew in a country where the weather was uncertain, and where all delicate operations have to be carried out with trembling fingers that refuse to do their work and a body that declines to keep still at the most critical moments. After the strain of some weeks of such work a man was tempted to make guesses and to slur over work in face of unfavourable conditions. It was the good fortune of the Club that in two great expeditions by members in South America, by Mr. Whympere and by Mr. Fitzgerald, the topographical work was of the first order. He had been made acquainted with the details of Mr. Fitzgerald's survey work, and could, without fear of contradiction, say that better work than his had never been done. Upon that work the reputation of the expedition ultimately depended. He did not in any way detract from the praise given to Mr. Vines for his

climbs; those were great achievements, and would always remain so, and be one of the great stages in the advance to higher and higher altitudes. The observations of the expedition on the effects of high altitudes concurred remarkably with his own in the Himalayas. The sudden effect of the retarded movement of the air in the couloir and the great relief found on the top of Aconcagua, where they were again exposed to freely moving air, corresponded with his own experience on the summit of Pioneer Peak.

Mr. J. BRYCE asked if geological specimens had been brought from the summit. With regard to the influence of altitude, he thought observations should be taken from moderate as well as from great heights, as the effects were felt at 7,000 ft. in the Rockies. He considered that there was much in the personal equation, as Mr. Vines had not suffered so much as the experienced guides. He greatly admired Mr. Vines's courage and confidence in going to the summit at sunset, as every mountaineer knew what resolution was required to face darkness and its attendant dangers at a high altitude.

Mr. O. G. JONES thought the food question was of great importance with regard to the effects of high altitude, and suggested that experiments might be made before the starting of an expedition.

Mr. LIGHTBODY thought it would be very difficult to obtain similar circumstances in which to test the food. What they had taken had been thoroughly tested at low altitudes; but when they ascended they found that methylated spirits would not burn, which they could not have told beforehand; the limit seemed to be about 17,500 ft. He had himself not gone further than 19,000, and had felt very sorry that he had gone so far, feeling so ill that he was quite indifferent as to whether he were ever to descend again or not. Their measurements had been taken with both aneroid and mercurial barometers, and also independently by means of careful levels taken with a 6-inch theodolite. His observations carried on the accurate levels which had been taken by the railway engineers to Mendoza, and, as he was himself an engineer, and was careful to keep his instrument thoroughly adjusted, he was confident that his measurements of the summits by triangulation could be relied upon.

Mr. HASKETT-SMITH also spoke.

The PRESIDENT read a passage from 'Over the Seas and Far Away' (see p. 166), in which Mr. Hinchliff, when actually in sight of Aconcagua, wrote that he considered that man would never reach its summit, as he could not rise above 21,500 ft. He much regretted that Mr. Fitzgerald had been unable to reach the highest summit. He admired the straightforward, modest account which Mr. Vines had given, and hoped that he would in the future do much further good work.

Mr. VINES replied that it was entirely owing to the organisation of the expedition that he had been able to reach the summit of Aconcagua. Professor Bonney considered that Aconcagua was an extinct volcano, though how many thousand years it was since the

period of its activity it was impossible to say. As regards the effect of altitude, he thought that younger men suffered more than older.

A hearty vote of thanks was accorded to Mr. Vines, and the proceedings terminated.

A GENERAL MEETING was held in the Hall of the Club on Tuesday evening, June 7, at 8.30 P.M., Mr. Charles Pilkington, *President*, in the chair.

Mr. C. T. DENT read a paper on 'The Ascent of Tsiteli (Central Caucasus),' which was illustrated by lantern slides.

Mr. WOOLLEY said that every expedition in the Caucasus carried with it the excitement of discovery, though it did not always happen that, as on this expedition, no checks were met with. Their only difficulty had been the soft snow over 12,000 ft. There was much to be done yet on the N. and S. side of the Uruk valley, to which they had paid only a flying visit. There seemed to be an impression among members that there was little of importance now remaining to be done in the Caucasus, whereas, on the contrary, some of the finest peaks were still virgin.

Mr. SOLLY asked if the taking of Swiss guides added to the pleasure or success of Caucasian climbing. The condition of the snow, which, during the descent, often made it necessary to kick steps, facing the mountain, was a danger the greatness of which Alpine experience gave one no chance of estimating. He had found that the descent of Caucasian mountains often took as long as the ascent. He thought Svetga which had been mentioned, could be climbed from another side. His party had tried it till the slope took an angle of 70°, when they thought it too dangerous to continue.

The PRESIDENT drew attention to some of Mr. McCormick's pictures of the Caucasus which were hung on the walls.

Mr. DENT replied that Swiss guides, if taken to the Caucasus, did not add to the pleasure of the expedition, though they undoubtedly enabled one to do more work and cover more ground. They were useful in matters of detail, and their experience often saved time in choosing one's line of attack. Mr. Freshfield, in the map attached to his 'Exploration of the Caucasus,' had depicted the range of Laboda and Tsiteli as granitic, but these mountains were just outside the granitic limit and were of crystalline schist and very friable. That the descent in the Caucasus took as long as the ascent was generally true.

Mr. FRESHFIELD endorsed what Mr. Woolley had said as to the amount of exploration and research which remained for travellers in the Caucasus.

The proceedings terminated with a hearty vote of thanks to Mr. Dent.

Specimens of a patent 'puttie' invented by Mr. Fox, of Wellington, were exhibited after the paper.

THE SUMMER DINNER was not held this year, owing to the number of applications received by May 20 being less than the number required by Rule X.

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TO THE CIMA DI PIAZZI AND BACK.

By W. A. B. COOLIDGE.

MOST mountaineers, doubtless, have found at some time or other that an Alpine range or district which they had hitherto regarded with indifference, not to say more, becomes suddenly interesting and attractive in their eyes. This has happened to me several times, but in no case was the change of opinion more complete than as regards the region enclosed between the roads over the Bernina, the Stelvio, and the Ofen Passes, of which the culminating point is the ice-clad *Cima di Piazza* (3,499 m.=11,283 ft.). In 1895, when I was exploring the mountains to the N. and N.W. of the Lower Engadine, I must often have looked across the Inn valley to this tangled mass of peaks and glaciers. But I have the very dimmest recollection of having seen them. Yet scarcely a year later this district became the subject of my Alpine studies on paper, and in 1897 of my explorations on the spot. A very severe illness in the autumn of 1896 was not unnaturally followed by the orders of my doctor not to do much high climbing or undergo any great exertions in my Alpine campaign (if one was indeed possible) of the next summer. I therefore cast about for a district which would meet these requirements, and gradually my attention was drawn to that crowned by the Piazza, as the peaks seemed not too high and the distances not too great for my semi-invalid condition. I soon heard that the Swiss Alpine Club intended to make the Swiss portion of this region its 'Champ d'Excursion' for 1897-98, and wanted information as regards it.* I found, too, that I could kill

* The *Itinerarium* (published in the autumn of 1898), by the competent hand of Herr Ed. Imhof, contains much valuable
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another bird with the same stone, for I could not lay hands on anyone to revise the text of Mr. Ball's 'Alpine Guide' relating to these parts. Hence I little by little formed the project of visiting this district myself. In carrying out the more difficult portion of this plan I was enormously aided by the courtesy of Signor Giorgio Sinigaglia, of Milan, a young Italian climber (whose premature death is announced as I write these lines) who had devoted himself to the minute exploration of the Valtellina, and had visited nearly every nook of the Val Grosina, the little-known glen at the head of which rises the Piazzi. I, of course, read up all I could find in print as to my proposed field of action, and, indeed, with the help of Signor Sinigaglia, drafted a very rough 'Climbers' Guide' for my own use.

Thus it was that on July 18, 1897, I and my faithful friend and comrade, Christian Almer, the younger, arrived at Zernetz in the Lower Engadine, the point at which the road from the Ofen Pass reaches the Inn valley. We had been out just a month since our start from Grindelwald, and had made a most devious and crooked journey before we arrived in the Engadine. But the intense heat from which we had long suffered now gave way to cold and bad weather, and as I had been told to avoid wet and damp above all things, we were detained nearly a week in Zernetz. A pleasant distraction was provided one day by the passing through of the reigning President of the A.C., with his penultimate predecessor, and party. On another, Almer and I mounted painfully up steep slopes to a shoulder of the Munt della Baseglia; but—perhaps because our wits were confused by hail, snow, and an icy wind—we jumbled up the topography of the Spöl gorge and the road over the Ofen Pass in a most horrid way. At last the weather cleared, and on July 24 we took the diligence up to the nice little Ofen Wirthshaus, which now offers very comfortable quarters—a great improvement, no doubt, on its predecessor, which is mentioned as early as the second half of the sixteenth century. The scenery on the way was most striking, and we could well believe that the *commune* of Zernetz is the richest in Switzerland so far as regards forests, and therefore naturally of live bears. Next day, profiting by a hint of Mr. Leaf's in these pages,* we went up the *Munt la Schera* (2,589 m. = 8,494 ft.),

information as to the district, though naturally the Italian portions are described less in detail than the Swiss.

* Vol. xvii. p. 231.

the peaklet which makes such a show to the S. of the inn. And we were more than rewarded for the stroll of a good two hours past the Schera huts, and up the stone-strewn W. slopes of our hillock. For the view was cloudless, and the whole district 'Between the Bernina and the Stelvio' lay not at our feet, indeed, but before our eyes. The grim and stony range N. of the Ofen inn we were perfectly willing to abandon to Mr. Leaf, for we felt that in years gone by *we* had done quite enough stone-wandering (not the same thing as rock-climbing) in Dauphiné and elsewhere. The Vadret on one side reminded us of our doings of 1895, but the Bernina peaks on the other left me as cold and unsympathetic as they always do. It was a great surprise to look right up the Spöl gorge to Livigno itself, one of the churches in which, with some houses, was visible, so that our topographical difficulties were soon solved, although the ridges cross each other in the most complicated way—nowhere worse than in Fraële, of which anon. But the 'clou' of the panorama was the sight (our first glimpse) of the Piazzi, far away, yet towering up above the intervening ridges, and streaming with two fine riven glaciers. It of course attracted our special attention, for was not the main object of our whole journey the ascent of this mysterious summit, which, though conquered thirty years ago, and overhanging the Baths of Bormio, has yet remained, save to a few Italian and German climbers, one of the least known monarchs of an Alpine district? Two hours soon sped by in the study of all these novelties. Then, after descending to a N. promontory of our *Munt* in order to look at the Ofen inn just below (but not visible from the summit), we wandered eastwards over many stone-strewn slopes, and finally regained the Ofen road at the 'Cantoniera' or 'Wegerhaus,' just beyond the Buffalora huts.

I was engaged to meet Signor Sinigaglia at the Eita Club hut on July 28, so that in consequence of our unexpected detention at Zernetz we had to make straight for that point. Hence on July 26 we threaded those really astonishing and amazing gorges of the Spöl to Livigno. Hardly in my life have I ever passed through more impressive scenery—rock precipices on either side, thick forests, wild torrents, yet a good mule path all the way, though not a single living being was met *en route*. We halted for a while at the hut just beyond the Italian frontier and the bridge over the Gallo torrent (flowing from Val Mora and the Fraële Pass), wondering at the intense solitude and at the effect that would be produced on it if these astonishing gorges were in

'La Suisse Connue.' After issuing from the gorges the path gradually expands into a rough cart track, and the *very* gradual ascent up to the inn at Livigno (opposite the chapel of St. Antonio, the central of the three churches of the valley) was trying. The inn (the 'Pensione Alpina') was far better than I had been led to believe, though very Italian, and an excellent dinner, with some really wonderful Veltliner, soon put us into good humour again. A German-speaking waitress, a most merry host, Signor Silvestri, who is at the same time the *chef*, and an unexpected meeting with one of my numerous friends-by-letter, who had come up from Zernetz that very morning, soon made us feel quite at home. The necessary touch of comedy was afforded by an Italian student, who was the solitary *pensionnaire*, and had come hither to read high mathematics (as far as we could see, he solved his problems by running madly round and round a meadow), and had brought his bicycle, the first seen here, with him. But I must reserve for a while my general impressions of Livigno itself, for we had only one day left (rain having kept us at Livigno all the 27th), and in that day we had to cross no fewer than three ridges in order to reach the Eita Club hut.

So, next morning (July 28), we set off at 6.30 for our long journey, Eita being regarded at Livigno something like the Bernese Oberland—as a most distant and very queer place. Luckily the cold wind which had bothered us so much at Zernetz came to our help, for it blew steadily in our backs all day, thus pushing us forward and cooling us at the same time. Our first ridge was the grassy down seen from Livigno and crossed by the *Passo Dheira* (2,209 m. = 7,248 ft.), by which, in $1\frac{1}{4}$ hr., we gained the first church of Trepalle, the highest permanently-inhabited village in the Italian Alps (2,069 m. = 6,788 ft.), though it is beaten by Juf (2,133 m. = 6,998 ft.) in the Avers (Switzerland), while L'Ecot, near Bonneval sur Arc (2,046 m. = 6,713 ft.), is a good third, and holds the record for France. From the church there was a fine view of the Piazzis, as also of the nearer and very imposing Monte del Ferro. So far our route was clear. But now we had to leave the ordinary track to Bormio by the *Passo di Foscagno* (over which the post comes daily to Livigno), and strike out into regions as to which we had no information save that supplied by the map. From that it was obvious that in order to attain the *Passo di Verva* (which leads direct to Eita) we must reach the Val Viola Bormina at a point about midway in its course. Hence, at Trepalle we

turned due S., and ascended the grassy Vallaccia glen, bearing round with it to the S.E. so as to gain the pass of that name at its head (2,619 m.=8,593 ft.) in 2 hrs. 35 min. from the Trepalle church. Here we were greeted by an unexpected view *en face* of the surprisingly snow- and ice-clad Lago Spalmo range, while the black Corno di Dosd  towered up to its right. Soon the track from Mr. Freshfield's Zembrasca Pass of 1866 (the Colle delle Mine of the new Italian map) was joined, and the Funera huts seen on the opposite bank of the stream. Then, bearing steadily to the left through a pathless forest and past the Campo huts, we crossed (1½ hr. from our pass) the torrent in the Val Viola, here very narrow and wooded. It was now high time for dinner, which we felt we had justly earned by our two passes, even though small ones, and we enjoyed it thoroughly, in full view of the Corno di Dosd , which makes a grand show at the head of the valley. Then came a steep and hot ascent of 25 min. to the first Verva huts, on the left bank of that glen, whence we caught a glimpse of the fields of Semogo and of the chapel on the pass of the Scale di Fra le. Our way lay along that bank, and in 40 min. the upper Verva hut (2,123 m.) was seen on the opposite bank. In a long hour more (or two good hours from the bridge in the Val Viola), over endless stony but gentle slopes, we attained our third pass, the *Passo di Verva* (2,314 m.=7,592 ft.), and felt that we had won the day. But it was a great disappointment to us that driving mists concealed all views of the Piazzi, just on the E., save an occasional glimpse of the jagged Corni di Verva on its N.W. ridge, whence black precipices fall towards our glen. On the pass we found traces of civilisation in the shape of a leaden 'plaque' of directions as to the way to Eita, placed there by the kindly forethought of the Italian Alpine Club, which has also marked the track by splashes of red paint here and there. The descent to Eita is *very* stony, and does not become interesting till the path mounts high above the right bank of the torrent, and, on turning a corner, reveals the fair grassy basin of Eita far below. I knew that the Club hut was near the chapel, so that we soon identified our resting-place, which we were glad to gain in 1½ hr. from the pass, or just 9 hrs.' walking from Livigno, though the total absence of snow made this journey far more fatiguing than it appeared in itself.

No one was at Eita to greet us, and the door of the Club hut was fast shut. But a woman soon came to our aid, and managed to make us understand that we were expected.

But no provisions, no wine ; nothing but bare walls !! However, two hours later we heard joyous cries, and soon there appeared Signor Sinigaglia in person, followed by several 'portresses' (for the men of the valley migrate in summer), bearing eatables and drinkables of many excellent kinds. So we passed a merry evening, and I for one slept well after our long 'traverse' from Livigno.

The wind rose in the night, and blew with such indefatigable vigour and bitterness that for two whole days we were practically imprisoned in the Club hut, occasionally venturing out to get a breath of air on the sheltered platform before the house and chapel. But the time passed pleasantly in conversation on Alpine subjects, and in the preparation and consumption of splendid dinners and suppers, the *menu* of one of which (including no less than nine courses) lies before me.

The 'Casa d'Eita' (1,703 m. = 5,587 ft.), as the house is officially called, and the chapel to which it is annexed, stand a very short distance from the Dosso d'Eita chalets, on a sort of bastion which projects into the centre of the glen, and command a fine view of the lower Val Grosina, in which the Eita huts are nearly the highest chalets. The position is most picturesque—though none of the high peaks in the neighbourhood are visible hence, the Piazzis being concealed by the imposing mass of the Monte Maurigno—and deserves to be better known. On the W. side of the chapel is the 'Casa,' a stone, two-storied building, constructed at the joint expense of the commune of Grosio, in the Valtellina (the owner of the valley, and 2 hrs. distant by mule-path), and of the Milanese Section of the Italian Alpine Club. On the ground floor, the right-hand room is the sacristy, which during the week serves as the dining-room, while opposite is the kitchen. Upstairs, the priest's bedroom is over the sacristy, while above the kitchen is a room reserved by the Milanese Section for travellers, furnished with six sleeping-places (arranged in berths), with mattresses, pillows, blankets, &c. The whole house is very snug and substantial, and, save on Saturday nights, when the priest comes up, is entirely at the disposal of the travellers—alas! as yet but very few—who find their way hither. The local guide, Pietro Rinaldi, resides in one of the neighbouring houses, and acts as caretaker, being authorised to charge every traveller 1 franc per night here and at the Dosdè Club hut (of which later). Signor Sinigaglia had most kindly brought a supply of tinned provisions from Milan for me, but generally it is necessary to give notice

beforehand to the innkeeper, Signor Gilardi, at Grosio, and he will send up provisions, wine, &c., as ordered or required. Rinaldi, too, has a small stock ready in case of necessity, while he procures wood, eggs, cheese, &c., from the chalets close by, and has the keys of both Club huts.

The best and fullest account (with bibliography, map, illustrations, &c.) of the mountains at the head of the Val Grosina is that by Signor Sinigaglia, which appeared in the 'Bollettino' of the Italian Alpine Club for 1897. A monograph in the fullest sense of the word, it has been supplemented by another article in the following volume, which describes his explorations of 1897. I must refer to the latter (pp. 2-5) for the account of the one expedition we made on July 31 all together, the *Colle di Lago Spalmo* (3,150 m. = 10,335 ft.), between the second peak (3,340 m.) of the Lago Spalmo group, and the point 3,228 m. (of the $25\frac{1}{100}$ Italian map) on the E. My friend made the first complete traverse of this fine glacier pass, but I only went with him to the summit, as then I was so tired (it was my first glacier expedition since my great illness) that I returned to Eita by the way we had taken on the ascent. Apart from the very pleasant recollections of this excursion, and the numerous photographs of our polyglot party—which used indifferently no less than four tongues—there are two interesting topographical results to note as regards it. One is that we seem to have been the first travellers ever to actually visit the little Lago Spalmo, which is set in the midst of a grim, rocky amphitheatre, and has given its name to the three chief peaks that rise around it. The other is that we cleared up to our satisfaction the route taken by the first English party* which explored this group, but which, of course, was much handicapped by the badness of the maps then in existence. They seem from the Dosedé huts to have reached the Passo di Dosedé ('west' of the Cima di Saoseo being a misprint for 'east'), then to have attacked the true highest summit (the Cima Viola of to-day) by the very jagged S.W. rock arête (a high wind preventing them from bearing over the glacier on its N.W., which would have led them easily to the top); but, beaten—and no wonder—by that ridge, they descended on to our little Lago Spalmo glacier, crossed it, and then gained, by steep ice slopes, a point probably rather higher than our Colle di Lago Spalmo; thence a difficult rock climb led them to the summit of the second peak of the group

* *A. J.* ii. p. 408.

(3,340 m.), the descent being made direct to the Dosedé huts. This expedition illustrates the difficulties encountered by early explorers, who usually have bad maps only at their disposition.

Next morning (August 1), Signor Sinigaglia, who had most kindly made a special journey to Eita to meet me, had to leave early, but neither of us knew that this our first meeting was also to be our last on earth. The day was absolutely perfect, while the combination of Alpine air, mountain scenery, and Italian surroundings left nothing to be desired. It was Sunday, and throngs of gaily-dressed peasants came in from all sides for mass, so that the little chapel was unable to hold them, and many had to kneel outside around the door. Far away to the S. rose the jagged blue crests of the Bergamasque Alps, while nearer all was still and quiet, save in the chapel. We passed the day lazily, sauntering and resting, and drinking our fill of the wonderful beauty of our mountain abode.

The weather was not quite so perfect on the morning of August 2, the day fixed on for our ascent of the Piazzi. We two started at 4.50 A.M., and mounted a path past the Cassavrolo huts (1,938 m.), and up the Riacci slopes, keeping a N.E. direction. We had been led to believe that there was a short cut over the ridge S.E. of the Monte Maurigno, which would help us much. But this could not be seen from Eita, and it was not till we had traversed much grass and many stones that we gained a glimpse of a snow couloir (visible from Fusine in the lower Val Grosina), which led up to the desired ridge. Half-an-hour more sufficed to bring us to that ridge just between the Pizzo Campaccio (3,148 m.) and the point 3,029 m. (marked on the $\frac{1}{250000}$ Italian map only). This was a new pass (*Colle Campaccio*), being separated by the point 3,029 m. from Signor Sinigaglia's Colle Maurigno, just S.E. of the Monte Maurigno. We had come pretty fast from Eita (3½ hrs.), and made a long halt on our col, mainly to examine our position. The Piazzi rose opposite, but was separated from us by a great basin or hollow, into which it was clearly necessary to descend—much to our disgust. But there was no other course open to us, so, after leaving our names in a bottle (found a fortnight later by Signor Sinigaglia), we went down the S. Verva glacier, and then made a wearisome traverse, as high as possible, at the foot of a rock ridge on the right hand, till (1 hr. from our pass) we gained the left-hand bank of the N. Verva glacier, a little below its miniature icefall. We had lost nearly 1,000 ft., so that short cut, like so many others, proved a failure, and

should be carefully avoided by future travellers. Our way was now simple and direct. An easy walk up the glacier, and around the icefall, led us to the foot of the rocky barrier which divides that glacier from the upper *névé* slopes on the S.W. flank of the Piazzi. We mounted this barrier rather to the right of the point (a snowy gully) at which it is usually passed; but there is not the slightest difficulty anywhere. Long, soft snow slopes followed, and tried me much. But at last they brought us to the main S. ridge, along which we walked past a first cairn, and then up a very pretty snow cone, with a second cairn on the left, and a great crevasse on the right. And finally, quite easily, we gained the highest delicate snow crest of the Piazzi, having taken 2 hrs. 20 min. slow walking from the point at which we struck the left bank of the N. Verva glacier. But a more energetic party would not require more than 1½ hr., if so much.

As might be expected, the view was very fine, for the Piazzi is the highest summit between the Ortler and the Bernina groups. Bormio was at our feet, the church of Trepalle glittered far away in the sunshine, as did the lake on the pass of Le Scale between Bormio and Fraële, while the lower Adda valley meandered thousands of feet below towards the Lake of Como. (The highest (3,315 m.) of the rock towers, or 'Corni di Verva,' which stud the N.W. ridge of the Piazzi has been appropriately named 'Corno Sinigaglia,' as my lamented friend made the first ascent on August 18.) But to me the mere fact of having conquered the Piazzi was more than the view or anything else. And this not because the ascent offered any great difficulties, but because this summit is so little known, save to a very few Italian and German travellers, the average number of ascents annually seeming to be about two.

As far as I can ascertain, it is first mentioned in the very useful work (Turin, 1845) entitled 'Le Alpi che cingono l'Italia,' but both on the map and on the 'Profilo Geometrico,' as well as in the text,* it is confounded with a minor summit on its N. ridge, the Corno di San Colombano, this name and the height 3,030 m. alone being given. That minor summit was ascended in 1864 by Professor Theobald, and in his narrative of his expedition † the first distinct

* P. 858, No. 82.

† Theobald and Weilenmann, *Die Bäder von Bormio*, St. Gallen, 1868, pp. 26-7; the passage is translated in the *Bollettino del C.A.I.*, No. 18, p. 306.

notice of the higher and snow-clad Piazzi is to be found. Mr. Freshfield, in the course of a rapid dash through these regions in 1866, lays stress upon the fact that the Piazzi is their culminating point.* One or other of these allusions probably led to the first ascent, effected from a chalet (close to the wide depression in the ridge N. of the Pizzo San Colombano leading over to the Val Buccianna) about $2\frac{1}{2}$ hrs. above Bormio by way of the Corno di San Colombano and the N.E. ridge of the Piazzi by Herr Weilenmann on August 21, 1867. † On the return the party struck N.W. from the lower portion of the N. ridge, and descended by the easternmost of the two glaciers on that flank of the Piazzi, and the rock ridge between it and the more westerly glacier, thus gaining the Val Burrone or Elia. On the second ascent, made in 1868 by a mysterious Mr. Clarke, the same route, up and down, was taken as that followed by Herr Weilenmann. But the third party ‡ gained the S. ridge from the Val Campaccio on the E., and descended by the S.W. flank to the Verva Pass. These are the three main routes up the peak, for the variations made by later parties in striking the S. ridge farther to the S. (even at the Colle dei Piazzi, which resembles nothing less than a col or pass) are of topographical importance only. But now that there is a Club hut at Eita the necessity of starting from Bormio itself, or of sleeping in chalets, is done away with, and the S.W. route (which we took on the descent) is by far the best and shortest.

During the ascent it had been warm, not to say very hot, but on the top a cold breeze greeted us, so that we soon turned to descend, after leaving our names in the bottle in the higher cairn. It took us only a little over half an hour to regain the N. Verva glacier. We had not the slightest desire to ascend to our morning's col, so down that glacier we went, keeping close under and to the left of the huge moraine. Below, we went over stones in a S.W. direction, passed the considerable Lago Maurignino, and by more stones and grass reached the Passo di Verva in 2 hrs. from the top of the peak. The way is stony and monotonous, but as easy as possible. That steep and rough path down to Eita was not more enchanting than it had seemed a few days before, and required 1 hr. 20 min. We had thus taken 6 hrs. 50 min. up, and 3 hrs. 20 min. down. A faster party could, no

* *A.J.* ii. p. 406, and *Italian Alps*, p. 115.

† See the German work referred to above, pp. 68–85.

‡ Signor Damiano Marinelli, in 1876: see *Bollettino*, 1876, pp. 482–4.

doubt, go from Eita to the Piazzi by the Verva Pass in $4\frac{1}{2}$ –5 hrs. or so, while of course if it were not desired to return to Eita it is simple to go down the Verva glen to the Val Viola Bormina. I may add that looking down from the summit we saw no reason why a well-equipped party should not attain the Piazzi direct from the N. or N.W.; neither of the two glaciers on that side should be impassable to good ice-men, though the last snow slope from the common head of these glaciers direct to the summit of the peak is very steep. But this suggested route is certainly worth a try, and if I were younger and stronger I would have attempted it myself. Rinaldi, the caretaker of the 'Casa,' greeted us warmly on our return, remarking, with perfect justice, that I was *molto stanco*, for this was my first considerable ascent since my great illness.

A good night in the quiet 'Casa' put everything right, and next morning (Aug. 3) I was ready for a fresh start. We had not very far to go, for we intended to spend two nights in the Dosdè Club hut, which is on the crest of the pass of that name (2,850 m. = 9,351 ft.) and so midway between the two summits we intended to climb. Rinaldi accompanied us with his small daughter, Maria, aged seven, and his donkey. We wandered slowly up the Val Vermolera, and halted for dinner at the upper Avedo lake. Here the *bestia* was unloaded and turned loose to graze, while Maria, whose first mountain expedition this was, was divided between the good things to eat and the delight of throwing stones into the lake. On the way the Piazzi towered up finely, while at the head of the valley there rose the long snow-crowned ridge of the Cima di Saoseo. Maria and the *bestia* returned from the Lago Negro, Rinaldi, in a most obliging manner, coming on to the hut (four hours from Eita) and then hastening back to Eita. Almer and I then proceeded to settle ourselves down in the hut, which is small, but very comfortable. (Rinaldi is entitled—as at Eita—to charge a franc a night per traveller.) Yet it is very rarely used, not more than one or two parties sleeping there every year. On the N. the rocky Corno di Dosdè rises grandly, and to the S.W. a slender rock obelisk, the Corno di Lago Negro, later climbed by Signor Sinigaglia; while, half hidden by a minor rocky point, the rounded summit of the Cima Viola is seen to the right of the lower and more distant peak, 3,340 m., the second summit of the Lago Spalmo group.

Next morning, Aug. 4, in $1\frac{3}{4}$ hr. we climbed the Cima Viola (3,384 m. = 11,103 ft.), by the glacier on its N.W. slope,

and were lucky enough to reach the summit before the light Italian mists arose, so that the very fine view could be thoroughly enjoyed. Since 1894 no one seems to have visited this point (first climbed in 1879), a fact which would be surprising were not the entire district so neglected by travellers. But it is well worth the slight trouble involved, and is perhaps the most favourably situated of all the neighbouring peaks. We came back to the Club hut for early dinner, and in the afternoon went up, in 1 hr. 50 min., the *Cima di Saoseo* (3,277 m. = 10,752 ft.) on the W. of the pass and hut. This was only the second ascent, but unluckily mist hid the view, and a thunderstorm drove us down quickly. I do not ever remember coming back to a Club hut between two ascents on the same day, but it is a very pleasant arrangement, though there can be few spots so well adapted for such leisurely proceedings as the Dosedé hut.

It was past 8 o'clock on the morning of August 5 when, having cleaned up and carefully fastened the door of the hut (it has the Club lock of the German and Austrian Alpine Club), we started off once more on our wanderings. Our destination was La Rōsa on the Bernina road, and at one time we had had ideas of taking the Corno di Dosedé on the way. But it had too stony a look, so we simply went over a smugglers' pass, the *Passo del Corno*, crossed by an English party in 1866,* which traverses the ridge S.W. of the Corno just at the point where the Siegfried map places the figures 2,932 m. (9,620 ft.). A short descent towards the Val Cantone di Dosedé enabled us to traverse below a gigantic slope of stones and the Saoseo glacier, and so to reach the stony basin below the Corno. Hence a faint track led us high up on the left hand along a grassy shelf (with a rock precipice on the right) at the end of which some steps cut in the rock brought us to the pass (under 2½ hrs.' leisurely walking from the Club hut), which is the left hand of two depressions in the jagged rock ridge. Here we dominated the head of the Val Viola Poschiavina, and looked across the Bernina road to the peaks of the Bernina group. We knew from the published accounts that on the other side of the pass there was a curious fault or crack in a steep rock wall or slab, on the right, and this bit was accomplished all right. But then we were uncertain whether to go right or left, a succession of smooth rocks below barring the direct way. At last we hit on the smugglers' track, which turns sharp to the left and

* See *A. J.* ii. pp. 407-8.

traverses for a considerable distance, before descending to the highest lake, 2,489 m. (1 hr.). A little above it, a passing shower compelled us to take refuge under a great overhanging boulder, where, to our amusement, we found the remains of a smugglers' fire, and their *cache*. The track now rapidly improved, and led through a charming forest, in the midst of which, in an admirable setting, are the small Saoseo lakes, a little below which, near the Ruggiolo chalets, we joined the path from the Passo di Val Viola (2 hrs. 10 min. from our pass). A short hour more brought us to the little cantine of Sfazzù on the Bernina road, whence after light refreshments we toiled up the zig-zags (absolutely declining the stony short cut) to the hospitable inn of La Rōsa. Here we found ourselves once more in full civilisation, and had to answer many queries on the part of the landlord as to the Club hut and our pass, both of which excited his curiosity greatly.

After our week out from Livigno, it was delightful no longer to have to content ourselves with tinned provisions. So we spent the 6th quietly at La Rōsa, watching the numerous travellers who passed through in the diligences, in private carriages, or on foot.

On the 7th, we went up the highest and central summit of the *Corno di Campo* (3,305 m. = 10,844 ft.), by way of the Carten ridge (crossed at the point 2,685 m.), and the Val Mera Pass (5¼ hrs. up, 3 hrs. back). Mists seized us when high up, so we saw nothing from the top. The ascent is of the easiest description, but there is a tiresome descent (an ascent on the return to La Rōsa) from the Carten ridge to the foot of the last slope leading up to the Val Mera Pass; and we regretted that we had not brought our knapsacks with us so as to descend direct from the pass to Livigno. Next day (Aug. 8), after dinner we walked over the *Forcola* (now traversed by a fair char road) to Livigno (4 hrs. 35 min.). It is a dull pass, but the easiest means of reaching Livigno from any side. One incident *en route* disturbed the quiet tenour of our way. Some Italian shepherd lads came to beg for a few centimes, but after some jokes they found out that we were hard-hearted; so one of them drew his knife upon us, and the band had to be dispersed by means of brandished ice-axes!

Livigno seemed quite home-like, and grass was pleasant after our wanderings among stones. One writer has contemptuously spoken of Livigno as a 'remote tub,' while another calls it a 'fat upland valley.' But I must say that the descriptions I had read gave me very little idea of what the valley is really like. At its upper end it is an ordinary Alpine

glen, while its lower portion is formed by the splendid gorges of the Spöl, of which I have spoken above. It is the central bit of the Livigno valley which is most characteristic and quaint. I should be almost tempted to describe it as an improved form of the Rhone valley between Martigny and Brieg. The swamps are wanting indeed, and the pale-faced inhabitants also. But there are uniform grassy hills on either side, that enclose wonderful meadows through which the Spöl glides silently, while on its left bank the dwelling houses and the three churches stand on either side of the char road, almost like a street. A few hay barns are seen on the grassy slopes above, while to the S. the view is closed by the mass of the Monte Vago (the only snow visible from the valley), which seems to summon visitors to its summit (I am not aware whether any one has yet answered this mute appeal), and on the N. by the Munt la Schera and a bit of the Monte del Ferro. None of the higher peaks of the district are seen from the valley itself. In summer most of the inhabitants are away hay-making in the Val Federia round the corner, and the traveller can thus re-echo the words of Sprecher, writing early in the seventeenth century, who calls Livigno an 'amoena solitudo.' There were no fewer than 837 inhabitants in 1889, and their chief means of communication with the outer world is over the Dheira and Foscagno Passes (over which the postman comes daily) to Bormio; but provisions come largely over the Forcola from the Bernina hospice or from Zernetz in the Lower Engadine. The remoteness of the valley from Bormio, and the tangled nature of the ranges which enclose it, are no doubt the reason why it is allowed to pay a fixed money contribution to the Italian Government, and in return to enjoy freedom from customs duties and their natural consequences. For it must never be forgotten that the valley is at a great elevation for one that is permanently inhabited. The inn stands about the middle of the more level portion, and is 1,819 m. (5,968 ft.) high, while, as I pointed out above, the grassy spur over which runs the track of the Passo Dheira leads to Trepalle, the highest village in Italy. Lying between the great valleys of the Inn (of which the Spöl is a tributary) and of the Adda, it is hard to say with which Livigno should most naturally be grouped. Historically it (like Fraële) has always formed part of the County of Bormio. Hence in the Middle Ages it was tossed to and fro between the Bishop of Como, the Bishop of Coire, and the Duke of Milan; but in 1486 it passed into the possession of the Three Rätian Leagues, which only lost it in 1797.

Then it became part of the Cisalpine Republic, and in 1805 of the Kingdom of Italy. In 1814-15 the Rætian Leagues in vain pressed for its restoration into their hands, but it was given to Austria, and naturally in 1859 became part of united Italy. The chief event in the history of the valley is the great fight which there took place in June, 1635, when the French troops under Rohan drove out the Imperialist troops—an incident in one of the oddest episodes of the Thirty Years' War.* Nowadays its peace is undisturbed save by the travellers who find their way thither. These are more numerous than might be imagined, for I reckoned that annually 150 to 200 enter their names in the 'Travellers' Book' at Signor Silvestri's inn, though not very many of these are English.

I had made a sort of half arrangement with some Swiss friends to meet them in Livigno about August 9 or 10. So on the 9th we took a holiday, and on the 10th, as in duty bound, visited the *Casana Pass* (2,692 m.=8,832 ft.) (over which troops passed in 1499, 1620-22, and above all in 1635), and climbed the *Piz Casana* (3,072 m.=10,079 ft.), to its N. The view was, of course, extensive; but I seem to recollect most vividly countless stones, a deceptive arête between the pass and the peak (it is best to descend on the Swiss side and reascend), and a horrible descent down the Saliente glen. Going very leisurely we took 3 hrs. from Livigno to the pass, 2½ hrs. more (owing to our bad route) thence to the peak, and 2 hrs. 20 min. back to Livigno. We waited another day for my friends (who, as we learned later, had given up their idea of returning to Livigno, having been fascinated by the Bernina group), but at length, on August 12, took farewell of Livigno, which had quite grown upon me. Our destination was San Giacomo di Fraële, and that was

* The late sixteenth-century description of Livigno in Ulrich Campell's *Rætiae Alpestris Topographica Descriptio* (Basel edition of 1884), pp. 135, 146-7, is curious; see, too, Sprecher's *Pallas Rætica* (originally published in 1617), pp. 395-6 of the 1633 Elzevir edition. The best and fullest modern notices are to be found in Mr. Freshfield's *Italian Alps*, pp. 107, 115; Pfarrer Leonhardi's *Das Poschiavinothal* (1859), pp. 24-6, and *Das Veltlin*, (1860), pp. 70-3; and in the *Guida della Valtellina*, published by the Sondrio Section of the Italian A. C. (second edition, Sondrio, 1884), pp. 339-343. The mediæval history of the County of Bormio is given in detail in P. C. Planta's most useful and painstaking work, *Die cürrentischen Herrschaften in der Feudalzeit* (Bern, 1881), pp. 78 sqq.

most easily reached by way of the *Alpisella Pass* (2,285 m. = 7,497 ft.). But despite Mr. Leaf's express warning* we mistook the way just as did his party. It may therefore help future travellers to know that when they have reached, by a fair path, the junction of the Torto (or Trepalle) and Alpisella glens, and find themselves on a grassy shoulder just above the united streams, they should (despite all appearances) bear *due N.* by a faint track, which leads straight up to the foot of the cliffs of the Monte del Ferro, and then turns E. over the pastures high above the stream. The result was that we took 3 hrs. from Livigno to the Alpisella chalets (2 would probably be more than ample), whence 1½ hr. more brought us past the lakes which are the sources of the Adda to the Fraële hollow. Here we put up at Pietro Trabucchi's little inn (a Cantoniera), close to the chapel of San Giacomo; the entertainment was homely, but fair, the wine good, and also the beds, of which there are now eight in four rooms, while the prices were low. A traveller who is not too exacting might well spend several days here, save in the autumn, when the house is filled with hunters.

The chapel is said to be mentioned as early as 1287, while there are vague tales of a great slaughter of Arian heretics here in the fourth century, relics of which have been found in the shape of swords and gigantic bones. In the seventeenth century Fraële was celebrated for its iron mines (no doubt this is the origin of the name of the Monte del Ferro, which dominates the hollow), while in October, 1635 Rohan followed up his success at Livigno by a second and crushing defeat here of the Imperialist troops, the story of which can only be fully appreciated by one who has himself seen this most astonishing and interesting spot.†

My attention had been drawn to Fraële by Mr. Leaf's glowing description, and I can warmly endorse his recommendation to penetrate (it is not difficult to do so) to this quaint and curious place. In itself it is but a picturesque pasture basin or hollow, shut in by rugged dolomitic peaks. But it is shut in very completely and securely. One would

* *A. J.*, xvii. p. 228.

† Descriptions of Fraële may be found in Campell (*ut supra*), p. 419; Sprecher's *Pallas Rhetica* (1633 Elzevir edition), pp. 394-5; Leonhardi's later book, pp. 68-9; Theobald and Weilenmann's *Die Bäder von Bormio*, pp. 33-6 (translated in the *Bollettino del C.A.I.* No. 18, pp. 309-10); the *Bollettino del C.A.I.* 1877, pp. 348-9; the *Guida della Valtellina*, pp. 329-34; and Mr. Leaf's article in *A. J.*, xvii. pp. 228-30.

naturally expect to follow the course of the Adda direct to Bormio, but the river flows through a gorge said to be impassable, so that the mule track from Bormio to San Giacomo (4 hrs.) has to ascend a bit of the Val Viola Bormina, and then mount by a series of steps cut in the rock ('Scale di Fraële') to the chapel of Sant' Antonio on a low pass, and so gain this secluded basin. Leaving on one side the Trela Pass, also leading from the Val Viola, and some high smugglers' passes giving access to the Münster Alpen (of which more anon), we have the easy Alpisella Pass by which we had come from Livigno. But *the* pass of Fraële (called, indeed, *Passo di Fraële* by the $\frac{1}{25000}$ Italian map, which attributes to it a height of 1,950 m. = 6,398 ft.) lies 10 ft. only above the chapel, and its summit level is a sort of rolling plain, covered with stones and low brushwood. Here, too, the singular topographical character of the region is fully maintained. A short distance beyond the pass there opens on the W. the Val Bruna, watered by a stream flowing from the Monte del Ferro, which receives a tributary from the Val Mora on the N.E. The united torrent takes the name of Gallo, and joins the Spöl in the great gorges, as I pointed out when describing our walk from the Ofen inn to Livigno. But, as in the case of the Adda, the lower portion of the Gallo glen is also impassable, so that the track to the Ofen inn mounts high above the torrent, and passes over the pastures of Schera at the W. foot of the Munt la Schera, mentioned in the earlier part of this paper. Thus *the* Fraële Pass (sometimes wrongly called *Passo di Val Mora*) presents the very strange peculiarity that the ordinary way on either side does not follow the streams flowing from either side of the watershed, but is forced to cross a side shoulder to an entirely different river-bed. I gained some idea of all these topographical curiosities whilst wandering about in the afternoon in the face of a high wind. They struck and interested me very much, so that I quite changed my plans for reaching the Münsterthal. We had had some thought of attacking the Monte del Ferro, but the sight of its stones was too much for us; then we thought of crossing to the Münster Alpen by a high smugglers' pass (3,028 m.) N.W. of Monte Cornacchia, and climbing that peak, though I was aware that it had been climbed as far back as 1883 by Signor Guarducci (who the same year climbed the Cima di Plator), and by at least one other Italian party since. But my afternoon's stroll raised so many interesting topographical questions in my mind that I decided on taking a route which, as it turned out, offered

nothing but a purely historical interest. This was by the Val Mora, the Münster Alpen, and the Dössradond Pass.

Our host could give us but the vaguest ideas of the time required for our proposed round, so we started off at 8.15 A.M. on the 13th, in order to be able to take it easily. In a few seconds we had gained the summit of the Fraële Pass, unmarked by even a pole, and then followed a faint track till, in 25 min., we reached an Italian military sign post, at the point where the paths to the Ofen Pass and the Dössradond Pass divide. Here we turned to the right, and soon entered the desolate Val Mora. Presently the path led over a bluff above the left bank of the stream, and this seems to be the frontier line, though no pole, no cairn, no douanier, nothing greeted us on our return to Switzerland. The track then descended to the left bank of the torrent, which it henceforth followed. From time to time there were signs of an old paved road, now ruined and covered by loose stones. Gradually it dawned upon me that here was the solution of a puzzle that had long troubled me. Campell, writing in the second half of the sixteenth century, mentions several times* an old pass from the route of the 'Juga Rætica' (i.e., the Ofen Pass) by Fraële to Bormio. This he names 'Jugum Planum,' and tells us that it passes over the 'mountain of Pes Fallaria' (i.e., Buffalora). Now, between our Val Mora and the Ofen road the Siegfried map marks a pass called 'Giufplan,' which leads over to the Buffalora Alp, and was traversed by Mr. Leaf's party.† Its proper name (at any rate, on one side) is the Buffalora Pass, and I had long been perplexed when trying to trace out the exact line followed. (In some books the name Buffalora Pass is applied to the Ofen Pass.) But this paved track cleared up all my difficulties. I now saw that we were on the old path which led over this mysterious pass. Starting from the Ofen route (near the present 'Wegerhaus'), the way lay over the Giufplan to the Münster Alpen, in the Val Mora, then descended that valley, bore S.E. over the Fraële Pass to San Giacomo, and thence attained Bormio by the Scale di Fraële. The route thus traversed three ridges, and described many twists and turns. But in old days this pass was of great commercial and practical importance, for it connected the Lower Engadine with Bormio and the Valtellina, just

* Pp. 147, 241, 266, 419. See, too, Sererhard's (1742) *Einfahte Delineation aller Gemeinden dreien Bünde*, part I. pp. 74, 108 of the 1872 edition.

† A. J. xvii. p. 230.

as the Umbrail Pass joined together the Münsterthal and the Valtellina. So this small discovery of mine was a first reward for my topographical curiosity.

The Val Mora is very wild and stony, and the path seemed, as may well be the case, to be completely abandoned. The bridge marked on the Siegfried map was represented by two ancient piles only, so we had to wade across the stream. On the other side the walking was better, and after passing through some brushwood we gained (2 hrs. 5 min., including the delay in wading across the stream, from the military signpost) a point directly under the huts of the Mora Alp, past which the path from the Buffalora Pass winds down to the level of the glen. Our way now turned to the S.E., and lay over the pastures of the Münster Alpen (so called as they belong to the great nunnery whence the Münsterthal takes its name). The ascent over stone-strewn slopes was very gradual, the track soon becoming a rough char road. On the S. the dolomitic peaks which divided us from Fraële rose up boldly, displaying here and there some snow and ice. But otherwise the glen is dull. As we proceeded the pastures became more and more scanty, but it took us far longer than we had fancied to reach, over a swampy down, the watershed of the *Dössradond Pass*, not far from the hut marked 2240 m., (7,349 ft.) on the Siegfried map (1 hr. 10 min. from under the Mora Alp chalets, or 3 hrs. 40 min. from San Giacomo). Hence the way down into the Münsterthal was obvious, and I now understood far better than before how and why the Imperialist troops in 1635 used this route from the Vintschgau to Fraële, hoping to block Rohan in Fraële, and again on their hasty retreat after the great defeat inflicted on them in Fraële by Rohan, who burnt all the houses in that glen so as to do away with the possibility of another such attempt to outflank his forces. The first bit of the way down, along the left bank of the torrent, was steep and very stony, but after crossing to the Vau hut matters became better and the road lay mainly through forest. Soon Santa Maria in the Münsterthal appeared, and was reached in $1\frac{1}{2}$ hr. from the pass, or 5 hrs. 10 min. from San Giacomo. Here were inns, the Ofen high road, a Federal diligence, &c., but we were made to feel that we had come out of the wilds when we found that no one in the inn had even heard of Fraële, whence we had started but a few hours previously.

We spent the next day (August 14) in an excursion through the Val Muranza to the *Umbrail Pass*, and up the *Piz Umbrail* (3,084 m. = 9,955 ft.). The sole interest of the pass

lay in the fact that till the Stelvio road was built, about seventy-five years ago, it was the usual means of communication between the Vintschgau and the Valtellina, and so is often called the Wormserjoch or Bormio Pass; the Swiss Government are about to construct a carriage road across it, which will be the highest in Switzerland, as the pass is 2,512 m. (8,242 ft.) high, but there seem to be some absurd difficulties made by the Austrian Government about allowing a foreign state to build a road over the grassy slopes which lead down to the 4th Cantoniera on the Stelvio road, but eighty-nine feet below the Umbrail Pass. There is a made path up the final rocks of the Piz Umbrail, which is a very common excursion from the 4th Cantoniera, and is much better taken thence than from Santa Maria (Münsterthal). Unluckily the fine view of the Ortler was overclouded at the time of our visit.

Letter-writing and rain kept us two days at Santa Maria, and we were not sorry to get off on the morning of August 17. We followed the Ofen road towards the pass for 50 min., till a sign-post warned us to turn off to the 'Scarl Pass.' We then mounted in the heat through Lussai to the magnificent pasture plateau where is the village of Lü (55 min.) which almost shouts for a great hôtel, so well is it suited to become an 'air cure.' Hence the path (we took the uppermost) brought us through a forest and round a mountain shoulder to the Champatsch pastures, up which we wandered, at the last by steep zig-zags, to the faintly marked watershed of the pass (2,251 m.=7,386 ft., 1½ hr. from Lü or 3 hrs. from Santa Maria) which is sometimes called Costainas Pass from the pastures on the other side. We were more or less surrounded by unknown and not very interesting peaks, but there was no hurry, so we spent several hours lying on the grass. A very fine succession of Alpine pastures dotted with many chalets is traversed on the Scarl side, and a pleasant saunter brought us in 1 hr. 25 min. to the junction of our path with that coming over the Cruschetta Pass from Taufers. The glen now narrowed and became much wilder, but it was not till we were close to the village that the few houses of Scarl came into sight, 35 min. having been taken from the junction, or just 5 hrs. from Santa Maria. I have visited many lonely hamlets in the Alps, but I cannot recollect one which seemed to me more lonely and desolate and stony than Scarl. La Béarde itself is green and fertile by comparison with this lost hamlet sunk in the stoniest of hollows, and dominated on all sides by bare and savage peaks. Its only

raison d'être was that hither the ore from the neighbouring silver and lead mines (of which we hear as early as 1317) was brought down.* Nowadays it is one of the ordinary excursions from Schuls.

We had intended to stay several days at Scarl in order to explore the adjacent peaks, Piz Lischanna, Piz Pisoc, and Piz Sesvenna. But the inn (Edelweiss—a new hôtel was being built at the Schuls end of the village) was very rough (though the prices were low), while the provisions were very nigh exhausted, partly through the ravages of a Swiss party which had recently managed to spend five days there. So the next morning (August 18), we fled through the very striking gorge of the Clemgia down to the fleshpots of Schuls, and regained the Inn valley, which we had left on July 24.

And so ended our journey to the Cima di Piazzi and back. It had led us through much interesting and quaint and curious country. Eita, Livigno, and Fraële will long remain in my memory, for each has a charm of its own, though each is very different from the others. But all three are spots which I should like to see again, and they have the additional attraction of being off the beaten track. For tourists have scarcely as yet discovered the region I have been describing. Even at Livigno we never saw more than eight or ten travellers at one time (save the Celerina boys' school one night), at Eita there was but Signor Sinigaglia's party and my own, while two Germans at Santa Maria seemed quite a crowd after and before the complete solitude of San Giacomo di Fraële and Scarl. It will be a further attraction to energetic climbers to learn that many peaks and ridges in the district are practically unknown, while several others are known to but a most select minority of wanderers. Perhaps this paper may do something to attract hither a few of those who have found out by personal experience how many nooks and corners of the Alps, and indeed of Switzerland itself, remain to be 'discovered.' The more I travel, and the more I read, the more am I amazed at the amount left in the Alps for our successors to explore and to enjoy. And yet one had imagined that the past and present generations of Alpine climbers and wanderers had not been shamefully idle!

* On Scarl see Campell, pp. 4, 201-2; Sprecher, p. 340; and Sererhard, Part i. pp. 95-6, 105.

THE GENERAL INTRODUCTION TO MR. BALL'S 'ALPINE GUIDE.'

BY W. A. B. COOLIDGE.

SEVERAL of the reviewers of vol. i. of the new edition of the 'Alpine Guide' have pointed out (in some cases with expressions of regret) that the 'Introduction' has been omitted, and replaced by various lists, &c. It is therefore worth while to show precisely what the state of the case really is.

In the first edition (1863) of the 'Western Alps' the 'Introduction' fills over a hundred pages, and is followed (on p. cxxxvii) by 'Supplementary Notes,' which deal specially with the Western Alps. But if we look at the first editions of the 'Central Alps' (1864), and the 'Eastern Alps' (1868) we find that the long 'Introduction' is not prefixed to these volumes, which have only 'Preliminary Notes' relating to the special part of the Alps therein treated. Probably this was found to be the most convenient plan; at any rate, in the second edition (1866) of the 'Western Alps' the 'Supplementary Notes' of the first edition have become 'Preliminary Notes to the Western Alps,' a slip inserted stating that the 'Introduction' was issued separately.

Thus the 'General Introduction' to the 'Guide' and the 'Preliminary Notes' to each of the three volumes which compose it, though originally closely connected, soon became quite separate and distinct. The 'Introduction' was issued apart as a pamphlet (which could also be had bound up with any of the three volumes), while each volume had its own special 'Preliminary Notes.' This plan seemed to have its advantages, and hence the 1898 edition of the 'Western Alps' is preceded by a new edition of the 'Preliminary Notes to the Western Alps' *only*. But the 'General Introduction' has been by no means thrown aside. On the contrary, a thoroughly revised new edition has long been in preparation, and will be issued in time for the season of 1899. It will contain *new* articles relating to Alpine botany and Alpine photography, as well as perhaps a glossary of Alpine terms, while the older articles have been carefully revised, that concerning Alpine geology having been practically rewritten by Professor Bonney.

THE ASCENT OF YLLIMANI.

THE following telegrams from Sir Martin Conway appeared in the 'Daily Chronicle' of September 13 and October 22, and are printed here with the permission of the Editor :—

'La Paz, Bolivia.

'On September 9 I reached the top of Yllimani, 22,500 ft. above sea-level. It took us five days from the highest point of cultivation. For three days we ascended a steep gully, a party of Indians carrying the baggage. On the fourth day, as we were in the middle of a difficult cliff, the Indians bolted. We hauled our tent up by ropes and camped in the snow field.

'The following morning I started off again at 2 o'clock (London time) up a glacier by moonlight. Then came a very difficult ascent of an intervening bank, then a long ice wall, which brought us up to a height of 21,000 ft. Here it was necessary to descend 500 ft. to a huge snow plateau, which involved a toilsome mile walk. From this point our path led up a snow ridge to the top of the mountain. The last hour the party suffered from great weakness, though we had no actual illness. The view from this height was astounding. The descent was made from the intervening peak, straight down a precipitous wall, back to La Paz.'

Attempts on Sorata.

'La Paz: October 20, 4.20 P.M.

'From September 19 to 23 Sir Martin Conway made a series of attempts to climb Mount Sorata.

'The attack began by dragging all the necessary supplies of food, fuel, instruments, &c., upon a sledge up a difficult glacier to the highest camp, 20,000 ft. above sea-level.

'At a height of 21,000 ft. the party was driven back by a snow storm; and the bad weather persisting Sir Martin Conway was forced to leave his camp upon the snow field.

'On October 9 he again returned, by the same route as before, to his highest camp.

'Next morning a start was made at 2 o'clock, and for three hours the party proceeded by the light of their lanterns up the glacier to the foot of the peak.

'Then followed two hours' difficult and exhausting work up perilously steep rotten snow, at the end of which time a point was reached just below the summit.

'Here, however, to their intense disappointment, an im-

passable crevasse stopped further progress, and rendered it absolutely impossible to complete the ascent.

'The highest point reached was well over 23,000 ft., and probably as much as 24,000.

'The ascent by this route being thus proved to be beyond the reach of success, Sir Martin Conway tried another way, but upon reaching a great height found the summit equally impossible of access.

'The temperature on these ascents was 2° F., or 30° of frost, and the party suffered considerably, both guides being frost-bitten.

'There being, so far as could be ascertained, no means of reaching the summit, Sir Martin Conway returned to the plain to prosecute a general survey and to carry out exploring work at a lower level.'

NEW EXPEDITIONS IN 1898.

[Contributors of 'New Expeditions' are requested to observe the following rules:—(1) To forward their accounts in the form in which they are to appear. (2) To prefix the name of the peak or pass from the best map, and the altitude both in metres and feet in a parenthesis after the name. (3) To give the date of the ascent, and the names of the party. (4) To give exact references to any previously published descriptions of allied routes to which they may have occasion to refer. (5) To write the description with the best existing map before them, and to quote the figures of any measured point their route may touch. (6) To use always the points of the compass instead of the misleading words 'right' and 'left.' (7) To record their 'times' exclusive of halts. (8) To make their descriptions as brief as possible consistently with the above considerations. (9) To write on one side of the paper only, leaving a large margin, and to begin a new sheet for each expedition.]

Mont Blanc District.

AIGUILLE DE TRÉLATÈTE.—On August 1 Messrs. E. J. Mazzuchi and Alfred Holmes, with César Ollier and a porter, found a new and quicker way down from the Trélatète. After descending by the ordinary route as far as the foot of the arête which comes down from the Central Summit to the Allée Blanche Glacier they turned S.W., and by easy snow slopes gained the top of the rocks which cut across the glacier from the Aiguille de l'Allée Blanche to the ice-fall at the base of the S. point of the Trélatète; they descended these rocks to the glacier below, then continuing S.W. they made for a prominent Col in the ridge between the Aiguilles du Glacier and d'Estellette, but, not liking the appearance of the couloir which led down to the Estellette glacier, they traversed the easy S.W. face of the Aiguille d'Estellette to an unnamed Col to the N. of it; here they joined the ordinary route. From the top to the Allée Blanche chalets took 3½ hr. walking.

AIGUILLE SANS NOM (3,989 m. = 13,088 ft.). *August 17.*—

H.R.H. the Duke of the Abruzzi, with the guides J. Petigaz and L. Croux, of Courmayeur, and A. Simond, of Chamonix, left the usual Dru bivouac on the Charpoua Glacier at 8.30 A.M. They climbed by the great couloir which separates the Aiguille Sans Nom and the Aiguille Verte, and where it divides into two they followed the left gully. Then, by difficult rocks and ice, they gained the N. ridge of their peak, and by it attained the summit after much toil and difficulty at 2.30 P.M. They descended by the same way, were overtaken by darkness in the middle of the great couloir, and had to spend the night in a position of considerable danger from stone avalanches, which twice seriously threatened them. They resumed the descent at 4 A.M. on August 18, and reached the Montenvers at 11. This peak had been attacked several times before without success.

GRANDES JORASSES ROCK PEAK (4,066 m. = 13,341 ft.).—This peak is situated between the Pic Whymper and the Col des Grandes Jorasses. *August 22.*—The same party left Courmayeur at 1 A.M. At the Grandes Jorasses hut they were joined by the guide C. Ollier and the porter F. Ollier. They climbed by the rocks of the Reposoir, and after reaching its summit made for the desired peak, the top of which was attained at 1 P.M. They regained Courmayeur at 10 the same evening. The climb was rendered dangerous by falling stones. We take this and the preceding climb from the 'Rivista del C.A.I.' August 1898.

COL SUPÉRIEUR DU TOUR NOIR (3,695 m. = 12,123 ft.). *August 3.*—The Rev. A. C. Downer, with Onésime Crettex and a porter, leaving the Saleinaz Club hut at 3.15 A.M., proceeded up the Saleinaz Glacier, the upper part of which was found much crevassed and the snow soft. A halt for breakfast was made at 5.45 on the upper snows, immediately below the Col de la Neuvaz. At 6.5 they began the ascent to the last-named col by cutting up a somewhat difficult ice wall above the bergschrund, attaining the pass at 7.35. They then descended the S. side to the head of the Glacier de la Neuvaz, where the map was consulted. A steep slope of snow was then encountered, leading up to the Col Supérieur du Tour Noir. Progress was delayed by the softness of the snow, the party sinking to the knees at every step of the ascent. At 8.30 they reached rocks and halted 15 min. in cloud, which prevented a distant view. The Col Supérieur du Tour Noir was gained at 10.10 A.M. and lunch was taken. It was found impossible to thoroughly heat the contents of one of Silver's mess tins at that altitude. Crystals were obtained in the rocks below the col.

This is the first ascent of this col from the E., the first ascent from the W. having been made by Mr. Downer on August 16, 1894, when bad weather prevented the party from descending on the La Neuvaz side.* An attempt by Mr. Downer and Mr. A. E. Field on September 4, 1895, to attain this pass from the E. was defeated by enormous crevasses in the La Neuvaz glacier, the snow bridges having

* See *Alpine Journal*, vol. xvii. p. 252.

all disappeared at that period of the season.* On the present occasion these crevasses were avoided, the party descending from the Col de la Neuvez to the extreme head of the glacier.

COL DE SALEINAZ. *August 3.*—The same party then (11.0 A.M.) descended to the upper snows of the La Neuvez glacier, proceeding in the direction of the Grande Luis. Instead, however, of crossing the ridge, in order to reach the Glacier de Saleinaz by the Col de la Grande Luis, they ascended a couloir W. of that pass, and at 12.35 P.M. attained a col, hitherto uncrossed, immediately to the E. of the Grande Luis. The height of this col they estimated at about the same as that of the Col de la Grande Luis (3,379m. = 11,086 ft., Kurz's map). From this point a very steep snow-slope goes down to the Glacier de Saleinaz, and as this was covered with fresh, soft snow, fallen the same morning, the party found it necessary to descend face towards the mountain, making hand-holds in the snow and driving in their axes, at the same time kicking steps down backwards. The bergschrund below was jumped. After this, the party kept along under the ridge eastward, reaching the Cabane de Saleinaz at 3.30 P.M., or 12½ hours from the start. After rest and refreshment, they started for the descent to Orsières, calling at Praz de Fort upon M. Louis Kurz, who mentioned that the col under the Grande Luis had been regarded as impassable. The hotel at Orsières was reached at 9 P.M.

It is proposed to name this pass the *Col de Saleinaz*—a name approved by M. Kurz.

It should be mentioned that the entire expedition was new to Crettex, whose excellent leading deserves acknowledgment.

CLOCHER DU LAC DES CUGNOZ (9,100 ft. estimate). *August 30.*—Mr. G. Yeld, with Sylvain Pession, made the first ascent of this fine obelisk of rock—an outlier of the Écandies group. The ascent from the foot of the peak above what apparently used to be the Écandies Glacier took about 70 min., and the descent 40. Near the summit the climbing was most interesting.

Great St. Bernard and Valpelline Districts.

GRAND GOLLIAZ, or POINTE DES ANGRONIETTES (3,240 m. = 10,630 ft., S. Map; 3,238 m., I. Map); BY N. FACE AND BY E. ARÊTE. *July 6.*—Mr. Alfred G. Topham, with Jean Maitre and Pierre Maurys, ascended this peak from the Swiss side and descended by the E. arête. Either of these routes should tempt climbers to ascend this fine summit, which, owing to its isolated position, commands a magnificent panorama, more especially of the S. side the Mont Blanc chain. The party slept at a restaurant chalet, ½ hr. below Ferret in the Swiss Val Ferret. After a day's reconnaissance they left at 3.40 A.M., and ascending to the head of the valley gained the Glacier des Angroniettes over much moraine. Ascending this, and for a short distance up a

* See *Alpine Journal*, vol. xvii. p. 579.

tributary glacier, they struck the most northerly of three great buttresses which descend from the peak in a N.E. direction, and are well shown on the Swiss map. The buttress is composed of very scaly rock, which crumbles off in large pieces. By this buttress the summit was attained at a point slightly N.W. of the peak, passing over a secondary point. The descent was made by the E. arête to the Col des Bosses. On this arête there are two immense gendarmes, which are turned on the S. face. The rocks are good, but steep. It would be easy, half-way along, to descend straight on to the Glacier des Bosses, but Mr. Topham's party followed the arête to the last point. Here the rocks greatly change. The arête ends, and the E. face of the last point is composed of loose shale, down which it is easy to run, but an ascent of which would be most laborious. From the col the party descended to the Glacier des Bosses, and then by a tedious traverse and the Col St. Rémy to the Hospice of the Grand St. Bernard. Times: Ferret to foot of glacier, 2 hrs. 50 min.; top of buttress, 2 hrs. 40 min.; summit, $\frac{1}{2}$ hr.; end E. arête, 2 hr. 50 m.; shale slope, 10 min.; Hospice, $2\frac{1}{2}$ hrs. Total, 11 hrs. 30 min., exclusive of halts.

M. FAUDERY (3,355 m. = 11,007 ft.), BY E. FACE AND BY W. FACE, FROM THE GREAT ST. BERNARD TO THE VAL D'OLLOMONT. *July 7.* This peak is on the long ridge stretching S. from Mont Vêlan, and must not be confused with the M. Faudery on the other side of the Val d'Ollomont on the Morion-Clapier range, which was also first climbed by Mr. Topham. The same party left the Hospice at 5 A.M. in a dense fog. With difficulty they traversed the Swiss side of the range below the Col de Barasson and Les Cholaires, a break in the mist at last showing the desired pass. This was the col marked 2,753 m. S. map N.E. of the Tête Rouge, I. map, and is probably called Babilone. It is quite close to the Col de Menouve. Crossing this and traversing several ridges, the party at last gained the Val de Menouve at the point marked 2,379 m. They traversed the range in a south-easterly direction, and ascended the large buttress which leads direct to the point marked M. Faudery. Finding that the next point S.E. of them was higher, they descended to a col and climbed a sharp arête to this summit, a long ridge with points of the same height. Returning to the col they descended the E. face, and traversed the foot of the range to the chalets of Grand Togne, and thence to Ollomont and Valpelline. It would be also easy to reach by turning N.E. after descending the E. face. Times: Hospice to Val de Menouve, 4 hrs.; summit marked M. Faudery, 3 hrs. 40 min.; summit marked 3,355 m., 50 m.; regained col, 45 min.; Ollomont, 4 hrs.; Valpelline, $\frac{3}{4}$ hr. Total, 14 hrs., exclusive of halts.

BECCA RAJETTE (3,520 m. = 11,549 ft., I. map); **BECC D'EPICOUR** (3,527 m. = 11,572 ft., S. map), FROM CHANRION TO BIONAZ. — *August 11.* — Mr. Aston-Binns and Mr. Wherry started from Chanrion at 4.20, and mounting under the Pointe d'Otemma skirted the ridge and descended by a couloir of loose stones on to the

Glacier d'Otemma. Crossing the glacier they mounted the steep lateral glacier E. of the Jardin des Chamois. They crossed the bergschrund and ascended easy rocks, which lead rather to the E. of the summit, but there was so much fresh snow, and a big couloir which must be crossed was so iced, that they were compelled to leave the rocks and cut up the ice to reach the N. arête. The wind was so violent that they were obliged to bear away again to the W. and strike some rocks below the summit, whence the latter, though rather corniced, was easily gained in $5\frac{1}{2}$ hrs. from Chanrion, including halts. They selected the S.W. arête for the descent, and had a short but pretty rock climb on to a snow ridge which led to a col several hundred yards to the W., whence they got down loose rocks and snow slopes into the Sassa glen, $\frac{1}{2}$ hr. above Bionaz in the Valpelline, arriving there at 4 o'clock.

DENTI DI VESSONA (3,060 m.=10,040 ft.). August 12.—Mr. Aston-Binns and Mr. Wherry started from Bionaz at 3.30 P.M., with young Clemenz Zurbriggen and the 'Vicaire' of Bionaz for the Vessona glen.

They descended to the Buthier torrent, and without going down to Oyace, skirted the side of the hill, and mounted through forest to the opening of the Vessona glen, and ascended to La Vielle in $2\frac{1}{2}$ hrs.

They slept at La Vielle in a cow chalet, all the herds and herdsmen being at the upper chalets of Plan Barmet.

Starting at 4.45 next morning they reached the last chalets below the pass in 50 mins., and turning to the left climbed by steep slopes of grass, loose stones, and finally by snow to the col between the N. Dent di Vessona and Mont Pisonet, 3 hrs. from La Vielle. Thence it was easy in about 20 mins. to reach the top by a broken ridge. There was a very small stone heap on the top, probably made by a hunter, as there is no recorded ascent. To descend to the central Dent of the three seemed possible but extremely dangerous, owing to the extraordinarily rotten character of the rocks. They therefore descended and skirted the N.W. slopes considerably lower down. The party divided, and Aston-Binns and Clemenz Zurbriggen mounted by dangerously rotten shale and loose rocks to the col between the S. tooth and the middle one, which is evidently higher than the S., and not lower, as was supposed. With considerable difficulty, owing to the friable rocks, they reached the middle tooth, on which they built a cairn.

The descent was easy under the N. tooth by a rock traverse and easy snow, by which route they rejoined the rest of the party after an absence of a couple of hours.

These Denti di Vessona look very fine from below but are hardly worth climbing, owing to the extreme rottenness of the rocks. The S. tooth seemed inaccessible from the middle one, but it is obviously much less steep on the S. side, and might very likely be climbed by following the ridge from the Col di Vessona. It was estimated as quite 20 to 30 ft. lower than the middle tooth, which is possibly 100 to 150 ft. lower than the N., and a gracefully shaped Dent. The whole district, especially towards Mont Pisonet,

which rises in gentle snow slopes to the E., and the rugged and friable chain to the N., abounds with chamois, while lower down the beautiful Vessona glen was alive with marmots. Strolling gently home they were back at Bionaz with the genial Curé by 5.30 afternoon.

M. MORION (3,520 m. = 11,550 ft.). *August 16.*—The same party, substituting the Curé for the Vicar, with the addition of a porter named Bich, made the first ascent of this point. For information about Mont Morion they were indebted to Mr. Alfred Topham, who had stated that the point was unclimbed, and had given its bearings from adjacent peaks in the 'Rivista Mensile.*' They started at 3 in the morning, the Curé taking them at a great pace in the dark, and leading them up, after nearly 7 hrs., to a summit on the Morion ridge upon which was a cairn and the cards of Mr. Baker-Gabb and Mr. Topham. Oddly enough, their man Clemenz was surprised to find his name also, he having in his youthful days climbed it with the first party from the direction of the Crête Sèche, and forgotten the fact.

Looking to the S.W., another adjacent peak appeared to be a higher point than that on which they stood. They therefore crossed below the arête, merely halting a moment to put on the rope which they had not hitherto used (the Curé, by the way, utterly despising ropes), and arrived on the summit of M. Morion in 1½ hr., quick going.

It was evidently a higher point than that which they had first climbed. The rocks were very unstable, and they sent a good many stones down in their progress to the top. There being no sign of any former ascent, they built a cairn and descended by the S. face.

M. FAUDERY (3,930 m. = 10,924 ft.). **THE FIRST ASCENT BY THE E. FACE.**—Mr. Aston-Binns and Mr. Wherry, with Zurbruggen and Bich as before, left Bionaz at 4.30 A.M., crossed Faudery glen towards the Col Faudery, climbed the E. face by a snow couloir and rock ribs, and, reaching the summit at 11.10, found Mr. Topham's card. They went down by rocks (choosing the dark lichen-covered ribs as much as possible) to the snow couloir. They descended the snow only so far as was necessary to get off the mountain, climbed to the Col Faudery, and thence walked to Mauvoisin in the Val de Bagnes, where they arrived a little before 10 P.M.

GRAND COMBIN (4,317 m. = 14,163 ft.). *August 3.*—Messrs. F. G. Leatham and G. Lipscomb, with Jean Maître and Pierre Maurys, of Evolena, left the Bailey refuge at 2.45, and reached the Col des Maisons Blanches at 5, intending to climb the Grand Combin by the rocks of the W. arête, but seeing that these were covered with snow and ice they decided to climb the mountain by making for a gap which was visible in the séracs which lie between the two little rock ribs on the N. face. Starting up some very steep snow

* *Rivista Mensile*, 1898, p. 21.

slopes which were icy in places, they just touched the lower patch of rocks on the N. arête, rounded one or two fallen séracs (cutting steps on the slopes immediately below them, which were hard), and gained the plateau above at 7.45. They then made an almost direct course for the arête below the summit, reaching the latter in a thick fog at 9.10. Half an hour was spent on the summit, and they then began to descend, intending to follow the ordinary route; but the fog was so dense, snow falling fast as well, that they lost their bearings, and after wandering for $\frac{3}{4}$ hr. on the slopes below the summit, they came across their old tracks, which they followed, descending the steep slopes with their faces to the snow and finding most of their steps filled with fresh snow. The foot of the mountain, where the ordinary route joins the glacier, was reached at 11.45.

They have made inquiries, and believe this to be the first ascent by the route indicated.

Zermatt District.

THE DENT BLANCHE BY THE E. FACE.—The following brief note was recently communicated to me by a reliable authority:—‘The guides Louis Theytaz, Benoît Theytaz, and Abbet Felix, of Zinal, encouraged by the hôtel-keepers of the locality, attempted the ascent of the Dent Blanche from the Mountet hut on Wednesday, September 28, 1898. They left the hut at 4 A.M. and reached the summit at 2 A.M. on September 29, the reason for the long time occupied by the ascent being that the guides were obliged to hunt for the best route and to place two ropes to facilitate later ascents of the worst places. They climbed by the N. face on to the E. ridge, which was followed to the summit. Their movements were followed by telescope from Mountet and from Zinal.’ O. G. JONES.

[The Dent Blanche was ascended from the Mountet hut in 1882 by Messrs. J. Stafford Anderson and G. P. Baker by the N.E. arête and its N.W. face. ‘Alpine Journal,’ vol. xi. p. 119, and 158–172. See also the new edition of ‘Studer,’ vol. ii. p. 198, *note*.—EDITOR.]

Simplon District.

LAQUINHORN (4,005 m. = 13,140 ft.) BY THE W. FACE.—On July 12 Mr. Herbert Speyer, with Ambrose Supersaxo and the late Xaver Imseng, both of Saas Fee, made this new route. Leaving the Weissmies Hôtel at 4 A.M., the party went straight up the W. face of the mountain, reaching the S. arête (at 8.30) immediately beneath a very large gendarme which is easily noticed from Saas Fee. The ascent is steep, and required a considerable amount of step-cutting, but is nowhere difficult. The traversing of the S. arête from the gendarme to the summit occupied 1 hr.

Bernese Oberland.

LÖTSCHTHALER BREITHORN (12,451 ft.) August 14.—Mr. G. Yeld, with François and Sylvain Pession, of Val Tournanche, traversed this peak from the Innerer Baltschieder Firn to the

Bel Alp. They left a bivouac about 6 hrs. above Visp (in the Baltschiederthal) at 3.45 A.M., and in about 5½ hrs. very slow walking, reached the lowest point in the ridge (snow) at the head of the Innerer Baltschieder Firn. Up to this point there was no difficulty, but the actual ridge was an excellent and stiff climb. The precipices on the Lötschenthal side were most impressive, and the cornices on the upper part of the arête on the Baltschiederthal side very fine. The party climbed all the towers in the ridge. After the towers a comparatively long snow-ridge in first-rate condition, from which there was a wonderful view into the Lötschenthal, was succeeded by a delicately beautiful knife-edge of snow, which the party passed on the right (south) side of. The cornice gave no trouble, as it had been carefully studied from below. The party took about 3 hrs. to climb the ridge. After spending nearly an hour and a half on the top they descended to the Bel Alp. The Breithorn was first traversed from the Baltschiederthal to the Oberaletsch Glacier, in 1895, by MM. Perret and Gallet, but the route followed by them in the ascent was quite distinct—lying more to the S., and leading them first to the lower point of the Breithorn.

FUSSHÖRNER. August 17.—The same party, with the addition of Mr. G. Yeld, jun., ascended a hitherto unclimbed peak of the Fusshörner. It is the last conspicuous point in the ridge of the Fusshörner, nearest to the Bel Alp. The party climbed to a notch in the main ridge of the chain to the left (in ascending) of their peak, and then followed the ridge. They met with two main difficulties in steep towers, the latter of which looked almost hopeless, but was conquered by means of a second rope. The ascent cost about 7 hrs. of actual walking. The view was striking, the gendarmes on the Great Aletsch side (between the Oberaletsch and Triest Glaciers) being grim in the extreme. The Triest Glacier side of the ridge being cut clean from top to base forms a marvellous precipice. The party descended the ridge by the same route, but afterwards, by trying a new way which turned out impracticable, lost about two hours, and did not regain the Bel Alp Hôtel till rather late. It is hoped to publish shortly an account of the Fusshörner, with an illustration to show the peaks in it which have already been climbed by different parties.

GRAF (3,343 m. = 10,968 ft.), WITWE (3,298 m. = 10,821 ft.), BONNE POUPÉE (3,257 m. = 10,686 ft.), MAUVAISE POUPÉE (3,225 m. = 10,581 ft.).—On Monday, July 25, the Rev. Harry Wilson, accompanied by the guides Clemenz Ruppen and Alois Eier, made the first ascent of three unnamed peaks on the ridge between the Unterbächhorn and the Hohstock. The ascent was made from the Bel Alp Hôtel by the unnamed glacier to the E. of the Unterbächhorn glacier; this was skirted on the east and north sides. The first peak ascended (3,343 m. on map), which it has been agreed to call the 'Graf,' was easily reached by ascending the glacier on the S. of the peak, and then climbing the rocks on the south-west face, which were not difficult. (The snow on the

glacier was steep and a schrund had to be passed, but an easier route might be found by making a wide détour, and attaining the point where the snow reaches the western arête of the mountain.) The ascent was made in four hours from the hôtel, the snow being in first-rate order.

From the Graf to the next point (3,298 m. on map), which it has been agreed to call the 'Witwe,' the descent of the east arête of the Graf was in some places difficult owing to want of holds; the ascent of the west arête of the Witwe was easy. Time, 1 hr. 25 min.

From the Witwe to the next point (3,257 m. on map), which it has been agreed to call the 'Bonne Poupée' (the name commonly used for it by the local guides), the descent of the arête was made without difficulty; the lower part, however, was entirely covered with snow on the north side, and as this was very steep some care was required. The ascent of the Bonne Poupée was made partly on the snow and partly on the rocks, which did not present serious difficulties. Time, 40 min. from Witwe to Bonne Poupée.

The ridge between the Bonne Poupée and the next point (3,225 m. on map), generally known as the 'Mauvaise Poupée,' required a good deal of care on account of the rotten rocks. Traverses on the south side had frequently to be made. At one point where the ridge was very narrow a difficult passage occurred. Time from Bonne Poupée to Mauvaise Poupée, 1 hr.

The Mauvaise Poupée had been ascended previously; the Graf, the Witwe, and the Bonne Poupée were climbed for the first time.

The descent of the Mauvaise Poupée by the south-east arête and the small glacier to the Bel Alp Hôtel was made in 2 hrs. Some places on the rocks required care; a good glissade of some 400 ft. was obtained on the glacier.

On a subsequent occasion the Rev. Harry Wilson, with Mr. A. A. Pearson (A. C.), made the ascent of the Witwe from the glacier. The rocks were reached in 3½ hrs. from the hôtel; a couloir was ascended in 15 min., and the west arête of the Witwe reached about 10 min. from the summit.

On this occasion, the Mauvaise Poupée having been reached as before, the ridge between the Mauvaise Poupée and the Hohstock was crossed for the first time. The descent of the east arête from the Mauvaise Poupée was very steep, and in many places had to be made by the snow on the northern face of the ridge; this was frozen hard, and great care had to be exercised. The ascent of the arête to the shoulder of the Hohstock is without serious difficulty. Time from Mauvaise Poupée, about 2 hrs. The head of the Hohstock is about 70 ft. high, and is almost perpendicular. About three-quarters of the way up there is a small couloir, where the leading guide can get a good hold while the rest of the party ascend one by one. The holds are good on the face of the rock. On the other side of the head of the Hohstock there is a descending knife-edge, some 40 ft. long, of solid rock, ending in a wide step over a fissure in the rock. The passage requires great care. The rocks

on the ridge from the Hohstock to the Sparrenhorn are in many places interesting.

The Hohstock was ascended for the first time, five years ago, by the Rev. Harry Wilson, with Clemenz Ruppen as guide.*

MITTEL-ALETSCH-JOCH. *July 8.*—Messrs. T. L. Kesteven, E. H. F. Bradby, and C. Wilson crossed, for the first time, the ridge separating the Mittel-Aletsch and the Ober-Aletsch Glaciers, at the point where the S.E. arête of the Aletschhorn begins to rise steeply. This is not quite the lowest point between the Aletschhorn and the Sattelhorn, but it is the best point at which to cross the ridge, and may be appropriately called the Mittel-Aletsch-Joch. The height of the pass is about 12,000 feet. Starting by moonlight from the Eggishorn at 12.10, the upper plateau of the Mittel-Aletsch Glacier was reached at 4.30 A.M. and the Col at 9 (7½ hours actual going). Leaving again at 9.30, the Bel Alp footpath was reached at 2 P.M., and the Rieder Alp Hôtel at 5 o'clock.

ALETSCHHORN. *July 10.*—The same party, with Mr. J. H. Wicks, ascended the Aletschhorn from the Mittel-Aletsch-Joch (see above). The S.E. arête of the Aletschhorn, between this point and the col just N. of the point 3,966 m., where the usual route from the Bel Alp joins the arête, has not previously been climbed; and consequently the expedition here recorded is the first complete ascent of the S.E. ridge of the mountain, as also the first occasion on which the S.E. arête has been ascended from the Mittel-Aletsch Glacier, or the Eggishorn.

Starting from the Hôtel Jungfrau at 11.45 P.M. (July 9), the Mittel-Aletsch-Joch was reached at 9 A.M., and the point 3,966 m. at 12.30, whence the usual route was followed to the summit.

The descent was made by the N.E. ridge, the Aletschjoch, and the Mittel-Aletsch Glacier, the Eggishorn Hôtel being reached at 10.25 P.M.

The expedition is an interesting one, affording in a single day an unusual variety of mountaineering work on ice, névé, and rock. It is, however, an arduous undertaking; and under less favourable conditions of weather (including brilliant moonlight from midnight to daybreak) and of snow, could hardly be completed in a single day. On the other hand the Mittel-Aletsch-Joch can easily be reached from the hut on the Ober-Aletsch Glacier, by ascending the eastern, instead of the western, portion of the Ober-Aletsch-Firn; and this expedition would be a finer climb than the ascent as ordinarily made from the Bel Alp side.

SIMELISTOCK (2,487 m.=8,160 ft.), THE N.E. PEAK OF THE ENGELHÖRNER.—This peak was ascended for the first time by Mr. Claude Macdonald with Rudolf and Peter Almer. They left Rosenlauh at 4.35 A.M. on August 20, and proceeding up the gorge to the S.W. of the peak reached the foot at 7.30 A.M. by steep grass slopes. They then ascended a rock couloir, bearing to the left and keeping their peak on their left. Here, though very steep, the rocks were

* *A. J.*, xvii. p. 596.

good, with good hand and foot holds. At 9.50 they reached a saddle on the arête, whence the final tooth stood up bold and uncompromising, of limestone and apparently quite smooth. Here coats and all impedimenta were left. The party, after much reconnoitring, forced their way up a long crack, up which there was just room to wriggle by shoulders and knees. About half-way up, a fault in the crack obliged the leader to jam, whilst the others went over his body ladderwise, and then, having themselves got 'fest,' pulled him over—and two similar ladders had to be made higher up. Outside of the crack the rocks were of the smoothest description, and the crack and final tooth itself very nearly approached the perpendicular. The summit was reached at 11.5, and found to be about a yard square. Having built a small cairn, they descended exactly the same way, and at the big fault lowered the leader, and he having jammed himself the others came over his body. The descent to the saddle occupied 5 min. more than the ascent, and Rosenlauri was regained at 4 P.M.

KLEIN SCHRECKHORN BY THE N.W. ARÊTE.—The same party made this first ascent on August 17 from the Bäregg, leaving there at 3.45 A.M. Having followed the Schwarzegg Hut route for an hour, they ascended the Glattwang by stones, grass slopes, and finally a small snow couloir to the N.W. base of the peak. This was reached at 8, and breakfast was taken. From this point the N.W. arête was followed direct to the summit, and was found to consist of very large boulders, very loosely piled up and lying at a great angle. Great care had to be exercised owing to the looseness of the rocks, which but for this gave, with a few exceptions, good climbing. At 9 A.M. a cut-off occurred in the arête in the shape of a perpendicular red cliff, up which a passage was made by the aid of a friendly crack. Forty minutes later a similar and worse cut-off occurred; but another crack was found, of very narrow compass, up which with the loss of some epidermis the party forced their way, a human ladder having twice to be made. Finally, at 10.40 a third big red and almost overhanging cliff pulled the party up, and this had to be turned to the N. by very bad and loose rocks. The arête was regained at 11.20, and an easy 20 min. led to the top. Having left at 1 P.M., and glissaded down the Nässi Firn, the party reached Grindelwald at 5.45 P.M.

Titlis and Rhone Glacier District.

VORDER THIERBERG (3,091 m.=10,141 ft.). *July 23.*—Mr. and Mrs. F. Baker-Gabb, starting from Stein, followed the Steinlimmi route to within a short distance below the col, and then bearing S.W., up snow, reached the rock ridge running S. from the Steinlimmi, which was followed to the summit of the peak in 4 hrs. 50 min. from the hotel. The actual highest point was a snow cornice overhanging on the east side. The descent was made by a snow slope on the south-east side to the snow plateau above the Thierbergli, and down the Thierbergli to Stein, in 2 hrs. 15 min. from the summit.

WANGHORN (2,823 m. and 2,837 m.=9,262 ft. and 9,308 ft.).

DROSISTOCK (2,831 m.=9,288 ft.). *July 25.*—The same party crossed the Steinlimmi, and going up the Drosi Glacier to the col between it and the Gigli Glacier (2,776 m.), ascended the above-named three points. Point 2,823 is best ascended from the S.E. ; point 2,837, from the S. ; and point 2,831, from the N. Times : Stein to the Steinlimmi, 2 hrs. 20 min. ; Col between the Drosi and Gigli Glaciers, 1 hr. 5 min. ; Wanghorn (2,823 m.), 35 min. The higher point of the Wanghorn or the Drosistock (being nearer) would take rather less time. Descent : Drosistock to top of Steinlimmi, 1 hr. ; Stein, 1 hr. 10 m.

SUSTENLOCHSPITZ (2,918 m.=9,574 ft.). *July 26.*—The same party went up the Susten Pass (1 hr. 10 m.) and descended on the Wasen side for two or three minutes. They then followed an ill-defined path branching off to the N. into the Sustenloch, and reached the Sustenlochfirn in 1 hr. 20 min. This they traversed to the N.E., and ascending N. the small snowfield running up into the peak, reached the foot of a low rock wall in about 1 hr. 15 min. Climbing this wall at its lowest point, where water falls, they reached the snow above it under, but slightly to the E. of, the summit and ascended snow and boulders to the top, 35 min. Descending by the same route until below the small snowfield, they returned to Stein by the col immediately to the N. of the Ober Heuberg (1 hr. 15 min.), and down the Oberthal Glacier in 45 min. to the hotel. The above name is suggested for the point.

Bernina District.

MONTE SCERSCEN.—On July 22 Mr. Hugh C. Foster, accompanied by Martin Schocher and Ben Cadonan, made a new route up the Monte di Scerscen. They left the Roseg Restaurant at 1 A.M. Ascending the Tschierva Glacier and leaving Piz Humor to their right, they reached the bergschrund at 5.45. At the point of crossing they were under the centre of the ridge which connects the Scerscen and the Bernina. From here they turned to their right, cutting their way across a steepish ice-slope beneath some formidable séracs. A ridge of rock, however, soon sheltered them, and at 7 they reached the plateau ; from here they joined the ordinary route and were on the top at 8.20, on the summit of the Bernina at 2.30, and at the Morteratsch Restaurant at 7 o'clock.

Dolomite District.

EINSERKOFEL (9,396 ft.). FIRST ASCENT OF THE N. WALL.—This expedition was made on August 6 by Mr. J. S. Phillimore and the Rev. A. G. S. Raynor, with the guides Antonio Dimai of Cortina and Michel Innerkofler of Sexten. The party started from Sexten at five, with the intention of trying the Dreischusterspitze by a new route from the Schusterplatte side ; but after an hour's walk up the Fischleinthal, they were tempted aside by the N. face of the Einsers, on which an attempt had been made only a week or two

before. The fatal accident on the Dreischuster took place this same day.

After spending an hour in vainly searching for a peasant to carry their boots and axes round to the S. side, where the ordinary route (cf. the 'Hochtourist') starts, they began the rocks at 7.35. The preceding party had tried to force a way up the middle of the face, but, on reaching a ledge about halfway up, had found further progress impossible, as, indeed, it appeared from below. The present party decided to try the right (W.) branch of a large, deep-cut, Y-shaped chimney, which cuts the left (E.) part of the face. It was entered in 10 min. by climbing over a rock buttress from the right, and never left (except to round blockstones) for the next six hours.

The whole chimney was extraordinarily hard to climb, owing partly to the smoothness of its sides and the consequent difficulty of turning the blockstones, partly to the unusual depth, which made it impossible to keep to the middle. There is not an easy bit in all the length of it, but the most difficult points were the blockstones (passed at 9, 10.30, 12.30, and 1.20, respectively); more especially the third, a big double obstacle, where it was necessary to climb right into the cave under the block, to a sort of loop of rock which afforded halting-place for two, then out on to the face, and round the left edge of the block, hand and foot holds being practically non-existent. This passage alone took over $\frac{3}{4}$ hr. The caves are in places quite 30 ft. deep, and their roofs (the floor of the next pitch) not above suspicion of unsoundness. The last is a black hole forming the actual chimney-head. From here 10 min. easy *Platten* brought the party out on a small arête about 300 ft. above the ledge where their predecessors turned back. From this point 3 hrs. more stiff climbing—mostly face work, very straight—and the top was won at 4.48. Leaving at 5.28, they descended the rocks by the usual way in 1 hr. 22 min., and then, to their sorrow, had to tramp down over screes, steep grass, and stony paths in sadly damaged klettersshoes (it would have taken too long to go round and recover the boots) to Bad Moos, where they arrived at 9.15.

Each member of the party was distinctly of opinion that it was by far the most difficult climb he had ever done, or ever wished to do; Dimai said nothing would ever induce him to try it again.

PIZ POPENA BY THE S. ARÊTE (3,143 m. = 10,205 ft.).—It appears the guides of Cortina had agreed among themselves that it was time a new way was made up the Popena by the S. ridge. The old way from the E. is one more example of the predilection for screes which guided the pioneers of the Dolomites; while from the W. the traverse from the Cristallo Pass is condemned by a risk from stonefalls beyond all proportion to the difficulties of the climbing. The new S. route has the advantage of being sound rock, free from snow early in the summer (the cold of August 9 and 10 this year left the W. way in a condition visibly not to be attempted), and a respectable climb.

The same party left Tre Croci a few minutes before 6 on

August 11, and after following the path to the Cristallo rather more than half-way up, crossed E., and struck up a rough large gully of broken rock and snow. Here, at a point 2 hrs. from Tre Croci, they breakfasted and put on klettersshoes. Leaving at 8.25 they followed up under the W. side of the arête, and got into open sunshine on the crest in half an hour. The greatest difficulty was encountered 20 min. later in a bit of overhanging rock, which took some climbing, pick in hand; a stiff little passage some $\frac{1}{2}$ hr. lower down, consisting of two short chimneys connected by a sitting traverse, can be avoided by going a few yards to the right. They gained the first of the conspicuous depressions in the ridge at 10.20, and the fore-peak at 11. The climbing calls for no particular description; you have interesting work, continuously magnificent views E., S., and W., and good work. The short descent from the fore-peak to the saddle where the old ways from the Cristallo Pass and the E. come in, was so heavily glazed that they were nearly 25 min. reaching the junction (11.20), and as the remaining climb to the top was in the same condition they preferred to go no further, since their immediate purpose was achieved. Watching over the perpendicular parapet of the saddle thirty-four people were to be seen ascending and descending the Cristallo, within hail. Descent by the old E. way took 2 hrs. 20 min. to Tre Croci.

The ascent by the new way may be estimated at 5 to 6 hrs. from Tre Croci to the top.

ANTELAO BY THE CADORE FACE (10,608 ft.=3,264 m., Italian Survey).—On August 16, the same party, reinforced by Zaccaria Pompanin and Francesco Verzi (both of Ampezzo), made the first ascent by the Cadore face of the Antelao. They intended to bivouac at the foot, anticipating a climb of almost Swiss proportions; but the evening turned out showery, and the fear of an overnight wetting kept them at S. Vito. Starting at 2.18 on a sultry morning, Pompanin piloted them a weary $3\frac{1}{2}$ hrs.' walk over screes and scrub, to the place where one ought to sleep out, and conveniently could, for there is shelter in a cave, water and firewood. In front rose the great white wall of the lower face, some 2,000 to 2,500 ft. of rock. Pompanin had been with Signor Sinigaglia more than half-way up this, and 'thought it must be easier above'; but above one could see nothing. In the wall to the right, S.E., there is a great conspicuous cave, the 'Buso del Diavolo.' The start headed for this up a couloir in white *Platten*. At 7 (25 min. from the breakfast halt), klettersshoes, and Verzi departed with the boots and axes to get round by the Forcella Piccola to the top.

From here as they climbed they traversed generally towards the left, following a chamois path for some way, passing under a black plate like a schoolboy's slate, then up a spigolo which avoided a bad bit of chimney, into the chimney higher up, and at 8 o'clock to a point about 100 yards horizontally distant from the said slate. Then to the right again, 20 min. of hard chimney, and, they were,

apparently, about level with the head of the big spur (M. Castello) which is visible under the shoulder of the Antelao from Cortina. Slightly zigzagging right then left (fair climbing) they reached in another $\frac{1}{2}$ hr. a deep round cave. Ten min. halt. In another $\frac{1}{2}$ hr. they were at a parting of the ways; the centre of the face is an impracticable wall of some 200 yds. wide. Signor Sinigaglia tried to the left of this; they now turned definitely to the right and roped on all five together. Stiff work up rotten chimney and then on the face with a further traverse right brought them to a ledge (10.25), where the last two on the rope with difficulty kept awake during the long wait while the leaders were getting up. A frequent artillery of stones came down just before one's feet, but the ledge is just screened. The next bit of work was very rotten and exposed, up to a broad ledge where they halted from 11.20 to 11.55. Cloud was collecting rapidly before they left. From here up cracks (pretty but rather tight, and threatening at several points if a piece of the very friable rock should come away, to become unclimbable) out on the crest at 12.40.

They were on the edge of a good-sized basin, which is known as the Pian del Lenzuolo; everything above in cloud. Moving on briskly over rock at first easy, then in places quite hard enough (especially a certain alternative between a chimney head and a stretch of face) they gained at 2 P.M. a top—a wrong top, in thick cloud. The echo of their shouts came back off a wall evidently much higher in front; the mist only lifted enough to reveal huge pillars of black precipice across chasms right and left. This top (apparently the point 2,887 on the Italian ordnance map) was connected by a narrow saddle with a projecting part of the opposing mass: to this saddle they made an extremely laborious descent, an hour and a quarter's work to get down less than 200 feet. Every stone was rotten, the descent (like the Scharte itself) shattered with recent lightning. Most of the party were now resigned to a night on the rocks, when continued shouting at intervals drew an answer from Verzi, just arrived in incredibly quick time on the peak; and the clouds lifting left all the upper ridge clear for some little time, and enabled them to distinguish the post on the summit. From the saddle (left at 3.15) bearing first slightly left (W. about), over rock of no particular difficulty, two stretches of steep but good snow, and finally more rock, they reached the point 3,134; and from there, following the crest, were all on the top at 4.55. On both the fore-peaks passed were erected cairns. Leaving at 5.45, they were off the rocks by 6.47, and at S. Vito at 8.12. Total time out just under 18 hrs.; total halts from beginning the rock 1 hr. 35 min. There appears to be no other way up the lower face, and apparently no way of avoiding 2,887. A smaller party might reduce the time, but they went fast all day, never climbing in sunshine. The climb presents no extraordinary individual difficulties, but a great variety of work: the nasty descent from 2,887 to the Scharte might be very different after a few parties had been over it. The internal scenery of the Antelao is stupendous, almost incredible to one who has only seen

it from Cortina; and the route by the Forcella Piccola goes much better down than up. Danger from spontaneous stonefalls there appears to be none, as the route never touches a couloir after the beginning. Taking the difficulties in with the length of the expedition, it may without fear of exaggeration be estimated as a first-rate climb; and the first ascent was not of the *tour-de-force* kind, for the guides are quite willing to repeat it.

NORWAY.

Lynngenfjord District.

E. PEAK OF KJOSTINDER. *July 17.*—Mrs. Main, with Joseph Imboden, of St. Nicholas, and his son Emil, made the first ascent of the easternmost of the peaks of the Kjostinder. Ascending through woods behind Lyngseidet, and passing over a plateau where reindeer abound, the party took to the Gjæver Glacier at its (true) right side, crossed it towards a little saddle on the rocky ridge between this glacier and the Rottenvik Glacier, and without going actually to the dip, ascended the face of their peak in a slanting direction over easy rocks till they emerged on the top. Here they unexpectedly found themselves cut off, by a gap and a precipitous wall beyond, from a higher summit, the central peak of the Kjostinder.

CENTRAL PEAK OF KJOSTINDER. FIRST RECORDED ASCENT.—*July 20.*—The same party ascended this peak on the above date, having been assured at Lyngseidet that no one had previously been up it. They took at first the same direction as on the 17th, then passing the snout of the Gjæver Glacier, and bearing over turf and patches of snow, they gained the (true) right bank of the Rottenvik Glacier some way above its termination in a greenish-white lake. They followed up this glacier to a snowy col at its head, situated between the two highest peaks of the Kjostinder. From the saddle they first ascended, in $\frac{3}{4}$ of an hour, the peak to their left. This is the peak seen from Lyngseidet. The way lay up loose stones, and the summit was a plateau resembling the top of the Romsdalshorn. A very small, and obviously ancient, stone man was found there. The party propose to call this the Gjævertind, to distinguish it from the highest of the three peaks of the Kjostinder.

KJOSTINDER. HIGHEST PEAK. SECOND ASCENT. FIRST ASCENT FROM LYNNGSEIDET.—On the same day the above party, after ascending to the saddle, went up this peak by a new route. Crossing the glacier to the base of a rocky spur running north, they gained the crest of it by steep but easy rocks, and then turned towards their peak, and reached the summit along the arête.

The Kjostind and Gjævertind could be easily and quickly ascended from the Kjos Glacier, near the head of Kjosenfjord.

ISSKARTIND. SECOND ASCENT. FIRST ASCENT FROM LYNNGSEIDET, AND FIRST BY THE E. ARÊTE.—The same party, on July 25, after rowing for $1\frac{1}{2}$ hr. on Kjosenfjord to the entrance

of the Tyttebærdal, went up that valley, and striking off to their left near its head, ascended snow-slopes above a half-frozen lake to the Isskar Glacier. This they crossed to the foot of the E. arête, which was followed to the summit, and towards the top it afforded some good climbing.

The peak commands an exceptionally fine view.

SOFIETIND. FIRST ASCENT.—The same party made the first ascent of this peak on July 29. Starting from Lyngseidet, they took a boat on Kjosenfjord to the Tyttebærdal, and thence skirted round the mountain to the foot of the N.E. arête which rises from the Isskar Glacier. They followed this arête till precipitous cliffs drove them on to the E. face, by which they ascended for an hour, gaining the arête again about 20 min. below the summit. Some pleasant climbing in chimneys was met with on the E. face.

SULTIND. FIRST ASCENT.—The same party, on the same day, went up this peak from the snowy basin between it and the Sofietind. It was perfectly easy. The ridge from the Sofietind to the Sultind could doubtless be followed without much difficulty, but a thick fog rendered it unwise to attempt this on the occasion in question.

URTIND. FIRST ASCENT.—On August 1 the same party went up this peak from Lyngseidet in $5\frac{1}{2}$ hrs., including halts. The ascent was made by the face overlooking Kjosenfjord, and was easy. From the Urtind the party passed along the long rock arête to the

TYTTEBÆRTIND (FIRST ASCENT), and descended by the ridge which runs to the commencement of the Tyttebærdal. This was steep and narrow at first, and, by reason of its great length, the many peaks with which it is crested, and the excessive looseness of the rock, was a long expedition. A magnificent circular rainbow, often double and with a large outer fog-bow, was seen at intervals for several hours on the ridge.

STORTIND. SECOND ASCENT.—On August 5, the same party ascended this peak from their camp at Stortind Saeter by the Jaegervand. They went over steep but easy rocks, straight up the south-west face, striking the arête, by which Messrs. Slingsby, Hastings, and Haskett-Smith went up, about 5 min. below the 'mauvais pas.' This could be quickly and easily turned by a slight descent and traverse on the north face, but the rock is so firm and good that it presents no special difficulty. Continuing straight on by the ridge, over the first peak, the highest point was reached in $6\frac{1}{2}$ hrs. from camp, including 1 hr. lost in an attempt to ascend direct to the highest point. The descent was made by the same route.

SKRÆKTIND, OR NORTH PEAK OF JAEGERVANDTINDER. FIRST ASCENT.—The same party, on August 7, made the first ascent of this peak. From the Troid Glacier they made for a gap in the ridge connecting the highest with the north peak of the Jaegervandtinder. This was reached by a couloir mostly filled with snow. From the gap, the arête was followed as much as

possible to the top. One rather bad bit was met with, consisting of a crag perched on the ridge and split up so as to be somewhat insecure. It also gave indifferent hold. The summit is a firm, pointed bit of rock, overhanging on two sides. The descent was made by an entirely different route, straight down a couloir which begins close to the top of the peak, and seams the south face to the Troid Glacier. About half-way down this couloir forks. The branch to the left of a person descending is the proper one to take. But owing to a hailstorm and thick fog, the wrong one was selected, as it seemed safer from falling stones. Some trouble was met with in descending the glacier-worn rocks at the bottom. The other couloir leads in a broad, unbroken slope to the snow below. The descent from the top to the camp took only about $3\frac{1}{2}$ hrs. This grand peak is very like the Schreckhorn in appearance.

FIREDALERTIND. FIRST ASCENT.—The same party, on August 10, went up this easy peak, which they have thus named, as it commands views down four valleys. They ascended it in order to get a view of the north faces of the peaks rising around the head of the magnificent Stortinddals Glacier, immediately in front of which is the Firedalertind, which, though a stony walk, is worth doing on account of the grand view from it.

FORHOLTIND. FIRST ASCENT.—The same party went up this mountain on August 13, ascending by the arête from the Forholtskar (or pass). It is very easy. The peak is at the head of the Forholt Glacier, and between the Stortind and the Troid. It is visible from Jaegervand, and has a long, rather level summit ridge. It commands a splendid glacier view.

FORHOLTSKAR. FIRST PASSAGE.—This pass, which is of the greatest practical use to anyone climbing from Jaegervand, is situated at the head of the Forholt Glacier, and gives access to the head of the great Stortinddals Glacier. It is between the Stortind and an outlying ridge of the Troid. It is reached from the glacier by a snow couloir and a slope of stones. All the peaks at the head of the Stortinddals Glacier can be approached by this pass, which is a quick and pleasant walk from Jaegervand, in contrast to the long and stony Stortinddal, which is the alternative route.

KJOEMPES TIND. FIRST ASCENT.—From August 13 to 25, there was not one day when it was possible even to start for a mountain. On August 25, the same party went up this grotesque-looking little peak, which is one of the rocky points at the head of the Stortinddals Glacier. Going to the Forholtskar in 3 hrs. from camp, the party crossed the upper plateau of the Stortinddals Glacier, and ascended their peak by a couloir and a steep and narrow chimney on the east side in 20 min. from the rock ridge at its base. Descending to this they crossed the head of the Kopangs Glacier, and went up a mountain shaped like a table, with a rather flat glacier on the top. This they propose to call the

TAFFELTIND. FIRST ASCENT.—It was easily reached over stones and snow-slopes, and presents a fine appearance when seen from

the Stortinddals Glacier. Camp, which was quitted at 7 A.M., was regained at 5 P.M. Except for the first 3 hrs. it snowed and rained all day.

ELIZABETHTIND. FIRST ASCENT.—This is a pointed, rocky, isolated little peak overlooking the cirque formed by the N. faces of the Jaegervandtinder and the S.W. side of the high nameless peak ascended in July by Messrs. Slingsby, Hastings, and Haskett Smith. Mrs. Main and her guides went up on August 27. There was a good deal of fresh snow. They ascended by a couloir on the S.W. face. This is the easiest and, perhaps, the only possible route, and took about $5\frac{1}{2}$ hrs. from camp. The Skraektind, or N. peak of the Jaegervandtinder, looked magnificent from the top of the Elizabethtind. Camp was regained at 4 P.M. The weather was fine.

KLYVEKLIPPE. FIRST ASCENT.—On August 28, the same party went up this peak, which is immediately N.W. of the Forholtskar. It afforded an excellent climb of about an hour over firm rock. The arête was followed wherever possible. The weather was cloudy, with a terrific wind.

TRE GYGRE. FIRST ASCENT.—On August 29, the same party ascended this grotesque-looking, steep little peak, which overlooks the head of the Isskar Glacier. They went straight up the couloir which seams the W. face, and the outer wall of which casts such a deep shadow across it in the afternoon. The couloir is very steep, and two or three steps near the top of it were rendered difficult by water from the melting of fresh snow above. The peak could also be ascended by the S. arête, but this would be a much harder climb than by the couloir. The weather was perfect.

GYLDENTIND. FIRST ASCENT.—The same day the same party went up this peak, which is a yellowish rock overlooking the head of the Isskar Glacier, and was the only remaining peak of the cirque unascended. The rock was steep but broken, and on the lower part of the mountain very loose.

The last ten peaks enumerated were ascended from the camp by the Jaegervand. The party were extremely lucky, in spite of the exceptionally bad weather in August, in never once being turned back on an attempt on a mountain during their two months' climbing.

FÆSTNING. FIRST ASCENT.—The same party on September 1 went up this fine, square-topped rock peak, overlooking Kjosén Glacier, in $5\frac{1}{2}$ hrs. including halts, from Lyngseidet. The climb, though steep, was not difficult. The ascent was made by the Kjos Glacier, the S.E. face and the E. arête. The weather was perfect.

NOTE.—The peaks round the Lyngen and Ulfsfjords are composed of such rotten rock that a party of more than three would find them most unsafe.

The snow has been in good condition during all the ascents we have made this year, at any hour of the day or night. I believe it is almost invariably excellent in the north of Norway in summer.

Sudden storms of great violence blowing from the south occur occasionally in the northern mountain districts of Norway, and the wind one day was so terrific that two new tent poles (Whymper tents) were snapped asunder in the centre of each. All camping kit should therefore be very strong. We were told that late in the season the shrinking of the snow away from the rocks makes these difficult to reach. Though this undoubtedly is the case in the Romsdal district, we never experienced anything of the kind this summer in the north.

Camping out is absolutely necessary for the mountains near the Ulsfjord.

E. MAIN.

WESTERN AND EASTERN CAUCASUS.

M. Maurice de Déchy travelled this year again in the Caucasus. The party consisted, under the leadership of M. de Déchy, of Professor Hollos as botanist, Dr. Papp as geologist (both from Budapest), and a Tyrolese guide from Kals. In the Western Caucasus the Karatchai district and the Klukhor group were visited. M. de Déchy, with the guide, ascended a peak, about 11,200 ft., in the Chirukol Valley (a side valley of the Ullukam), mounting the Talichkang Glacier, and by a gap which affords a pass between the Chirukol Valley and the Nenskra Valley. A new pass was made by the same party from the Gaudarei Valley (a side valley of the Ushkulan Valley) to the Gvandra Valley, a confluent of the southern Kluch Valley (height about 10,800 ft.). The other members of the party separated and crossed the Nakhar Pass to the Kluch. The Klukhor group, entered by the Amanaus valley, proved to have only small glaciers and no great conspicuous peaks. Here the Tyrolese guide broke down from fatigue, and had to be sent back to his home from Batalpachinsk. In the Eastern Caucasus the glacier group of the Bogos was visited. Extensive botanical and geological collections were made, and M. de Déchy brought home a large collection of photographs of the high regions, which will complete those we already possess from the Central Caucasus. Travelling was this year comparatively easy in the Caucasus, but to reach either the mountains in the Western Caucasus, or still more the Bogos group in Daghestan, a great deal of time must be spent in the lower ground. The Bogos group is a fine glacier system on a small scale, a good playground, perhaps, for guideless mountaineers. But riding over the horse-paths in the Highlands of Daghestan is decidedly more dangerous than climbing the peaks.

CANADIAN ROCKY MOUNTAINS.

Mr. H. E. M. Stutfield, Mr. Hermann Woolley, and Professor J. Norman Collie spent six weeks this summer mountaineering and exploring in the Canadian Rocky Mountains that lie N.W. of Laggan Station, on the Canadian Pacific Railway.

Starting from Laggan on July 31 with four men and a dozen

ponies, they travelled by way of the Pipestone Pass to the Kootenay Plain, on the Saskatchewan River, thence up the Saskatchewan (which was in full flood owing to the melting snow-ice in the mountains) to the foot of the Little Fork or Bear Creek; this was reached on August 8. The north fork of the Saskatchewan was then followed, but, owing to the immense quantity of water in the stream, progress was very slow. During the five days from August 12 to August 16 the party were only able to proceed about twelve miles up the stream, the reason being that the only trail that existed was on the opposite bank. A new trail had therefore to be cut.

On August 17 the Athabasca Pass was reached, and on its summit (6,900 ft. to 7,000 ft.) a permanent camp was made. From this camp on August 18 H. Woolley and N. Collie made the ascent of a fine snow and rock peak, Athabasca Peak (11,900 ft.). On the same day H. E. M. Stutfield shot three mountain sheep, saving the party from semi-starvation. A glacier, the source of the headwaters of the Athabasca, was next explored, and the party (H. S., H. W., and N. C.) slept by the side of the ice on the night of August 20. On the following day, ascending this glacier, a vast snowfield was reached, surrounded by probably the highest mountains in the Canadian Rocky Mountain system. The highest measures about 14,000 ft.* Unfortunately this peak lay too far off on the western side of the snow to allow of its being climbed on that day. The party therefore ascended a dome-shaped peak covered entirely with snow and ice. This they named 'The Dome' (11,600 ft. to 11,700 ft.). The Dome is a peak of considerable interest hydrographically. The snow on its rounded summit may descend when melted either into the Columbia River on the W., and thence into the Pacific Ocean, or on the N. and E. into the Athabasca River, which flows to the Slave Lakes down the Mackenzie River to the Arctic Ocean, or on the S.E. it drains into the Saskatchewan, which flows into Lake Winnipeg and Hudson Bay and the Atlantic; it may therefore be considered as the centre and apex of the Canadian Rocky Mountains. Both the Athabasca and Saskatchewan Rivers may be said to rise at its base, and it was, as far as could be ascertained, the only mountain whose glaciers fed rivers that fell into three different oceans. On August 24 the party made another expedition from their base camp down the Athabasca River in order to find, if possible, the Committee's Punch Bowl. In this, however, they were not successful. Next day (25th), ascending a valley to the W., they bivouacked at the end of a glacier, and on the 26th ascended the glacier, finally climbing a snow and rock peak called 'Diadem Peak' (11,500 ft. to 11,600 ft.). To the N. and N.W. the mountains were smaller, but about 4 to 5 miles to the W. a superb rock peak, with precipitous sides and a flat top, rose to a height of certainly 13,000 ft.

* This peak is the one mentioned in *A. J.*, vol. xviii. p. 549, as having been seen from the slopes of Mount Freshfield.

The weather up till this had been excellent, but on this day it broke, and continued more or less bad until a heavy snowstorm on September 4 cleared the air, after which the weather remained fine.

The camp on the Athabasca Pass was reached on the 27th, and the party started back for Laggan on the 28th. Bear Creek was reached on the 31st.

On September 2 an attempt was made to climb Mt. Murchison from this camp, but it was abandoned at about 8,800 ft. on account of the large quantity of new snow on the mountain and the weather being bad. Next day the party started up Bear Creek, crossed the Bow Pass on the 5th, and camped on the shores of the Upper Bow Lake.

On September 6, the weather having become brilliantly fine again, a peak lying just on the N. of the summit of the big icefall of the Bow Glacier was ascended (11,100 ft. to 11,200 ft.). From its summit a magnificent view was obtained, Mts. Assiniboine, Sir Donald Forbes, Freshfield, Lyell, and those over the Athabasca Pass being clearly visible. The peak was covered with fresh snow.

On September 7 the party started down the Bow Valley, and on the following day arrived at Laggan railway station.

During the expedition the plane table survey started last year by Mr. Parker, and carried on by Mr. G. P. Baker, was continued. Several minor peaks were climbed for this purpose, the first being a rock peak lying between the middle and the north fork of the Saskatchewan (8,600 ft. to 8,700 ft.); two others near the Athabasca Pass were ascended; also Mr. Woolley climbed a rock peak at the head of the Athabasca River, Mt. Wilcox (10,000 ft.). The various heights were taken both with an aneroid and a mercurial barometer, and checked by the height of the mercurial barometer at Banff.

J. N. C.

ALPINE ACCIDENTS IN 1898.

ONCE again the list of Alpine accidents is appalling. This year the names of two members and one ex-member of our Club appear in the black list. Last year—a season of bad weather—no English Alpine Clubman was lost. This year—a very favourable one—our loss is heavy. Is there any connection between the good season and the sad result? Is it that the fine weather caused the relaxation of some of the precautions usually observed by prudent climbers?

Even if we stretch the meaning of the word accident it will cover only a few of the catastrophes which are of yearly occurrence in the Alps. We have, it will readily be conceived, every desire to spare the feelings of those who suffer most from these sad disasters; but it is our positive duty to point out that a due number of good guides or thoroughly seasoned amateurs, whether in the case of very difficult ascents or when ladies are of the party, is absolutely

a *sine qua non*. Exceptional men may perform exceptional feats, but the climber of little experience should be slow to imitate methods which, possibly safe to a Mummery, are distinctly dangerous to the less gifted mountaineer.

The apparently growing practice of starting for a difficult climb alone cannot be too strongly condemned. Mont Blanc and the Aiguilles d'Arves are little better than death-traps to the solitary climber. This year for the first time, so far as our recollection serves, the rope has been deliberately cut. On an act so absolutely contrary to the principles of mutual trust and confidence, on which all loyal comradeship depends, we do not think it necessary to comment. When climbers are roped together they are by the unwritten law of mountaineering pledged to use every effort to support and preserve each other, and the greater the risk the more imperative this duty becomes.

We this year print a full list of the Alpine accidents which happened at over 2,000 mètres (6,562 ft.). Accidents at lesser heights have been omitted. Where precautions are neglected accidents must follow. We might almost say 'no precautions have been taken, therefore the death roll is heavy.' No one who loves the mountains can read the following list without anger—anger doubtless mingled with natural sorrow. For a man without what the guides call 'the habitude of the mountains' to climb alone over difficult places in search of edelweiss, or to go on a snow-covered glacier roped to one companion, is little less than suicide. Sign-posts and marked rocks may be snares, not safeguards, to the unwary and the inexperienced. Those who establish them have no slight responsibility. We trust our foreign colleagues will succeed in discovering some method of making the dangers of solitary climbing and of climbing in insufficient numbers more clearly known to visitors to their beautiful mountains. It must be a source of deep sorrow to all capable and enthusiastic mountaineers that so many catastrophes have occurred, and we share their sorrow. Experience is dearly bought everywhere, perhaps more dearly amongst the mountains than anywhere else. That we have ourselves lost two of our members, one a distinguished climber and the other a very promising mountaineer, as well as an ex-member of great experience—all of whom we deeply regret—brings home to us much the same lesson. Are we always as prudent as we should be? Have we no lapses into carelessness to reproach ourselves with? Let us all see to it that not through us shall climbing for the future suffer shame.

FATAL ACCIDENTS IN THE HIGH ALPS IN 1898.

Place	Date	Name	Cause and Reference
Schneeberg (Kaiserstein)	April 10	F. Schlichting	Exhaustion in a great snowstorm ('D. u. Oe. A.V. Mitth.' p. 102)

FATAL ACCIDENTS IN THE HIGH ALPS IN 1898 (continued).

Place	Date	Name	Cause and Reference
Raxalp (Katzenkopfsteig)	April 10	Hermann Pressler and Richard Zink	Slip on a stone slope, and fall over a precipice in the same storm, both roped together ('D. u. Oe. A.V. Mitth.' p. 102)
Dent de Valerette	May 15	A botanical student from Saxony	Fell on his ice axe, which pierced his stomach ('Echo des Alpes,' p. 196)
Karlspitze (Kaisergebirge)	June 19	J. Schleber	Giving way of a handhold on wrong route in the Steinerne Rinne ('D. u. Oe. A. V. Mitth.' p. 192)
NEAR DÔME CLUB HUT (M. BLANC)*	c. July 18	H. N. Riegel	Slip on rocks of Aiguilles Grises ridge; alone ('Revue Alpine,' p. 249)
Hochthor (Gesäuse)	July 17	Ludwig Konrad	Descending alone ('D. u. Oe. A.V. Mitth.' p. 183)
Nuvolau	July 20	Carl Rieder	Probably giving way of handhold; alone (<i>ibid.</i> p. 192)
Zugspitze	July 22	Curt Irmer	Slip in an ice gully; no guide (<i>ibid.</i> p. 205)
Monte Orsiera	July 29	Ercole Daniele	Slip on rocks; alone ('Rivista Mensile,' p. 305)
PARSEIERSPITZE	Aug. 1	Carl Leschr	Fainted and slipped ('D. u. Oe. A.V. Mitth.' p. 192)
METTENBERG (FAR DOWN THE)	Aug. 2	Wilhelm Zumbrunn	Slipped while picking edelweiss ('Alpina,' p. 101)
Oltshikopf (Faulhorn range)	Aug. 6	Walter Mooser	Slip on smooth rocks (<i>ibid.</i> p. 102)
Kreuzli Pass	Aug. 6	A. Müller	Exhaustion from fatigue (<i>ibid.</i> p. 102)
DREISCHUSTERSPITZE	Aug. 6	H. Buchenberg and Victor Naager	Struck by stone loosened by party in front, and so hurled down; roped together ('D. u. Oe. A. V. Mitth.' p. 205)
ROCHEMELON	Aug. 12	Livio Cibrario	Slipped on ice; with one inexperienced companion, and apparently unroped ('Rivista Mensile,' p. 308)
Rochers de Naye	Aug. 14	A French tourist	Slipped ('Alpina,' p. 103)
EBENFERNER (Ortler group)	Aug. 19	Bronislaus Kotula	Fell into crevasse; brother cut the rope ('D. u. Oe. A.V. Mitth.' p. 216)
TOFANA DI MEZZO	c. Aug. 22	S. Panzer	Slipped on hard snow; alone (<i>ibid.</i> p. 217)

* The accidents at over 3,000 metres are printed in small capitals.

FATAL ACCIDENTS IN THE HIGH ALPS IN 1898 (*continued*).

Place	Date	Name	Cause and Reference
Anthornspitze	Aug. 27	Fräulein Gilmozzi	Slipped on steep slope while picking edelweiss ('D. u. Oe. A.V. Mitth.' p. 218)
PETITE DENT DE VEISIVI	Aug. 27	Dr. John Hopkinson, with son and two daughters	Slip on rocks; no guide ('Alpina,' p. 114)
BELLAVISTA SATTEL	Sept. 1	Dietrich Nasse	Shock from fall into bergschrund, though roped to a guide ('D. u. Oe. A.V. Mitth.' p. 237)
Fünffingerspitze	Sept. 10	L. Norman-Neruda	Slip on rocks; ill (<i>ibid.</i> p. 229)
AIGUILLE DES CHARMOZ	Sept. 15	F. Aston-Binns and Xaver Imseng (guide)	Slip into bergschrund ('Revue Alpine,' p. 304)
SOUTHERN D'ARVES	Sept. 19	Joseph Roche	Slip on steep rocks; alone ('Revue des Alpes Dauphinoises,' p. 102)
Kurfürsten (Scheib- enstoll)	Oct. 5	A. Forrer	Hand slipped from rock while working round a steep bit ('Alpina,' p. 127)

THE ACCIDENT ON THE PETITE DENT DE VEISIVI.

We are indebted to Professor J. A. Ewing, F.R.S., for the following account:—

'There is really not much to add by way of detail to the brief accounts which have already been published of the lamentable accident by which Dr. Hopkinson and three of his children lost their lives.

'Dr. Hopkinson and his family had been staying at Arolla from the beginning of August, and had been doing a good deal of climbing. Dr. Hopkinson's skill and experience as a mountaineer are too well known to need remark. His son Jack, though only eighteen years of age, had spent several seasons with his father in the Alps, and was an accomplished climber. He was fully accustomed to lead up difficult rocks with a dexterity and care on which the local guides used to comment. Miss Hopkinson, whose age was twenty-three, was also a thorough expert. She generally accompanied her father and brother in their climbs, and was, in her father's phrase, "as good as a man." A few days before the accident she, with her father and brother, without a guide, had made the ascent of the Aiguille de la Za on the Arolla side, over the rocks all the way. The fourth member of the ill-fated party was another daughter, Miss Lina Hopkinson, nineteen years of age. She was strong, active, and fond of mountain walking, and though her experience of rock climbing was not to be compared with that of the others, she had done enough to show that she possessed the necessary qualities of head and nerve, and she was anxious to do more.

'The party left the hotel at 7.30 on the morning of August 27 to climb the Petite Dent de Veisivi. As was their usual custom in such climbs, they took no guide. To us in the hotel, who knew their powers, there was nothing remarkable in this; indeed, we should have felt surprised if they had taken a guide. There was no suggestion that a guide should be taken.

'I understood that their intention was to proceed to the Col de Zarmine and make the ascent of the Petite Dent in the usual way along the ridge from there. But from the position in which the bodies were found, it appears that if this was their plan when they set out it was not followed, and that when the accident happened they were climbing the peak directly by its S. face, taking a line somewhat to the S.W. of the summit. I believe this route had been taken by other climbers before. The party had accomplished the greater part of the climb when they fell.

'There is nothing to show how the accident happened, but it appears in every way probable that it was due either to a falling stone, or to the leader's hold giving way. The four were on one rope, the son leading, then the younger daughter, then Mr. Hopkinson, and lastly the elder daughter. A large stone was found lying on the body of the leader, and Dr. Hopkinson's hand was grasping the rope in a way which suggests that he was trying to check the fall of one or both of those in front. The bodies had fallen about 500 ft., and it was clear that death had been instantaneous in every case.

'All the climbers in the Hôtel du Mont Collon, and as many guides as were available, joined in the search, which began as soon as darkness closed in without the return of Mr. Hopkinson and his party. The bodies were found at daybreak on the 28th by Mr. G. T. Walker and Mr. M. Travers, who, with Pierre Maître and other guides, were searching the foot of the rocks. A watch was kept over them all that day and the following night until the district magistrate could hold his inquiry before authorising their removal. This was done early in the morning of Monday, August 29, and the bodies were then brought down to Satarma. The biers were reverently laid out there, and when they had been covered with fair sheets and mountain flowers the burial service was read by the Rev. George R. Thornton with a simple impressiveness which will not be readily forgotten by those who were present. The guides and porters then took up their burden again to carry the bodies to Haudères, where they were placed in the Communal Council Chamber. Arrangements for the funeral had meanwhile been made by Dr. Waugh, with the co-operation of Mr. Galland, English Consul at Lausanne. On the following morning the bodies were taken in the coffins to the hospital at Sion, where they lay in a mortuary chamber pending the arrival from England of Dr. Hopkinson's brothers. On Friday, September 2, they were buried at Territet in the presence of many sorrowing friends.'

THE ACCIDENT ON THE FÜNFINGERSPITZE.

The following account is abridged from the 'D. u. Oe. A.V. Mitth.,' No. 18:—On September 10, 1898, Mr. L. Norman-Neruda, the well known rock-climber, died on the Fünffingerspitze. He was climbing the mountain (which he had previously ascended quite a number of times and knew thoroughly) with his wife and Herr Theodor Dietrich by the 'Schmittkamin.' They had already got over the worst parts, when, about 2 P.M., Mr. Norman-Neruda suddenly fell back on to a ledge below. Herr Dietrich, with great presence of mind, seized the rope (above Mrs. Norman-Neruda) and prevented a further fall. He then, with much difficulty, made his way to him. The party's signals of distress were soon seen at the neighbouring Sellajoch inn, and help was promptly forthcoming, for the relief party reached the Sellajoch inn at 10 P.M. that night. There seems to be no doubt that the fall was caused by a sudden failure of the heart's action, and was not due, as was at first reported, to a rock-hold giving way. No medical aid could possibly have saved the unfortunate traveller's life. The rescue party reached the scene of the accident early the next day. Mr. Norman-Neruda, who was unconscious when they arrived, died at 3 P.M., 25 hrs. after his fall. The body was got down with great difficulty. The funeral, which was very largely attended, took place at St. Ulrich on September 13, amidst every token of affectionate respect and sympathy. The speed with which the rescue party was formed, and the conduct of the guides, deserve the highest praise.

THE CHARMOZ ACCIDENT.

We owe the subjoined account to Mr. Vail. Mr. Frank Aston-Binns with Xaver Imseng as guide, left Chamonix on Thursday, September 15, 1898, with the intention of traversing the five points of the Grands Charmoz.

From a memorandum found in the pocket-book of Mr. Aston-Binns it is seen that they reached the Plan de l'Aiguille at about 7.20 P.M., having left Couttet's at 5 P.M.

They started from the Plan de l'Aiguille at 3.50 the next morning. At 9.30 they were seen on the first 'gendarmes' on the N.E. extremity of the ridge, and their traverse across the top was easily followed by friends through the telescope. The summit of the highest and last gendarme was reached at 11.10. This is the entry found in Mr. Aston-Binns's book. At 2.30 P.M. they were seen through the Plan de l'Aiguille telescope descending the couloir that leads to the junction of the Grépon and Charmoz routes. If all had gone well they should have reached Chamonix before 6, their intention being to descend directly by the 'Chalets de Blaitière.' As they did not return that night search parties were organised the next morning, which resulted in the discovery of their bodies in a large crevasse, at a depth of about 65 ft., close to the upper séracs of the Glacier des Nantillons. Mr. Aston-Binns's watch had stopped at 3. As far as can be gathered from the

account of the search party and knowledge of the place, the accident was caused by a slip of about 70 ft. down the slope above the crevasse. Owing to long-continued fine weather this slope consisted of exceedingly hard ice. Their death must have been instantaneous and painless.

ALPINE NOTES.

M. MORION.—In July, 1895, I climbed a point in the Valpelline district which I thought was M. Morion. I was led to this conclusion by the Italian map, which seemed to make the buttress, on which is a point marked 2,887 m., lead to the top of the ridge at 3,520 m. On the summit I found a cairn with the card of Mr. Baker-Gabb, who climbed to this point in 1891 from the direction of the Crête Sèche. I gave an account of my ascent to this *Journal*,* stating that I had found the card. Some months later I was told that Mr. Monro had made the first ascent of M. Morion and had seen from it a peak, close to and just S.W. of him, but slightly lower and with a cairn on it. To settle the question I made an ascent of M. Clapier,† and at once saw that neither Monro, Baker-Gabb, nor I had been on M. Morion, but that Monro had made the first ascent of the unnamed point 3,327 m. N.E. of M. Morion, and that Baker-Gabb and I had been on the smaller intermediate point. I communicated this to the '*Rivista Mensile*,‡ stating that M. Morion had not been ascended. This did not escape the eyes of Mr. Aston-Binns, who with Dr. Wherry made the first ascent of the real summit this season, after being taken by the Curé of Bionaz to the Baker-Gabb peak. The new Valpelline sheet of the Siegfried map gives this range much more clearly than the Italian map, and shows that the buttress 2,887 m. does not lead up to M. Morion, but the height of the buttress is not given. The Swiss surveyors have unfortunately inserted on this sheet the ridge E. of 3,327 m. I. map, 3,321 m. S. map, and marked 3,337 m., which does not exist. Between M. Clapier and M. Morion there is a deep cleft in the ridge.

ALFRED G. TOPHAM.

M. BERIO AND P. FIORIO.—In a previous number of this *Journal* § there is an account of the ascent of M. Berio by the N.E. arête by Messrs. Longstaff and Ashby. On the summit they found the cards of Signori Canzio, Mondini, and Vigna. Signor Mondini at once wrote to me, asking me to look into the question, as he and his friends had climbed this peak in 1895, and had given it the name of P. Fiorio. To arrive at the peak marked M. Berio from

* Vol. xvii. p. 580.

† *Alpine Journal*, vol. xviii. p. 247; *Rivista Mensile*, vol. xvi. p. 134.

‡ *Ibid.* 1898, p. 21.

§ Vol. xix. p. 62.

|| *Rivista Mensile*, 1895, p. 352.

Bionaz, by the route indicated in the Journal, the English climbers would have had to cross over the long ridge of the Clocherots (3,092 m.) which descends from the unnamed peak (P. Fiorio), and then cross a very deep valley, full of huge boulders. The true M. Berio is a quite unimportant point S.W. of P. Fiorio and at the other side of this deep valley. The route taken by the English climbers up the N.E. arête was pointed out to me this year by their guides, and was described by them as difficult. I have before seen the arête from M. Clapier, which is close by, and it is nearly all knife-edged from the Col to the top, whereas the N.E. ridge of the true Berio is very broad and easy. The conclusion is that Messrs. Longstaff and Ashby unintentionally made a new (and difficult) route up P. Fiorio (3,357 m. Italian map, S.W. of M. Clapier, not marked on the Swiss map) and not up M. Berio, and I am requested by them to make this correction to their previous notice. They descended the peak on the W. and then crossed the foot of the Clocherots ridge (which they mistook for the M. Faga Bella), and did not circle round the Faga Bella as stated in the Journal. To understand the Morion range it must be clearly understood that from Bionaz neither M. Berio nor the little M. Faga Bella are seen, as the Clocherots ridge entirely hides them. This ridge is higher than M. Berio, and would entirely block out a view of the Morion-Faudery range from anyone standing on M. Berio. The whole range is very precipitous on the Val d'Ollomont side.

ALFRED G. TOPHAM.

THE JUNGFRAU RAILWAY. — About September 10 the Swiss papers contained announcements of the arrangements that had been made for the opening of the Jungfrau Railway on the 18th. There is a story that a gentleman once interposed in a conversation on Mont Blanc: 'Moi aussi j'ai fait l'ascension au Mont Blanc, pas tout à fait au sommet, mais jusqu'au Montenvers.' On this principle the Jungfrau Railway may be said to have been made—not quite (thank goodness) to the summit, but as far as the edge of the Eiger Glacier. The *concessionnaire* may be congratulated on having completed this section, which will doubtless pay well enough, and on having given a very successful luncheon on the occasion of its opening. One of the speakers is reported to have declared that as much interest was taken in the undertaking in England as in Switzerland—a phrase which may have more than one interpretation. M. Guyer-Zeller is now engaged in forming a company to carry on the work, which has hitherto been in his own hands. His countrymen do not seem very anxious to invest their francs; it remains to be seen whether the American dollars will be more confiding. The investment may be safely recommended to any persons who have money they want to get rid of.

The tunnel has progressed several hundred yards, the work having been carried on steadily since last autumn. At this rate it ought easily to be finished in 1910; the date, 1904, given in the reports is an obvious transposition of the figures.

LIBRARY.—The following additions have been made to the library since November 1897 :—

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- Hottinger (J. J.). *J. C. Escher de la Linth*. 8vo. Genève, 1852.
- Hugo (V.). *Alpes et Pyrénées*. 3rd edition. 8vo. Paris, 1890. (Also English edition; see below.)
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- [Kemble (Fanny).] *The Adventures of Mr. Timothy Homespun in Switzerland*. 8vo. London, 1889.
- Lalande. *Voyage en Italie*. 8vo. Yverdon, 1787.
- [Leatham (W. H.).] *A Traveller's Thoughts; a Poem*. 8vo. London, 1837.
- Moorcroft (W.) and Trebeck (G.). *Travels in the Himalayan Provinces*. 2 vols. 8vo. Illustrated. London, 1841.
- Moore (J.). *A View of Society in Switzerland, &c.* 8vo. London, 1781.
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IN MEMORIAM.

FRANCIS ASTON-BINNS.

THIS season has been the most disastrous in my recollection except that of 1882 when Balfour and Penhall lost their lives. These deaths came close to me, for Penhall was a pupil of mine, and Balfour was one at whose feet I sat in reverence. But this year a friendship has been torn from my life by the death of Francis Aston-Binns, and the Alpine Club has suffered the loss of one of its most enthusiastic members. He had climbed with me this summer with more energy and enjoyment than ever before in our companionship of ten years. We began early in August with a training walk up the Val de Bagnes, and traversed the Rosa Blanche, then crossed the Bec d'Epicoun to reach Bionaz in the Valpelline, and in that district we climbed the Dent di Vessona, Mt. Morion, and Mt. Faudéry. At Saas we made an attack upon the Dom, but were beaten back at the sleeping place by a storm; we climbed the Weissmies by the long arête from the Laquinjoch, and when my holiday was over, Aston-Binns ascended the Südlensspitz and Nadelhorn. On September 4, in the Chamonix district, he ascended the Little Dru, on September 8 the Aiguille Blaitière, on the 10th the Aiguille du Tacul, on the 13th the Chardonnet; on the 15th, with Xaver Imseng, he traversed the five points of the Aiguille des Charmoz, and reached the summit before noon. In the descent the fatal fall occurred which cost both their lives, the bodies being found in a crevasse below the upper Séracs of the Glacier des

Nantillons. His energy as a climber is well shown by this long list of ascents; moreover to his mountaineering qualifications were added good topographical knowledge and great linguistic ability. At the priest's house in the Valpelline this year the ease and freedom with which he spoke French, Italian and German was remarkable, and his ear for dialects was so keen that he was on popular terms with the peasantry as well as with the priests.

During his youthful training at Balliol, where he learned to love languages and philosophy, he was very favourably regarded by his tutor, Mr. Nettleship, and by Professor Jowett, who then presided over the College. His life at Oxford was followed by a period of poor health, and it was the Alpine climbing which finally so invigorated him that any weakness of body issued in strength, and at the date of his untimely death he was in possession of the finest physical powers. With good looks, and a charm of manner which expressed his real goodness of heart, it is no wonder that he made many friendships.

Dr. Westcott of Sherborne, with whom he worked six years and a half, pays this tribute to his memory and to his character: 'To all his kindness of heart was fully known. He was a man who shrank from causing pain to any; his whole nature was in revolt against every cruelty. This trait in our friend was obvious and palpable to all. But what all could not see (such things are not obvious) was the wonderful loyalty which was the mainspring of his being. To the outward eye he might seem (and such seeming was wholly wrong) a man whose ideal in life was culture and refinement. But we who knew him best were well aware that he was indeed the most loving possible son, the most affectionate brother, the truest-hearted friend.'

Mutual friends have written to me letters of sympathy, and many letters came, too, from those who did not know me personally, but, appreciating his loyalty and devotion, felt with me how great a loss we had sustained.

From a remote place in Scotland a well-known mountaineer wrote me a letter, from which I quote a few lines of true sympathy. He writes: 'I have had similar losses myself and know what it is to lose a man who has been one's tried companion and intimate friend in circumstances which perhaps make men more intimate than any other. To have lived with a mountaineering chum, and to have shared dangers and disagreeables and the keenest pleasures with him, year after year, sets up a very close link, and when that is suddenly snapped, it is a grievous blow. There is one consolation, though but a slight one, to the companion who remains, and it is that, if one is to die, there is no better way of death, none certainly that I should prefer. It is sudden, quite painless, and meets you probably while in the fullest enjoyment of health and happiness such as is only to be got upon the peaks. My own feelings towards the mountains have only gained a stronger attachment since J. H. Pratt sank in Como, and Lewis Nettleship and Frank Balfour died on Mont Blanc—they are, as it were, hallowed by such associations.'

Frank Aston-Binns has gone to his rest; he has the beloved mountains for his monument; and of this I am well assured—that there will always live in the hearts of those left behind the memory of his friendship.

GEORGE WHERRY.

REVIEW.

In the Forbidden Land. By A. Henry Savage Landor. (London : Heinemann. 1898.)

In the 22nd, 23rd, and 24th chapters of 'The Forbidden Land,' a work by Mr. A. Henry Savage Landor, the author of two previous books of travel in the Far East, which has been presented by its publisher, Mr. Heinemann to the Alpine Club, the author describes his ascent to the crest of a Himalayan Pass, the altitude of which he gives, from his own observations made with scientific instruments which, he tells us, he 'was carrying for the Royal Geographical Society,' as exactly 22,000 ft.

The details of the expedition furnished are of a very unique and surprising character, as will be gathered from the following summary, which necessarily does but scanty justice to the picturesqueness of Mr. Landor's narrative. It is, in fact, only a humble endeavour to extract from it certain definite statements as to facts and figures. No dates are given in this part of Mr. Landor's book, but it would appear from the appendix that it was in June or July 1897 that the following adventure took place :—

The author and his party spent, at an altitude of 15,400 ft., a night of storm, during which snow fell in their camp to a depth of 2 ft. About 6 A.M. they started. They marched for mile after mile over sharp stones, with 'their feet in a dreadful condition, cut and bleeding, because it was constantly necessary to walk bare-footed.' By 4.30 P.M. they had covered 8 miles, and reached a spot (16,150 ft.) near the sources of the Mangshan river, which is shown on the Indian Government maps of Kumaon. The snow line is stated to be here at 16,000 ft.

Almost immediately, without eating or taking any provisions, although they had already been some ten hours without food, the author, with Dr. Harkua Wilson, 'in charge of Bhot dispensaries, American Episcopal Mission,' and two native companions, started again, and after walking about 3 miles, reached the glacier at the head of the valley (17,800 ft.). Mr. Landor was carrying on his person 'silver rupees, two aneroids, cartridges, a revolver,' &c., the weight of which is elsewhere precisely stated as sixty pounds. It may be noted in passing that one of the aneroids was only graduated to 20,000 ft. (vol. i. p. 6). Mr. Landor was wearing thin clothes (p. 155), a small cap, 'medium thick shoes without nails,' and never carried a stick (p. 7). He adds, 'I think it was due

largely to the simplicity of my personal equipment that I was able to climb to one of the greatest altitudes ever reached by a human being.'

The following sentences are given verbatim from vol. i. p. 164 :—
 'Turning sharply northwards we began an ascent towards the pass. To gaze upon the incline before us was alone sufficient to deter one from attempting to climb it, had one a choice; in addition to this the snow we struggled over was so soft and deep that we sank into it up to our waists. Occasionally, the snow alternated with patches of loose *débris* and rotten rock, in which we were no better off; in fact, the fatigue of progressing over them was simply overpowering. Having climbed up half a dozen steps among the loose cutting stones, we felt ourselves sliding back to almost our original point of departure, followed by a small avalanche of shifting material that only stopped when it got to the foot of the mountain. At 19,000 ft. we were for a considerable distance on soft snow covering an icefield with deep crevasses and cracks in it. We had to feel our way with great caution, particularly as there was only the light of the moon to depend upon.'

At sunset the thermometer fell suddenly 40°, to what point we are not told. When 20,500 ft. had been reached Dr. Harkua Wilson collapsed and was left behind. Two hundred feet higher one of the natives gave in, and was also left behind, wrapped in a blanket, with the thermometer in his pocket. At this time a thick mist prevailed. At 11 P.M., Mr. Landor and the remaining native reached the crest of the pass. The mist having apparently dispersed, they enjoyed an extensive view, and 'registered observations' giving a height of 22,000 ft.

The distance traversed from the spot which they left soon after 4.30 P.M. they reckon as 5 miles, the difference in vertical height as 5,850 ft., of which 1,650 ft. were in the first three miles. The time they occupied is stated as about 6 hrs. Both the climbers suffered severely from cold and rarefied air. How long they remained on the crest is left a mystery. When they first arrived they were in fog; it was succeeded by 'bright moonlight' and 'extraordinarily brilliant stars,' under which they could see the intricate hill ranges of the immense Tibetan plateau, with snow-peaks beyond it. The fog then again rose, and enabled Mr. Landor to witness the 'Spectre of the Brocken' in the centre of a lunar rainbow. He next fell into a state of semi-consciousness, and, when he recovered, it was snowing hard. Mr. Landor roused, however, his comrade, who was further gone than himself, and the couple, picking up their half-frozen companions on the way, descended from the pass to the foot of the glacier (4,200 ft.) in 30 min. ! The distance is almost exactly the same as that from the Cabane Vallot to the Grands Mulets. They, however, did not apparently reach their followers at the 16,150 ft. camp and get their first meal till about 5 A.M., having then been 23 hrs. without food of any sort.

The author has thought it expedient to support this tale by printing in an appendix a formal certificate from Dr. Harkua

Wilson that he reached 22,000 ft. while carrying 60 lbs. on his back. Since, according to the narrative, Dr. Wilson did not himself come within 1,500 ft. of the point in question, his evidence is obviously inconclusive. It may be noted that on the one inch to the mile survey of Kumaon of the Indian Government the highest measured peak on the frontier ridge within 20 miles of this pass is 21,130 ft. Mr. Landor tells us he saw many elevations higher than that on which he stood both to the N.W. and S.E.

Mr. Landor had every assistance from the Royal Geographical Society. He must have had, or he ought to have had, a copy of their 'Hints to Travellers,' which contains concise instructions for mountain explorers. Why did he disregard all common rules and precautions? Why did he walk in nailless shoes, or with bare, bleeding feet? Why did he undertake, and force his companions to undertake, great exertion without food? Why, being a man of light physique, did he encumber himself with a burden no Alpine guide would willingly carry under like conditions? Why did he attack an unknown glacier pass of extraordinary height by night, and without a rope or even a staff? How came he to abandon for a time two of his comrades under circumstances which made such an abandonment very likely to prove fatal? And finally, how did he manage to descend by night with his load and his half-frozen comrades 4,200 ft. in 30 min., and that over a crevassed *névé*, through soft snow and down loose rocks?

Mr. Landor's story is not put forward as a romance, founded on fact, and coloured so as to satisfy the supposed taste of the unscientific public. Mr. Landor presents himself and has been received by the critics of our daily press as a traveller thought worthy of the loan of instruments by the Council of the Royal Geographical Society (p. 6), who has by their means produced a trustworthy original map 'made entirely from his own surveys of an area of 12,500 square miles in Tibet proper.' This being so, he invites expert criticism and is bound to justify his claim to have reached 22,000 ft. by full details of the nature of the observations on which it is founded; and, having done this, he would consult his credit by furnishing some reasonable explanation of how he came to perform what is, according to his statements, one of the most extraordinary feats of endurance and speed ever reported in the annals of mountain exploration under conditions, and with 'a simplicity of personal equipment,' which involved needless suffering and danger, and which, had any of the party perished, would have led every competent mountaineer to ascribe their deaths to inexperience or rashness on the part of their leader.

We have here dealt only with a single incident in Mr. Landor's narrative. But there are other and more far-reaching questions that might easily be asked as to the geographical and cartographical results of his journey. The public will await with unusual interest the detailed notice of his work which has been promised in the 'Journal' of the Royal Geographical Society.

CORRESPONDENCE.

THE FIRST ASCENT OF THE GRIVOLA.

To the Editor of the ALPINE JOURNAL.

SIR,—On p. 306 of the new edition of Ball's 'Western Alps,' it is stated that in 1859 'Messrs. J. Ormsby and R. Bruce made the first ascent of the peak, starting from the Val Savaranche,' whereas Mr. Ormsby, after having stated * that the party did *not* reach the top, appends a foot note (p. 336), from which the following is an extract:—

'I now believe it was much more childish not to do the thing completely when we were about it. As we were descending, the *garde-chasse* [F. A. Dayné], above mentioned, said it would never do to come down without leaving a flag (in sober language, a bit of calico on a stick) in testimony of our ascent. The proposition was too innocent to be objected to, but *when we found he was making for a part of the ridge where we had never been* (the italics are mine.—F. T. W.] it struck us both as not being an altogether honest proceeding, and we proposed returning for the purpose of giving due effect to the solemnity by the presence of the whole party. Cachat, however, pooh-pooed the idea.'

It is thus quite clear from the above that not only did none of the party ascend to the top except F. A. Dayné, but that Messrs. Ormsby and Bruce themselves were both entirely ignorant as to *where* the true summit exactly was!

I do not forget that it has been set down as 'pedantic' to claim the first ascent of a peak merely because one happens to have been the first on the actual summit, whereas the 'main difficulty' of the mountain has been previously overcome by another,† and that Mr. D. W. Freshfield subscribes to the same view in the 'Academy' for February 23, 1884, and also that in 'Climbers' Guides' ('Mountains of Cogne') Messrs. Yeld and Coolidge tell us that 'it is now recognised that . . . the honour of making the first ascent [of the Grivola] belongs to the whole party [Messrs. Ormsby and Bruce's].'‡ On the other hand, however, I would point out that, for instance, although the Ost Spitze of Monte Rosa was ascended by the three brothers Smyth in 1854, and by Mr. E. S. Kennedy in the same year,§ yet the first ascent of Monte Rosa has universally been reckoned as unquestionably belonging to Messrs. Hudson, Smyth, Birkbeck, and Stevenson when they ascended the Dufour Spitze, hard by the Ost Spitze, and not more than some 20 ft. higher, in 1855.

F. A. Dayné was the first to reach the summit of the Grivola, in 1859, making the ascent from Val Savaranche; whilst the first time that the mountain was climbed by a traveller from the

* *Peaks, Passes, and Glaciers*, vol. ii. p. 335.

† *Alpine Journal*, vol. xii. p. 341.

‡ *Bell*, 1891, p. 22.

§ *Alpine Journal*, vol. xvi. p. 47.

|| *Vaccaren*, pp. liv. lv; *Peaks, Passes, and Glaciers*, vol. ii. pp. 318-338.

Val Savaranche side was when I myself ascended it from Dégioz in 1876, accompanied by Laurent Proment, of Courmayeur, and J. J. Blanc, of Dégioz.*

I am, Sir, yours truly,

F. T. WETHERED.

September 19, 1898.

[As Mr. Douglas Freshfield has been appealed to on the subject, we have thought it best to submit Mr. Wethered's note to him. He sends us the following letter, to which we do not think it necessary to add.—EDITOR.]

SIR,—I am obliged to your courtesy in placing before me Mr. Wethered's note, in which he cites opinions I have at different times been called on to express, either as Editor of the 'Alpine Journal' or elsewhere, as to what constitutes a First Ascent. I gladly take the opportunity you afford me of stating the principle on which I have based these opinions.

What substantial importance (if any) ought to be attached to claims to first ascents must, I think, depend in each disputed case on local circumstances, and still more on the common sense of the climbing community. The climber who is too sedulously minute, who looks into the details of his climbs with a 'microscopic eye,' runs, it seems to me, some risk of making himself ridiculous in place of famous.

Let me illustrate this proposition by a personal reminiscence. Many years ago François Dévouassoud and I had preceded another party by a short half-hour in a new ascent. I was sitting on one of the boulders that formed the summit of the peak, and using the highest crag as a table. I pointed it out to our followers on their arrival as the Allerhöchste Spitze. They solemnly stepped on to it in turn, and on the strength of this admission on my part they subsequently claimed in print the first ascent.

I cannot consider that where one rock or one snow crest is but a trifle higher than another on the same ridge, and the two are separated neither by difficulties real or imaginary, nor by distance worthy to be reckoned in the day's work, any claim to the honours of a first ascent, made on the ground that the preceding party did not complete the climb, ought to be recognised.

Whether the case of the Grivola falls into this category is a question of fact. Having before me both recent photographs, Mr. Ormsby's note, cited by Mr. Wethered, and the printed descriptions of the summit written without any personal bias by other travellers, lately collected by Mr. Coolidge, the proper verdict seems to me beyond doubt. Ambroise Dayné's claim was of the character of my rivals', and probably would never have been heard of but for local patriotism, which has been even more active than personal feeling in providing material for discussions of this character.

On the other hand, in the case of Monte Rosa, the summits reached by the different parties are obviously distinct. The first ascents of the Ost Spitze and the Dufour Spitze were made by

* *Alpine Journal*, vol. viii. p. 83.

wholly different routes, and the crest between them, which the first party fancied to be impracticable, was not, I believe, traversed until many years later.

I am, yours obediently,

DOUGLAS W. FRESHFIELD.

October 10, 1898.

HIGH ALTITUDES.

To the Editor of the ALPINE JOURNAL.

DEAR SIR,—I am, of course, ready to acknowledge Mr. Freshfield's superior literary ability, but I hardly think, on this account, he is justified in taking advantage of a very questionable grammatical error in a paragraph the sense of which I am surprised he fails to understand. If the expression 'rarity of the air' is used to describe the various conditions present in the atmosphere at high altitudes, it is obviously the duty of those who wish to study and avoid the symptoms produced by this 'rarity of the air' to ascertain, if possible, whether each of these conditions gives rise to its own set of symptoms which can be more or less differentiated; and this is clearly my meaning.

I do not propose, however, to answer separately all Mr. Freshfield's misrepresentations of the position I take up, as my desire to be brief in my remarks may have laid me open to them; but I would remind him that, in my first letter, I did nothing more audacious than accuse him of making a suggestion in the words 'opened up an entirely new view.' As a suggestion of this character had never before appeared in such a form from the pen of so high an authority as Mr. Freshfield, I presumed he had some good reasons for making it; and it was because I considered that suggestion very misleading to those who had not studied the subject that I ventured to comment on it in the hope of finding out those reasons. Had the treatment been simple and unimportant, it would not have been so misleading to suggest that the 'rarity of the air' might, under the conditions he mentions, be disregarded; but when the treatment means a very considerable addition to the climber's burdens by carrying up large supplies of oxygen, it almost becomes a question whether the treatment can be undertaken at all. Therefore, in any case, the symptoms of mountain sickness will always present serious difficulties to the mountaineer, and can never be lightly spoken of without very good reasons.

I had not originally intended, Sir, to trespass on your valuable space by giving in full my reasons for holding the opinion I do; nor can I do so now; but, in self-defence, I feel bound to mention, as briefly as possible, a few points to indicate the actual position I have taken up after working at the subject a long time.

1. Although there are two main conditions present in rarefied air—viz. diminished atmospheric pressure and diminution of oxygen per unit volume—yet the symptoms produced by the one *can* be differentiated from those produced by the other.

2. Symptoms produced by *gradual* reduction of atmospheric pressure are totally different from those produced by *rapid* reduction of pressure; and, therefore, aeronaut and laboratory experiments, as at present performed, are useless in studying the cause of mountain sickness.

3. Symptoms of true mountain sickness (*i.e.* gradual reduction of pressure) are closely allied to those of fatigue, but one can be distinguished from the other by the fact that in the latter vomiting is generally present.

4. After eliminating fatigue and indigestion, true mountain sickness still remains to be overcome by the climber above 17,000 ft.

5. It can be shown, from well-known physiological facts, that *gradual* reduction of atmospheric pressure *per se* can produce no symptoms whatever, though *rapid* reduction of pressure produces a very definite set of symptoms; so also does gradual as well as rapid *increase* of pressure. There remains, therefore, only diminution of oxygen per unit volume to account for the symptoms of mountain sickness.

This last point I have not been able to prove experimentally, since it necessitates either laboratory experiments of some hours' duration, or else mountaineering above 17,000 ft. with large supplies of oxygen.

I trust Mr. Freshfield will now see that, instead of 'dismissing at once all the Alpine experiences and experiments of travellers and men of science, and excluding' his own experiences, I have used them very largely in forming my opinion, and respect them accordingly.

I am, Sir,

Your obedient servant,

MALCOLM L. HEPBURN.

South Lowestoft: October 8, 1898.

To the Editor of the ALPINE JOURNAL.

1 Airlie Gardens, W.: October 1898.

SIR,—Dr. Hepburn takes me too seriously. Since he has twice insisted on my use of 'loose' language, I think I ought to have been allowed to convict him of a 'questionable' expression without being consequently accused of any want of understanding! Again, the sentence of mine he first took exception to was not, as he supposes, a new departure. It was an epitome of a view I had more fully expressed elsewhere.* On that occasion I anticipated Dr. Hepburn in mentioning the possible utility of oxygen bags, originally suggested, I believe, by M. Paul Bert.

Dr. Hepburn complains of my misrepresentations of the position he has taken up. I quote his own statement of it from a paper published in the 'St. Bartholomew's Hospital Report' for 1896, vol. xxxi., of which he has kindly sent me a copy.

* *Exploration of the Caucasus*, vol. ii. p. 168, 1896.

'As far as treatment of mountain sickness is concerned the only methods by which it can be combated are—

'(1) By climbing at as slow a rate as possible with frequent halts, and taking a good many days to complete the ascent. This, of course, will necessitate camping out on the mountain for some time.

'(2) By taking up a supply of oxygen. This would be, of course, a most inconvenient addition to one's burdens, and it cannot be undertaken without much more careful thought and consideration than this bare statement admits of.

'I believe that if these two rules be followed and are found practicable, mountain sickness will not prevent the highest point on the earth's surface being reached by man.'

My statement in my last letter was 'that Gaurisankar will be climbed . . . is the view, as far as I can make out, of Dr. Hepburn, provided his treatment or system of training, which will include oxygen refreshers, is adopted.'

This is the central point of Dr. Hepburn's argument, and where, I must ask, is the misrepresentation?

If in any matter of detail Dr. Hepburn thinks that I have not done him justice, I can only repeat his expression of regret that brevity and exactitude are so difficult to combine. Of course, when I complain that he dismisses all Alpine experiences, I mean that by denying their connection with variations in the atmosphere he dismisses them from the present discussion.

Dr. Hepburn's novel hypothesis that any discomforts felt by mountaineers below 16,500 or 17,000 ft. are solely the result of indigestion and fatigue, while those felt above that level are complicated by 'rarefied air' (an expression which it appears is scientific, though 'rarity of the air' is loose) remains as yet, in my opinion, unsupported by any adequate evidence in facts. Again, *gradual* reduction of pressure can be, and has been, tested in the laboratory, and such experiments are surely not useless. But in holding that the reduction of pressure is not one of the causes of mountain-sickness, Dr. Hepburn is, I think, right. Further researches will, I believe, probably show us that, even if we are on the true track, the causes of this discomfort are more complex and intricate than Dr. Hepburn assumes, and that it is premature therefore to dogmatise as to its treatment. Those who are interested in the subject will do well to consult Dr. Mosso's book, 'Life of Man on the High Alps,' recently issued in an English form by Mr. Fisher Unwin. There, coupled with much uncritical repetition of antiquated and sometimes contradictory experiences, and some serious citations of statements hardly meant by their authors to be taken as scientific dicta—for instance, Sir Martin Conway's rash assertion that 'the climber hates civilisation, and is usually a dolichocephalous black man'—they may find a record of careful observations, which, if not conclusive, is at any rate very suggestive.

I am, Sir, yours faithfully,

DOUGLAS W. FRESHFIELD.

THE
ALPINE JOURNAL.

FEBRUARY 1899.

(No. 148.)

ADDRESS TO THE ALPINE CLUB.

BY CHARLES PILKINGTON, PRESIDENT.

(Read at the Winter Meeting, December 12, 1898.)

IN the good old days the President of this Club, after he had served his term of three years' hard labour, was allowed to retire gracefully and modestly into the mists of the past, through which, like objects seen amongst the mountain clouds, the former heroes of the Alpine Club loom indistinctly; their rough angles and faults smoothed and softened; their size and importance mysteriously magnified. No account had then to be rendered of the stewardship, nor had any candid statement to be made of the shortcomings of the Club. But, when Charles Edward Mathews was President, that able reformer, instigated by the intrepid originality of Mr. Dent, ordained otherwise, and now you will have to bear with me while I try to lay before you as shortly as possible that which you may already know, and to indicate, however faintly, the paths along which the Club may have to move in the immediate future.

We have lost some of our members during the last three years, as must needs be the case in so large a community; and others, who, though not of us, were closely linked in our memories with many a bold deed and happy hour, have also been called to their rest.

Some have drifted quietly away on the stream of life; others have been snatched suddenly from our midst in all the health and strength of vigorous manhood. Captain Marshall Hall now rests from his labours on the movements of glaciers. He was an enthusiastic lover of the Alps, and threw himself heart and soul into the work of establishing a system of

observations to embrace the whole of the glacial world. Charles Packe, a well-known figure amongst us, a typical Alpine traveller of the old school, has also gone to his rest. Though his knowledge of the Alps was wide, his name will ever be associated with the Pyrenees, for, in the days when huts and stones were often the only shelter to be had, he explored the chain from end to end, and although he was the first traveller to set foot on many of the peaks, he climbed them more for the sake of topography and exploration than of making new expeditions or overcoming a difficult passage. Mr. Cunningham, author of 'The Pioneers of the Alps,' Mr. Hunt, Mr. Holt, and Mr. Stone, all members of over thirty-five years' standing, and two of my well known and well tried friends, Frank Hartley and James Heelis, the latter a member of our Committee at the time of his death, will be seen amongst us no more.

Our greatest loss is that of Mr. E. S. Kennedy, and although many of our younger members may never have seen him, all know that he was the Father of the Alpine Club. He it was who, at the suggestion of Mr. William Mathews, issued the first circular, calling together those who were interested in the Alps, and to him, more perhaps than to any man, we owe the social, friendly spirit which animates our members and has become a distinguishing characteristic of our Club. That brilliant cragsman, Mr. Norman Neruda, once one of our members, was killed under most distressing circumstances on the Fünffingerspitze, the accident being due to sudden illness, and not to any rashness or neglect of precautions. By the death of Mr. Philip Stanley Abbott on Mount Lefroy, America has lost her most enthusiastic climber, and she has our sympathy in this, the first fatal accident that has befallen any member of her newly formed Mountaineering Clubs.

Christian Almer, that prince of guides, who for so many years led the fathers of the Alpine Club to victory, and never to disaster, and who, even in his old age, was able to guide their sons and show them how boldness could be allied with discretion, and that determination and experience were two of the greatest factors in mountaineering success, has made his last ascent. Andreas Anderegg, a worthy son of a well known name, was swept away on a slope apparently safe, and always traversed when the snows of the Jungfrau are soft and deep. Roman Imboden, a good guide, failed, as others have failed, to gauge the size of the Lyskamm Cornice and perished with his party.

I would that these were all the losses we have to mourn,

but this season, for the first time during our tenure of office, the mountains have claimed victims from our ranks.

Mr. Aston Binns, a well known Balliol scholar, a popular master of Sherborne school, and a most energetic member, was killed with his guide, Xaver Imseng, on the Aiguille de Charmoz, and Dr. John Hopkinson, one of our finest rock climbers, with two daughters, and a son who promised soon to be an ornament to our Club, perished on the Petite Dent de Veisivi. You all know what little there is to know of this, the saddest calamity in the annals of climbing, and we all deeply regret the loss his family, this Club and the country has sustained by his premature removal from that world of science which he so much adorned.

And now that we have paid a passing tribute to those who have gone before, we must glance shortly at the record of the Club during the last three years.

We seem to have settled so quietly and comfortably into these new rooms that we almost forget the long stone steps of No. 8. St. Martin's Place, and the dimly lit picture shows of former days.

Strangely enough, some of the early exhibitions in this hall were not so well attended as we expected them to be, and a mistaken idea arose in consequence that Alpine art, or rather the interest of our members in it, was declining. It was also rumoured that with a view to economising the finances of the Club, the Committee tried the experiment of abolishing the necessary tea at the private views, and that this might be one of the causes. If so, we forgot the lesson taught us by the various little buildings along frequented Alpine paths, i.e., that every mountain view is always worth a drink. Be that as it may, the tea and expenditure now flow along the old channels, and the Alpine public will never again be defrauded of their rights.

In the spring of 1896 we had an exhibition of Mr. McCormick's characteristic Caucasian sketches, and in the winter one of photographs and coloured Swiss prints lent by Mr. Gardiner, some of which were unfortunately lost in transmission. In 1897 another representative collection of pictures was shown in the spring, and in the winter one of photographs, including many views of Alaska by S. Sella, illustrating the Duke of Abruzzi's expedition to Mount St. Elias, and a large series of the Canadian Rocky Mountains by Messrs. Collie, Dixon, and G. P. Baker. These exhibitions were all excellent, and this summer Mr. McWhirter and Mr. Alfred Parsons tried the experiment of a two-man exhibition,

the result of which was successful in every way. Not only was the number of visitors extremely large, but their admiration of the pictures took a form satisfactory to the artists.

There has been much discussion lately as to whether it is better to hold our principal show of pictures in the spring, during the London season, when the light is good, or at the time of our winter dinner, when, as one of our ex-presidents would say, 'the Tribes have assembled themselves together from the utmost parts of the earth to the great feast at Jerusalem.' The latter date seems to have gained the day. For this winter we have a second collection of Alpine paintings instead of photographs, and, though these pictures would well have stood the test of the brightest sunlight and the most critical crowd, we must congratulate ourselves that they are on the walls to light up the dulness of these winter days. I am sure our warmest thanks are due to the artists and to the Art Committee of the Club who have worked so hard to make it a success.

There is, however, one branch of art, or, if you are rude and candid, call it industry, which seems to wither under the new conditions. I mean Amateur Drawing. Perhaps the successful advance of photography may be one of the causes, but I believe many are modestly afraid of hanging their drawings in such a room as ours. Perhaps the light may be too good, and the criticism severer than of old, when given after our annual dinner and in the kindly shade of Willis' or the Whitehall rooms.

I do not say that this is a loss to the world, but it is a loss to the Club, for those who draw the peaks for themselves, with many details—far too many, as a rule—and much rubbing and scratching, not only rub the views and architecture of the mountains into their memory, but become, through their own failures, better able to appreciate the work of others, who by long and intelligent study have successfully grappled with the difficulties of mountain drawing and become Alpine artists in every sense of the word. It is to be hoped that this modesty, for which we get so little credit in the daily papers, may not stifle our amateur efforts; and, though it is true that professional and amateur work should not be exhibited side by side, I think a place for amateur attempts might be found at some of our photographic shows.

The literary work of our members during the last three years at one time threatened with financial ruin all those who pride themselves on the completeness of their Alpine libraries;

but there was quality as well as quantity. In 1897 and 1898 we received Professor Bonney's 'Ice-work, Past and Present,' a most valuable and interesting addition to our sources of glacial information; Mr. Whymper's excellent guide-books to Chamonix and Zermatt; Sir Martin Conway's 'Spitsbergen'; Mr. FitzGerald's 'Climbs in the New Zealand Alps'; Mr. Harper's 'Pioneer Work' in the same district; Mr. Weston's 'Mountaineering and Explorations in the Japanese Alps'; 'Sport in the Alps,' by Baillie Grohman; and last, but by no means least, that beautiful book, 'The Exploration of the Caucasus,' by Freshfield and Sella.

Mr. Coolidge's unrivalled knowledge of Alpine literature and his various contributions to it are universally recognised, and this year he has at last been able to give us the first volume of 'Ball's Guide,' and I feel this address would be incomplete if I did not acknowledge, on behalf of the Alpine Club, our indebtedness to him for this splendid guide to the Western Alps, a work to be followed in due time by the second volume, 'Ball's Alpine Guide to the Central Alps,' and it is to be hoped that our younger members will give us some of the financial help required to make this work a fitting memorial to our first president and to our Club, without touching funds required for other purposes.

Amongst the other books presented to us this year, Sir Martin Conway's article on mountaineering in the 'Encyclopedia of Sport' is an excellent and readable summary of the whole subject, with the exception of climbing without guides, and his advice on distant exploration, coming from so successful an explorer, must be of great value.

'The Life of Man in the High Alps,' by Dr. Mosso, is the result of many experiments on this important question; and, lastly, Mr. Mathews has produced his 'History of Mt. Blanc,' written with the completeness of an encyclopedia, and the knowledge to be expected from one of our 'original members.' In it he has reinstated in his proper place Dr. Paccard, whose claims have been somewhat forgotten; with laudable reticence has suppressed his own personality, and has made so excellent a monograph of the mountain that the 'Daily Chronicle,' that most Alpine of papers, need not have arrayed it in so personal a garb.

Our members have shown no lack of mountaineering zeal, except that due to the bad seasons of 1897 and 1896, and this has been amply atoned for by the numerous expeditions made this year during the exceptionally fine months of August and September.

It is almost impossible within the limits of this paper to notice the numerous expeditions made in the Alps, but the traverse of the Pala di S. Martino and the ascent of the Antelao by the Cadore face—two of Messrs. Raynor and Phillimore's many remarkable climbs of the Dolomites, and the ascent of the Aletschhorn from the Mittel Aletsch Glacier over the S.E. ridge by Messrs. Kesteven, Bradby, Wilson and Wicks—seem to me of most general interest.

The Duke of the Abruzzi has proved to us that complete organisation and exhaustive preparation are two of the greatest factors in conquering those higher summits of the earth whose bases even are so difficult of approach. He had means at his command which ordinary climbers do not possess, but this need not discourage our adventurous members, who are generally able to provide themselves with what is usually considered the necessary outfit, and they will do well to study the object lesson in careful preparation and complete organisation that is so strongly set forth in the chronicle of the ascent of Mount St. Elias.

Mr. FitzGerald's successful expedition to the Andes, with the grand first ascent of Aconcagua by Mr. Vines, is the greatest feat of mountaineering achieved in the last three years. The pluck and determination displayed in their many attempts, under great hardships and difficulties, deserves, as it has received, the fullest recognition by the Alpine Club.

Messrs. Collie, Dixon, G. P. Baker, Woolley, and Stutfield have been establishing a new centre of mountaineering in the Canadian Rockies, and apparently would have welcomed there some of the railways and mule paths which grow too freely in Switzerland.

Since Conway's rediscovery of Spitsbergen a side current of Alpine exploration has pushed its way towards the North. Conway and Garwood in Spitsbergen, Woolley, Hastings, and Priestman in the Lofoten Islands, Mrs. Main with the two Imbodens, and Slingsby Hastings and Haskett-Smith in the Lyngenfjord, have all traversed fresh ground. In the Himalayas Captain Bruce, with fourteen Gurkhas from five different battalions, has explored the glaciers of the Nun Kun range east of Kashmir, and made sixteen peak climbs between 16,000 and 19,000 ft., and crossed three passes between 17,000 and 18,000.

And now, at the close of the year, comes a Christmas greeting from the Pacific shore, for we have just heard of Sir Martin Conway's splendid ascent of Illimani, 22,500 ft., and his bold and determined bid for the summit of Sorata, where he was

stopped at an altitude of 23,000 to 24,000 ft. by a huge crevasse which effectually barred the way. But this is not all, for this morning we learn that he has succeeded in making the second ascent of Aconcagua, and is even now on his way to Tierra del Fuego, where we hope fresh conquests will reward his untiring energy.

At the present time a wave of English mountaineering seems to have set towards America; perhaps it is a result, perhaps, indeed, the cause, of that *rapprochement* which has lately sprung up between the two countries; but whichever way the tide sets, towards America or India, to the East or the West, the great question with which we shall be confronted is the rarity of the air. This name may not be a scientific one, but if it is good enough for Mr. Freshfield it is sufficient for this address; it may have many medical names and many symptoms, but the result is always the same. What this evil influence may be, or whether, as is most likely, it is the collective result of many causes, remains for our physiologists to prove; but the thing is there, and ever obtrusively prominent at the height of from 18,000 ft. to 20,000 ft. above the level of the sea. We cannot evade or remove it, we have to fight it. There has already been much discussion as to what is the greatest height to which man can climb; but the question is still in its infancy, and there are so many conditions entering into it that no definite answer can as yet be given. The component parts of the air are not always constant. A gentle breeze helps us to breathe more easily, but it must not be strong enough to impede our movements. The state of the mountain, the temporary condition of the climber on the day of the ascent, the amount of barometers and other instruments carried by the party (in this matter the metres climbed varying inversely with the metres carried), and last, but not least, the strength and constitution of the climber himself must all be taken into consideration.

As only about twenty or thirty men, all of them good, but not specially picked or scientifically selected, have ever been above 22,000 ft., and there are some 1,500,000,000 other persons on the face of the earth, it is reasonable to suppose that there are men with constitutions better fitted to resist the rarity of the air than any who have hitherto essayed the task. We do not yet know the best age. Mr. Vines, when speaking of his ascent of Aconcagua, remarked that young men were not best fitted for these exploits. I saw from my post of vantage a glow of hope and renewed youth flush over

faces now surrounded with the snows of many winters, and, doubtless the mighty and historic calves of some of our ex-presidents quivered with the joy of the coming battle, but alas ! Mr. Vines's idea of mature manhood was a youth of 30 years.

Twenty-four thousand feet has been given to us as about the limit to which man can climb, but if we could bring the six best men in their best condition to 'the final camp' on a high snow peak of easy gradient, and with the snow in perfect condition, I believe a much greater height could be attained with favourable atmospheric conditions on the morrow. The question is most important, and one which our physiologists and explorers will have to take up in the immediate future. It is a difficult problem, and the Club must give what aid it can towards its successful solution.

We hope that our members will push their way into distant lands, and return with useful and reliable information. To further this end, Mr. G. P. Baker has urged us to gradually acquire a few scientific instruments and camp appliances ; we cannot be expected to keep in this building a general store and supply of tents, pots, and sleeping bags, but we could have a few good theodolites or so and other surveying instruments of different sizes, especially some of those more easy and simple to work, which could be lent to members contemplating distant exploration, though I am afraid it might be too much to insist on our Secretary learning their use and undertaking to teach general and scientific surveying to any member who contemplates such a journey.

Another object we might legitimately help in carrying out is the establishment of small ambulance stores (especially suitable litters and slings for various emergencies, not to mention splints, bandages, &c.) at some of the climbing centres, such as Fee, Zermatt, the Riffel, &c. This year at the Montenvers there were no appliances of any kind when they were sorely needed for the accident on the Col du Géant. Surely this is not a creditable state of affairs, though whether the various Alpine Clubs are to blame or not is a matter for consideration. We are glad to see that the efforts of this Club, under the direction of Mr. Dent, in establishing a system of danger signals in the mountains, are now meeting with general approval, and have already been attended with success.

The history of Switzerland during the last three years is merely a chronicle of new mountain railways and hotels, from which radiate mule and foot paths, carrying the bustle

of civilisation into the remotest valleys ; faint foot-tracks in some districts, marked by splashes of paint, lead upwards to well-provisioned Alpine huts. From one Tyrolean Hotel, I saw that no less than five differently coloured paths started, and perhaps the passing of the test for colour blindness will soon have become a necessary part of a guide's qualification. All these changes lead to larger gatherings in the higher inns and mountaineering centres, and though attended by many good results, have also brought evils in their train on which the influence of this and other Alpine Clubs might be used with good effect.

By placing the steeper parts of the country and the glaciers themselves within easy reach of a vastly increased crowd of ordinary tourists, the liability of accidents to solitary wanderers is gradually increased. The Eastern Alps abound in *bewirtschaftet* Alpine huts and marked paths, and it is in the Eastern Alps that most of these semi-Alpine accidents occur ; thus, the very aids to mountaineering prove a source of danger to the inexperienced traveller. On the Rax Alp alone in 1896, there were twenty-six fatal and eleven other accidents, and this year thirty-one deaths are recorded in the list given in our November 'Journal.'

Crowding often encourages a little theatrical display, sometimes by good climbers, though seldom by members of this Club. It takes many forms ; for instance, in starting for a bivouac in the middle of the day, something is left upstairs at the last moment, necessitating a return through the crowd at the front door, from which the climber again makes his exit to overtake the party with the long swinging gait of the mountaineer on his own mountains. On these occasions, your axe should never be handed to a companion, but the passage forced in full fighting trim.

This crowding of the mountains makes it all the more necessary that we should observe the strictest rules of justice and courtesy to our neighbours. A mountaineer is as jealous of some new route or particular expedition as a game-preserving landlord is about the right of way along a favourite covert side.

It is never right to gain knowledge of some projected ascent, and steal it from others ; nor should we attach ourselves to, or follow, a stronger party bent on some difficult climb, which otherwise would have been beyond our powers. Nor, indeed, is it courteous to change one's mind at a hut and go with others for an expedition to which we have not been invited. A little racing, where none of those axioms are

interfered with, may be allowed, simply because it is no use trying to prevent it, as long as man is man. Mr. Leslie Stephen condemns the practice as 'an utter abomination' and never to be indulged in; but even he was forced to break the rule in one or two instances; in fact, it is doubtful whether he ever observed it. But it should only be indulged in on easy places, or when no danger to others may be the result. The unsportsmanlike and offensive form it may take, is to allow the front party to do the arduous step-cutting and, when the road is made, to race past and reach the summit first. This Club long ago formulated an unwritten code of Alpine honour, the observance of which is nearly always a distinguishing characteristic of our members, and we must do our best, by example, and even precept if necessary, to induce other mountaineers to work under the same laws.

A little display on the return from a big expedition is to be excused in the novice, and we cannot expect all young men to be absolutely free from a little elation at the sight of a crowd of idlers in front of the inn. Nor do the onlookers object to it, for it is a part of the picture which they expect to have thrown in gratis for their 10 francs a day, and a part of the whole performance; but to sit outside an hotel on an off day in extremely rent and dirty garments which look as if another sense than that of sight might be offended by a nearer approach, especially when other clothes are available, is an unjustifiable and offensive piece of snobbery for which there is no excuse.

How is the character of the Alpine guide influenced by all these changes? History has recorded how he was evolved from the chamois hunter and woodman, how he gradually increased in efficiency till he gained the proud position of the finest climber in the world, and, though he still maintains that position, I am inclined to think that, of the younger generation as a class, though they are a fine, strong set of men, excellent rock climbers, and some of them magnificent cragsmen, only a limited number attain to the highest standard of snowcraft of the old Oberland guide, and that most of them are indifferent icemen.

The causes that have led to this are, to my mind, not far to seek. A great taste has sprung up amongst climbers for sensational rock-climbs, and many young guides find they make most money by remaining at some well known centre, and climbing the same peaks over and over again.

The routes up these fashionable mountains are almost marked out; at any rate, every stone and trickle of water is known

to the man who often makes the ascent. The dangerous places are as well known and obvious as the poison bottles in a chemist's shop. The more difficult passages are hung with ropes and chains, or made easy by iron holdfasts; nay! the very routes themselves are often marked with patches of red paint. What need is there for him to examine the route, or note the places where stones or ice may fall? It has all been decided for him long ago, and he works by rote.

Do not think that I am decrying fine rock climbs; far from that, I confess that they give me the most pleasure, but the way in which they are now often climbed, and their increasing popularity over snow peaks, is detrimental to the education of the guide. And we can well believe that, to some extent, those characteristics, habits of care and keen observation, that were at first thought to be instincts, bred by generations of mountaineering, are becoming less conspicuous amongst the guides.

The numerous accidents that have happened in these three years have raised in some minds the question of the use of the rope on rocks.

The dictum of the Club was given years ago on this point, and we can only endorse it. To say that because a man slips on a certain place and carries others away, the rope should not have been used, is equivalent to saying that life-boats should not be built because they are occasionally upset. The fact is, we necessarily know of all the accidents, but we do *not* know of those slips when the rope has prevented one, for men do not publish their own mistakes, and it is certain that, were it not for the rope, half the tourists who go up the Matterhorn would not reach the bottom, except in pieces. True, many men go up that peak who have no business there at all, and they would learn more of mountaineering and become safer companions if they practised climbing on less dangerous places unaided by the rope.

We do not lay down cast-iron rules, whose extreme rigidity causes them to be broken, neither do the best guides, for I remember that Melchior Anderegg, that safest and most prudent of men, took me up the Laquin Horn from Saas a few years ago, and never used the rope during the ascent; but on any difficult peak, whether it be snow or rock, the rope should almost always be worn continuously from the time it is put on in the morning, till it is taken off when the easy ground is reached once more at night.

No one has ever questioned the necessity of the rope on snow-covered *névé*, but apparently it is sometimes thought

that two persons on it are enough for safety. If we believe that this number is insufficient for rocks, how much more, then, must we condemn the practice on snow? The accidents that are constantly happening in the Eastern Alps, so often the result of this practice, confirm our judgment, and ought to impress it on all climbers.

This year, for the first time in my life, I fell completely through the soft snow covering into a deep crevasse. We were a party of four, and had a long rope out, as we were crossing a wide snow-field, every undulation and mark in which was obliterated by the freshly drifted snow of the night before. The difficulty of the situation, had there been only one man above me roped in the usual way, was deeply impressed on my brain, as well as on my ribs; and I urge you all, most emphatically, to avoid a risk which is so obvious and which can be avoided.

If we think this of two, what shall we say to the solitary traveller over snowy glaciers? The argument that he kills only himself is answered by higher laws than those of our Club; but I think, without entering further into the question, we may say that any member of this Club who goes alone on such a glacier, unless it be for some obvious duty, runs the risk of bringing the sport he pretends to honour into dishonour, and commits an offence against the Alpine Club.

There is one form of mountaineering which in past years was spoken of with some hesitation, lest it should be too rashly adopted. I refer to climbing without guides. At first it was thought that a dangerous precedent had been established which might prove disastrous to the Club. Mr. Freshfield spoke so plainly on the subject in his address that I need not give you a sermon on the subject.

On whose shoulders the blame for the innovation ought to fall I cannot tell. Our second President climbed Mont Blanc with Mr. Hudson and the two Mr. Smyths in 1855.

Mr. Ball had often to take the rôle of leading guide, and Mr. Morshead certainly dispensed with professional assistance on more than one occasion; Mr. Girdlestone for many years showed a contempt for danger which some admired but others condemned; and Messrs. Colgrove, Cust, and Cawood ascended the Matterhorn in 1876. But whoever was the first offender, guideless climbing gradually came to be recognised as a necessary evil, and the older members of the Club slowly yielded their assent.

But they only did so with many protests and much good advice, recognising that in this matter we should move

cautiously if we were to ensure safety. They were very wise in the position they took up, and, in justice to those who then climbed without guides, I may truly say that they appreciated the situation, and did their best to emphasise and enforce the advice of the elders. If some few have sinned, we must all admit that the Club at large has shown itself strong in restraint, and able and willing to hear the voice of reason, and that, as a rule, men have not rushed into this form of sport without due training and forethought.

It was at first thought that however good a climber an amateur might become he could never acquire the path-finding power or snow-craft of the good guide.

But we are now faced with the fact that only a few Alpine peasants can acquire these qualities, and that the demand for good guides is larger than the supply.

It is unnecessary to enter into any comparison between amateur and professional climbers; but any youngster who tries to dispense with experienced assistance will find the answer, though he may never learn his craft, nor live long enough to recognise his own shortcomings. But those who wish to learn to make their own way amongst the mountains will find that though the peasant, living in the open air most of his life, can endure hardships and carry loads better than any amateur, he has few other advantages over the trained Englishman.

The habit of observation, the faculty of finding the way, even if the route has only been seen years ago, though very difficult to acquire late in life, can be acquired by anyone with what is called a decent head for locality who begins to learn while he is young, and always takes the trouble to observe, and I can see no reason why a youth so trained, and having the advantage of map and compass, should not in time equal the best guides in this respect.

The knowledge required to avoid dangers, and to become a good judge of snow, can be learned *far* more quickly, perhaps in four or five years of careful training under a good guide; but though the amateur may become as competent a judge as most professionals, he can never quite acquire in this matter of snow-craft the touch of the greatest masters of the craft. I believe that it is in the direction of path-finding and snow-craft that the energies of the individual clubman should be turned; for if the highest summits of the world are to be climbed, the way will lie amongst unknown mountains, and up vast slopes of ice and snow, and we look to our younger

British climbers to maintain the Club in the position it now holds in the mountaineering world.

Those who at first undertook the responsibility of the guideless movement were generously trusted by the Club. From what I have seen I have every confidence that our younger members will also deserve our trust and act prudently and wisely in the future; that the dangers of the mountains will always be most fully recognised; that they will ever strive to follow the true laws and precepts of mountaineering, and will never forfeit by rash acts or careless omission that trust and confidence of the Alpine Club which cost their predecessors so many years of hard and careful work to obtain.

I am afraid this has been somewhat of a sermon after all; but these things were on my mind, and I felt constrained to speak of them on this the last occasion on which I can address you from the chair. When you elected me your President three years ago I accepted the honour with much reluctance, feeling that I was hardly equal to the task. My feelings remain the same on this point, and had it not been for your kindness and ready help I should have been unable to carry out my duties. As it is my work is done, and I would my part of it had been better done; but at any rate that of my colleagues will bear the closest examination, and it deserves your best thanks. I can hardly express my own gratitude to my brother officers for the way in which they have all pulled together, and for their steadfast kindness to me in every way.

At home I had your Vice-President, Mr. Gardiner, and your ex-President, Mr. Walker, to consult with, but for a man living in Lancashire it is somewhat difficult to keep in touch with the Club in London, the centre of all Alpine information. The ever-ready and unselfish help of Dr. Savage and Dr. Wills, the kind advice and hospitality of Mr. Dent, and the constant work of Mr. Freshfield, prevented this pressing too heavily on me. As I gratefully accepted so now I gratefully acknowledge their kindness to me, and their services to the Club. And now let my last official act in this room be, to thank you all for your support and help, which has made a hard task a pleasant duty, and which, by bringing us so closely together, has, at any rate for me, cemented old friendships and created new ones, and made my future life the more happy and valuable by the remembrance of three years' generous and unbroken comradeship.

FOUR COLS IN THE MONT BLANC CHAIN.

BY THE REV. A. C. DOWNER.

(1) and (2) *Cols Supérieur and Inférieur des Essettes*; (3) *Col Supérieur du Tour Noir*; (4) *Col de Saleinaz*.

THE Swiss end of the Mont Blanc chain is but little visited by our fellow-countrymen, at least, if we may judge from the entries in the travellers' book in the Cabane de Saleinaz. I was not a little surprised to find that my own name was the only English one appearing in that work during the season of 1894. In 1895 matters were pretty much in the same state. The Swiss Alpine Club is well represented there, while Englishmen, for some inscrutable reason, though there must be plenty of them scattered about the Massif du Mont Blanc, seem to avoid that particular district. I think it is a mistake, for there is plenty to interest there.

To say truth, however, I think that end of the chain is as little known to the great body of the guides of Chamonix as it is to gentlemen qualifying for membership of the Alpine Club.

Being at Chamonix in August 1894, my attention, somehow or other, became attracted to the Tour Noir district. In particular, I became interested in the Col Supérieur du Tour Noir, which, so far as I could learn from M. Kurz's 'Climber's Guide,' and from the brown-clad gentry who infest the surroundings of the Bureau des Guides, had never been crossed. This being confirmed, after further inquiry of Simond, at the Montenvers, I became desirous, on the principle *omne ignotum pro magnifico*, to make the passage of the col.

At first I wanted Simond to go with me, but as he was unable to leave his hotel in the height of the season for more than a day, I ultimately engaged a guide reputed to be better acquainted with the district I was proposing to visit than the generality. He was not a bad fellow, but if his geography of that part represented the high-water mark of Chamonix knowledge, undoubtedly much was left to be desired. With his aid I obtained a second man, and, after the usual preparations, we set out from Chamonix for the Pavillon de Lognan.

The walk through the wood towards Lognan is a pleasant one, but ours was a little marred by anxiety about the weather, and our fears proved to be only too well founded. After a night spent at that rather costly mountain hostelry,

we fared forth at 3.30 A.M. on August 16, passed up the Glacier d'Argentière, and at 5.55 A.M. reached the rocks S.W. of the Glacier des Améthystes. At 7.40, we took our second breakfast, hard by some water, after which we passed up the Glacier des Améthystes, and clambered up the couloir to the E. to the ridge, attaining the Col Supérieur du Tour Noir at 10.40. The time occupied in actual going up to this point was about 6 hrs. On the rocks in the couloir we found many crystals, and one of the guides picked up a large one on the glacier itself. On the col we built a small cairn, and prepared to descend the other side. At this juncture the weather, which had been threatening, began to give trouble. Fine snow fell, blocking the view. Mieulet's map, very good up to this point, was useless as a guide to the Swiss side. The guides knew nothing about what lay before us, and in that condition of the atmosphere were unwilling to try to get down; they were afraid they should be killed, they said. What was to be done? We could only go back again to Lognan. It was distinctly a disappointment.

In those days Kurz's map was not, and, as to the Swiss map, Chamonix did not sell it; for why? Had they not excellent French maps? And what could any one want with cartographical detail beyond the French frontier? All this to our disadvantage, as we lived to discover.

We agreed, however, to try again, but this time from the E.; so on August 22, starting from Lavancher at 4.30 A.M., we passed the Col du Chardonnet, and went down in a leisurely way to the Saleinaz hut, where we passed the night. The next morning, at 8.10 o'clock, we set out, mounted the little Glacier de l'Évole, S. of the cabane, and passed the Col de Planereuse, descending the rocks to the Glacier de Planereuse. Next we traversed this glacier in a south-westerly direction, neither ascending nor descending much, and crossed the ridge between the Planereuse and Darrei Glaciers, probably at a point just to the E. of the 'i' in the word 'Darrei,' on the Siegfried map. Crossing the head of the Darrei Glacier, we reached, about 1 P.M., the point on the Essettes ridge marked 3,124 m. on the Siegfried map. From this point we made a reconnaissance, arriving at the conclusion that the Col Supérieur du Tour Noir was perfectly 'franchissable,' and could be reached in about 4 hrs. from where we were. Clouds, however, came on, and as the day was so far advanced we had to descend to the La Neuvaz Glacier, and make our way to La Folly, whence we tramped to Lac Champex.

At the time I was not aware that the Essettes ridge had never before been crossed at any point, nor did I take particular notice of the point at which we crossed it. It was not till afterwards that I obtained this information, upon which the point 3,124 received the name 'Col des Essettes,' subsequently, for reasons given below, changed to 'Col Inférieur des Essettes.'

We should gladly have spent the night at the Neuvaz chalets, mentioned at p. ix of M. Kurz's 'Guide,' but we could hear nothing of Rosis, who is mentioned as offering a hospitable reception there, and who, we afterwards heard, had left for Orsières. Since then a comfortable little inn has been opened at the Chalets de Ferret, a much nearer point than Champex.

The following year, September 3, 1895, with Mr. A. E. Field and Onésime Crettex, of Champex, I made a fresh attempt to cross the Col Supérieur du Tour Noir. We began by walking from Champex up the Vallée d'Arpette and over the Col de la Broya to the Cabane d'Orny. Leaving that favourite rendezvous of the Swiss Alpine Club at 2.42 P.M., and going up the Glacier d'Orny, we passed *via* the Col des Plines and the Glacier des Plines to the Glacier de Saleinaz and the Cabane de Saleinaz, which we reached at 6.23 P.M. There was a splendid moon that night. I remember it rose at 9 P.M., behind the Petite Pointe de Planereuse, and it illuminated a landscape of still and magnificent whiteness, which the altitude of the hut (2,693.5 m.) set off to both the eye and the fancy. Then we turned in; but at 6.50 A.M. we were out again, with the purpose of endeavouring to repeat my route of the previous year, having in view the double object of identifying the exact locality of the Col des Essettes and of making another try for the Col Supérieur du Tour Noir.

We managed to keep fairly to the route, but on the Planereuse glacier found we had got too high, and lost a great deal of time in cutting down the ice-fall. At 9.34 we reached the ridge S. of this glacier. On the Darrei Glacier we again got too high, and lost more time in having to descend to the left. At 10.34 we halted for 35 min. at the foot of rocks to refresh the inner man. Looking for a place to cross the Essettes ridge, we saw the point 3,222 m. (Swiss map) at the head of a snow couloir. We ascended to this point and then recognised that we were making another new pass, which it would be necessary to distinguish in nomenclature from the point by which I had crossed the previous season.

Later in the day, from the La Neuvaz Glacier, I carefully scanned the Essettes ridge, and definitely decided that the Col des Essettes of last year was no other than the point 3,124 m. on the Swiss map. Henceforward, then, point 3,222 m. must be the Col Supérieur, and point 3,124 m. the Col Inférieur, des Essettes; and as such they appear accordingly on Kurz's new map, 'La Chaîne du Mont Blanc.'

On our way up the steep snow couloir leading to the pass, we looked back and saw a couple of chamois moving over the Darrei Glacier with remarkable rapidity, though they appeared not to be exerting themselves in any degree.

It was exactly mid-day when we arrived upon the ridge, and we only took twelve minutes to reconnoitre. Descending on the W. side by a short snow couloir and steep scree, we touched the Glacier de la Neuvaz at 12.34, afterwards pushing up its slopes towards the Col Supérieur du Tour Noir. After a time we found ourselves amongst a number of very wide and profound crevasses, which that year had lost their snow bridges owing to the long spell of hot dry weather. We made some progress by circumventing a few of these, but at 1.54 were brought to a halt by a huge *rimaie*, stretching right across the glacier. There was no help for it. We were fairly beaten, and for the third time I turned my back discomfited on the Col Supérieur du Tour Noir.

We descended the glacier to the Val Ferret, going down by some grass slopes on the left bank of the glacier and then by the terminal moraine, on which there is one enormous boulder, the size of a cottage, over which it is necessary to climb. At last (7.30 P.M.) we reached the Chalets de Ferret, and stayed the night at the inn there.

Was I always to be baffled by this tiresome pass? It looked like it, for though I was not in the district in 1896, I went back in 1897 and waited two days in pouring rain at Orsières, at the end of which time, the weather showing no improvement, I was obliged to leave and abandon all hope for that season.

This year I determined to make one more attempt, profiting by the experience of the past. Having secured Onésime Crettex once more, with his brother-in-law, Julien Rosis, for a porter, leaving Orsières on August 2, in very hot weather, I went up leisurely to the Saleinaz hut. On the way up we grew very thirsty, but after a long search for water had to go without. As we approached the hut we saw the Swiss flag flying, and found a party from Neuchâtel in possession. They turned out to be very pleasant companions, and we

found that they were making the hut their headquarters for several ascents in the neighbourhood.

The weather being fairly good we resolved on an early start. I think, on the previous occasions, if we had started earlier we should have done better. We got under way at 3.15 A.M., pushing on to the upper part of the Saleinaz Glacier, which we found much crevassed, and the snow bridges soft. Several times a foot went in and emphasised the call for care. Our plan was to cross the ridge between the Saleinaz and La Neuvaz Glaciers by the Col de la Neuvaz, a plan possessing the double advantage over the previous route *via* the Essettes, that it would only be necessary to cross one ridge instead of three, and also that we should be landed at the very head of the La Neuvaz Glacier, above the crevasses which had proved impassable in 1895, and at the very foot of the final slope to the Col Supérieur du Tour Noir.

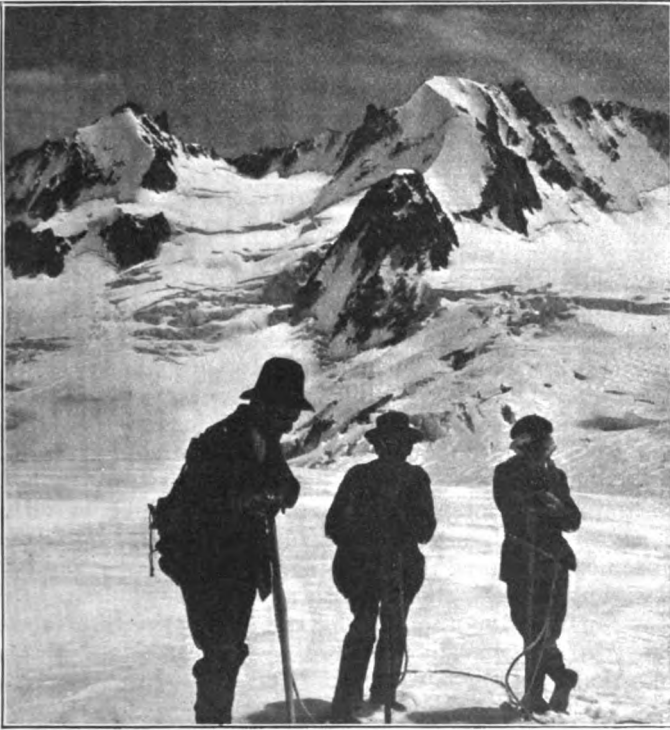
After 2½ hours' work we halted for a second breakfast on the upper snows, immediately below the Col de la Neuvaz. Resuming about 6 A.M., we crossed the bergschrund and cut our way up the ice wall, making holds for the hand as well as steps for the feet. This portion of the ascent was rather difficult and called for steadiness. We reached the pass at about 7.30 A.M., when the La Neuvaz Glacier came into view, and, without halting, descended on the S. side to the head of the glacier. Here the map came out and revealed that a steep slope of snow, broken with rocks, immediately above us to the W., would conduct us directly to the Col Supérieur du Tour Noir. This slope we at once attacked, and, as the snow was new-fallen, had to trample steps in it, and at each step sank in to the knees, which rendered progress remarkably slow. After about an hour of this sport we came to some rocks and found variety charming. A little rest was now permissible, and I should like to say how much we enjoyed the view, but unfortunately the clouds had come on and the prospect was limited to a few feet. However, we found as many crystals on this side of the ridge as I had found on the W. side in 1894. By strict attention to business we at last reached the pass at 10.10 A.M., shook hands all round and exchanged congratulations. The next thing, of course, was lunch. Opening the sack, we produced one of Silver's mess tins of Irish stew, the best kind for choice, so far as I am acquainted with these articles. The next step was to cook it. Now at 12,000 ft. spirit does not burn very vigorously and therefore we did not get this viand very hot. Also the vegetables in the stew did seem to bear an unusually high proportion to the meat.

Still, luncheon is luncheon, and we were too well content with our success to be particular. Comparing the surroundings with my mental impression of the same spot in 1894, I found they corresponded very well. This, of course, chiefly speaks to my recollection, as I could hardly have laid the blame on the pass if it had differed from my impressions. Having properly drunk its health, as if it had been a peak, I began to look at the mountains of Savoy. Crettex asked whether I wished to descend on that side, but having done this on the former occasion, I considered that I did not owe the pass anything; and being desirous of getting back to Orsières in order to leave for home the following day, I contented myself on this occasion with looking down the couloir leading to the Glacier des Améthystes, and sending down a few stones by way of revenge for the trouble I had had in attaining my purpose.

All's well that ends well, but these pleasant moments must come to an end. Fifty minutes is as much as we can spare for this sort of enjoyment. Leaving our col at 11 A.M., we descended in our own tracks to the upper snows of the La Neuvaz Glacier. Here the question arose by what route we were to return to the hut. The choice lay apparently between the Col de la Neuvaz, by which we had come, and that of the Grande Luis. Partly on the principle *vestigia nulla retrorsum*, and partly as I did not feel particularly enamoured of the idea of descending the ice-wall by which we had come up the Col de la Neuvaz, I rejected that way back. Besides, the Col de la Grande Luis had the advantage of novelty, and accordingly we turned our steps in that direction, eastward of the peak of the Grande Luis.

We were not, however, destined to cross the ridge by this col. Crettex, wishing, I think, to give me a surprise, struck up a couloir W. of it, and after a good scramble, at about 12.30, we attained a col just to the E. of the peak of the Grande Luis, and till then uncrossed. The height we estimated as about the same as that of the Col de la Grande Luis, marked on Kurz's map 3,379 m., or 11,086 ft. At the top there was a pool of clear water, frozen over, and we broke through the surface-ice to get a drink. We could now see down the other side, and became aware that from this point an exceedingly steep slope of snow goes down towards the Saleinaz Glacier. Down this we peered anxiously to see whether we could descend in safety. At first this certainly seemed doubtful, but presently Crettex declared that we could do it *facilement*, and we prepared to try. The slope was

covered with soft new-fallen snow and we were obliged to adopt the backward descent, a method of progress not, so far as my experience goes, frequently required in the Alps. Turning our faces to the mountain and making handholds in the snow to steady, and partly support, ourselves, we proceeded to kick steps down backwards, at the same time driving the axes in vertically with the right hand to afford additional hold. The process was hardly to be called easy, *pace* Crettex,



THE GRANDE LUIS AND COL DE SALEINAZ FROM THE N.

for each step had to be taken with extreme caution; but by distributing the weight over as many points of contact as possible and moving gradually downwards, we avoided breaking away the snow and worked down to the upper lip of the bergschrund. We had to jump the schrund on to the soft snow below, and below this the gradient was generally easier and we were able to glissade; from time to time, however, we met with rocks, negotiable with circumspection.

After this we kept along under the ridge in an easterly direction, and by glacier, snow, and rocks, made our way back to the cabane, arriving at 3.30 P.M.—12½ hrs. from the start. In the hut I found my dry clothes, which I donned with much satisfaction, and, it now being time for afternoon tea, there followed a meal and some rest. Our Neuchâtel friends and their guide had returned from their climbing and exchanged friendly accounts with us of the day's work. They were vigorously plying the camera upon one another, and seemed to extract great amusement from the process.

A little later we set out for the descent to Orsières. Below the snout of the glacier we noticed the wooden trough, extending far down into the valley, by which ice for commercial purposes is conveyed to a small dépôt. At Praz de Fort, the point at which the Saleinaz valley joins the main Val Ferret, we called upon M. Louis Kurz, who received us hospitably and offered congratulations upon our two 'first ascents.' I was glad to hear the views of so great an authority upon this chain in reference to the second new col, which he remarked had previously been looked upon as impassable. Since then I have consulted him as to the name of this pass, which I propose to call the 'Col de Saleinaz,' and I am glad to possess his entire concurrence in this name. After a pleasant half-hour with him we resumed our way, and reached Orsières at 9 P.M., ready for supper and a good sleep before my departure for England the following day.

I attribute much of our success to Crettex, who led admirably, and, though the entire expedition was as new to him as to myself, never hesitated. On former occasions I have sometimes failed through the ignorance or timidity of guides, but Crettex showed both pluck and resource. He is a young married man, and I think has a good future before him. I parted from him and Rosis with regrets and pleasant recollections, hoping to come back and employ them again.

THE AIGUILLE DE TRÉLATÈTE.

BY ALFRED HOLMES.

EARLY in July last year I made some ascents in the Dolomites with Mr. E. J. Mazzuchi, and when he left me in the middle of that month we agreed to meet at Courmayeur later on, and climb the Aiguille de Trélatète together. In accordance with this arrangement I arrived at Courmayeur on July 27. There was a severe thunderstorm

A. du Glacier.

A. de l'Allée Blanche.



Alfred Holmes, photo.

GLACIER DE L'ALLÉE BLANCHE.

Suon Electric Engraving Co.

on the way up, soon after leaving Aosta, and the two or three days following were fine but cloudy, so, as our expedition was partly a photographic one, we had to wait for a clearer sky.

Courmayeur has now become quite a fashionable centre, but appears to be declining as a climbing one, and although the 'Royal' has been enlarged and a spacious ball-room added, there is in August considerable difficulty in securing rooms there. Possibly this may be the reason that Courmayeur is a distinctly dearer place than it used to be.

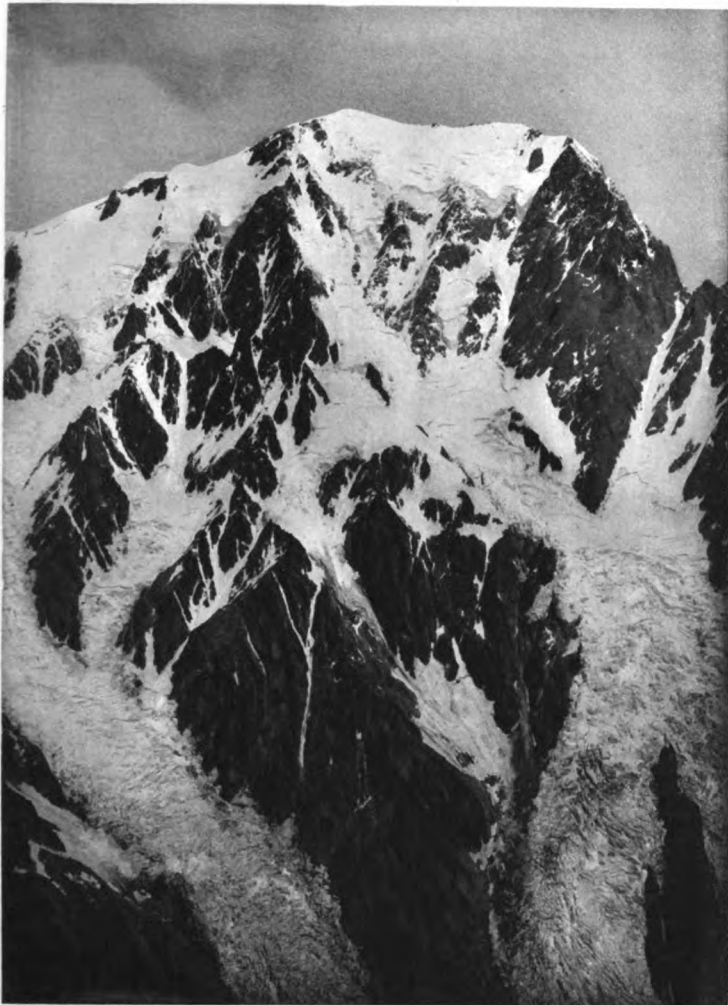
On the 30th the weather improved, and we should have gone off that afternoon, but, unfortunately, religious reasons prevented us. Next day, however, Mazzuchi and I, with César Ollier and a porter, left in the afternoon, and in rather less than 4 hrs.' easy walking arrived at the lower Allée Blanche chalets, where we proposed passing the night. Unfortunately, when we arrived there we found the door of the chalet set apart for climbers locked, and the proprietor at the higher chalets some distance away. We sent off the porter for the key and some milk, and then we had a weary wait of nearly 2 hrs. in a very cold wind before he returned. We found the chalet very clean and roomy; it contained two large beds, covered with linen sheets and blankets, and a good stove with all necessary cooking apparatus. For a pail of milk and the use of the chalet we were only charged 10 lire for the party. We passed a very comfortable, though somewhat short, night—Mazzuchi and I in one bed, the guides in the other.

The route now followed in the ascent of the Trélatête is different to that in use in the early ascents of the peak, and, so far as I can discover, is not mentioned in Kurz, and has never been described in this 'Journal;' and, as we were fortunate enough to find a new, easier, and much quicker way down, an account of our journey, I am told, may possibly be of interest.

We left the chalet next day (August 1) at 2.20 A.M. by a well-marked footpath, which led us, after crossing a torrent, to the E. moraine of the Glacier d'Estellette. After proceeding along this for a few minutes we turned to the right up a broad couloir, full of scree and snow-patches, to a col without a name immediately to the N. of the Aiguille d'Estellette, arriving there at 4.10. This col might conveniently be styled Col d'Estellette. We saw traces of chamois on the Estellette, and Ollier informed us that one morning some weeks before he had shot three from this col.

After a stay of 20 min. we descended a rather steep snow-slope, and in 10 min. reached the Glacier de l'Allée Blanche; this we, going in a E.N.E. direction towards the Petit Mont Blanc, crossed above the lower icefall. When near the foot of this peak we halted 20 min. for breakfast. At 5.50 we addressed ourselves to finding a way through an immense system of some of the finest séracs I have ever seen. The accompanying illustration will give some idea of their size and splendour. For about an hour we went fairly well and without much difficulty; then progress was stopped by enormous ice-cliffs. Ollier went off to prospect, and returned in a few minutes with the report that there was no possible way out in front. We then examined the rocks on the left bank, which come down from the lowest and most southerly point of the Trélatête. These rocks for 18 or 20 ft. were quite smooth, and we were separated from them by a gulf. A sérac, however, offered us a means of getting out of our difficulty, for by mounting it we were able, after a rather sensational jump, to reach a small recess in the rocks just above the smooth part. From here the rocks, though steep, were easy. They brought us out into a bay at the foot of a couloir which comes down from the S. and middle points of the Trélatête. Here we halted from 8.15 to 8.55, then, taking a wide sweep in order to avoid the rocks at the base of the middle point of the Trélatête, we walked up easy snow-slopes towards the Col de Trélatête as far as the beginning of the rocks which form its eastern side. We then turned E. up a steep snow-slope, crossed a bergschrund with some little difficulty, and gained the above-mentioned rock ridge at 10.5. This was followed for about half an hour, and was succeeded by snow, and then rocks again. The rocks, which were nowhere difficult, were climbed either on the ridge or the S. side. The top was reached at 11.45. The summit was a rather narrow ridge of rock partly covered with snow, with a cornice overhanging the Miage Glacier. It was not at all a comfortable place from which to take photographs. A thin haze creeping up the Miage Glacier warned us that if we wanted to get any pictures work must begin at once. The view of the western face of Mont Blanc was most impressive: it is not often that one has the privilege of seeing a precipitous face of rock and ice of between 7,000 and 8,000 ft. The illustration which faces this page shows the most imposing part of what we saw. The distant view was obscured by haze.

We commenced the descent at 12.45 P.M., and followed the



Alfred Holmes, photo.

Swiss, Electric Engineering Co.

*Mont Blanc
from the A. de Tignes.*

same route as in the ascent as far as the plateau immediately below the bergschrund, arriving there at 1.50. From here we decided to try a new way down. We left the morning's route, and going in a south-westerly direction descended gently sloping snow to some rocks, which cut across the glacier from the Aiguille de l'Allée Blanche to the icefall at the base of the S. point of the Trélatête. We descended these easy rocks by the middle couloir to the glacier below. Still going S.W. over easy glacier, with a crevasse here and there, which were turned without difficulty, we made for a prominent col in the ridge between the Aiguille du Glacier and the Estellette. On arriving there we found that the couloir leading down to the Estellette Glacier did not look at all inviting. Its descent would necessitate some step-cutting, and half-way there was what looked like a precipice. We then walked up to the ridge (only a few feet) to inspect the rocks of the Estellette, and as these looked easy we decided to traverse round by them to the unnamed col we had left early in the morning. We found no difficulty whatever in doing this, and arrived on the col at 3.15. The Allée Blanche chalets were reached at 4 P.M.

Ollier was greatly pleased with the new route, as he thought the shortening of the ascent by about 2 hrs. would be an inducement to visitors at Courmayeur to climb the Trélatête for the sake of the magnificent view. For our own part, we were thoroughly satisfied with the climb, and can confidently recommend it to future travellers.

A NEW MOUNTAIN ANEROID BAROMETER.

(Reprinted, with corrections, from the 'Times,' December 17, 1898.)

29 Ludgate Hill, London : December 9, 1898.

SIR,—Mr. Murray published in 1891 a pamphlet [*'How to Use the Aneroid Barometer,'* 8vo., pp. 61, John Murray, Albemarle Street, London], which gave some of the results that had been obtained from numerous comparisons of the Aneroid against the Mercurial Barometer, made by me between the years 1879 and 1890. The earlier of these comparisons were made out of doors up to a height exceeding 20,000 feet; and the later ones were made in the workshop down to a pressure of 14 inches, which is about what one may expect to experience at the height of 20,770 feet above the sea.

These comparisons, or experiments, brought out certain

facts. It was found that all aneroids which were tested, upon being submitted to diminution in atmospheric pressure, lost upon the mercurial barometer. It was found, if an aneroid was placed under the receiver of an air-pump (having a mercurial barometer attached, in such a way that one could cause simultaneous reduction in pressure for both barometers), that, although the aneroid might for a moment read truly against the mercurial when pressure was reduced, say, to 20 inches, it would in a very short time read *lower* than it. It was found that this loss augmented constantly, and that in a single day, under a constant pressure of 20 inches, it might grow to half an inch and even more; and that the loss always continued to augment for several weeks, sometimes so long as seven or eight weeks. The lower the pressure, and the greater the length of time the diminution in pressure was experienced, the greater was the loss in any individual aneroid.

It was found also that aneroids commenced to recover this loss immediately pressure was restored; no matter whether it was restored entirely and suddenly, or gradually and partially as it is when a traveller is coming downhill; and that in course of time after return to the level of the sea (or if kept artificially at a pressure of 30 inches or thereabouts) an aneroid might recover all its previous loss, even although it might have experienced very low pressures, and been kept at such pressures for months at a time. Hence, in consequence of the *loss*, Travellers or Surveyors may be led to very much exaggerate their altitudes (unless they carry some standard for comparison which will enable them to determine the errors of their aneroids on the spot); and in consequence of the *recovery* they may be led to believe, on return to the level of the sea, that their aneroids have been working well and truly, although they may have, as a matter of fact, been doing quite the reverse.

The publication of these results led to improvements in the manufacture of the Aneroid, and *some* instruments of the best class which have been constructed in late years show a distinct advance in accuracy; but it is clear, from references which have been made quite recently by Travellers to their aneroids, that there are *others* which are still a long way from perfection. Mr. E. A. FitzGerald, for example, says in the 'Geographical Journal,' November 1897, 'Our aneroids played us some very curious tricks. One of them, on being taken to the height of 19,000 feet, registered 12 inches'—that is to say, it indicated an altitude of about 25,000 feet, and was about

30 per cent. in error. This is several degrees worse than the behaviour of the instrument which was employed by Mr. J. Thomson during his journey in Morocco in 1888, though even *his* aneroid is said to have made his life a burden to him. One can well believe it did all that was imputed to it; for after Mr. Thomson's return, when it was tested under the air pump at a pressure corresponding to a little lower than the height of Mont Blanc, upon being kept a week at that pressure, it acquired an error of -1.267 inch, the value of which amount, at the altitude in question, exceeds 2,000 feet.

Manufacturers have endeavoured to tackle the difficulty in one way, and inventors have approached it in another. The former have attempted to abolish the fundamental cause of error, and the latter see that aneroids can be rendered of greater service in the measurement of altitudes by shortening the length of time that they need be exposed to the influence of the atmosphere. The most recent experimental Aneroid which has been constructed with this view is the invention of Col. H. Watkin, C.B., Chief Inspector of Position-Finding in the War Department.

In introducing it, Col. Watkin said in effect, though not in these words, 'You point out that all aneroids lose upon the mercurial barometer when submitted to a diminution of pressure; that this loss is large when pressure is much diminished; and that the loss continues to augment for several weeks. It is, you say, apparent that the *extent* of the loss which will occur in any aneroid upon the mercurial barometer on being submitted to a diminution in pressure depends (1) upon the duration of time it may be submitted to diminished pressure, and (2) upon the amount of the diminution in pressure; and that it follows that the errors which will be manifested by any particular aneroid will be greatest when it is submitted to very low pressures for long periods. Accepting this as a correct statement of facts, I propose to construct an Aneroid Barometer that can be put in action when required, and 'put out of gear' or 'thrown out of action' when it is not wanted for use; and I propose to construct it in such a way that it shall not be exposed to the influence of variations in atmospheric pressure when it is *out* of action—in short, that no variations in atmospheric pressure, however large they may be, shall produce any effect upon it except at the time when it is put in action for the purpose of taking a reading.' The following description, supplied by Col. Watkin, explains the manner in which this is done:—

'In order to relieve the strain on the mechanism of the

Aneroid, and only permit of its being put into action when a reading is required, the lower portion of the vacuum-box, instead of being a fixture (as is the case with ordinary instruments), is allowed to rise. Without entering into details of construction, this is effected generally by attaching to the lower portion of the vacuum-box a screw arrangement, actuated by a fly nut on the outside of the case. Under ordinary conditions this screw is released, and the vacuum-box put out of strain. When a reading is required, the fly nut is screwed up as far as it will go, thus bringing the instrument into the normal condition in which it was graduated.'

At first mention this idea did not appear promising, as it seemed that, however quickly an observation might be made, the aneroid would be losing upon the mercurial all the time that the reading was being taken; that when the aneroid should be thrown out of action, this loss would be shut up; and that when readings should be taken on succeeding occasions the loss which would occur during them would accumulate; and that this would go on until at length the error would become almost or quite as serious as in an ordinary aneroid. I was, however, very urgently required to give the instrument a fair trial in the field; and after satisfying myself that, when thrown out of action, it was not affected by variations in atmospheric pressure (amongst other ways by keeping it for six weeks under a receiver in which pressure was maintained constantly at 17 inches), I commenced to compare it against the mercurial barometer in Switzerland in last September, having intentionally refrained from taking a reading for six weeks further, after it was released from the air pump, in order to obtain confirmation of the opinion that it was, when thrown out of action, actually impervious to the influence of variations in atmospheric pressure.

I commenced these comparisons at Zermatt on September 3 [the height of Zermatt, according to the Swiss Federal Survey, is 5,315 feet], and between the 3rd and the 8th took twenty-one readings—that is to say the aneroid was put in action and was thrown out of action twenty-one times in the above-mentioned period. I was interested to observe whether the accumulation of loss would take place. It did occur, but the total amount was small. The aneroid had a plus error of 0.122 of an inch the first time it was used, and this was reduced to +0.069 of an inch at the last reading. Thus there was, on an average,

a loss of 0.00252 (or $\frac{353}{100000}$) of an inch on each occasion that a reading was taken.

On September 9 I carried the barometers to the top of the Gornergrat, but diverged from the way up to the summit of a minor peak called Gugel [S. F. Survey, 8,882 ft.]. The error of the aneroid at Zermatt at the last reading was +0.069 of an inch, and on the top of Gugel it was +0.057, or $\frac{57}{1000}$ of an inch. The difference of level between the stations, it will be seen, was 3,567 ft.

From the top of Gugel I came down for lunch to the hotel called the Riffelhaus [S. F. Survey, 8,429 ft.], and there the error of the aneroid was +0.041 of an inch.

From the Riffelhaus I went to the top of the Gornergrat [S. F. Survey, 10,289 ft.], and at 4.20 p.m. the error of the aneroid appeared to be -0.052 of an inch. The readings were—

Merc. Bar. in.	Temp. in shade	Correction for temp. in.	Merc. Bar. red. to 32° F. in.	Aneroid. in.	Error of Aneroid. in.
20.923	55.5°	-0.051	20.872	20.820	-0.052

I was not satisfied with this comparison. The sun's rays had been piercingly hot during the ascent, and the mercurial barometer had been unavoidably exposed to them. When set up in the shade its sensitive attached thermometer speedily took up the temperature of the air. It fell to 55.5° F., and would not fall lower. But the mercury in the barometer continued to fall long afterwards, because it was not cooled down to the temperature of the air. It is not improbable that the temperature of the mercury in the barometer was as high as 75° F. at the time it was read. Assuming that this was the case, the following would be the correct comparison :—

Merc. Bar. in.	Temp. of Mercury	Correction for temp. in.	Merc. Bar. red. to 32° F. in.	Aneroid in.	Error of Aneroid. in.
20.923	75°	-0.087	20.836	20.820	-0.016

On my return to Zermatt, after a descent of 4,974 ft., I was curious to observe what alteration there would be in the error of the aneroid. At the last reading prior to starting it had been +0.069 of an inch, and at the first one taken after the return it was precisely the same! More astonishing than this, the mean of eight readings taken on the four following days (September 10 to 13) came out +0.068 of an inch.

On September 13 I went again to the Gornergrat, and between 12 and 3 read the barometer three times. The following figures show the means of the three readings :—

Merc. Bar. in.	Temp. in shade	Correction for temp. in.	Merc. Bar. red. to 32° F. in.	Aneroid. in.	Error of Aneroid. in.
20.780	56° F.	-0.052	20.729	20.717	-0.012

This supported the opinion that the reading on September 9 was taken too soon, and that the temperature indicated by the attached thermometer was lower than the temperature of the mercury in the barometer. The mean of two comparisons at Zermatt after this second visit to the Gornergrat gave, as the error of the aneroid, $+0.030$ of an inch.

I then went down the Valley of Zermatt, and stopped successively for several days at each of the three villages Randa, St. Nicholas, and Visp. At Randa [S. F. Survey, 4,741 ft.] I made six comparisons on three days, and the mean error of the aneroid came out 0.000 . At St. Nicholas [S. F. Survey, 3,678 ft.] I took five readings on three days, and the mean error was -0.019 of an inch; and at Visp [S. F. Survey, 2,165 ft.] I took three readings on two days, and the mean error was -0.006 .

I then thought it would be well to submit the aneroid to a sharp and sudden diminution in pressure, and took the train back to Zermatt to see what would happen through a rise of 3,150 ft. made in 2 hrs. 20 min. At the last reading at Visp the error was -0.002 of an inch, and at Zermatt I found it was $+0.011$. On return to Visp the mean error of five comparisons made on three days was $+0.017$ of an inch; at Sierre [S. F. Survey, 1,765 ft.] five readings on four days showed a mean error of -0.010 , and the mean error of the last two comparisons, made at Geneva [S. F. Survey, 1,227 ft.], amounted to -0.030 of an inch. From September 9 to October 17 the aneroid was put in action forty-four times, and its loss upon the mercurial in that time amounted to 0.099 of an inch. A plus error of 0.069 of an inch at Zermatt was changed into a minus one of 0.030 of an inch at Geneva. This was equivalent to a loss of 0.00225 (or $\frac{2.25}{1000.000}$) of an inch on each occasion that it was used.

The remarkable nature of these figures will be apparent to any one who has acquaintance with the barometer, and especially to those who have used aneroid barometers in the field. Upon two occasions Col. Watkin's instrument read so truly against the mercurial that I was unable to detect any discrepancy between the two instruments. At Randa, the mean of six readings gave as a result *no* error. Stress need not be laid upon these happy agreements. It is more to the purpose to draw attention to column G in the following table. If the eye is run down that column, and neglects the hundredths and thousandths of an inch, it will be seen that it reads 0.0 from first to last! Better results might have been attained, and I believe would have been attained, if the readings had

been taken with greater rapidity. Attention must be paid to two points when employing this instrument. The first is to

A Place of Observation	B Date, 1898	C Altitude		D Merc. Bar. reduced to 32° F.	E Watkin's Mountain Aneroid	F Number of Obser- vations	G Mean error of Aneroid
		ft.	in.	in.	in.		
Zermatt . . .	Sept. 3-8	5,315	25·006	25·006	21	+ 0·090	
Top of Gugel . . .	" 9	8,882	21·963	22·020	1	+ 0·057	
Riffelhaus . . .	" "	8,429	22·319	22·360	1	+ 0·041	
Top of Gornergrat . . .	" "	10,289	20·872?	20·820	1	- 0·052?	
Zermatt . . .	" 10-13	5,315	24·912	24·980	8	+ 0·068	
Top of Gornergrat . . .	" 13	10,289	20·729	20·717	3	- 0·012	
Zermatt . . .	" 13-14	5,315	24·917	24·947	2	+ 0·030	
Randa . . .	" 15-17	4,741	25·687	25·687	6	0·000	
St. Nicholas . . .	" 17-22	3,678	26·443	26·424	5	- 0·019	
Visp . . .	" 23-29	2,165	27·726	27·720	3	- 0·006	
Zermatt . . .	" 30	5,315	24·475	24·492	2	+ 0·017	
Visp . . .	Oct. 4-7	2,165	27·890	27·907	5	+ 0·017	
Sierre . . .	" 9-12	1,765	28·131	28·121	5	- 0·010	
Geneva . . .	" 13, 17	1,227	28·332	28·302	2	- 0·030	

keep it constantly shut off from the influence of the atmosphere, except at the times when readings are to be taken; and the second is to take the readings as quickly as possible.

Finally, I feel confident that, in the hands of those who will give the requisite attention, extraordinary results may be obtained from Watkin's mountain aneroid in observations made for altitude, and in determining differences of level.

The comparisons were made against a Mountain Mercurial Barometer, Fortin principle, which was graduated to read on the vernier to $\frac{1}{500}$ of an inch, and by estimation could be read to $\frac{1}{1000}$. Before starting in July this Barometer was compared against its Maker's Standard, and it was found to have no error. On return in October it was again examined and compared, and it was found that it had not taken in any air.

The aneroid which was observed was $4\frac{1}{2}$ in. in diameter, and was divided to 0·05 of an inch. Its scale ranged from 31 to 17 in., and it weighed, when in its leather sling case, $2\frac{1}{2}$ lbs. It was made by Mr. J. J. Hicks, 8 Hatton Garden. Aneroids of this type will be called Watkin's Mountain Aneroids, as they are especially devised for mountain travellers and for survey work amongst mountains.

I am, Sir, your obedient servant,

EDWARD WHYMPER.

THE FUSSHÖRNER.

BY THE EDITOR.

GREAT to the rock-climber are the attractions of the Fusshörner. Their haughty challenge rouses him even when at Brieg, and from the Bel Alp bids him close with them at once; for who, looking upon peaks in form so shapely, in steepness so uncompromising, in boldness so defiant, in proximity so inviting, can hesitate to deliver his assault at the earliest possible moment? In 1894 bad weather prevented me from completing the ascent of one of their unclimbed peaks, but last summer I enjoyed the happiness of success. I purpose to relate briefly the history of the group so far as I have been able to learn it, and then to give a short account of last year's climb.

(1) The highest peak of the Fusshörner group, called Rothhorn (3,701 m.) on the Siegfried map, was first ascended on August 28, 1871, from the Triest glacier by Mr. Coolidge, Miss Brevoort, and Mr. S. P. Cockerell, with the dog Tschingel.*

(2) The second peak (3,628 m.) (Siegfried) fell on September 21, 1876, to Miss Brevoort and Mr. W. Little. 'This is the peak which is so conspicuous from the Bel Alp Inn, as apparently the culminating point of the great rock wall of the Fusshörner.' †

(4) The next apparently highest point, resembling a blunt spear, is well seen from the terrace behind the hotel at the Bel Alp, and was ascended by Messrs. J., C., E., and J. G. Hopkinson on September 6, 1895. ‡

(3) A higher point between this peak and the peak marked on the Siegfried map (3,628 m.) was conquered on July 13, 1896, by Messrs. C. Pilkington, W. C. Slingsby, E. Carr, and G. A. Solly.§

(5) Finally, the highest point between Messrs. Hopkinsons' peak and the Bel Alp end of the Fusshörner ridge was vanquished on August 17, 1898, by the present writer and Mr. G. G. Yeld, called hereafter M. Georges.

These climbs are *arranged* in chronological order, but are *numbered* from the Rothhorn to the Bel Alp end of the group. I have not thought it necessary to give here all the recorded ascents.

* *Alpine Journal*, vol. v. p. 276, and xiii. p. 268.

† *Ibid.* pp. 268-9.

‡ *Ibid.* vol. xvii. p. 588.

§ *Ibid.* vol. xviii. p. 408.

Tompest Anderson, Photo.

THE FISCHHÖRNER FROM THE S.W.

Chas. R. H. Pickard, Photo Engineer.



ROTHHORN
3701 m.

3628 m.

(PILKINGTON)
(HOPKINSON)

(YELD)

3106 m. ?

Pickard, Leeds

For another ascent of No. 1 the reader is referred to 'Alpine Journal,' vol. xvii. p. 588, and of No. 2 to 'Alpine Journal,' vol. xiii. p. 269. An unsuccessful attempt of the present writer's will be found in 'Alpine Journal,' vol. xvii. p. 360.

On August 17, 1898, my son and I, with François and Sylvain Pession, started from the Bel Alp Hôtel for the point of the Fusshörner which we had chosen. I may say that we found it difficult when immediately under the peaks to tell which was which, and if I had not carefully noted a certain sharp rock by which to make sure of the wished-for summit, I believe we should have made a mistake. I came to the conclusion that Lord and I, in 1894, had been driven back by the storm, not from the peak which fell to me in 1898, but from another lower point nearer the Bel Alp end of the range. To put it briefly, we made for the great cut in the ridge to the left hand (in ascending) of our peak.

At the foot of the gaunt precipices of the Fusshörner immediately above the Ober Aletsch glacier, where the ordinary tourist would hardly venture, and where he would certainly not expect to find before his eyes in varied abundance flowers, exquisite in form, fragrance, and colouring, we came upon a natural rock garden such as wealth and skill combined could hardly hope to imitate, though the combination of the two has accomplished much marvellous work in England. I have resolved, like many another climber who loves the Alpine flora, not to disclose where the loveliest blossoms of the Alps are to be found—not, that is, to reveal with local details their actual habitats. The arrival of the pseudo plant-preserver, whose words are softer than butter, and whose heart longs for sacks full of *Eritrichium nanum*, has dealt doom to many a colony of the rarest children of the mountains. But here I feel on safe ground. Here *Gentiana acaulis*, *Viola alpina*, *Ranunculus glacialis*, *Androsace chamaejasme*, *Lloydia serotina** flourish in their rocky fastnesses. Here the mountaineer and the flower-lover may find them in their chosen homes; but there is some satisfaction in the thought that the plant-harrier, if he climbs high enough, is not unlikely—well, to bring his plant-harrying to a close.

As I said before, we, roughly speaking, made straight for the great gap to the left of our peak. One gully, probably the largest on this side of the mountain, caused François some anxiety, for it was evident that stones came down it

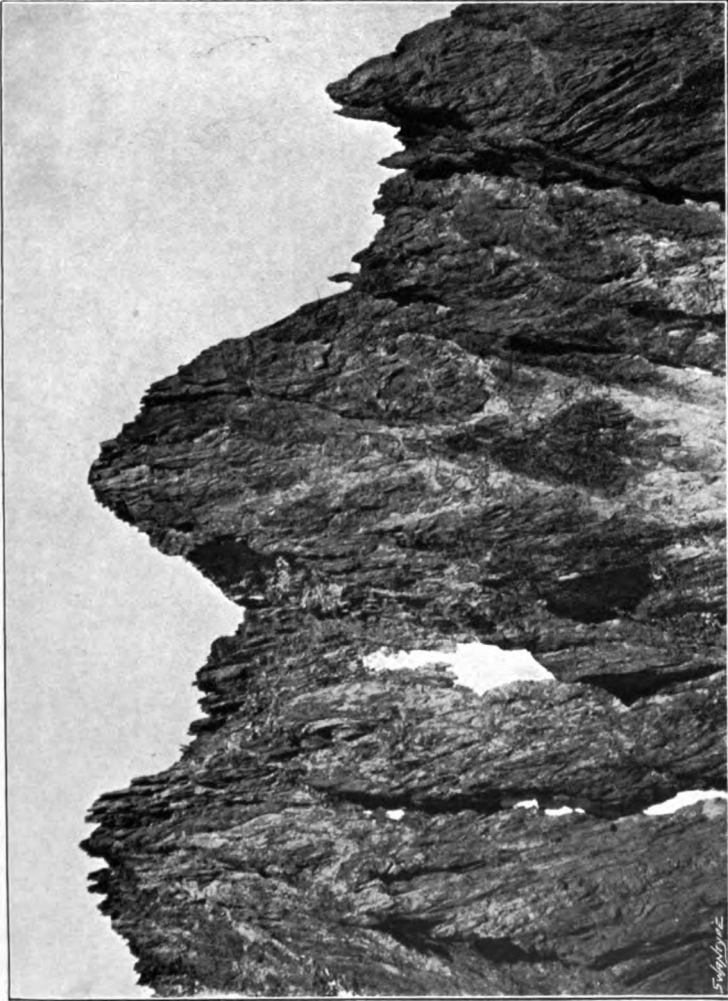
* These plants were in flower.

with great velocity, though at that time in the morning and in such good weather it was no doubt reasonably safe. We lost no time in crossing it. Much higher up, when we were on a ridge by the side of it, having repassed it below, I saw distinctly marks where stones had fallen into it. It was altogether an evil-looking spot. I doubt whether a party in the gully at this point could have escaped these stones had they fallen when the whole party were in the bed of the gully. Wrath flashed in François's eyes, for, though no party could possibly have been better led than ours, it confirmed his distrust of the gully which he had expressed lower down, and he is always indignant that any of his Messieurs should have been in danger from falling stones. The marks were certainly recent. There was a gruesome precision of detail about them that left no doubt on that point. They turned the scale as to choice of route. We might have climbed to our right; we could certainly have forced a way for some distance into a hollow under the main ridge of our peak; but what we should have met with at the back of the rocks in this hollow was a matter of conjecture. To follow this line we should have had to risk the gully again. To that François was decidedly opposed, and with very good reason; so was I. We therefore continued along our little *arête*, and, keeping to the left, reached the great cut in the ridge of our peak which shows so plainly from the terrace behind the Bel Alp Hôtel.

To get to the ridge from the gap we had to climb to the right, not directly from gap to ridge, but up a very steep edge of rock on our right. Just above this spot we saw a very fat mouse. The climbing here was arduous, but François skilfully overcame its difficulties and we followed—a much easier matter. Once on the ridge of our peak the view became more suggestive. On the Ober Aletsch side the wall was steep enough in all conscience, but it was nothing to the precipice that flanked the Triest glacier. A more hopeless cliff than this I have never looked upon. Had it been cut by machinery it could hardly have been more completely vertical. I looked down between my legs and saw straight to the Triest glacier. It was most impressive. But the grim precipice, with its gaunt and splintered pinnacles of rock, only increased our enjoyment, for the climbing here was such as the mountaineer desires. The difficulties were those which skill and experience could fairly face and conquer: astride a knife-edge of rock, with one leg over a sheer precipice and the other over no mean imitation of one—we enjoyed a combina-

Pitkin's Peak.

Hopkinson's Peak.



Tempest - Anderson, photo.

FUSSHÖRNER.

Swan Electric Engraving Co.

tion of the pleasure of climbing and delight in the noble scenery such as could not easily be surpassed.

I had doubts of our success several times, but François's skill dissipated them. I can see him still, with a smile on his face, looking down on us from some formidable tower or sharp edge of rock. That smile he always wears when the work is hard.

At last we had gained a point where nothing but one great tower remained between us and the top. As I examined this tower my hopes fell. It hung over slightly towards us, and the first rock to the left on the way up it was loose, and would not do to trust to. There seemed no way round it. 'Now, how are you going to climb that?' inquired the neophyte. 'Let him have time to examine it,' I replied. 'It certainly seems formidable; but if man can circumvent it, François can.' Sylvain now came up, and the tide of patois was in full flood. I meantime was not altogether unable to interpret. 'They will probably fix one of the ropes over that cut in the top of the tower.' Our second rope of 100 ft. had already been employed; tied to the new one of 80 ft., it had enabled me to keep a hold on François in a difficult spot which he had just negotiated. Sylvain took it, gathered it in his hand very carefully, and threw it with great skill just where it was wanted. I never saw a rope pay itself out so regularly. When I was afterwards complimenting Sylvain on his dexterity he said, 'Oh, when I was on the stone-boat on the Lake of Geneva I learned how to throw a rope a distance of fifteen mètres when we were coming to the quay.'

The rope once in position, François's strong limbs soon raised him to the top of the tower, and the rest of the party followed. Only a few steps now separated us from the actual summit. Eagerly we pressed on, and another of the unascended Fusshörner lost his claim to that adjective. The ascent had taken between six and seven hours.

It had been a thoroughly enjoyable climb. Hard work, oft-recurring excitement, and startling views had delighted us ever since we left the great gap in the main ridge of the range. The prospect from the summit could hardly have been more impressive than it was.

Like most mountaineers, I keep in my memory a long count of glorious rock-towers, some wedge-shaped, some pinnacled, some with square heads and threatening brows; but such a group—there were, I think, seven—as furnished our peak with a bodyguard at some distance below his summit I never looked upon. No two of them were alike;

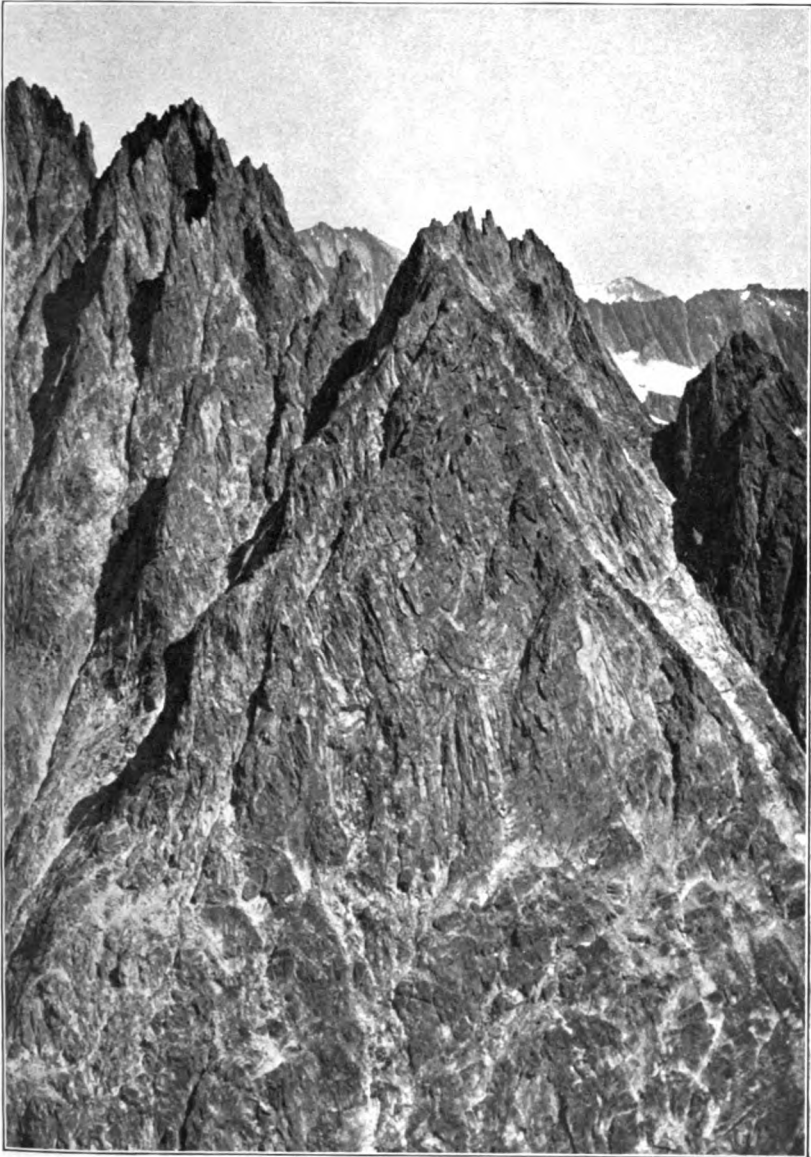
but, though they varied in shape and size, they all glowered at us in savage defiance. Over their heads we descried the gorge of the Massa and many other sights, but of them all the Bel Alp Hotel perhaps gave me the most satisfaction. How the days came back when, consumed with apparently hopeless longing, I had looked at our peak, now hidden in vapour, now glorified in sunshine! I recalled François's words. When we arrived he said to Sylvain, 'M. Yeld will be sure to want to climb those peaks.' I thought with a smile of that melancholy evening when, wet through and with much-rent garments, I had halted before entering the hotel to put on a greatcoat lest haply the multitude should jeer. Above all, I wished that Lord, who had shared the difficulties of the famous * *couloir* and the persecutions of the wind, snow, and rain, had been there to share in our triumph—a wish to which François had given utterance a few minutes before.

After a thorough examination of all that there was to be seen, we had our lunch and then fell to the building of a cairn. François was architect-in-chief, M. Georges and Sylvain supplied stones, I stood by and offered Nestorian remarks at intervals. When the cairn was finished, François and Sylvain uplifted a big block and fixed it on a flat projecting rock by the side of the cairn. During these operations one large stone escaped, fell far before striking the cliff below, and then split with a horrible crash into many pieces. The consequences of meeting such missiles were so obvious that it was needless even for a Nestor to call attention to them: the lesson of the stone-marks in the big gully was thus emphasised.

We descended by the same route as we had followed in the ascent to some distance below the great gap. I should mention that on the steep edge above the gap a second rope, fastened round a wooden wedge driven into the rock, was used, and saved some time. This wedge, I ought to say, had not been employed in the ascent. Unluckily, some distance below the gap we turned aside to try a new route, and paid the proverbial penalty. After Sylvain, M. Georges, and I had been let down a steep and narrow gully with a great deal of trouble, the way proved impracticable, and we had to be hauled up again. Finally we humbly resought our morning's route, whereby a considerable ascent was involved, and did not reach the Bel Alp till quite late, the Nestor of the party being little better than one of the weary.

* *Alpine Journal*, vol. xvii. p. 360.

Yeld's Peak.



Tempest Anderson. photo.

Swan Electric Engraving Co.

FUSSHÖRNER.

A day or two afterwards one of the local guides remarked to Sylvain : 'That peak of yours does not look much.' 'No,' said Sylvain, 'it does not *look* much, but appearances are deceptive ; to appreciate it properly you must have made the ascent.'

MOUNTAINEERING IN THE HIMALAYAS.

To the Editor of the ALPINE JOURNAL.

16 Campden Grove, Kensington, W. :
January 10, 1899.

DEAR SIR,—Having received from Capt. C. G. Bruce, of the 5th Gurkhas, an account of an expedition made by him last summer, I enclose the following extracts from his letter, as I think they will be of considerable interest to the readers of the 'Alpine Journal.'

The letter is dated from Darjeeling. Captain Bruce was recalled near the end of his leave in order that he might proceed to Darjeeling on recruiting duty.

'The mountaineering party consisted of, at first, Lucas and myself, Harkia, Karbir, and fourteen new men from five different battalions.

'Our route, Kashmir *via* Scinde valley to Sonamarg. Here we had two climbs on the mountains to the south of Sonamarg, part of the Kolahoi ridge. Thence *via* Zoji La to Dras, *via* Umba La to Takba, where we made a camp, and ourselves went up into the mountains, making another camp at about 13,500 ft., below Peak D 66. We did here a good deal of scrambling, including a climb with Lucas, led by Harkia, to a point on the Shagrin ridge to about 18,000 ft. ; we had from here a splendid view of the Mustagh range. K₂ was very distinct ; we were due south of it. Karbir and Harkia alone made an attempt on Peak D 66, but after getting within 300 ft. of the summit they had to give it up, as the rocks were so absolutely rotten, the softest sandstone. I have never seen anywhere such soft rocks as there are in the whole of Suru district,* though some mountains are notable exceptions.

'The whole party then made a new pass about 18,000 ft. direct to the Suru valley.

* Latitude 34° N. ; longitude 76° 5' E. Many of the places mentioned will be found on the map (facing page 1) of the Kingdom of Kashmir in Sir Martin Conway's *Climbing and Exploration in the Karakoram Himalayas*. London : 1894.

‘From Suru my wife, Lucas, and self, with a few men, went off and visited the Rangdung monastery ; the rest of the men were sent up to the right of the Gauri glacier of Nun Kun to scramble and climb under Harkia’s direction, where they did a lot of hard work before our return a week later. On our return Lucas and self tried a peak on the ridge west of the Gauri glacier, about 19,000 ft., but failed after a fairly hard day.

‘I saw Lucas off to Abbottabad the next day, and then with several days’ food and coolies crossed the Nun Kun ridge, intending to work westward, crossing ridge after ridge, and finally turning north to the Bhot Khol pass. We found, however, on crossing the Nun Kun ridge, that, instead of descending by a short glacier into a valley, we were on a very large glacier, whose end we could not see ; there were a good many hidden crevasses on the upper part, and also a good deal of soft snow, so we were obliged to get out the whole of the 400 ft. of rope, as we were over forty in the party. We got on to the glacier about twelve o’clock, and followed it until night-time, when we came to a large icefall, over which Karbir and myself, who had hurried on with a couple more men, were unable to find a way which would have taken us clear before dark ; so we were benighted—not the kind of benighted you like giving your friends,* but my kind of benighted, with three blankets and a potato pie and a bottle of cherry brandy. The next morning we got through the icefall in four hours—not a bad performance, I think, when you come to consider the coolies, whose behaviour was plucky but erratic. There was a great deal of slinging of men and loads. Harkia got knocked over in one nasty place, and his axe went down 50 ft. into a crevasse : it stuck in a crack on the side, so we let him down and he was fortunately able to recover it. Having got off the icefall we found ourselves directly below the Bhot Khol pass and only about 1,000 ft. from the summit, the route from the Bhot Khol to Kashmir continuing down the glacier, which is very free from moraine even at the bottom, and quite easy.

‘We then crossed the Bhot Khol and met my wife. I then managed to hurt my knee, and was laid up for a few days, during which Harkia and party climbed a peak 19,000 feet high by a difficult rock ridge due W. of the Bhot Khol pass ; and Karbir and party climbed a col between two peaks due

* *Alpine Journal*, vol. xviii. p. 27.

N. of Dunore ; he described the climb as difficult and exposed to falling stones, of which there were a great many.

‘Bad weather then came on, so we determined to go down into Wardwan. The question of supplies also had to be considered, as in Suru everything except sheep is very dear.

‘On August 28 we had arrived at Konnag, on the way to the Wardwan. There was such an attractive-looking peak immediately to the S. of Konnag that I halted there and went for it next day. We took two parties. A long rock scramble, not very difficult, took us to the bottom of the main peak. From here we had to traverse a long ice slope to a little rib of rocks which took us to the top. The ice slope was steep, and the rocks above icy, and therefore rather difficult. Altogether a very nice climb. We reached our camp after 14 hrs.’ work. Though the peak is only about 17,500 ft. it gave us about the best climb we had.

‘We moved down to Wishni Wujan, and determined to climb a peak at the top of the Wishni Wuj valley, but were stopped by bad weather. However I saw two bears high on the hill opposite our camp, and made a good stalk and got both. You would have been amused to have seen me, as I had to wade a glacier stream nearly waist deep, and so took everything off, and finally stalked these bears in a shirt and a pair of shoes, a very comfortable and easy attire if one has to go as fast as possible uphill for 2,000 ft., as I had to then, to cut the bears off.

‘We then moved our camp to Suknis. I took three days’ leave, and tried for a Bara Singh stag, but without success. Karbir and party went on to Kohenar. On my return my wife carried the heavy baggage off to Kashmir by the Margan Pass, and I, with Harkia to lead, made a pass over the N. peak of Kohenar down to Shesha Nag. Later we had good scrambling on the descent. Karbir and party had crossed the W. peak to the Sonasar Lake.

‘We met our baggage again at Pailgam, and then set out to climb Kolahoi ; but the weather was very bad indeed, and, after sitting in Lidarwat for a day, a telegram came to me, telling me to be at Darjeeling by October 5 for recruiting duty, so here I am. Nevertheless I got one more climb. With the men I went off the way I came to meet you when you came out.*

‘We only got one more climb, however, owing to the bad weather—a peak just S. of the Shikara Pass and directly

* Latitude 34° 45' N. ; longitude 78° 45' E.

over it. We climbed to the top of the lesser peak (16,400 ft.) the last hour and a half in a storm; then a genuine thunderstorm came on and we had to retire. The other peak was only $\frac{3}{4}$ hr. distant, and the going perfectly easy. But the storm was too much for us. Five of the men were struck by lightning, to every one's intense amusement. This was an entirely new experience, and was much enjoyed by every one except myself. All our luggage was on the other side; so, as we could not get to it, we had to make for a village in Droma, about 10,000 ft. below us. We had climbed without roping, only letting a rope down at difficult places, as we had started late and the men proposed to go fast. Coming down Harkia led us directly to our first point, an alp called Kensi, 9,000 ft. below; he stopped twice to let some of us drink, but that was all.

'We got to Jagram, where we hoped to get a house and food, about 8 o'clock at night, and found it deserted. So we spent the night on a roof in some discomfort. However, after living chiefly on beans and Indian corn cobs for two days, we got back (in bad weather again) over the Shikara Pass, and so to Abbottabad.

'And thus ended our season. I find in my diary that the party, all told, not counting scrambles on ordinary passes (not mountaineering passes), did fifteen peak climbs, successful and unsuccessful, and three passes, the peaks varying from 15,400 ft. over Sonamarg to 19,000 ft. above the Bhot Khol, and the passes from 17,000 ft. over the Nun Kun ridge to 18,000 ft. from Shagrin to Suru. Harkia did another 18,000 ft. peak from Bhot Khol E. on to the glacier running down towards Tangol. I think that is satisfactory considering my wandering habits, and that I was only away ten weeks.

'The climbing in the Suru district is excellent, though rocks should be avoided as much as possible, as well as the awful screes, the softest and worst in the world, I expect. The amount of ice slopes as compared to snow slopes is remarkable: I should say owing to the dry weather and the hot sun in the day and cold nights.

'The climate in Suru is much drier than round Nanga Parbat. It was remarkable how much less icy the mountains were on the Kashmir side. Nun Kun itself is climbable possibly, but there is an immense amount of work to be done on it. I have not, however, seen the E. face properly. It would probably yield to a regular siege, as there is a large and perfectly safe col between the two peaks. The snow and ice

scenery on the W. side is as fine as anything that I have ever seen.

‘I have this year seen Mount Everest, Kanchinjanga, and K₂. I wonder if any one else has ever done that before in a year?’

Those who know the difficulties of mountaineering amongst peaks 23,000 ft. high will understand how successful Captain Bruce has been during this last summer, not only in exploration amongst new peaks, but also in having ascended a large number of mountains and discovered new glaciers and passes.

Moreover, owing to the delay in the delivery of ice axes and Alpine rope sent out from England, the actual climbing was done with native axes, specially made in Kashmir, and rope obtained from a Calcutta shipping store. He graphically describes it as follows: ‘400 ft. of cable; it was an awful weight, but had to be used, and would have held a house.’

I am, Sir, yours truly,

J. NORMAN COLLIE.

THE FIRST ASCENT OF THE SIMELISTOCK.

BY CLAUDE A. MACDONALD.

TO go out to beautiful ‘centrist’ Grindelwald, beautiful yet, though overrun with cockney tourists brought out in bands at so much a head, and to accomplish two brand new expeditions within a few hours of that fashionable centre (one of them a virgin peak), is a fairly good record in the year of grace 1898. This I accomplished last summer, no one being more surprised than myself, for I had gone out with my wife to Switzerland, on her first visit, with no higher aspirations than to have many pleasant wanderings, ‘through heights and hollows of fern and heather,’ and possibly to finish up with the Faulhorn by the S. face and the Männlichen by the S. arête. During our wanderings I had marked the N.—or, more accurately, N.W.—arête of the Klein Schreckhorn, and inspected it from all sides, and, having mapped out a route, made up my mind to attempt it at some future date. At another time, having walked over to Rosenlauri and enjoyed a few quiet days, far from the madding crowd on the other side of the Scheideck, we resolved to return there, perhaps in 1899, so that I could enjoy a week or a fortnight’s scrambling among the Engelhörner, and, having had pointed out to me

the unclimbed and unclimbable Simelistock, I incontinently placed him upon the list of points to be inspected.

Soon after this I fell into temptation, the tempter appearing in the guise of my good friend our late Vice-President, Mr. F. Gardiner, who, having accomplished a very fine series of expeditions, culminating in the passage of the Mittel Eggi from the Little Scheideck, informed me that he was off to the flesh pots of Liverpool, and that his two most excellent guides, Rudi and Peter Almer, having nothing to do for the next week, were at my service if I wanted them. Fortunately my wife, having accomplished with success our programme above mentioned, had gone on to enjoy moderate glacier tramps and further the expeditions to the Gleckstein, Schwartzegg, and Roththal Huts, and was, therefore, thoroughly fired with love for the mountains. She immediately said, 'Go, certainly,' and I, nothing loth, closed immediately with the offer, 'for one week only.'

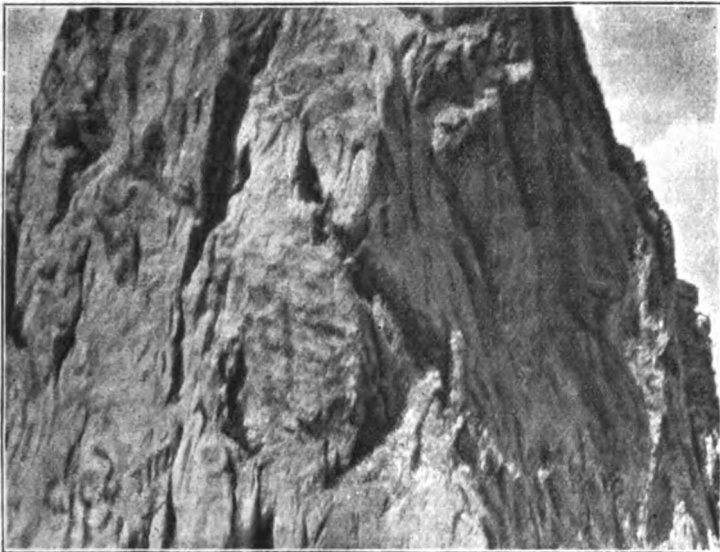
On August 17 we tackled the Klein Schreckhorn by the N.W. arête, amid encouragement but sinister forebodings from Th. and F. Boss and from certain past and present officers of the Alpine Club, who for the time being happened to be 'centrists.' Much to my delight and that of the Almers, we accomplished our peak by the route that I had mapped out, and I was very glad that I had taken so many and varied observations of the peak. We found it difficult and dangerous owing to the extreme looseness* of the very large boulders of which the arête is composed.

Flushed with success, we determined to spend the balance of the week remaining to us in an attempt on the Simelistock. We made our basis of operations the excellent inn at Rosenlauri, and duly proceeded to reconnoitre our peak. Rudi, who is nothing if not oracular, frankly said after inspection that the mountains he loved, but that 'das ist kein Berg.' We concluded that the N. side of the mountain was quite impracticable, and that our attempt must be made from the S.W. The excellent proprietors of the inn, who, singularly enough, were most anxious that the peak should be conquered by the English Alpine Club, gave us but little encouragement. 'Had not a strong party been beaten on it only the week before?' &c.; and finally advised us, whatever we did, to consult the guardian of the peak, an old shepherd or chamois hunter, who had a vested interest in it, having often made attempts on it, and having given advice to the numerous

* *Alpine Journal*, vol. xix. p. 252.

candidates for 'high' honours who had preceded us. So we, thinking it could do no harm, proceeded to interview him. 'Yes, it might go, possibly,' said he, 'but we must take with us 100 mètres of rope, a forked stick 20 ft. long, a small pick, and a dozen iron stanchions. 'Sonst kommt kein Mensch darauf.' Rudi and Peter chuckled. 'This was hardly useful, so, having thanked the gentleman, like a deputation to a cabinet minister, we withdrew.

At 4.35 A.M. on the 20th we made a start, without, needless to say, any of these accessories. The first three hours was



SIMELISTOCK.

the usual grind over steep grass slopes, and we reached the foot of our peak at 7.30, and took breakfast. Proceeding, we tackled a very steep rock couloir, and for 2 hrs. were mostly in and out of this, making for a saddle in the arête to the S.W. of the final tooth. The chimney-couloir, though very steep, was good climbing, and at 9.50 A.M. we came out on the saddle. Here, however, we felt that we had outlived our illusions, and saw matters in the cold glare of reality. The final tooth was bare, smooth, and of the most uncompromising appearance. Rudi, the cautious, on being consulted, said, 'Das gefällt mir nicht,' while Peter was as vague in

his opinions as the weather forecast of the morning papers. 'If it is climbable we get up, if not, we have to return.' A long crack extends the whole way up the left side of the final tooth, and having well observed this with my Zeiss, I concluded that if three places, where it seemed to *fault*, could be overcome the peak would be conquered. The crack was very nasty and difficult-looking, and outside of it the limestone slabs appeared, and subsequently proved, smooth as glass, and the whole peak looked well nigh perpendicular, yet after long observation I wrote down in my notes, 'It will go.'

We left all extras, including coats, on the saddle, and called 'Vorwärts.' We had not started up the crack very long before Rudi reported he could get no further, and having tried outside and found no hold, everything being quite smooth, he advised retracing our steps. Knowing that my extra reach might be of assistance we made a fresh start, I leading and taking the whole length of the rope. I thanked my stars that I was tall and spare, as my long reach enabled me, after much struggling, to get over the first fault, while I am sure a gentleman with more 'figure' than I have could never have made progress in the crack, probably never have got into it. Keeping going, with knees and shoulders firm, we came to the second fault, where a boss of rock blocked up and overhung our upward route. I had seen from below that the crack continued above the boss, and assuring Rudi that I was 'ganz sicher,' a statement I fancy he doubted, as I heard him assure Peter that he was dubious whether we ought not to return, I called him to come up to me, and sent him up over my body, one step on my hip, another on my shoulder, a third on my head. I fancy he stood on the last step longer than was absolutely necessary, and I *know* that his boots were newly nailed. However, up he got and reported things all right, and having sent Peter over me the same way, I swung out and allowed myself to be hauled over the boss. We then went on swarming up our crack, and had two lesser difficulties higher up, and at 11.5 A.M. stood on the summit, a bare yard square, much pumped and much pleased with ourselves. Funnily enough, the first person to congratulate us was our friend the old shepherd, who waved a large and very dirty white flag from his hut below a few minutes after we appeared on the summit. We built a small cairn, and left our names in a metal match-box and proceeded down, very carefully, exactly as we had come up. We were 5 min. longer in the descent, and at the big fault I jammed again, and the others came over my body.

On the way down Rudi and Peter amused me much. After momentary silence one of them would suddenly give a loud guffaw and exclaim, '100 mètres of rope!' or 'a 20-ft. forked pole!' and this joke with variations lasted them for some considerable time. It was a first-rate climb, and I cannot



ENGELHÖRNER.

speak highly enough of my excellent guides and companions. The larger photograph I took from a small point on the arête above the saddle and opposite the final tooth; it shows well the crack up which we made our way; for the other photograph I am indebted to the courtesy of the Hon. Robert Collier, who

was staying at the Rosenlauri Hotel. A very fine view of the Engelhörner, which shows up my peak well, was painted by Mr. Colin Phillip, and hangs in the Committee Room of the Alpine Club. We reached Rosenlauri at 4 P.M., pretty tired and much abraded as to knees, elbows, and shoulders, and in the evening high revels were held; the proprietors of the hotel insisted on standing our party a champagne supper. Next day, the week being up, my friends Rudi and Peter departed for Bex, while my wife and I, after consultation, resolved on adding the traverse of the Schwartzhorn and the Schilthorn from the S.E. to our modest 'ohne Führer' programme.

SOME EXPEDITIONS FROM FERPÈCLE.

By W. C. COMPTON.

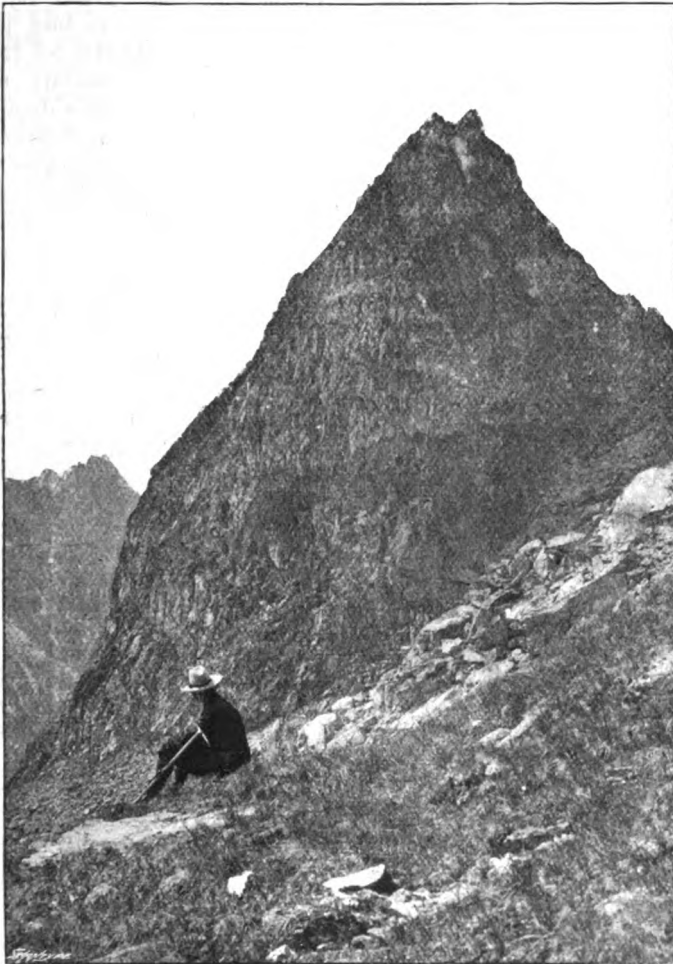
IN a season such as the ever memorable summer of 1898 a fortnight or so may well be spent at the homely little inn at Ferpècle, which appears to have undergone little or no change from the hands of the modern reformer since it first replaced a yet humbler cot some twenty odd years ago. None the worse, perhaps, for that. The rooms assigned to two guests are certainly larger than a first-class railway compartment, even though you have to procure what nails you can and knock them into the wooden walls, because the builders of the compartment have forgotten to provide a rack to carry light articles.

The fare, if homely, is at least good, and the welcome and attention of Madame Crétaz and her family none the less pleasant for being simple.

But it is with Ferpècle as a climbing centre that these pages are concerned. Strange to say, last summer brought few climbers to this valley. Up to the last week of August, or thereabouts (though there were several botanists and occasional climbers), no party came to stay for the purpose of climbing except those who took part in the expeditions here to be chronicled, and who should remain nameless but for the rule of the 'Journal'—no doubt a wise one—that names and dates must be furnished. Our party consisted then of Mr. H. T. Rhoades, Mr. Valentine-Richards and the writer, with Emmanuel Kalbermatten and Siegfried Burgener, both of the Saas valley, as guides; and the ground was new to us all.

For an off-day or a preliminary training scramble the attention of visitors at Ferpècle may with advantage be

drawn to the *Maya de Bricolla*,* the ascent of which by the east arête (from the col to the right in the photograph)



[A. V. Valentur-Richards Photo.

MAYA DE BRICOLLA.

has not apparently been previously recorded. The first who seems to have attempted it was Mr. Nicholson, of Kew, with

* (2,865 m.) Swiss Government map (not marked on S. A. C. map).

local guides, who reached the top in so high a wind that they had little inclination to linger long enough for the erection of a cairn. A few days later it was ascended by our party, with Siegfried Burgener as leader. Two of us had prospected the route the previous day by ascending the col from the S. (from which side the view shown was taken), and descending by the steeper north side to Ferpècle. We decided to make the ascent by the latter, and started the following morning at 9, too late to avoid the sun on the ascent to the col. From this to the summit the sky-line afforded some very excellent practice on good granite, for 35 min., the last few feet being fairly difficult. After leaving two conspicuous cairns, we descended the easy slope on the west side.

This ascent was made on August 11: that by Mr. Nicholson on the 8th of the same month. In some respects the Maya may be regarded as a Riffelhorn to Ferpècle.

The ascent of the Grand Cornier by the S. arête, or S.W. face and S. arête, is a climb only second to that of the Dent Blanche, to which it bears some resemblance. Only let it not be thought, as we thought on August 11 (but not so on the 13th), that it may be used as a training walk prior to an attack on the Dent Blanche—merely because it falls short by 1,300 ft. of the height of the latter. Also let anyone who wishes to make this very fine expedition dispense with the local guides. The reason for this caveat shall presently be shown.

After a little practice on the Maya (described above), we decided to start the next morning (August 12) for a rather bigger day, as we supposed, for which, as the mountain was wholly unknown to any of us, we thought it best to secure the services of a local guide—who shall be nameless—to supplement our excellent young comrade from Saas. The route followed was much the same as that of Mr. Coolidge.* Our local guide was good on snow, and did the step-cutting up the steep W. face of the ridge above the Bricolla glacier well and fast—making good steps in view (as we began to suspect) of our return. We had started with somewhat hazy ideas on this subject. At least one of us had a notion of a return by the N.W. arête, which leads to the Pointe de Bricolla (3,663 m.), and so down to the Bricolla Alp by the Col de la Pointe de Bricolla. There does not appear to be any record of this, though it was not easy to see what were the impossibilities our local guide dwelt upon with much emphasis later on. This, however, remains for further investigation.

* *Alpine Journal*, vol. xiii. p. 409.

It will be an excursion full of interest to attack the peak by way of the Col de la Pointe de Bricolla. The fact that Mr. Coolidge returned by the S. arête in spite of a difficulty he mentions both in the Ferpècle visitors' book and in the 'Alpine Journal' (*l.c.*), should go some way to support the contention of our guide, that a descent by the N.W. arête was out of the question. Part, however, of this route—and that probably the most difficult—is described, by Mr. Wethered,* who met with considerable difficulties owing to the state of the snow. Taking the ascent from the north side (over the Pigne de l'Allée and Moiry glacier) the party 'diverged to the left (sic) on approaching the snow slope which leads to the rock arête connecting the summit of the Grand Cornier with the Pointe de Bricolla.' The arête was easy at first, but soon 'the rocks became so jagged as to be quite impracticable, and we were driven over to the southern face. This was very bad to climb on account of the snow.' Returning to the arête near the top they found it quite easy, and were soon rewarded by the discovery of Mr. Whymper's card. From this it would appear that the ascent from the Col under favourable conditions should not present any insuperable difficulties.

When we reached the rocks of the S. arête in our ascent it was soon evident that we should make better progress with Siegfried as leader. Accordingly the order was reversed, and we proceeded with some rapidity—more rapidity, indeed, than we all of us appreciated, to judge by the difficulty we found in lightening our supply of provisions. It soon became unpleasingly evident that we were in for a bigger job than was justified by our condition after one short day's scramble. However, but for a certain dryness of the throat which had to do substitute for an appetite, we took no harm; and time was of no particular consequence. If late for dinner at 7 (we had started at 2.25 A.M.), could we not rely on the unfailing good nature of Mme. Créttaz? The rocks of the arête, which we followed in the strictest sense, furnish at least as good practice as those of the Dent Blanche, and are thoroughly sound. Within a very short distance, however, of the summit we came to the awkward place mentioned by Mr. Coolidge,† but not further alluded to in the 'Climbers'

* *Alpine Journal*, vol. ix. pp. 106, 239; vol. xvii. p. 365.

† A sketch is shown in Whymper's *Scrambles*. In the new edition of Ball climbers are recommended to 'keep along the W. base of the teeth,' and this seems to be the course Mr. Coolidge adopted in descending. No doubt we might have done the same.

Guide' than in the general description of the arête as a 'very jagged and difficult crest.' Our experience led us to the opinion that the 'Climbers' Guide' might with advantage draw attention to the special difficulty of this point in the ascent. We believed, when the climb was proposed, that there was nothing in it beyond a good morning walk. We certainly supposed our local guide would be familiar with the route. But in both these respects we found, later on, we were mistaken. On reaching a point close to the summit, which appeared to be about 80 ft. above us, and at a distance, across a gap, of perhaps 200 yards, our guide (who was at the lower end of the rope, as stated) suddenly declared it was impossible to go any further. If we did, we could not retrace our steps, and descent by any other route was equally out of the question! On being pressed for an explanation he gave the surprising reply that there was no descent besides the way we had come, excepting that by the E. arête leading to Mountet, and this would be dangerous in the afternoon owing to avalanches,* whilst return by the way we were now ascending would only be possible if we left a fixed rope at a point just beyond us. This was surely an occasion on which an ecclesiastic might ask a layman to offer an appropriate remark. And without any such special invitation remarks were freely offered that might not seem wholly inappropriate to those whose studies of the vernacular had led them to form an acquaintance with the more forcible forms of expression. It was even suggested that our guide was deficient in one of the cardinal virtues of which his fraternity are usually conspicuous examples. What was to be done? Though we had an extra length of rope which might have been fixed for our return, it was evident that the only one of the party supposed to have been over the ground was dead against venturing to the top. And it is an axiom that will hardly be impugned, that if you take a guide, he must be obeyed when he lays down the law on his own ground. (We did not yet know that he had never made the ascent before.) It was consequently decided to give up the satisfaction usually attached to a climb when the actual summit has been gained. And we retraced our steps in a silence unbroken by anything but the rumblings that are familiar after a storm; but at intervals these were to be heard behind us (near the top end of the rope), even long after we had regained the foot of the ridge.

* Mr. Valentine-Richards, to whom I am indebted for many details, reminds me that subsequent examination led to the conclusion that there would have been nothing to fear from avalanches.

Times (very slow): Start 2.25 A.M., reached arête 8.20 ($\frac{1}{2}$ hr. halt), level arête 45 min.; highest point reached about 11.10; altercation till 11.35. The actual arête took 3 hrs. to climb, including halts, $2\frac{3}{4}$ to return; Ferpèche Inn 7 P.M.

In reviewing this expedition, a few observations may be of interest to future visitors at Ferpèche.

(1) Do not regard the Grand Cornier as an easy walk for an off day. (2) Make sure of your guide's experience and competence. (3) Provide yourself with an extra length of rope. With these postulates the climb may be regarded as a first-class expedition. It will be further evident that the attempt by the arête from the Pointe de Bricolla, if made, should be tried as an ascent, and not as a return route: for the other alternative would prove too long in case of failure.

[The ascent by the W. face, though the usual route, is not here considered.]

Another excursion, part of which appeared to be new when we made it, is the traverse of the Petite Dent de Veisivi (3,189 m.=10,463 ft.), shown to the left of the Maya in the photograph. This climb has associations now of a tragic kind. For the first to make the entire traverse (from the Col de Zarmine) was the late Mr. F. Aston Binns,* and it was in attempting to reach the summit from the Arolla side that the terrible accident befell the Hopkinson family nine days after our expedition.

The climb itself is, however, a most interesting one. Our party started from Ferpèche at 5 A.M. on August 17, and, after a slight loss of time in the wood that clothes the lower slopes, where there is no track of any use, reached the couloir that comes down from the Col de Zarmine and the Glacier de Biegnette, and crossing this, proceeded in an upward direction towards the north-east ridge which forms the sky-line (right) from Ferpèche and faces Sepey. Leaving the axes at the foot of a sheer cliff that rears itself towards a remarkable tower below the highest point (which appeared, when seen from above, to be surmounted by a cairn) we attacked the rocks to the right, and made the best of our way diagonally across some rather awkward 'slabs' under the above-mentioned tower, till we reached the north-east ridge (8.45) at a well-marked notch. It might have been better to strike the ridge lower down, and so avoid the traverse, which, though not really difficult, was the least satisfactory part of the day's work. For $\frac{3}{4}$ hr. from the time we took to the ridge we

* *Alpine Journal*, vol. xviii. p. 246.

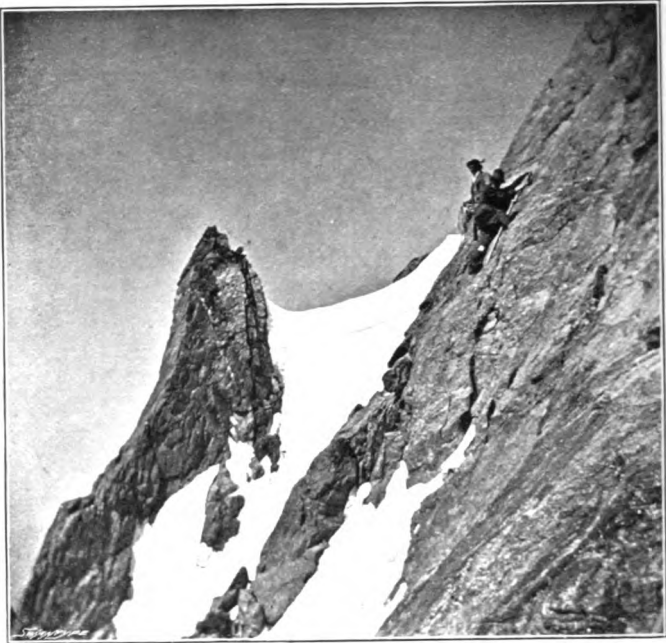
went straight up excellent rocks which bore no trace of having been climbed before, reaching the summit at 9.30; here 1½ hr. soon passed in the enjoyment of a view unsaddened by any of the tragic associations so soon to attach themselves to the spot.

The descent along the arête, with the red tooth that has at present refused to be traversed—it actually overhangs at the top towards the S., and though we had an extra rope in view of it, we decided to leave the south face of it alone—and the remarkable ‘window’ and chimney below it which afford a descent to the gap at its foot, have been alluded to already in the account published in vol. xviii. (*l.c.*). We did not descend from the Col by the glacier (having no axes), but found the best way we could down very steep grassy ledges, and a yet steeper stone couloir to the foot of the E. face, where we regained our axes, 1 hr. after leaving the ridge. The party consisted of A. V. Valentine Richards and the writer, with Emmanuel Kalbermatten and Siegfried Burgener.

Readers of Alpine literature have learnt from the late Mr. Mummery the threefold process by which every mountain is said to degenerate. Till 1862 the Dent Blanche was ranked amongst ‘inaccessible peaks.’ For many years afterwards it was looked on as one of ‘the most difficult climbs in the Alps.’ Thus Mr. Whymper, in his ‘Scrambles,’ * says, ‘It is tolerably certain that the Dent Blanche is a mountain of exceptional difficulty.’ It is true he had attacked it, as was then usual (if a very few ascents can be regarded as having established any usage), by the S.W. face, which is now avoided, and in a blinding storm, the ascent and descent of the last 2,400 ft. taking together eleven hours. But the year 1898 has gone a long way towards reducing the climb, if not to ‘an easy day for a lady,’ yet one presenting no serious difficulty, though it must at present be a long day, as there is no hut in the vicinity of the mountain on either side, except the Mountet Cabane, and by the east face or arête † the ascents are not likely to become common. The new Bertol hut, erected in 1897—when the S. A. C. found the Hörnli base of the Matterhorn an unsatisfactory site for their new hut, owing to the waywardness of Italian smugglers and the inability of the Zermatt section to undertake the responsibility of looking after it—though perhaps affording some slight advantages

* P. 261 (new ed.). See also Mr. Coolidge’s interesting summary of the early ascents, *Alpine Journal*, vol. xv. p. 64 *sqq.*

† *Alpine Journal*, vol. vii. p. 427, vol. xi. p. 119.



W. C. Compton, photo

Swan Electric Engraving Co.

DENT BLANCHE.
Traverse of Gendarme



W. C. Compton, photo.

Swan Electric Engraving Co.

DENT BLANCHE.
From Maja de Bricolla.

for ascending the Dent Blanche, is yet so far from the actual peak that it will not be likely to be much used for any purpose but the Dents des Bouquetins. So climbers from Zermatt are fain to make the best of a *gîte* on the Schönbühl glacier, while those from Ferpèche can choose between the comforts of the little inn above alluded to and the discomforts of the Alpe Bricolla huts, which are only a bare two hours higher up, and look little better than a poor apology for a pigstye. Consequently our caravan started from the former at 1.15 A.M. on August 15, a day that is commonly a field day for climbers without guides, as these when at home are usually wanted by the padre. When out of that good man's reach, however, they find mountaineering possessed perhaps of some of the attractions commonly assigned to stolen fruit of other kinds. And neither the duties of our guides nor the state of the weather, which was all that the most dyspeptic grumbler could desire, had anything to do with the fact that we were lost on the mountain at about 2 A.M. that morning. These are expeditions for which the services of a guide are most indispensable in the first stage, when the lantern fails to light up the track among boulders, and a false path, followed for a short distance, may cause considerable loss of time. The year before we had such an experience in the Lilla valley, leading from Cogne to the Tour du Grand St. Pierre. This year it was at the foot of the Maya de Bricolla that we missed our way through not turning up to the left from the moraine. However hardly half an hour was lost, and we reached the glacier about as soon as the daylight allowed us to take to it comfortably. From this point (2,808 m.) it is possible to follow the W. arête,* which is said to be difficult at one point, 'owing to great smooth slabs of rock,' but easier higher up. Or, again, the S.W. face may be ascended, straight up. Or the upper glacier, N. of a well marked rib of rock, may be followed to the ridge near the point 3,912, whence later in the day we saw traces of a party who had (probably) descended by this route. The objections to a route which might save considerable time would seem to be the possible difficulty from the bergschrund, and the chance of avalanches from the S.W. face, which rises immediately above. The usual course is to ascend the glacier with a gradual trend towards the S.E., as if bound for the Col d'Hérens, till the rib called Roc Noir (3,456 m.) is reached, which runs down in a N.W. direction from

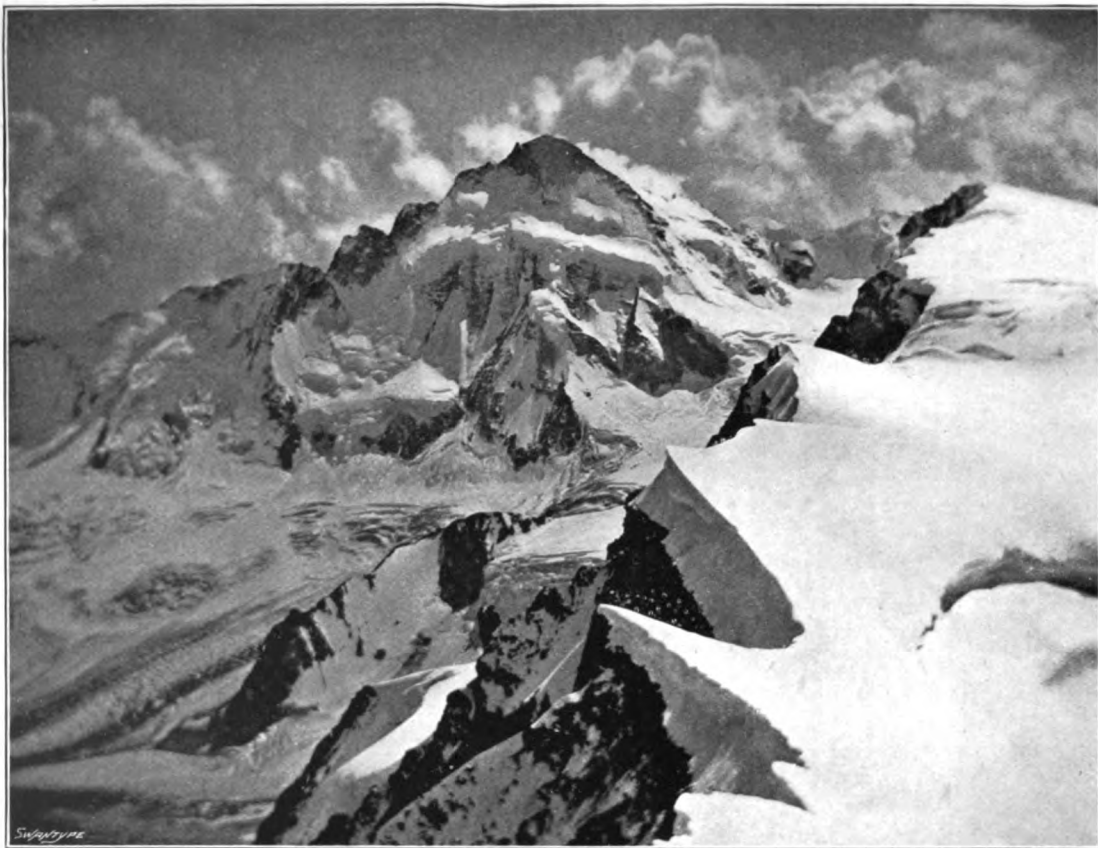
* 'Climbers' Guide;' *Alpine Journal*, vol. xii. p. 122, where the descent by this W. arête is recorded, but without details.

the point 3,714 of the Wandfluh ridge. From this rib we could see several caravans ahead of us, standing out against the sky. They had climbed from the *gîte* at Schönbühl, and so had the advantage of a nearer starting-point. Our time from Ferpèche to the main S. ridge (3,729 m.) was six hours, including halts. This was not fast. Our training was still capable of an improvement, which was to show itself a few days later on the N.W. arête of the Gabelhorn, where we found that condition, plus the fear of bad weather (which happily proved groundless), enabled us to improve by an hour on the times in the 'Climbers' Guide.'* On reaching the Wandfluh we met the sun, which was not ungrateful at 7.15, and in another half-hour were past the point marked 3,912, which is conspicuous in the view from the Maya as the white shoulder to the right of the peak.

Our route—the one now usually followed—keeps wholly on the ridge, *i.e.* the sky-line in the view from the Maya, with the exception of a traverse on the left (W. face) of the first or great gendarme—which was photographed on the descent — and the traverse of the second tower, on the right (E. face). The details are admirably shown in the very fine view taken by Signor Vittorio Sella (No. 275) from the side of the M. Miné ridge.

By 8 o'clock we had reached the first patch of rock at the beginning of the arête, and here we halted for a well earned but very light repast. The view is one of the grandest in the Alps. As we sit with our backs to the work that still lies before us we face the Dent d'Hérens, which rises to the left of the Wandfluh (see full plate), a truly noble mountain when viewed from this point, and a mountain not often seen to such advantage, as it coyly hides itself from the eyes of all but those who will woo it by climbing. Next to it towards the E., with the morning sun on the E. face of the Zmutt ridge, rises the grim form of the Matterhorn, presenting on the sky line left and right the ridges followed in the usual traverse. Beyond this again are the Monte Rosa and Mischabel groups, the latter behind the Zinal peaks, the nearest of which is the Gabelhorn. On our right the view reaches over an endless vista of peaks crowned by Mont Blanc, and in the foreground the Za and ridge of the Veisivi. But half an hour is soon

* Does not the same useful book give an unnecessarily long time for the ascent of this mountain by the E. face? It was done on August 22, 1893, from bergschrund to summit, in 1 hr. 25 min. The 'Climbers' Guide' gives 2½-3 hrs.



W. C. Compton, photo.

DENT D'HÉRENS, from DENT BLANCHE.

Swan Electric Engraving Co.

gone, and we have two hours of good climbing before we can reach the summit. The traverse of the first gendarme might still present very considerable difficulties if the rocks were iced. In such weather as that of last summer one had no compunction in asking the other detachment of our party* to 'hang on a minute' for a snap. On reaching the snow on the far side we ascend by a steep flight of steps in ice to the ridge, and soon encounter the second gendarme. This appears to be negotiated sometimes by climbing over it, more often, perhaps, by traversing either by the W. or E. face. The latter, which we followed, is described by Mr. O. G. Jones † as 'a ricketty crawling traverse,' and we found it the only part of the climb that was not perfectly sound. The very rotten state of the rocks directly the arête is left suggests the possible wisdom of keeping to the sky line, or preferring the W. face, which has been described as 'the most interesting bit of the whole climb.' ‡ But of course at the time we had not at hand a cyclopædia of all the previous climbers' experience, and, as on the Grand Cornier, we had to take the best advice that was available, viz. to do as we were told. After the second gendarme the route follows the ridge, which here and there recalls the Rothhorn (N. arête), though not so sharp on the whole, until the final snow slope is reached, which terminated on this occasion in an exceedingly narrow level knife edge, the cornice having disappeared in the last few days. On this knife edge we could sit and kick our heels over the Mountet, as it seemed, but, as it was 10.30 when we gained the summit, our regard for Madame Créttaz recalled us soon to a sense of our duty, and we began to retrace our steps by the way we came. It cannot be said that we hurried down, however. The memoranda show the following record: Top, 10.30; foot of rocks, 2 (halt of 50 min.); off arête (*i.e.* 3,714 m.), 3.20; Ferpèche, 7.15. Thus the expedition took 18 hours, inclusive of halts of all kinds. A racing party in good training could have done it, no doubt, in three hours less under such favourable conditions; for there was nothing of the 'grim giantess arming herself with terrors' of an early description. § We had no wind, no blinding snow, no ice on the rocks, but an icicle here and there to be snatched out of the crannied wall to slake the thirst that

* For the pure rock-work we had divided ourselves into two parties—three and two.

† *Alpine Journal*, vol. xvi. p. 401. This was in April.

‡ *Two Seasons in Switzerland*.

§ *Alpine Journal*, vol. ii. p. 293.

was the result of insufficient training and a climb under a sun that even at an elevation of 14,000 ft. was more suggestive of the Soudan than the Arctic circle. How we longed for the wide-brimmed hat that was lying at our last halting place, discarded because at 8 A.M. the sun's power had not made itself felt and the morning air was keen! Why had we been so considerate of the backs of our guides when we cut down overnight the number of bottles to go with us? What evil genius had put it into our hearts to toil up and down a hill the very approach to which had taken six weary hours? But happily such vain regrets soon melt away and are replaced by a dissolving view in which only the glow of pure enjoyment is seen. The thirsty rocks are covered over with lotus, which no loss of appetite, like the doom of Tantalus, withdraws from our grasp; the yawning bergschrund is but the smile of the genius of the mountain; and as from our fire-side,

When young and old in circle
Around the firebrands close,

we gaze upon the scenes of our summer scrambles, we begin to build new castles in the air, and the greetings of our trusty comrades stimulate our thoughts of Alps and Dolomites, of Caucasus and Himalaya; and who knows but that in another summer we three may meet again, and find some fresh worlds to conquer before the electric tram or funicular has brought within reach of the Bath-chair invalid the heights once known as 'infames frigoribus Alpes'?

SIR MARTIN CONWAY'S ASCENTS IN SOUTH AMERICA.

SIR MARTIN CONWAY has returned to England, after completing his South American journey. As already announced in these pages he made the complete ascent of Illimani, and reached a point about 200 ft. below the highest snow crest of Sorata. The final slope would, under ordinary circumstances, present no particular difficulty; but on the day of Sir M. Conway's ascent the snow lying on it was in an exceptionally loose condition, and as a great schrund opened at its foot the risk involved in climbing it was considered unjustifiable. The approach of the rainy season prevented any second attempt. The ascent of Aconcagua was greatly facilitated by Mr. FitzGerald's previous explorations, which had led not only to the discovery of the best route, but also imbued the people of the locality with the idea that the peak was accessible, and even with a desire to

climb it. During the last five hours of the ascent a different route from that taken by Mr. Vines was followed, the summit ridge being, in consequence, struck some half-mile to the S. of the point previously reached, and nearly midway between the two highest eminences. The party proceeded along a narrow snow crest to a summit, hitherto untouched, about fifty feet lower than the point ascended by Mr. Vines and Zurbriggen.

Proceeding afterwards to Tierra del Fuego an expedition was made to Mount Sarmiento, which proved to be a very fine mountain, but of unexpected difficulty. A practicable route was, however, found up it, and followed to a height of about 6,000 ft., the height of the mountain being about 7,000 ft. At this point the climbers were driven down by a violent storm of snow and wind, which rendered further progress impossible and lasted for several days.

The altitudes thus far deduced are based on the readings of a mercurial barometer, but in the Bolivian Andes a careful triangulation was made and materials obtained for as many as eight separate measurements of Sorata and about as many of Illimani.

PACCARD *v.* BALMAT.

A NOTE BY DOUGLAS W. FRESHFIELD.

Si quid novisti rectius istis,

Candidus imperti; si non, his utere mecum.—HORACE, *Ep.* i. 6.

THE documents brought together by Mr. C. E. Mathews in his interesting volume on 'The Annals of Mont Blanc' seem to me to point to a conclusion—at any rate to suggest an hypothesis—with regard to the rival claims of Dr. Paccard and Jacques Balmat which is, I believe, novel, and which I should like to put forward for consideration. No doubt, with the possibility always before us of the discovery in some bound-up volume of last century pamphlets of the missing account by Dr. Paccard of the first ascent of Mont Blanc, it would be imprudent to dogmatise. Still, we have contemporary evidence which indicates clearly what claims Dr. Paccard made immediately after his ascent, and what is likely to be the purport of his more detailed narrative.

The plan I have gone on in framing my explanation of the parts played by the two pioneers has been to rely chiefly on the more or less contemporary documents, the recent reproduction of one of the most important of which we owe to Mr. Mathews.

We are all, I think, greatly indebted to Mr. Mathews for having been the first to reduce to something like its true value the monstrous farrago of nonsense which that illustrious romancer, the elder

Dumas, gave to the world, forty-six years after the event, as Balmat's story. I have little doubt—there is evidence to indicate it*—that some such story as that repeated in 1832 and 1854 by Dumas and Carrier (who was the son of one of the guides engaged in the attempt of June 1786) was handed about in writing by, or on behalf of, Balmat at an earlier date. I regard it as almost certain that Dumas carried away a copy of this narrative, and did not rely solely on his notes of an interview for the material of his own romance. Many of the absurdities he set down Balmat cannot properly be held responsible for. The guide was a child in the hands of the first of interviewers and the greatest of story-tellers. But Carrier's narrative may fairly be taken as an authentic reproduction of the account of his adventure Balmat in his later years, and after Dr. Paccard's death, desired to put forward.

For the moment, however, I shall dismiss these documents, printed respectively forty-six and sixty-eight years after the events, and deal only with what may be called contemporary records. I place in this class Paccard's MS. note book, De † Saussure's letter of August 18, 1786, to the Chamonix innkeeper, his 'Relation Abrégée d'un Voyage à la Cime du Mont-Blanc, 1787,' and the fourth volume of his 'Voyages,' 1796, Bourrit's letter of August 20, 1786, Bonnet's letter of August 18, 1786, and the correspondence published in the spring of 1787 in the 'Journal de Lausanne,' which includes the Balmat declarations. ‡

It is too often forgotten that to achieve any good result from an enquiry of this nature it is essential in the first place to dismiss from our minds modern glosses, to discriminate between the different classes of documentary evidence, and, above all, to force ourselves, as far as we can, to enter into the position—the way of looking at things and using local nomenclature—of the writers of the documents we are consulting.

Mont Blanc had in 1786 already been reconnoitred from the Savoy side from three directions and seriously attacked by two distinct routes. § Dr. Paccard had himself examined all three routes. || The Glacier du Géant had been reconnoitred; the Vallée de Neige

* M. Durier's *Mont Blanc*, p. 118 First Edition, p. 106 Fourth Edition, 1897. *The Annals of Mont Blanc*, p. 103.

† According to French rule the prefix *De* is only to be used after titles or baptismal names. But it was used at Geneva a hundred years ago, and by Horace-Bénédict de Saussure himself on all occasions. I have after some hesitation preferred the more polite local custom to the rule. After all Geneva is not part of France.

‡ The note that opens this correspondence is subsequently referred to by the Editor as Dr. Paccard's; but there is strong internal evidence that if the Doctor supplied the material the Editor arranged the form, and in doing so made one or two of the blunders into which Swiss editors were apt to fall in such circumstances. See *Alpine Journal*, vol. viii. Appendix, p. 66.

§ The statement imputed to Paccard, quoted by Leschevin in 1812, that 'he had three ways in view, but Balmat decided his choice,' cannot justify the inference M. Durier (p. 109, Fourth Edition) draws from it. The three ways may have been those mentioned above, or the two routes converging on the Dôme and the Vallée de Neige route. || See MS. *Note-book*.

—that is, the depression under the Dôme which now forms part of the Chamonix route—had been explored nearly as far as the Petit Plateau, and abandoned on account of the sufferings of the explorers from the supposed ‘stagnation of the air.’ There remained the route by the Aiguille du Goûter. By this the top of the Dôme had been reached, starting from the Pierre Ronde, above the Col de Voza and at the base of the Aiguille du Goûter.

In June 1786 it was believed at Chamonix that the only route to the top of Mont Blanc lay over the Dôme and by the Bosses ridge. The race on June 8* between the two parties of guides was to settle whether it would not be possible to reach the Dôme more quickly from the Montagne de la Côte than from the Pierre Ronde hut. M. Durier is under a misapprehension (springing possibly from Carrier’s narrative) when he writes of this expedition as intended to test the merits of the Vallée de Neige route. That was not at all in question. No one would go from the Grand Plateau to Mont Blanc by way of the top of the Dôme. The guides took the route shown in red on M. Durier’s map, and in black on Mr. Mathews’s, straight up the N. slopes of the Dôme, which is the only route still at all times safe from avalanches.

Here I must ask for my readers’ particular attention, since on the proposition I am about to lay down my argument in great part rests. An eighteenth-century writer, when he speaks of the Aiguille route, means that by the Dôme and the Bosses ridge, whether the Dôme is approached from the Montagne de la Côte or the Col de Voza. When he speaks of the Montagne de la Côte route simply, without reference to the Dôme, he means the way by the Vallée de Neige and the *ancien passage*, the valley route as distinguished from the ridge route. The following sentences, unless mere blunders—and De Saussure does not blunder—illustrate this usage. De Saussure writes, ‘Believing always that it was only by the Aiguille du Goûter that the summit of Mont Blanc was accessible, they divided into two parties to test the two routes that lead to the Cime du Goûter.’ And we find in Balmat’s declaration, ‘As Dr. Paccard intended to go in the direction of the M. de la Côte, a route we had thought impracticable from Mont Blanc on June 8 previous, I doubted of the success of his enterprise.’ This passage has no meaning unless the M. de la Côte route or direction is taken as equivalent to the Vallée de Neige route and the *ancien passage*.†

Minor discrepancies in the early narratives I must for the present put aside. There is, I believe, only one apparently fundamental difference. De Saussure claims for Balmat that he discovered ‘the route since followed, and the only practicable one.’ Paccard produces a declaration, signed before two witnesses by Balmat, attesting Paccard to have been the discoverer of the *ancien passage*. What the flighty and impressionable Bourrit has to say on this matter at different periods is suggestive and noteworthy.

* Paccard’s MS. diary settles the date, disputed by M. Durier.

† The sentence as it stands is, no doubt, obscure. What the guides saw ‘from Mont Blanc’—that is, from their highest point—must have been the broken snows of the *ancien passage* on their left.

De Saussure's acceptance of Balmat's claim to have been the discoverer of what the former calls 'the only route' to Mont Blanc must seem at first sight, if not conclusive, at any rate the most weighty evidence in Balmat's favour as discoverer of the *ancien passage*. But it appears to me that all those who have hitherto dealt with the controversy have overlooked the very important passage in the 'Voyages,' where the route discovered is more particularly described. De Saussure writes:—

'There is a remarkable circumstance connected with the discovery of this route, that it is that which appears the most natural to those who look at Mont Blanc from Chamonix, and *that it is also that which was taken by those who first attempted to ascend the mountain*. Its abandonment had been due to a singular prejudice. As it follows a kind of valley between great heights, it had been fancied to be too hot and too little ventilated. Yet this valley is very wide, very open to the winds, and the ice which forms its floor and sides is hardly the material to heat it. But fatigue and the rarity of the atmosphere caused in those who made the first attempts that exhaustion of which I have often spoken, and they attributed their discomfort to the heat and the stagnation of the air, and thenceforth, in their attempts to reach the top, made use only of such open and isolated ridges as that of the Gôûter.'

Let us now turn to Bourrit.* He writes:—

'The route which M. Paccard took is no discovery of his; it is the same which the head of the guides, Michel Paccard, his cousin, has constantly declared to be the best, it is that which others have since tried, and which I tried once myself. Finally, it was in part by this route that Balmat, who, three weeks before the ascent of Dr. Paccard, had lost himself by night on Mont Blanc, descended. Balmat, who observed in these circumstances what remained to be done to reach the top, returned convinced that the next attempt would be successful.'

In after years Bourrit practically admitted Dr. Paccard's claim. In 1808 he wrote, 'Dr. Paccard must share the fame of Balmat; if, indeed, as we have reasons to believe, he was not its originator' ('la première cause').

In 1808, in the third edition of his 'Itinéraire de Genève,' &c., p. 170, Bourrit, in describing the attempt of 1775, is still more explicit.

'Telles furent les circonstances de leur tentative, dans laquelle ils échouèrent par le changement du temps plus que par d'autres causes: mais ce qu'il y a de bien remarquable c'est la constante opinion qu'ils ont toujours eu qu'ils avaient trouvé le seul chemin par lequel on peut atteindre la sommité du Mont-Blanc, opinion qui s'est trouvée fondée; en sorte qu'on peut les regarder comme les précurseurs de ceux qui ont achevé la conquête de ce fameux sommet. Ces précurseurs étaient Michel Paccard et François

* Letter to the *Journal de Lausanne*, March 3, 1787.

Paccard, auxquels s'était joint un autre guide et Mr. (*sic*) Couteran.*

Is it not clear that these quotations refer, not mainly or exclusively to the *ancien passage*, but to the new route as a whole, and in particular to the opening of the Vallée de Neige; the direct route now used between the Grands Mulets and the Petit Plateau. The *ancien passage* is not a valley overlooked by heights; it had never been attempted before. It was the lower part of this route that had been tried and pursued nearly as far as the Petit Plateau, to 'the snow arch which covers the rocks at the foot of the little or second Mont Blanc.' †

My hypothesis is as follows:—On June 8, 1786, Balmat left his companions near where the Cabane Vallot now stands, and went on to the rocks at the base of the Bosses on pretence of looking for crystals. After the rest were out of sight he made (as Carrier recounts) a determined attempt on the Bosses ridge. He was stopped, we are told, by the *Pointe Rouge*. If this is not a confusion with the Rochers Rouges it may indicate that he gained the foot of the last steep slope where one of the Courmayeur routes now reaches the ridge. Bad weather was coming on. He had no axe. He turned, but with a full conviction that under better conditions and with a companion success was possible. The storm of sleet and hail caught him on his descent. He missed the tracks, and came down on the Grand Plateau, where he was benighted.‡ Did he next morning reconnoitre and climb the *ancien passage*, or did he—as Dumas reports—go straight home, discovering on the way the practicability of approaching the base of Mont Blanc directly by the Vallée de Neige without making a *détour* over the Dôme?

My belief is that he went home, satisfied that the Bosses ridge

* Of course everything Bourrit writes must be taken with due allowance for the writer, his constant vanity, and his feelings varying with the moment. He must soon have had some quarrel with Balmat, whose cause he so warmly took up in 1786. On p. 232 of the first edition of his *Itinéraire* (1791) we read, 'Ce fut ma quatrième tentative' (that from the Col de Voza side), 'qui fait craindre aux guides de Chamonix qu'on n'allât à Mont-Blanc par un autre côté que celui de leur vallée. Dès lors ils essayèrent encore d'y parvenir, et l'un d'eux ayant vu le Mont-Blanc de très près en prit une seconde fois la route de compagnie avec M. Paccard, ce qui leur réussit.'

In the third (1808) edition the part of 'Balmat is even more severely minimised. We are told that 'trois guides et un homme qui ne l'était pas encore' were all benighted in an attempt; that 'le plus incommode de sa course' was attended by Dr. Paccard, and suggested to him a fresh attempt; that on his return Paccard wrote to Bourrit the details of his success, and sent them to him by his guide, whom Bourrit conducted to Geneva to see De Saussure. Balmat is never mentioned by name.

After this it is tolerably clear that Bourrit is a witness whose evidence is worth next to nothing when his feelings are concerned, and, as Principal Forbes says, 'he conveys the simplest facts through a medium of unmixed bombast.'

† Paccard's MS. *Note-book*.

‡ I attach no weight to the hour (4 P.M.) given (by Dumas alone) for Balmat's return to the spot where he left his comrades. There is no hour given in the earlier accounts, and the references to 'times' are discordant.

was not impracticable, that he had found a shorter approach to it, and also that in case of necessity a man could spend a night on the upper snows without serious consequences. These were great results, which fully account for De Saussure's statement that this attempt decided the successful one so soon to follow it.

Balmat's next care was to find a companion with whom he might share the glory without also sharing the reward. Dr. Paccard was in all respects suitable; by selecting him Balmat turned a dangerous rival into a volunteer assistant. The couple started. Balmat* meant to try again the Bosses Ridge; Paccard had another plan. The Doctor, who was five years the older man, prevailed; the *ancien passage* was attempted and conquered. The new route as a whole was thus completed from the Grands Mulets to the top. Balmat deserved credit for a part of it; but he could not rest satisfied without claiming credit for the whole. Paccard then asserted his claim to the discovery of the final portion. *Hinc illa lachrymæ!*

It may not be difficult to raise difficulties with regard to this explanation, to contest it in detail. Some friendly critic may possibly suggest that my case is open to the objection that I pick and choose my evidence, that I alternately cite and discredit the same witnesses. Further examination will, I believe, show him that I have not done so. Bourrit, be it remembered, I regard as a hostile advocate, the first source of the mystification. My attempt has been to show that he speedily threw up his client's case, and adopted a view consistent with that expressed by De Saussure. I have discredited no important statement other than Bourrit's, made by the eighteenth-century authorities. I have, it is true, suggested a reason for a deficiency in those narratives. I have indicated a motive adequate to account for Balmat's conduct in saying so little at the time of his attack on the Bosses ridge, and reserving, till his claim to be the discoverer of the *ancien passage* had been generally conceded, any detailed account of an adventure so much to his credit. Universal agreement is not to be expected. But I challenge any unprejudiced student to find a better hypothesis, or one that will fit so well with the conflicting stories told at the time and afterwards.

The chief merit of my hypothesis is that it is the only one consistent both with De Saussure's statement as to the 'new route' and with Dr. Paccard's behaviour in obtaining from Balmat the declaration he published in 1787. Everything we know of the Doctor indicates that he was an honourable man. Mr. Mathews declares of one of the entries in his journal: 'This account is invaluable for its directness, simplicity, and truth. It tallies in almost every detail with that of De Saussure.'

* Gédéon Balmat (letter of January 16, 1839) is cited by M. Durier, p. 110, Fourth Edition, as stating that Paccard told a friend to look out for him near the Rochers Rouges, while Dumas represents Balmat as indicating 'the direction of the Dôme' as the side to be watched. I give this for what it is worth, which is, perhaps, not much.

Again, M. Henri de Saussure (the grandson of the philosopher), whose father was at Chamonix in 1787, and formed and transmitted to his son his impression of Dr. Paccard, writes as follows :—

‘ J’ai prononcé le nom du docteur Paccard. Bien que j’aie plus particulièrement en vue les explorateurs Genèveois j’éprouve le besoin de m’arrêter un instant sur ce sympathique caractère que sa modestie a trop fait oublier, et qu’on a eu le tort de laisser glisser au second plan derrière la personnalité un peu théâtrale de son compatriote Balmat. Paccard était un Alpiniste de beaucoup de mérite. Ce n’est point la tentation d’une récompense qui guida ses pas au sommet du Mont-Blanc, mais bien les généreuses aspirations d’un homme capable de comprendre la mission de la science et de la poursuivre avec abnégation. Il avait vite saisi la portée des études d’Horace-Bénédict de Saussure et s’était enflammé à son exemple pour les recherches de physique et d’histoire naturelle.’

A contemporary document of considerable weight is De Saussure’s letter to the Chamonix innkeeper Tairraz, written on August 13, 1786, five days after the ascent. De Saussure could not have seen Balmat when he wrote this; the latter returned to Chamonix on August 9, and we are told that he rested four days before he set out to claim the promised reward. De Saussure’s information came from Tairraz’s letter, written before the return of the adventurers, and reporting what Chamonix had seen through its telescopes.

De Saussure’s letter makes it perfectly clear that the innkeeper’s report of what Chamonix saw contained not a word of the Doctor’s breakdown. Here are his words (I use Mr. Whympster’s translation): ‘ I myself wish to try the same route, not that I flatter myself I shall get to the top, for I have neither the youth nor the agility of Monsieur the Doctor. . . . I wish you to send at once five guides to level the way. . . . You can put at their head this Jacques Balmat who made the journey with Monsieur Paccard.’

De Saussure here emphasises two things, Paccard’s position—he is ‘ Monsieur ’—and his mountaineering capacity.

One more testimony we must not overlook. De Saussure’s uncle, the well known naturalist Bonnet, wrote as follows ten days after the ascent. I quote from the ‘ Annals of Mont Blanc : ’—

‘ On the 8th a young doctor of Savoy, accompanied by a single *montagnard*, had first the glory of attaining that summit. His name is Paccard. The new route which he has discovered is not dangerous; my nephew has shown me a very careful map of the new route, which he received a few days ago.’

We find further, in the deposition made by Balmat, a statement that Dr. Paccard had previously studied the upper snows with a telescope. This is accidentally confirmed in a passage in a letter of Dr. Paccard of August 3, 1825, in which he speaks ‘ of the steep slope above the Grand Plateau, which I was the first to ascertain to be accessible.’ *

* See the MS. *Note-book*.

In the face of this evidence is it possible to believe that Dr. Paccard deliberately extracted from Balmat, either by bribery or intimidation, or fraud, a false statement as to their shares in discovering the *ancien passage*?

I am, of course, aware that M. Durier believes in the substantial accuracy of the Balmat-Carrier-Dumas narrative. But in order to take this view he has to accuse De Saussure—of all people—of a ‘real injustice,’ of telling a story ‘on all points improbable,’ and of deriving this story against his own chief guide from Balmat’s rivals. M. Durier must excuse me if to one who has read hundreds of De Saussure’s letters, and made himself as familiar as a biographer may with his character—with his fairness, his thoroughness, his amiability—this accusation seems preposterous. At any rate I cannot entertain it, nor can I believe that Jacques Balmat, under any pressure, put his name to an untrue tale within a few weeks of his ascent and kept the truth for those who treated him at the *cabaret* more than forty years afterwards.*

To point out all the discrepancies and absurdities of the later narratives would take too much space here. We are told that Balmat recognised the crevasse, near which he slept at the foot of the *ancien passage*, as one he and his companions had crossed in the morning! But they had climbed over the Dôme du Goûter, and never been near the Grand Plateau. Balmat during the night is made to see the lights of Chamonix, and hear a dog barking at Courmayeur. Neither incident is, I understand, physically possible from the spot in question. The Carrier pamphlet states that Balmat forced his way up the *ancien passage* on the morning after his night out, contradicting the Dumas version, and then gives ‘the late hour’ as a reason for his not completing the ascent! I need go no further.

We have here, surely, a fine specimen of the origin and growth of a legend. We can follow all its various stages. Boasts made by Balmat prejudicial to his companion reach Dr. Paccard’s ears, the Doctor compels his guide to make a declaration of the facts; Balmat gives De Saussure a true account of how he was caught in a storm, lost the tracks, and had to spend a night on the ice (like Mr. Nettle-ship’s party), at first exaggerating only the importance of the completion of the Petit Plateau route to the Grand Plateau, and not saying a word as to any climb above the Grand Plateau; then after Paccard’s death improves this story in his written records into Carrier’s version; at last in his old age forgets and varies his own fiction, making his imaginary climb up the *ancien passage* take place on the evening of the snow storm, falling into the truth as to his return to his home, and letting loose his tongue in self-glorification at his companion’s expense.

The myth we have been investigating is summarised in the

* I cannot believe that Balmat did not know what he was signing before two witnesses on stamped paper. He was no fool, and was educated enough to write letters, even letters to the newspapers.

inscriptions under two portraits of Balmat. On the one contemporary with the events we read, 'Dr. Paccard, accompanied by Jacques Balmat, crystal hunter, of the Valley of Chamoni, reached the highest summit of Mont Blanc.' A lithograph published after Balmat's death bears the imprint, 'J. Balmat, first guide to Mont Blanc, who alone climbed this mountain, hitherto inaccessible, August 8, 1786.' So the story grew.*

IN MEMORIAM.

JOHN HOPKINSON.

IN the last number of the 'Alpine Journal' † there was given an account of the saddest of all Alpine accidents—that by which John Hopkinson and three of his children lost their lives. It is not necessary to return to this matter, the shock of which can never be forgotten by some of us; but it is desirable to put on record in these columns some account of the life of one of the most distinguished men who have ever belonged to the Club.

John Hopkinson was born on July 27, 1849. He was the eldest son of Alderman Hopkinson, of Manchester, a distinguished citizen and an ex-mayor of that city. He was educated at Lindow Grove School and at Queenwood, and at sixteen went to Owens College. In due time he was entered at Trinity College, Cambridge, and in 1871 went out as Senior Wrangler and first Smith's Prizeman. While he was still at Cambridge he took his degree of Doctor of Science at London University. The first of the long series of his scientific papers was also published about this time. At the end of his brilliant career at Cambridge he went, early in 1872, to Messrs. Chance Brothers & Co., of Birmingham, the well-known lighthouse engineers, and remained with them for about six years. During this time he devised many improvements in lighthouse machinery, especially from the optical point of view, dealing in these improvements with questions which could only be handled satisfactorily by a man possessing his already splendid mathematical attainments.

In 1878 Hopkinson removed from Birmingham to London, not severing his connection with Messrs. Chance, but commencing to build up for himself the independent business as a consulting

* It would be very useful if some enterprising publisher would put together and print in a small volume all the contemporary authorities I have cited. The Alpine Club might doubtless be induced to allow Dr. Paccard's MS. Notebook to be reprinted in the collection. M. Durier should also be invited to reproduce the letter of Gédéon Balmat he more than once refers to. The search for Dr. Paccard's missing pamphlet should be persevered in. It is described by Leschevin: 'Premier Voyage fait à la cime de la plus haute montagne du continent, par M. le Dr. Paccard, Lausanne, 1786,' in 8vo. De Saussure in 1787 speaks of accounts of his predecessors' ascent having appeared in 'divers ouvrages périodiques.'

† *Alpine Journal*, No. cxlii. p. 266.

engineer which, at the time of his death, had placed him in the very front rank of his profession. This is not a place in which to describe, or even to catalogue, his scientific work and papers. It may be simply said, in a few words, that he appears to have commenced electrical investigation soon after leaving Cambridge, two electrical papers by him having been communicated through Lord Kelvin to the Royal Society in 1876 and 1877. Later on his work in electricity—which in the first instance had been of a more or less purely physical kind—was directed specially into channels connected with the theory of what is now known as electrical engineering. It is difficult for those of us who are now familiarly dealing with electricity and electric apparatus every day on what may almost be called a gigantic scale, to realise that it is only twenty years since Hopkinson commenced his early experiments on small dynamos, and less than twenty years since he made those investigations in connection with the machines of that time which may fairly be said to have laid the foundation of very much of the progress which has been made since, both as to their construction and theory. His papers on this subject between 1879 and 1886, and at later dates, will always remain historical contributions to the modern theory of electricity, and some of them have rightly been described as ‘epoch-making’ in connection with this subject.* Among his more important papers not of a purely scientific kind, may be mentioned the special lecture on electric lighting given in 1883 before the Institution of Civil Engineers, and the ‘James Forrest’ lecture on the relation of mathematics to engineering, read before the same Society in 1894.

While never ceasing to carry on his purely scientific work, in which no doubt, like any other man of his genius, he may probably have been even more deeply interested than in his profession, he nevertheless was one of the busiest consulting engineers in Westminster. In connection with the giving of expert opinion in patent cases and other matters of that kind, he had an almost unique practice, and he also designed and carried out, as consulting engineer, a number of large engineering schemes, among which may be specially mentioned the Manchester Electric Lighting System, while at the time of his death he had recently taken in hand the Leeds and Liverpool Tramways. He was also consulting engineer to the City and South London Electric Railway, the first of its kind in the kingdom.

Hopkinson became a member of the Institution of Electrical Engineers in 1881, and was President of that Society in 1890. When, in 1896, certain internal difficulties arose which seriously threatened the usefulness of the Society, its Council unanimously turned to him for help. At great personal inconvenience he undertook the duties of President for a second time, and by personal

* Some of his most important papers, especially the Royal Society paper of 1886, were written jointly with his brother, Dr. Edward Hopkinson, of Manchester, himself a most distinguished electrician and engineer.

exertion and tactful management succeeded in carrying the Society successfully out of all its difficulties, in a way which could probably have been done by no other man. He was elected a Fellow of the Royal Society in 1878, and one of the Royal Society medals—the highest scientific recognition which can be given in this country in such matters—was awarded to him by the Society in 1890. He was for a number of years before his death a member of the councils both of the Institutions of Civil and of Mechanical Engineers, and in both of them was personally active in connection with the many duties falling upon members of the governing bodies of such societies.

It is easier for any friend of Hopkinson's to write of him as a scientific man than from a personal point of view. The record of his scientific works speaks for itself, and places him in a position which is only occupied by half a dozen men in a generation; but, highly as everyone esteemed him as a man of science, it may truly be said that those who knew him best placed him on at least as high a level from the personal as from the scientific point of view. He was as keen and bright in his recreations as in his laboratory or in his office. An excellent talker on endless subjects and a keen fighter, he was none the less completely devoid of guile or malice, and was so modest, unassuming, and sweet-tempered in his way of speaking and of giving his opinion on scientific as well as other subjects, that a stranger would never have guessed that the statements he was listening to were given by the man who, perhaps more than anyone else in Europe, was entitled to give them. Of the singular beauty and happiness of his family life this is not a place to speak. It is fitly indicated by the inscription upon the stone just placed in Territet churchyard:—

•Lovely and Pleasant were they in their lives, and in their Death they were not divided.'

K.

C. B. GRANT.

CHARLES BATHE GRANT, Fellow and Tutor of Queen's College, Oxford, First Class in Classical Moderations and Final Schools, and in Modern History, died October 18, 1898, aged 32, of typhoid fever.

He was a man of many friends, most of whom could have written of him less inadequately than myself, except from the special point of view of the Alpine Club. In climbing, however, we were companions for several years, and, practically speaking, neither of us had climbed except with the other. We had first known each other in the two years 1890 and 1891, during which he was a master in Sedbergh School, before being elected to his Fellowship, and in 1895 began our climbing alliance—a month in the Alps in each of the last four years. Grant's unflinching high spirits, enterprise, and unselfishness, made him an ideal comrade, and I, at least, hoped that the alliance would last until climbing was over for both of us.

B B 2

To scientific work or exploration for the Alpine Club he had no claim; that was to have come later; so far, recreation and the learning of the rudiments had contented us. And with recreation in view, it was his way to prefer the modest nine-hours day from the hut to the heroic fifteen hours from the valley. Not that he shrank from a long day on occasion; lightly built and a fast walker and climber, he was quickly in condition. In our first year, we had started with a twenty-mile training walk, which included the white and rocky Steinernes Meer, under a hot sun; at the end he discovered that he had left his very necessary purse lying about at the starting-point, and it was good to see with what cheerfulness he marched back over the dreary wilderness to recover it. He was an excellent organiser, appearing on the day of meeting with a programme complete for the month, but ready, as soon as weather or accident sent it agley, to produce an entirely fresh one after a quiet hour or two with the map and the 'Climbers' Guide.' It was a great principle of his, when weather was bad or unpromising, to go to the hut and take the chance; many a time have we performed the Duke of York's ineffectual exploit in consequence; but often, too, has a peak been snatched like a brand from the burning. I remember in particular the Ober Gabelhorn in August 1897, and the Schreckhorn in January 1898, as spoils of this sort.

For anyone who knew him it is needless to say that he was as enterprising mentally as bodily; a case in point is that, though his store of German was considerably the smaller, yet, when our united efforts were directed to converse with guides or others, he regularly did the much the greater part of the comprehension, and at least his share of the speech. Lastly, it was always a fresh wonder how, incapable of sleeping at any height over 8,000 ft., he would lie in a hut, sleepless the whole night, but absolutely still, causing less disturbance to others than those who could sleep at least part of the time.

In these few remarks upon one who has left fragrant memories among many circles of friends, I have thought it better to say nothing of his efficiency in the schoolroom and playing-fields, in the lecture room and on the river, but to confine myself to what is of more special interest to the Alpine Club.—H. W. FOWLER.

THE WINTER PICTURE EXHIBITION.

IN the words of the story told by the Bishop of Bristol in his amusing speech at the dinner last December, '*it will be well to divide into convenient portions for examination*' the artists exhibiting, or rather their works exhibited, in the Club Rooms.

Many lines of division suggest themselves, but let no one expect an elaborate system of comparative criticism. The 'Alpine Journal' is not the 'Art Journal;' and this notice is not intended to be anything beyond a few discursive remarks suggested by the collection on the walls.

The show was not strong in 'figure' pictures. There was practically but one, Mr. McCormick's vigorous, if somewhat photographic and unarranged, black and white group called 'The Vallot Observatory—Starting Down.' The only others that could come under this head were also by his brush, viz. 'The Riders of the Avalanche,' a beautiful piece of work, and 'Himalayan Fairies,' a less successful effort of imagination in the same line. There ought to be more pictures dealing with everyday mountain life. There is a wealth of picturesque incidents, homely, romantic, adventurous, and pathetic, belonging to all seasons of the year, and to regions both above and below the snow line. Professor Herkomer has shown us some of them. As for our own particular pastime, no doubt there is a general impression that all sports are unsuitable for really artistic treatment. Perhaps it may be conceded that no great picture is likely ever to be painted of a cricket match, a four-some, or a horse race. But as regards mountain exploration, and even chamois hunting, the case is different. They can surely furnish subjects not less suitable than have been found in Arctic travel, or in deer-stalking, by Landseer and others. Indeed, if the mere picnicky, greasy-polarity element be excluded there ought to be no difficulty in finding in them motives quite as worthy of attention as, for instance, Watteau's fashionable revellers, or Teniers's boozing boors, or Rubens and Snyder's sanguinary pig-slaughterings, or Van der Helst's dinner parties. Our costumes may not be so gorgeous, nor our complexions so softly blended, as those of the warriors and saints and gods and goddesses of the old masters, but our occupations are no less respectable and our backgrounds and foregrounds are, or may be, even grander. The fact is that the immortal element in any picture is the treatment rather than the subject; and the reason why no great pictures of man in the mountains have yet been painted is that no great painters have laid themselves out to paint him there.

As landscape subjects the mountains have been more fortunate, though even here most painters of any mark have deliberately avoided what we all know to be one of the noblest fields for the exercise of their genius, the region above the snow line. It is to be feared they have not been there to see. From the sky in storm or sunshine to the jewelled foregrounds of snow, rock, or ice there is nothing in nature to surpass in beauty the scenes which live in our memory. The one substantial excuse is the difficulty of doing justice to them. But what is genius for if not to overcome such difficulties?

Turning again, however, to our exhibition, there was much to console us in this respect, even if there were no work of the very first rank. Taking first the idealistic as distinguished from more realistic pictures, there were some beautiful examples. Mr. Albert Goodwin's 'Engelberg,' if scarcely recognisable as the Engelberg with which we are familiar, was a charming little rendering, in an almost Turneresque style, of the spirit of an Alpine valley. Mr. Watts's 'Vesuvius,' mysteriously simple, will be remembered

longer than his 'Monte St. Angelo,' which might be called simply mysterious. On the other hand, his panorama of the 'Alps of Savoy from Monnetier,' though marred by studied abstinence from beauty of form or colour in the foreground, middle distance, and sky, was so fine in the soft ranges of far away hills as to stand out as one of the most noticeable pictures in the room. A certain Stottesqueness about Mr. Stokes's 'Butzenspitze — Moonrise' entitled it to be ranked with the idealistic landscapes.

The collection was stronger in more matter of fact work, many of our old friends being well represented. M. Loppé sent several small canvasses, including one beautiful little sketch of the Matterhorn in clouds, and a tender sunset on Mont Blanc. Mr. Crofts's well known style was easily recognisable in eight pictures, of which the 'Fall on St. Gothard Pass' was perhaps the best. That Mr. Williams had been busy at the Schwarzsee was clear from four large watercolours, all as interesting as usual. Mr. Compton had worked equally hard on the Brienzer Rothhorn. His small view of the 'Brienzer See' from that point was one of the most truthful and delicate bits of distance painting in the gallery, and his 'Summit of the Brienzer Rothhorn' was an admirable sketch, solid and yet not hard, with the too rare quality of perspective in the receding surfaces. His 'Monte Rosa from Monte Moro,' a sunrise effect, was also exceedingly good, except, perhaps, in the foreground portions. Altogether his work gets better and better every year, and he is one of the few artists who dares to grapple with some of the more difficult subjects of the upper world. Mr. Donne, on the other hand, unless in 'a Pastoral Chalet near Cortina,' was hardly at his best. Mr. Colin Phillip, however, sent two of his wonderful renderings of British hill scenery. The Scotch scene, of melting snow and rain, was as good as possible in the upper portions, though the lower slopes scarcely came forward enough, nor were the nearer rounded lumps between the water channels quite happily shaped or grouped. Mr. Alfred Parsons's little 'Dent du Chat' (which might, in virtue of the open-mouthed dog in the foreground, have been entitled 'Langue du Chien') was a remarkably vivid study of *Clematis montana* relieved against blue hills, and even more successful than his brilliant parterre at Tresserve. Mr. Herbert Coutts's 'Sheep Farm in the Duddon' was a fine broad presentment of the rich glow of evening on a plain hill-side, a subject seldom painted so well. Signor Delleani had half a dozen rather hard, strong oil sketches, of which the 'Lake of the Mucrone' was far away the best. Mr. Corbet's big 'Carrara Mountains,' good as it was, might, some of us thought, have been made more interesting. Another big picture, by M. Baud-Bovy, 'Crépuscule dans la Vallée de Lauterbrunnen,' was hardly well seen hung so high. It would probably be more interesting if seen without the contrast of more strongly painted neighbours. The peculiar effect of the hour, when every feature is seen with equal yet faint clearness, appeared to be excellently depicted; but it is an effect

which necessarily entails a certain flatness and all-overishness, and does not appeal to every one.

There were, of course, many other works which deserve notice, but this article is already too long; and the only remark which need be added is that the exhibition was one of the best which has been collected by the Club, and well deserved the attention which it received from the many visitors who were fortunate enough to see it and the trouble bestowed upon it by the Hanging Committee.

NEW EXPEDITIONS IN 1898 (*continued*).

Bernese Oberland.

BONNE POUPEE.—On August 29, Mr. G. W. Young, with Clemenz Ruppen and Alois Eier, made the first ascent of the N.E. arête, which joins the Hohstock-Unterbächhorn ridge at the point (3,257 m. = 10,686 ft.) first climbed by the Rev. Harry Wilson in July 1898,* and named by him Bonne Poupée. Leaving the Ober-Aletsch Glacier at 9 A.M., the eastern branch of the forked ridge-end and the summit of the arête were followed to the broad col, where the ridge merges in the peak (11.30 A.M.), only one real difficulty presenting itself. From here by broken rocks the summit was reached at 12.15 (3¼ hrs.). Continuing along the ridge W., and following for the first time the actual arête, the second ascent was made of Mr. Wilson's two peaks, the Witwe (3,298 m. = 10,821 ft.) in 15 min., and the Graf (3,348 m. = 10,968 ft.) in 25 min. Descent was made by the W. ridge and S. glacier to Bel Alp in 1½ hr.

GRISIGHORN-UNTERBÄCHHORN. *August 31.*—The same party, without Eier, taking to the rocks at the centre of the N. face of the Grisighorn E. arête, just above the highest prominent old snow patch, ascended by a series of awkward little chimnies, bearing gradually W., to the edge of the arête (1 hr.). This was followed, just above the customary E. ridge route, to the summit (20 min.). From here the edge of the sharp and deeply serrated ridge running N. to the Unterbächhorn was kept to, and throughout gave climbing of considerable interest. At a deep and conspicuous little notch (Kinder-joch) reached in 3½ hrs., where the rocks dip noticeably to the level of the glacier, lack of time compelled a descent to the ice. The upper edge of this led (in 10 min.) to the foot of a prominent little peak (3,229 m. ? figures in map illegible, but it is the only point on the ridge the height of which is marked), which was ascended by its S. arête (25 min.). It was agreed to call this peak the Dame Alys. The descent was made by the N. ridge and the slabs of the E. face to the glacier, and thence (1 hr.) to Bel Alp. This ridge gives climbing of a higher order than any other in the immediate neighbourhood of Bel Alp. The difficulties cannot

* *Alpine Journal*, vol. xix. no. cxlii. pp. 249, 50.

be avoided, as they generally can on the Hohstock and like ridges. The Dame Alys could easily be ascended by the snows of the S.E. face. The remainder of the ridge from the Dame Alys to the Unterbächhorn is still unclimbed.

FUSSHÖRNER.—On September 3 the same pair, leaving the Ober-Aletsch Glacier at a point some 20 min. S. of the usual route to the highest peak, ascended over grass and easy slabs to the foot of the ice couloir which divides the principal from the subsidiary peaks. Up this steps were cut, with some danger from falling stones, to the little col at the foot of the S. arête of the final point (2 hrs.). The time spent here in surmounting some delicately poised rocks might be saved by taking the northern arm, where the top of the couloir forks. The actual S. arête proved easier than expected, the only danger consisting in the looseness of the rock; 20 minutes up slabs, corners, and chimnies, followed by 10 more up the steep edge itself, led to the summit (4 hrs. from Bel Alp). On the descent the shattered W. face and the broken summit of the long W. arête were followed for the first time, leading directly down to the Ober-Aletsch Club Hut. This ridge is loose and uninteresting, with nothing to recommend it, but the ascent of the highest point by the S. couloir and arête is an improvement on the 'scree' route usually followed.

Northern Norway.

THE LYGGEN DISTRICT.—TROMSÖ AMT. *July 11-12.*—Ascent of Kjostind (at the head of Kjosentjord), W. Cecil Slingsby and G. Hastings left camp on the shore of the Jægervand (Hunter's Lake), 15 ft. above sea level, at 6.5 A.M., and followed the long stone-strewed valley of Stortind up to its head. The glacier foot was reached at 9.15, height 690 ft. Following up the left-hand side of the glacier we reached the pass, which leads over into the northern branch of upper Fastdal, at 10.15, height 1,350 ft.

We made slow progress down the valley, as it was a warm and very relaxing day. We therefore determined to go down to Fastdal, on the shores of the Lyngenjord, for food and rest. After three hours' rest we started again at 8.20 P.M. We followed the Fastdal river, keeping to the right bank, and went up the southern branch, which leads up to a broad and easy pass of 1,790 ft. into the Tutteboerdal—a valley leading down to the Kjosentjord.

Several hundred head of reindeer, owned by Lapps, were grazing unherded in the valley, and were very tame. We went very slowly and rested often, reaching the foot of Kjostind (the northern face) at 2 A.M. At first the ground was very broken and loose, and we took to the snow, which was not too hard for kicking steps, where we could. Further up we kept on the northern ridge, which, as we got higher, afforded some pleasant scrambling. The top was reached at 8.15 A.M., and consisted of a fine dome of snow resting on a more or less horizontal surface, and about 150 yards in diameter. The

height was 5,680 ft. An extensive view of the mountains around was obtained, though the weather was dull and gloomy.

The peaks to the north looked very fine. Bold rocky aiguilles and ridges rose above the snowfields which form the Stortindal Glacier and the Strupen Glaciers.

The top was left at 10.15. We crossed the watershed, 1,790 ft., between the Lyngen and Kjosens Fjords. We went along the shores of two lakes which were still covered with hummocks of winter ice. Their outlet drops into the Stortindal, which we reached at 2.30 P.M. After much tribulation over scree slopes and old moraines we got back to camp at 5 P.M., the last hour's going being in a downpour of rain.

STORTIND (BIG PEAK). (THE LAPPISH NAME IS GARJELGAISSA, AND MEANS THE RUSSIAN PEAK.) July 15.—J. Caspari (Hamar), W. P. Haskett-Smith, W. Cecil Slingsby, G. Hastings, and E. Hogrenning left camp on the shores of the Jægervand at 6.15 A.M., and made for the north-western ridge of Stortind. We were above the birch forest in 45 minutes, and reached the ridge, from which we looked down on to the Forholt Glacier at 8.30. A little further up we came upon a gap in the ridge, to overcome which we had to descend a long way down on the right or the western face of the ridge. We were three hours traversing over steep slabs of rocks before we found a way back on to the ridge. The climbing was first-rate, the ridge being a knife edge in places and much pinnacled. At 2.45 we topped a subsidiary summit and looked across a forbidding dip at the top of Stortind. A steep and jagged ridge led down to a snow col, then an ascent of 500 ft. up steep snow which, as we mounted, became thin, and steps had to be cut through into the ice below. 150 ft. more over rocks landed us on the summit at 4.40; height 5,140 ft. The view was disappointing, owing to the weather. The clouds surged up from the south-west and blotted all out.

We left the top at 6.30 and returned the way we had come.

Camp was reached at 12.45.

PASSAGE OF THE STRUPENSKAR. July 17.—The same party left camp at 1.35, and rowed north along the shores of the Jægervand, crossed the lower north-western spurs of the Jægervand peaks, and at 5 P.M. reached the moraine-strewn valley of Sörlengangen. This valley runs west in a deep trough, and begins at a low pass which opens on to the Strupen Glacier, not far from the shores of the Lyngenfjord. As we went up the valley we had on our right a beautiful peak called by the natives the Lenangentind; it is the highest in the peninsula of Lyngen, and has a large glacier on the west which drops down into the valley in a fine icefall, 1,200 ft. long; a short distance below is a tarn 600 ft. above the sea, on the low side of which is a very noticeable terminal moraine.

Three hours were spent in taking photographs and in waiting for the mists to clear away. About 7 P.M. the mist became very dense, and we could see nothing of our surroundings. We passed by four lakes, the last lake being 1,780 ft. up. We then reached ground which fell away to the east, so we built a cairn at 2,040 ft., and

descended to the shore of another lake 1,900 ft. high. Owing to the mist we could not see the extent of it. We clambered along the northern shore, and for over an hour we were crossing steep slabs which went down into the lake. The surface of the lake was covered with hummocks and large sheets of ice. At 1.45 we reached the end of the lake, height 1,910 ft., and found it was caused by the Strupen Glacier holding it up, as the Aletsch Glacier does the Märjelen See. (A few days later Herr Caspari returned with a party of friends from Tromsö and found the lake had sunk 100 ft., and he was able to walk along beneath the slabs we had had to go roped over.)

We crossed the Strupen Glacier, ascending from the lake 500–600 ft. to avoid crevasses, and then dropped down a ravine, which descends alongside the icefall. The glacier falls from 1,000 to 1,200 ft., forming a heap of avalanche snow very near to the level of the sea. As we came down the ravine we could see a fishing-boat in the bay below. This was indeed fortunate, as there is no outlet along the coast, for the cliffs on both sides are impassable, and an ascent of 3,000–4,000 ft. would be necessary to reach the next habitations to the south. The fisherman willingly rowed us to Fastdal, where we landed at 4.45, and, after three hours' walking through small birch forest, we arrived at Lyngseide, where we found welcome and comfortable quarters.

ISKARTINDER. *July 21.*—W. P. Haskett-Smith, W. Cecil Slingsby, and E. Hogrenning made the first ascent of the eastern peak and also the highest peak (Östlige and Store Iskartinder).

These are fine peaks affording beautiful views and fine ridge climbs. A very difficult descent was made by the Isskar Glacier, which lies between Sofietind and the Lille Iskartind (Vestlige).

STORE JÆGERVANDTIND (THE BIG PEAK BY THE HUNTER'S LAKE). *July 23.*—W. P. Haskett-Smith, W. Cecil Slingsby, G. Hastings, and E. Hogrenning left camp at 9.45, and reached the Forholt tarn (880 ft.) at 10.55. The Lille Forholt Glacier, *i.e.* the left-hand one as seen from the tarn, was reached at 2.45. Height, 1,950 ft.

The glacier offered no difficulty, a quarter of an hour's cutting saw us across the bergschrund; height, 3,750 ft. We took the left-hand one of the gullies which come down from the south-western face of the peak. At 3.45 we reached the top of the snow gully, and came out on a ridge, 4,800 ft., which overlooked the Stortindal Glacier. An easy ascent of 500 ft. landed us on the first summit, 5,800 ft., at 4.10. The highest point stood some little distance off, but was joined to where we stood by a narrow and very fine ridge. At 4.45 we reached the top. Height, 5,850 ft.

A fine lofty cairn was built, and a stay of three hours was made for photographic and survey purposes. It was the first peak we had ascended in clear and bright weather.

At 7.50 we started back, had a long glissade down the snow gully, crossed the bergschrund at 8.30, and the glacier snout at 9.30, and reached camp at 11 P.M.

LENANGENTIND, LENANGENSKAR AND ABRAMSKAR. *July 25 and*

26.—The same party left camp on the shores of the Jægervand at 12.30 P.M. and rowed down to the north end of the lake. Two and a half hours' going brought us to the level of the old moraine, 930 ft., in the Lenangen valley, whence we had a good view of the glacier and icefall we hoped to ascend, so as to attack the western face of our peak. We descended 330 ft. to the tarn below, and had lunch. We passed the end of the glacier, 900 ft., at 5.55 P.M. For 1,200 ft. we kept alongside the right bank of glacier.

At 6.50 P.M. we made for the middle of the glacier, and found a lane between the crevasses caused by the friction of the mountain wall on our left, and by the icefall on our right. The ice scenery here was very fine, pinnacles and arches of ice illumined by the nearly horizontal rays of the sun.

At 3,300 ft. we left the crevassed glacier behind, and had opened out a wide snow gully, which ran up nearly to the top of our peak. It broke off in several branches on the left.

The bergschrund was crossed without difficulty by a bridge of old avalanche snow, 3,530 ft. We started at 8.30 to kick steps up the gully, the snow being in fair condition.

It took two hours to reach the top of the gully, and then we climbed out on to a narrow ridge on the right of the peak, to find we were 250-300 ft. below the top. A rock pinnacle on the ridge made us descend to reach the face of the mountain. Half an hour's climbing up steep rocks, where the holds were magnificent, landed us on the summit at 11.45 P.M.

Some three hours previously a sea fog had spread over the Ulfafjord on the west, and then gradually risen over the low-lying land and up the lower valleys. It now lay from 1,000 to 1,500 ft. above the sea—a far-reaching, billowy cloud. Above this the tops of the distant islands on the west and north could be seen. The mountains of the Lyngen peninsula to the north lay between us and the midnight sun, which glistened on the fog-cloud extending over the open sea away beyond Pipertind.

On either side of the mountain peninsula we were on, lay the Ulfafjord and the Lyngenfjord, which extend so far into the mainland on the south. We could easily trace their course between mountain walls, now half filled with white, billowy cloud.

Two hours and a half were spent on the top. The descent was made by the S.E. face, down which some pleasant scrambling landed us on the snowfields of the Strupen Glacier. We kept high up, under the southern ridge of Lenangentind, until we came to a deep cleft (the Lenangen pass or skar), which opened out on to the upper Lenangen Glacier. On our left, as we came on to the latter glacier, there was a low col leading over to the Stortindal snowfield. This would have been an interesting route back to camp; but our previous experiences in the stone-covered Stortindal made us reject the proposal as soon as it was made.

Half an hour over flat glacier brought us to the foot of the gully we had ascended seven hours previously.

Smooth and easy snow slopes extended up to the col between

Store Jægervandtind and the northern Jægervantind (Elisabeth-tind). A variation of the route back and the chance of a fresh pass led to the party being divided; and while one party returned by the route they came, the other crossed the pass, 3,980 ft. (Abramskar), at 5.5 A.M. On the other side a long glissade was obtained down snow slopes which dropped into the sea of fog now lying 3,000 ft. up.

The shore of the lake was reached at 6.55, from which the sea fog had risen a few hundred feet.

Camp was reached at 8.20 A.M.

FUGLEDALSKAR, BETWEEN FORNÆSBRE AND FUGLEDAL. July 29.—Started from Gjøvik at 6.30 A.M., reached the foot of the Fornæs Glacier at 9.30. The weather looked threatening, so altered our plans, and instead of going for Fornæstind we started to explore the Fornæs Glacier.

We cut up the middle of the glacier snout, and then bore over to the left, got on to the moraine, and so escaped the icefall. Above the icefall the crevasses caused little or no difficulty, as for a long way up, from 2,500 to 3,300 ft., the snow had melted away sufficiently to expose all the crevasses which were over half a foot wide.

The pass, 3,780 ft., leading over into Fugledal, was reached at 12.35 P.M. On the S.W. the warm summer winds and the heat from the sun-warmed rocks had melted a great hollow in the adjoining snowfield, and a steep wall of hard snow, 70 to 80 ft. high, had to be surmounted.

The clouds were down below the col, and we had to watch the compass and guess our direction by a map that was most indistinct, until we came out below the cloud line. We kept to the right along the southern face of Durmaalstind to avoid the crevasses. At 3.15 the view unfolded, and a most remarkable scene it was—a cirque of mountain wall, topped by the upper glaciers of Yekkevarre, and Skarvknausen, which fell from 1,000 to 2,000 ft. over the crags and formed into glaciers below. Against the crags the clouds surged, sometimes rising and exposing the ice-cliffs above, at others sinking and hiding them from view.

On ledges were the remains of avalanches, ice fragments, waiting for the next fall to carry them on, or until they were melted by the falling glacier streams—streams which, dropping through the mist, had an eerie look as they were blown to and fro by the gusty south-west wind.

The glacier we had crossed below the pass comes from the N.E. slopes of Yekkevarre. Below the pass it falls steeply and breaks into a maze of ice pinnacles.

We kept to the right bank of the glacier and had a steep descent over the band of hard rock which is the cause of this extraordinary cirque. Against the foot of the rocks there was a high narrow moraine. The ridge of it fell away very steeply down the valley. At 4.15 we reached the foot of the glacier.

Away on our left there were three glaciers which were formed by the avalanches from the upper snows of Yekkevarre. The two

nearest glaciers did not extend much further than the glacier we had descended. The distant Skarvknausen Glacier, fed from the upper snows of Central and Western Yekkevarre, was a much larger glacier, and on rounding the bend in the valley we found it terminated in a glacier tarn, forming ice-cliffs 80 to 100 ft. high above the surface of the water. Innumerable ice-floes covered the lake.

The right-hand side of the valley was cumbered with gigantic morainic blocks, monuments of a past age, when the glaciers probably swept down into the fjords, 1,600 ft. below. We found the outlet of the tarn to flow over a bed of hard slabby rock.

Great difficulty was experienced in crossing the outlet of the lake. We had to cross it to avoid the descent of a broad band of slabby rock over which the torrent cascaded.

At 7.30 we reached the shores of the Sörfjord, the upper branch of the Ulfstjord. A trudge of over three hours in heavy rain landed us back at Gjøvik at 10.50 p.m.

FORNÆSTIND. *August 1.*—This is a most conspicuous hill, seen when entering the Kjosensfjord, and had the reputation of being inaccessible. Several attempts had been previously made, and one of our party had attempted it last year, but gave it up, owing to bad weather, and a heavy snowfall.

The same party left Gjøvik at 1.15 a.m. with the intention of crossing the peak, starting up the northern ridge which overlooks the Kjosensfjord, and descending by the southern face into upper Fornæsedal. We had with us a flag, which we had audaciously asked for to fly from our cairn. The top of the northern ridge, 3,700 ft., was reached at 5.10, after two hours of pleasant rock-climbing. A gap of 190 ft. divided us from the main peak, but offered no difficulty.

Masses of cloud surged up from the east and hid the top from view. The ridge leading up to the peak is broken into pinnacles. One deep cleft, which we had seen from below, continued down the west side a wall-sided gully, the highest wall being towards us.

We kept the ridge on our left, but in the mist we went too high, and found ourselves stopped by the ravine. We were nearly three hours before we could find a route down. It was 11 o'clock by the time we reached the bottom of the ravine. We then followed a branch gully which came down the north-western face of the peak, and finally arrived at the top at 1.20 p.m., 5,800 ft.

Fortunately the mist had cleared away about 12 o'clock. We spent five hours on the top, a noble cairn was built, a flagstaff fixed and the flag flown from it. The descent was begun at 6.10. For several hundred feet we were much helped by a snow gully on the southern face. Lower down we worked off to our left and had some good climbing over steep slabs of rock, working down shallow chimneys from ledge to ledge. We got off the rocks into upper Fornæsedal at 9.10, and unroped. Two and a half hours' hard going landed us back at Gjøvik at 11.50 p.m.

ANDERSTIND (THE MOST NORTHERLY OF THE LAXELVTINDER). *Aug. 5.*—W. P. Haskett-Smith, G. Hastings, and E. Hogrenning

started from Holmebugt at 10.30 A.M. in doubtful weather, went up the right bank of the Andersdal river for an hour and a quarter, to where a shatter of big boulders afforded a ready means of crossing the river.

After we got through the fir and birch scrub, we had easy grass slopes leading for some distance up the northern ridge of our peak. A small glacier lies on this face of the mountain, with a glacier tarn at its foot.

At 2.20 P.M. we reached the ridge, 3,050 ft., which overlooks the Laxelv Valley, and sheltered here from a hailstorm for some time. At 3.15 we started up the rocks, putting on the rope.

The climbing was of the Chamouni Aiguille type, a steep, slabby ridge. We were not able to keep on the ridge for very long, but for short, spaces, climbed up first on the left-hand side, then the right-hand.

At 6.45 there was an opening in the clouds, and an hour and twenty minutes were spent by one of the party in getting views of the Yekkevarre range, while the other two prospected further ahead.

The summit, 500 ft. above, was found to be cut off from the ridge by a rift. We, however, turned it, by descending an ice-clad gully, which brought us out on to the right hand or south-western face of the mountain. Here a steep face of rock, which, however, was furnished with magnificent holds, gave a rattling finish to a good rock climb, height 5,380 ft.

It was 9 P.M. when the summit was reached.

We found a route straight down the northern face, and the glacier was reached at 11.35, and a quick descent, helped by old avalanche snows over which the glissading was good, brought us soon down to the tarn at 12.35.

Holmebugt was reached at 2.15 A.M.

SKARVKNAUSEN AND THE WESTERN PEAK OF YEKKEVARRE. (LAPPISH 'GLACIER MOUNTAIN'). *Auy.* 8.—G. Hastings and E. Hogrenning (Loen) started from Holmebugt at 11.30 A.M., reached the Holmebugt Glacier, 1,440 ft. up, which comes down from the western side of Skarvknausen.

A route was forced through the icefall, which occupied us for two hours. The right-hand side of the glacier had the appearance of being swept by stones, and would otherwise have been a much easier route to follow. On reaching the upper glacier the clouds surged up from the Sörfjord. Now and again they opened, and occasionally blue sky was visible in patches. A way was found over the upper glacier on nearly bare ice to the upper snowfields of Skarvknausen.

Steering by compass bearing, a line was made for the western peak of Yekkevarre. At 6 o'clock the only rocks which are exposed on these upper snowfields were seen, and the summit of West Yekkevarre reached at 6.20 P.M. Height 5,940 ft. Though blue sky was visible overhead at times, the driving clouds of mist blotted out all the surrounding peaks, so we gave up the plan of crossing over Yekkevarre from west to east, and returning down Fugledal to Holmebugt.

A course was laid for the upper end of Lyngdal, a large glacier valley, which is chiefly fed from the upper snows of Yekkevarre. It lay between south and south-east. After going for an hour and a half over gentle snow slopes, we were brought up in a maze of crevasses, through which no way could be made. On the right and left the snowfields fell over rock walls on the Lyngdal glacier below. We retraced our steps some way, going up 1,050 ft., and reached the southern spur of Yekkevarre at 9.5. On the west side of it we found a narrow snow gully, broken with three pitches, which gave us a good line on to the Balgevarre glacier in Andersdal. The glacier was left at 10.55, height 2,090 ft. The first tree was passed at 1,450 ft., and the river bed reached at 11.45 P.M., close to where an osprey had built her cumbrous nest on a huge boulder 70-80 feet high. Holmebugt was reached at 12.50.

ASCENT OF THE JÖKULS GLACIER AT THE HEAD OF THE JÖKULS FJORD. *Aug. 16.*—This glacier is the only one in Europe that calves into the sea. At 1.30, after a wet and wild morning, G. Hastings and E. Hogrenning sailed and rowed up the fjord from Havnbugt, near the entrance to the fjord. We arrived about 4.30. We started from the shore at 4.50 P.M. on the left-hand side of the glacier. We went up over rocky ledges, covered in many places with loose *débris*.

At 6.45 we reached the moraine at a height of 2,200 ft., below which the glacier falls over the wall of rock as seen from the fjord. At 800 ft. lower down it forms again and flows onwards, crevasses and breaks off in the sea as hummocks of ice.

The weather looked very threatening, so we pushed on to a height of 3,300 ft., from which point we could look down on to a branch of the Alten Fjord. Here we turned back, as heavy rain was now falling, and descended through a line of crags which lay to the east of our route up. We got to the fjord at 10 P.M., and reached Havnbugt at 1.15.

RENDALSKAR. *Aug. 22.*—This is a pass through the mountains to the north of the Strupenskar, and leads over the peninsula from the shores of the Lyngenfjord to the Ulfsfjord.

After three days of heavy rain and stormy winds, very trying to our tent, G. Hastings and E. Hogrenning left at 10.15 the camp on the desert shores of the Lyngenfjord, and reached in two and a quarter hours the foot of the Rendal Glacier, 1,100 ft. high.

The top of the pass is only a few feet above the left-hand side of the glacier, where it bends sharply from north-east to south-east. Height of pass, 2,040 ft.

We followed the valley down towards the Sörlenangen Fjord, a branch of the Ulfsfjord, for two hours, and passed no less than five successive lines of old terminal moraines.

A lake (apparently moraine-dammed) was found at 1,540 ft. above the sea.

Heavy rain came on, and the clouds dropped when we were 1,200 ft. above the fjord, down to which the valley fell in easy slopes. So we returned to our camp on the Lyngenfjord. G. HASTINGS.

ALPINE NOTES.

ALPINE HONOURS.—On December 18, 1898, the Rev. W. A. B. Coolidge was elected an honorary member of the Italian Alpine Club.

ALPINE CLUB OBITUARY.—The following members of the Club died during 1898. The figures in brackets give the date of election to the Club:—Lieut.-Colonel Barrow (1861), F. Aston-Binns (1898), F. W. Gibbs (1866), C. B. Grant (1897), J. Hopkinson (1889), F. C. Hartley (1876), J. Heelis (1877), E. S. Kennedy (original member), C. Oakley (1864), Captain Utterson-Kelso (1872).

CORRIGENDA in 'Alpine Journal,' No. 142, November 1898:—

Grand Golliaz, pp. 244-5.—It should have been clearly stated in the note on this peak that Mr. Topham's party was the first to make the ascent *from the Swiss side*, and was also the first to climb the E. ridge.

Denti di Vessona, p. 246.—The central and N. Denti were ascended on July 19, 1896, by SS. Canzio, Vigna, and Toesca. ('*Rivista Mensile C.A.I.*,' July 1896, pp. 288-9.)

Bec d'Éprouv.—No part of this traverse appears to be new. See the general account of the peak in the new edition of Studer's 'Ueber Eis u. Schnee,' vol. ii. pp. 526-7, and also '*Jahrbuch des S.A.C.*,' xxviii. pp. 306-7, and xxxii. p. 104 *sqq.*, as well as '*Alpine Journal*,' vol. xvii. p. 355.

Mt. Faudery, p. 245, line 10 from bottom of page, the word 'By' has been omitted. The sentence should read 'also easy to reach By by turning N.E.'

THE NEW EDITION OF BALL'S 'ALPINE GUIDE.'—Any subscriber to the republication fund, or purchaser, of Ball's 'Alpine Guide' who may wish to have the fly-leaf containing the corrigenda and addenda to Vol. I., which has just been prepared by the Editor, may obtain it by applying to the Assistant-Secretary at the Club rooms, and enclosing three penny stamps.

'ALPINE JOURNAL.'—Wanted to purchase, vols. i.-xiv.; for sale, a complete set; also wanted by members, Nos. 21, 32, 33, 64, 66, 67, 70, 73, 74, 77, 78, 101. Will members having or requiring any of the above or other parts kindly communicate with the Assistant-Secretary, 23 Savile Row, W.?

MOUNTAIN HUTS.—The Editor would be glad to receive any information founded on personal knowledge which would be likely to be of interest to climbers as to the state and equipment of the less-frequented mountain huts. Trustworthy evidence, for example, as to the state of the Cabane on the A. du Midi would be very acceptable.

MR. LANDOR AND HIS CRITICS.—In consequence of our review of 'In the Forbidden Land' having been reprinted in the 'Daily News,' Mr. Landor addressed the following note to that journal:

'I am much vexed to find that the Alpine Club, through the

medium of their Journal and your paper (December 16), has, without my knowledge or consent, used my name to advertise their nailed boots, staves, ropes, and other articles suggested in "Hints to Travellers," and which are used no doubt by members of the Alpine Club and by giddy and inexperienced mountaineers. I have never required any of these articles. As the misleading advertisement is issued in the shape of a review of my book "In the Forbidden Land," I wish to add that the advertiser would have done well to read the book before he had set himself to comment upon its incidents.'

A controversy ensued between the author and Mr. Douglas Freshfield in the London and provincial press, which has led to important results—the refusal or failure of Mr. Landor to furnish in reply any further proof of his assertions and observations, beyond the exhibition of his 'very boots' in Bond Street, and the authorisation by the President of the Royal Geographical Society, Sir Clements Markham, of a statement, which we copy from Mr. D. Freshfield's final letter to the press :

'In reply to Mr. Landor's statements, and in pursuance of a suggestion he has made, Sir Clements Markham has authorised me to make public the reason of Mr. Landor not having been invited to read a paper before the Royal Geographical Society. Mr. Landor recently submitted a paper and his map materials, consisting of field books and records of observations, to the Council, by which, after careful examination, they were rejected as insufficient and unintelligible. The grounds of this decision may be gathered from Sir Thomas Holdich's review ; * and I am informed that a more detailed memorandum will be prepared for the information of the Fellows of the Society.'

We must express our regret that the Managers of the Royal Institution—a body with which Tyndall was so long associated—should have allowed themselves to be used and quoted as the guarantors of the scientific qualifications of a traveller who had no better claims to their support than those Mr. Landor has been able to produce.

MR. LANDOR'S CLAIM TO HAVE ASCENDED TO A HEIGHT OF 22,000 FEET.—Any practical contribution that may help to throw light on the question of the greatest altitude attainable on foot is one to be warmly welcomed. In Mr. Landor's book, 'In the Forbidden Land,' the author states that he attained a height of 22,000 ft. under very adverse conditions. Now, if there is no mistake in Mr. Landor's calculations, his climb is one that furnishes exceedingly strong evidence in support of those who hold the view that the greatest elevation on the earth's crust—say 30,000 ft.—can be reached on foot. As one of those who believe in this possibility, I should be only too glad to accept Mr. Landor's ascent as strong proof in support of my view were I able to consider the evidence which he furnishes of having made the ascent to that height as in

* See *Geographical Journal* for December last.

the least degree satisfactory. Regarded merely as an athletic feat it is probably without any parallel at all. After a march of 10 hrs., during which time he had taken no food, Mr. Landor found himself at a height estimated at 16,150 ft. Starting, still fasting, at 4.30 P.M., he reached at 11 P.M. a height, according to his published statement, of 22,000 ft.—*i.e.*, he rose through a height of 5,850 ft. in 6½ hrs. This shows a speed of about 900 ft. vertical height per hour, supposing that no halts were made. Actually the ascent must have been made at a quicker rate. Some delay, at any rate, must have arisen when Mr. Landor's companions gave in. Over the most favourable ground, and without being encumbered by any burden, no other traveller has ever even nearly equalled this rate of ascent at such a height. The ground traversed, however, was very far from favourable, and is best described in Mr. Landor's own words. He writes : ' To gaze upon the incline before us was alone sufficient to deter one from attempting to climb it, had one a choice. In addition to this, the snow we struggled over was so soft and deep that we sank into it up to our waists. Occasionally the snow alternated with patches of loose *débris* and rotten rock, on which we were no better off ; in fact, the fatigue of progressing over them was simply overpowering. Having climbed up half a dozen steps among the loose, cutting stones, we felt ourselves sliding back to almost our original point of departure, followed by a small avalanche of shifting material that only stopped when it got to the foot of the mountain ' (p. 164). Mr. Landor, moreover, carried a weight of 60 lb. To furnish material for comparison, I may note that the Chamoni regulations prescribe that the load of a porter ascending Mont Blanc must not exceed, above the Grand Plateau, 10 kilos., or about 22½ lb. In support of the statement that the ascent, as described, is probably unique as an athletic feat, I may recall the experiences of others who have recently ascended to great heights.

On Tupungato, Mr. Vines and the guide Zurbriggen started from a camp 17,000 ft. high at 7 A.M., and reached the top (21,000 ft.) at 4 P.M. The walking was fairly easy, and the travellers made 4,000 ft. in 9 hrs., giving a speed of a little under 450 ft. per hour.* Mr. Landor was able to go at twice this rate.

The Duke of Abruzzi and his party, starting from a camp on Mont St. Elias at a height of 12,287 ft., reached the top (18,092 ft.) in 10½ hrs., having made 5,800 ft. in that time. The snow was in good order, and the ascent is described as easy. This gives a rate of about 560 ft. per hour. The descent of the 5,800 ft. occupied about 3 hrs.†

Mr. Landor, at a far greater elevation, in snow up to his waist, alternating with sharp loose screes, on which he was no better off, and carrying 60 lb., was able to ascend about the same height in four hours less time. This is remarkable.

Sir Martin Conway, on ' Pioneer Peak,' in the Karakorams, left his camp at the height of 20,000 ft. at 6 A.M., and reached the top,

* *Alpine Journal*, vol. xviii. p. 396.

† *Ibid.* vol. xix. p. 125.

about 22,600 ft., at 2.45 P.M. The snow was hard, and there was a considerable amount of step-cutting. He thus made 2,600 ft. in 8 hrs. 45 min., including halts. Sir Martin Conway's party therefore ascended at a rate of about 300 ft. per hour.*

Mr. Landor was able to go three times as fast as this party, at much the same height.

In Mr. Whymper's second ascent of Chimborazo, he left his fifth camp at a height of 15,811 ft. at 5.15 A.M. The first 3,000 ft., over snow in fairly good order, occupied 3 hrs. and 20 min., and he took 4½ hrs. to accomplish the remaining 1,664 ft. The rate of ascent, therefore, excluding halts, was about 630 ft. per hour.† The descent was performed at a rate of nearly 2,000 ft. per hour.‡ Mr. Landor, therefore, was able, at a greater height, to go half as fast again as Mr. Whymper and the Carrels.

Mr. Whymper, on his first ascent of Chimborazo, left his third camp, 17,285 ft., at 5.40 A.M. At 11 A.M. he had reached the height of 20,000 ft., and he got to the summit at 4 P.M. Over the last part the snow was very deep and soft, and the travellers experienced, as far as can be judged, the same sort of difficulties that Mr. Landor met with. They, however, were only able to make 500 ft. in 5 hrs. The total ascent was 3,200 ft., and occupied, including halts, 10 hrs. and 20 min. Mr. Whymper's ascent of 3,200 ft. and descent of the same distance occupied 16 hrs.‡

Mr. Landor, therefore, on tolerably similar ground, went more than eight times as fast as Mr. Whymper and the two Carrels, his guides, and rose through about twice the height that Mr. Whymper accomplished.

No one of the travellers or guides mentioned carried any burden approaching to a weight of 60 lb., and some of them only carried probably a very few pounds—say 5 or 6.

It is true that all the mountaineers mentioned wore the footgear they deemed most suitable for the work, and that none of them adopted the thin shoes Mr. Landor advocates. On the other hand, none of them carried 60 lb. dead weight during their ascents. The public have heard as much about Zurbriggen and the Carrels as about Mr. Landor, and will hardly class these guides as 'giddy and inexperienced mountaineers' because they wore hob-nailed boots. The natives in the Caucasus wear thin shoes without any nails. They are perfectly helpless on snow and ice, and a very ordinary walker, if wearing nailed boots, can easily outstrip them.

There is, therefore, an *à priori* case, strong enough to settle the matter in the minds of most people, against the possibility of Mr. Landor's ascent to 22,000 ft. Mr. Landor remarks in his book with reference to some information brought him: 'With my distressingly sceptical nature, I believe little that I do not see.' He should not consider it unreasonable if others, sharing the same

* Conway, *Climbing in the Himalayas*, p. 517.

† Whymper, *Travels in the Great Andes of the Equator*, p. 331.

‡ *Ibid.* p. 67.

frame of mind, require the strongest evidence in support of a performance so marvellous.

The evidence furnished is twofold.

Dr. Harkua Wilson, who gave in, overcome by mountain sickness at a height estimated at 20,500 ft. (this altitude does not appear to have been determined by any observations), certifies that Mr. Landor reached a height of 22,000 ft.* No grounds whatever are stated for this off-hand conclusion. No one can accept this as evidence.

Mr. Landor did not take his hypsometrical apparatus with him, † nor had he any mercurial barometer.

Mr. Landor took with him two aneroid barometers. One of these, furnished to him by the Royal Geographical Society, was only graduated to 20,000 ft., and had been tested to 15 in. This instrument, of course, was useless on the occasion.

Though not precisely so stated it appears therefore that the only observation that Mr. Landor could have taken for altitude consisted of a single reading of the aneroid graduated to 25,000 ft. Mr. Landor does not mention whether this instrument was tested before starting, or what its scale error was. This matters little. Unfortunately the instrument was not tested on his return. It is agreed by all competent authorities that at great heights aneroid determinations of altitude are unreliable even when the best instruments are used. The readings almost invariably indicate a greater height than has actually been attained. When the aneroid reading is a single one, not checked by the simultaneous employment of other means, and when the reading is uncorrected the observation is entirely valueless. It would be well if all explorers and mountaineers would realise fully this fact. No one acquainted with geographical methods, or even with elementary physics, can accept a single reading such as this as of the slightest value. Yet this single reading appears to be Mr. Landor's whole case as regards his ascent.

I do not for a moment imagine that Mr. Landor will admit that any error has crept into his account with regard to the altitude he believes he reached. Neither do I imagine for a moment that anyone who considers the circumstances impartially will come to the conclusion either that the ascent was physically possible or that the evidence in support of it is of any value.

In the 'Geology of the Central Himalayas,' by Mr. C. L. Griesbach, C.I.E., Superintendent of the Geological Survey of India, being vol. xxiii. of the 'Memoirs of the Geological Survey of India' (Calcutta, 1891), will be found reproductions of photographs of the Mangshan Pass, taken by Mr. Griesbach. The volume is in the library of the Royal Geographical Society, and copies of the photographs can be seen in the map-room, which is accessible to the public. The views show the summit of the Pass in the distance; the heights on either side of the broad snow saddle are insignificant, and certainly do not rise 1,000 ft. above it.

* Vol. ii. p. 243.

† See p. 162.

The 'incline' does not seem of a nature to alarm anyone. Indeed, the view shows a large nearly level glacier with two medial moraines; a very gradual short slope in the distance leads to the summit of the Pass. Over such ground it is quite inconceivable that anyone, under any conditions of snow and ice, should have been able to ascend at the rate Mr. Landor describes. The distance that would have to be covered in order to rise 6,000 ft. would be enormous. In the book referred to above, the height of the Mangshan Pass is given as 'nearly 20,000 ft.' Profiles of the range, drawn to a vertical scale, are also given. These indicate the height of the Mangshan Pass as between 19,000 ft. and 20,000 ft. Anyone who takes the trouble to examine the photographs will, I think, be forced to the conclusion that Mr. Landor is grievously in error in asserting that the top he reached was near, or above, the actual summit of the Pass.

C. T. DENT.

GSPALTENHORN.—On July 27 Mr. Frederick Gardiner, accompanied by the guides Rudolf and Peter Almer, left the Mutthorn S.A.C. hut at 3 A.M., crossed the Gamchilücke, and descending the Gamchi Glacier for about 800 or 900 ft., traversed easy snow-slopes under the Rothe Zähne and Gspaltenhorn, until the foot of the great couloir between the Büttlassen and Gspaltenhorn was reached. From that point the usual route taken for the ascent was followed. Time from Mutthorn hut to col between the Büttlassen and Gspaltenhorn 2½ hrs.' actual walking, and from that point to top, 2 hrs., the rocks not in very good condition. As the usual way of approaching the Gspaltenhorn is by first crossing the tedious Sefinen Furgge and passing the previous night in the uncomfortable Gamchibalm, the excellent shelter of the Mutthorn hut and the ascent of the mountain *via* Gamchilücke is an agreeable alternative.

LA SCIASSA (3,480 m. S. map: 3,477 I. map).—With Pierre Maître and Pierre Georges of Evolena I started from Chanrion for the Sciassa, July 24, 1897. Deterred by the appearance of the bergschrund under it we tried to make a circuit by the summit E., ascended by Mr. Parish and myself by mistake in 1881.* The name Punta Boetta is now suggested for it, and West Col de Blancien for the gap E. of it.† There appearing, however, not to be time to continue the expedition and reach Arolla, we descended to the latter place, and returning on the 26th ascended the Sciassa from the pass on the other side next Mont Oulie, first crossing a low side gap S. of pt. 3,199. The last part of the arête is narrow and jagged. There seemed to be no trace of a previous visit; we made a cairn on the summit and on point 3,321 I. map.

Mr. G. E. Foster records an ascent of the Sciassa from the

* *Alpine Journal*, vol. x. p. 492.

† See my panorama, *Alpine Journal*, vol. viii. *init.*, where the east and higher Col de Blancien appears below the Bec de Lusenedy, with the point on the ridge reached by me, 1879, just to the right. *Ibid.* vol. ix. p. 365. The Col des Rousses is now called Col de Sassa, 3,183 m., on I. map.

summit of the Col de la Reuse d'Arolla,* but it was long ago suggested that either La Sengla [which must command a fine view] was the peak, or the col was confused with the Col d'Otemma. † I learn from Mr. Foster that he has forgotten the details of the expedition except that the ascent was very easy, and, in recording it, he thought it a pity that others crossing the pass should not gain the view from the peak. He writes: 'At the time Hans Baumann and I were new to the neighbourhood, and no doubt depended on our porter [from Evolena] for nomenclature. Either he took us over the Col de la Reuse d'Arolla and up some wrong peak, or over some other pass and up the Sciassa. The first seems most probable, as, if I remember right, he said he had only crossed the pass once before.' The most likely explanation, however, is from the paucity of names on Dufour's map, the only mountain name on the range W. of Mont Collon for some distance being la Sciasso (*sic*), without height given, while there is no name or other mark to indicate the site of the Col de la Reuse d'Arolla. Mr. Foster, who used this, and had not seen the S. A. C. map, in a subsequent letter speaks of this solution as a very probable one.

COL D'OTEMMA.—The gap so marked on the S. map, as seen from the Sciassa direction, seemed to be impracticable on the Italian side. I before hazarded the conjecture that the name might be intended for the easy passage further E. mentioned above, but now think it probable that the true Col d'Otemma is the considerably lower gap between the Sciassa and Mont Oulie (called la Sangla also S. map, Bec d'Epicoum only Reilly's map), forming as it does the obvious passage between the middle part of the Otemma Glacier and Vallengelline. A mistake in the position on the map may have arisen from the confusion of names, L'Oule Cecca being an alternative name of La Sciassa ‡ on the S. map (not named I. map, and the word as applied to the valley below is written Sassa). This pass was crossed by me with Xavier Andermatten from N. to S., August 21, 1882, when we made an unsuccessful attempt on the Sciassa from it, a later attempt on the other side failing also.§

A. CUST.

* *Alpine Journal*, vol. ii. p. 415.

† See Studer's *Ueber Eis und Schnee*, vol. ii. p. 284. 1870.

‡ Now written Sziassa. See *Alpine Journal*, vol. viii. p. 94, according to which Sassa would be pronounced Chassa. There is no snow belt on the summit as on S. map, but as on I. map precipitous rock to S. On these names see *ibid.* vol. xii. p. 523.

§ Herr Wäber, formerly editor of the *Jahrbuch S. A. C.*, who kindly undertook to inquire into this matter for me, writes that he has failed to get a clue to the very intricate nomenclature of the chain between Col de Fenêtre and Col de Collon. Berthold's Triangulation has not a single name in this range. For the Siegfried map the authority was the Bagnes guide, Joseph Gillioz, the names being then submitted to Messrs. A. de Torrents and R. Ritz, of Sion, who, with some alterations in spelling, confirmed them. Herr Wäber being silent on the history of the Col d'Otemma, as to which I more particularly desired information, it would seem that no passage over the ridge between the Blancien and Mont Oulie is recorded in Swiss Alpine literature; accordingly, the appearance of the name in such a situation, first on the S. A. C. map and

WILDSTRUBEL DISTRICT.—*Les Faverges* (2,975 m.)—the highest point of the Autannaz Grat—can be ascended from the Wildstrubel Glacier in about $\frac{1}{2}$ hr., by easy snow slopes; and the Grat (which is a narrow ridge of rock) may be traversed as far as desired. Return by way of the Autannaz valley, which may be reached by either of the three following routes:—

1. At the E. end of the Autannaz Grat, quit the Wildstrubel Glacier, descend into the Autannaz valley by steep shale slopes and follow the Zesse Torrent.

2. W. of Les Faverges descend a small glacier shown on Swiss map, which discharges into the W. end of the Autannaz valley, and thence by shale slopes and the W. branch of the Zesse Torrent.

3. Skirt under the W. side of the Todthorn, and descend E. between the Todthorn and Mont Bonvin, by small glacier and snow slopes; ultimately joining route No. 2.

The Nusey Tritt, which forms the S. boundary of the Autannaz valley, may be crossed in three places. The usual route is by a goatherd's staircase, a few yards W. of the point at which the W. branch of the Zesse Torrent falls over the cliff—and this is the direct way in connection with routes 2 and 3. In connection with route 1, at least two more direct, but rather more difficult, ways, may be made down the cliff, at points a few hundred yards E. of that where the main or E. branch of the Zesse Torrent discharges over it.

afterwards on the Siegfried, remains unexplained (see also the above passage in Studer). I was told in 1879 that M. Girla crossed this ridge, while employed on the Government geological survey, with J. Anzevui and Elie Peter, of Ayer, being in search of a passage from Arolla to Bionaz. Anzevui also told me, in 1897, that he had crossed (on a different occasion?) the pass W. of the Sciassa, which he called Col de Grande Zamaine, that being the name by which he knew the valley on the Italian side.

In reference to the account of the above passes in *Climbers' Guide*, pp. 29, 30, and Ball's *Guide* (new edition, p. 450), it is unlikely, if the conditions are materially unchanged, that in the former days of mountain climbing a passage could have been effected over the gap marked Col d'Otemma on the map. This gap was never reached by me, and the *Climbers' Guide* is mistaken in attributing to Mr. Parish and myself an ascent of the Sciassa from it. The West Col de Blancien offers a finer passage from Arolla to Bionaz, especially if combined with the ascent of the Pta. Boetta, than the lower pass between the Sciassa and Mt. Oulie. On the Swiss side there is a bergschrund with a steep slope immediately above it to be reckoned on, and on this account in the reverse direction the alternative pass is preferable. The East Col de Blancien, from which the Blancien is reached, forms the most desirable passage in combination with the Col des Rousses (or Sassa) from Prarayan to the Otemma Glacier, but in the reverse way, for the reason mentioned in *Climbers' Guide*, it may be better to avoid the Col des Rousses. The *Climbers' Guide*, p. 31, attributing the ascent of the Blancien to Professor Baltzer (see *Alpine Journal*, vol. viii. p. 94 and ix. p. 365), I made inquiry of Herr Wäber, who has elicited from that climber himself that in the expedition referred to he did not ascend the Blancien, but an intermediate point between that peak and La Sengla; he then went up the latter, and descended on the W. side of it.

[We learn from Mr. A. G. Topham that on August 18, 1898, Signori F. Mondini and Canzio ascended the point marked 3,621 m. (between the Sengla and Blancien) by the E. arête. They found no cairn on it.—EDITOR.]

Time from Montana : Ascent, about 6 hrs. ; descent, 4 hrs.

On August 26, 1898, F. Corbett, G. L. Corbett, W. J. Clark, B. E. Clark, and O. B. Cowan, ascended Les Faverges from the Hôtel du Parc, Montana ; ascending by way of the Plaine Morte and Wildstrubel glaciers, and returning by the Autannaz valley, by route No. 1. The Plaine Morte Glacier was reached at a point immediately W. of the Todthorn, by shale slopes between Mont Bonvin and Tubang.

The Nuseyhorn (2,844 m.), lying between the Nusey Tritt and the Trubelstock, may be reached by either of the following routes :—

1. From the Autannaz valley, by shale slopes W. and then S. of the peak.

2. From the upper chalets of Nusey, by shale slopes S. of the peak.

3. From the Varnerkumme by shale slopes S. of the peak.

In either case, the final ascent is by easy rocks from the S. side.

Time from Montana : Ascent, about 5 hrs. ; descent, 3 hrs.

On August 29, 1898, F. Corbett, G. L. Corbett, W. J. Clark, B. E. Clark, and O. B. Cowan, made the ascent from the Hôtel du Parc, Montana ; ascending by route No. 1 and returning by route No. 3.

Pointe des Roses (2,820 m.) lies between the Wetzsteinhorn and Rohrbachstein and overlooks the Plan des Roses. It can be climbed in about 1 hr. from the plateau of the Plaine Morte, by way of the ridge connecting the peak with the Rohrbachstein.

Time from Montana : Ascent, about 5 hrs. ; descent, 3 hrs.

On August 30, 1898, W. J. Clark and G. L. Corbett made the ascent from the Hôtel du Parc, Montana.

Schneeegrat (about 3,050 m.)—This pass crosses the grat connecting the Schneehorn with the Wildstrubel, between the Schneehorn and the point marked 3,157 on the Swiss map, and (short of crossing the Wildstrubel) affords the most direct route between the Gemmi and An der Lenk, being considerably nearer than either the Lämmernjoch or the Schneejoch. The snow slope on the N.E. side is steep, but not difficult.

On August 1, 1878, Alfred Barran and Frederick Corbett (without guide) crossed the Schneeegrat from An der Lenk to Schwarnbach, passing over the S.W. portion of the Ammerten Glacier, skirting the Rätzli Glacier below the S. rocks of the Wildstrubel and crossing the Wildstrubel Glacier due E. to the col, which was reached by slopes of snow and shale ; thence descending to the Lämmern Glacier below the upper ice-fall and down glacier to the Lämmernboden.

Time : About 8 hrs., exclusive of halts.

FREDERICK CORBETT.

REVIEWS AND NOTICES.

The Annals of Mont Blanc. By Charles Edward Mathews, sometime President of the Alpine Club. (London : T. Fisher Unwin. 1898.)

'THE old school,' says Mr. Mathews in his concluding chapter, 'will never think any mountain so interesting or so beautiful as Mont Blanc. Tourists can never spoil it. Huts can never wholly vulgarise it.' And he adds : 'Each new generation of men will find in it, as we have found, the same interest and the same charm.' This witness is true. Mont Blanc is still the point of central interest in the Alps. When we have climbed a peak it is always to his majestic summit that we first turn our eyes ; and the better we know him the stronger is our desire still further to explore his glaciers and attendant aiguilles and to view him under new aspects. The early pioneers, no doubt, enjoyed special advantages. And yet, to say nothing of climbing without guides, it is still in the power of any lover of the mountains to recover something of their freshness of feeling if he will take competent 'foreign' guides to whom the mountain is new ground, and choose one of the less frequented routes. He may not succeed at the first attempt, and he will certainly spend more hours on the ascent than are set down in the Climbers' Guide. But in the course of it he will learn many things—this, possibly, among the rest : that Mont Blanc is still held in very high honour by the men who live in other Alpine valleys. For his guides, unimpressionable as he has found them elsewhere, will take as keen an interest in the success of the adventure as he does himself.

It was fitting that the Annals of Mont Blanc should be written for English readers by one of the Fathers of the Alpine Club, himself familiar with the mountain for more than forty years. And we may say at once that Mr. Mathews has done his work very well. And he has done wisely, too, in limiting himself to the history of the chief summit and the routes that lead to it. But from this point of view we think it hardly fair that among the fatalities should be included accidents on the Col du Géant that befell travellers who were simply crossing the pass, and not taking it as part of the route up Mont Blanc. Surely Mont Blanc 'has blood enough on those white snows of his' without being held responsible for eight lives lost on the Col du Géant, two on the Aiguille Blanche de Péteret, and one on the Aiguille Noire. Deducting these we reduce the total to thirty-six, though in fairness we must add the name of Dr. Jacottet, who died in 1891 at the Vallot Observatory. In dealing with this painful subject Mr. Mathews has taken exactly the right tone, and, as he points to the neglect of well-known rules, he speaks of 'the humiliation, and even anger,' that must be felt at a loss of life that was to so large an extent avoidable. With regard to the disappearance of Count Villanova and his guides and porters on August 18, 1890, he adopts the

commonly held view that they were blown off the arête connecting the Aiguille de Bionassay with the Dôme du Goûter. It should, however, be noted that M. Durier, who reached the Vallot Observatory at 1.30 P.M. on that day, and was held prisoner there by the storm till the morning of the 21st, gives some grounds for his belief that the disaster took place in the morning, on the Glacier du Dôme, far below.*

The rise of mountaineering in the modern sense, Scheuchzer and his dragons, and the history of Chamonix, are treated in the first chapter, and many will be glad to read the letters of Windham and Martel, which are given in *facsimile* in an appendix. In the chapter on the early attempts to ascend Mont Blanc we come to the author's most original contribution to the subject. He has brought to light Dr. Paccard's note-book (now in the possession of the Alpine Club), in which the Doctor was in the habit of recording particulars of the early expeditions down to 1825, and we confess that we approached this part of the book with some curiosity. In one sense Dr. Paccard's notes are disappointing. As regards the earliest attempts they are of considerable interest, often serving to correct a date or supply a detail, while the numerous botanical and geological entries bear witness to the scientific tastes and capacity of the writer. When, however, we come to the famous first ascent of the mountain by the Doctor himself and Jacques Balmat, on August 8, 1786, the diary merely gives a meagre statement in three lines. This is the more unfortunate because Dr. Paccard's printed account, published in 1786, has disappeared, Mr. Mathews says 'irretrievably.' But a generation that has witnessed the recovery of a lost work of Aristotle and the poems of Bacchylides need not despair, and the hint is sure to put many book-hunters on the alert. In the meantime Mr. Mathews has, we hold, made good his contention that the generally received account of the first ascent does grave injustice to the memory of Dr. Paccard. His name is well-nigh forgotten in his native village, while Balmat has a statue as well as a medallion in front of the church. Yet it was not always so. In the early references to the first ascent contained in the writings of de Saussure and Bourrit and Coxe, all published within three years of the event, Paccard and Balmat receive equal credit. It is clear, too, that Paccard, the village doctor and the son of one of the richest men in Chamonix, must have been a man of some scientific attainments, for he was a corresponding member of the Academy of Turin, and on the first ascent he took a barometer with him and observed it on the summit. He was twenty-nine years old (Balmat was twenty-four), and a competent mountaineer, 'fond of all hazardous excursions,' 'not a doctor only, but a philosopher and naturalist of no small repute,' to quote the words of Michel Carrier, a well known guide and the friend of Balmat, whose life he wrote. For some years he had been planning the ascent, and had three routes in view. From his note-book we learn that

* *Le Mont-Blanc*, par C. Durier, 1897, p. 451 sq. and p. 473 sq.

already, in 1784, he had attempted the mountain from the west, and to him belongs the credit of first prospecting on that side. Verses in Latin as well as in French were written in his honour, and M. Durier quotes the following couplet from a contemporary minor poet :—

De Saussure à la cime est arrivé trop tard,
Et déjà le Mont-Blanc était le Mont Paccard.*

and adds, characteristically, '*Le Mont Paccard ! Ah ! non, par exemple !*' Nay, more ; in the columns of the '*Journal de Lausanne*,' in February and March 1787, it was claimed for Paccard that the credit of discovering the *ancien passage* belonged to him, and the claim was supported by the publication of a certificate signed by Jacques Balmat. This strange document, to which Mr. Mathews refers, is printed in full by Mr. Whymper.†

How then has it come to pass that in the account now generally accepted Dr. Paccard plays a wholly subordinate and slightly ridiculous part ? Mr. Mathews suggests the explanation. The current account is derived from Dumas' '*Impressions de Voyage Suisse*.' In 1882 the eminent novelist visited Chamonix and had an interview with Balmat, then an old man of seventy. (Dr. Paccard had died five years before.) From his lips Dumas took down the account of the famous ascent, forty-six years after it had taken place. Another guide was present, Pierre Payot, father of the well known M. Venance Payot ; and, as we learn from M. Durier,‡ Pierre often told his son '*que le récit du célèbre romancier était le plus exact qu'on eût fait,*' though he added that '*Balmat était sobre de paroles et que M. Dumas avait délayé.*' And this *délayage* will account for much. Balmat doubtless told his story to the best advantage, but it would have died with him had he not found in the famous writer a *sacer vates* to establish his fame at the expense of Dr. Paccard's. Mr. Mathews criticises Dumas' account in detail, and points out several misstatements and inaccuracies. As regards one point, however (see pp. 62 and 93), he has made a serious mistake himself, and completely misrepresents Dumas' meaning ; for *ils sont morts* does not mean *they had died*, and a reference to the original § shows conclusively that Balmat had *not* committed the almost inconceivable blunder of imagining that the Hamel accident of 1820 took place before his own ascent in 1786. One of the most notable misstatements in Dumas' account is that Balmat left Paccard on the Petits Mulets rocks and gained the summit alone, returning for him an hour and a half later, and almost by main force urging him to the top. From a careful examination of the evidence it is clear that they reached the top together, Balmat, it may be, a few paces in advance. It is, however, doubtful whether to Balmat belongs the credit of discovering the *ancien passage*,

* *Le Mont-Blanc*, p. 113.

† *A Guide to Chamonix*, by E. Whymper, p. 27.

‡ *Le Mont-Blanc*, p. 106.

§ *Impressions de Voyage Suisse*, par A. Dumas, tom. i. p. 123.

which was the only known route until, in 1827, Sir Charles Fellows' party mounted for the first time by the Corridor and the Mur de la Côte. Both at the time and afterwards Dr. Paccard claimed distinctly that he had reconnoitred with a telescope, and had assured himself that the *ancien passage* offered a possible means of reaching the summit. In apportioning the honour we may, perhaps, say, in modern phrase, that Dr. Paccard was the 'Herr,' long desirous of climbing the mountain and keenly interested in devising routes, but needing the help of an efficient guide. Such an one he found in Balmat, and the guide's just honour is surely not diminished by the fact that the 'Herr' who was his comrade in that memorable first ascent was also an enthusiastic and capable mountaineer.

Mr. Mathews has given particulars of all the ascents down to 1851, when Albert Smith made the mountain fashionable. Many curious details are recorded. We read how a glacier was crossed by the light of a candle held in a paper bag; how, in descending, Bourrit was held by one guide by his coat-collar while leaning on the shoulder of another; how they drank vinegar, and moved in huge caravans, as many as forty-three persons together; how they suffered from the 'rarefaction of the air,' and one traveller covered his chest with Burgundy pitch to defend his lungs. Costumes ranged from the 'white flannel jacket, without any shirt beneath, and white linen trousers without drawers' of Colonel Beaufoy, the first Englishman who climbed Mont Blanc, to the extraordinary accumulation of garments in which later travellers encased themselves, 'swollen by the reduplication of their dress to most unnatural proportions.'* Specially interesting are the references to the rough 'gîtes' of the early explorers, some of which may still be recognised, as, for instance, Bourrit's cabin on the Tête Rousse, which was occupied by Mr. Mathews in 1856, and again in 1896. Discoveries of a similar kind might yet be made on the now rarely visited Montagne de la Côte, the starting-point of all expeditions previous to 1819. Indeed, if the interest of novelty is gone, the many associations that have gathered round Mont Blanc are abundant recompense for the loss. It is this human side that is brought before us in the 'Annals,' and in reading them we feel how largely our interest in mountains depends on their associations with humanity. In this connection we are sorely tempted to quote a striking passage from Sir Martin Conway on the 'unnamed fastnesses and unstoried peaks' of the Upper Indus Valley, but must content ourselves with giving the reference.†

Finally, we have a clearly written account of the existing routes, which Mr. Mathews very reasonably reduces to seven, with variations, and a chapter on the huts and observatories. With our author's remarks on the Janssen observatory we find ourselves in complete accord, and we echo his wish that this 'observatory, in

* *Alpine Journal*, vol. xviii. p. 214.

† *Climbing and Exploration in the Karakoram Himalayas*, p. 123.

which it is impossible to take observations,' may before long vanish in obedience to the force of gravity, which, indeed, has already seriously affected its stability. The tribute that he pays to M. Vallot's scientific labours shows that he is no narrow-minded opponent of the claims of science among the mountains. Professor Bonney supplies a brief but clear account of the geology of Mont Blanc, and the volume is furnished with a bibliography from the 'Guide de la Chaîne du Mont-Blanc' of M. Louis Kurz, with additions. While acknowledging his debt to M. Kurz, however, Mr. Mathews has forgotten to insert his book in the bibliography. We have also the benefit of M. Durier's excellent map of the chain. The illustrations are well chosen and add greatly to the value of the book; some of the photogravures from Signor Vittorio Sella's photographs, are of quite exceptional beauty and interest. The only misprints that we have noticed are in the spelling of Bishop Burnet's name, and the omission of a figure on page 303, under 'Dumas, A.' We could wish that Mr. Mathews had told us more about his own experiences in the twelve ascents that he has made from 1856 to 1898; but he allows himself only the briefest allusions to his own adventures, keeping strictly to his part of annalist. May we express the hope that he will some day supply the omission—in another book?

SOME LOCAL GUIDE-BOOKS.

Guida alla Serra dell' Argentera. By Felice Mondini. (Genoa. 1898.)

Guide de l'Alpiniste dans la Vallée de l'Ubaye. (Published by the Barcelonnette Section of the Club Alpin Français. 1898.)

Guide du Touriste dans le Briançonnais. 'Guides Miriam.' (Paris. 1898.)

Monographie de la Vallée du Queyras (Hautes-Alpes). By J. Tivollier. (Gap. 1897.)

Itinerarium des S.A.C. für die Silvretta- und Ofenpassgruppe. By Ed. Imhof. (Bern. 1898.)

In the course of preparing the new edition of Mr. Ball's 'Alpine Guide' I have been much struck by the publication in recent years of a vast number of local guide-books to various districts of the High Alps, a great contrast to the state of things when Mr. Ball first compiled his great work. These local guide-books have naturally been of great service to me, though it is often hard to determine whether such and such a detail should properly be inserted in a general guide-book, or left to the more special work. But of course in a general work like 'Ball' only passing reference can be made to these local guide-books, so that I am desirous of saying a few words as to several such volumes which I have used, or hope to use later on, since any climber desiring to make a special study of the district treated in any one of them will find therein very many useful and hopeful hints.

The first on the list is by Signor Mondini, to whom we owe already a well known monograph on the Val St. Barthélemy, which, it is hoped, will soon be completed by another on the

whole of the Valpelline. This booklet of under 130 pages was prepared rather hurriedly for the inauguration last August of the new Genova Club hut, at the S.E. foot of the Punta dell' Argentera, in the Maritime Alps, and is devoted to a very detailed and careful account of the Argentera ridge. This ridge is not a very long one, but is important, for on it rise the highest points (3,290 m. and 3,288 m.) of the Maritime Alps. Full information is supplied as to various routes from Valdieri (the town or the Baths), the Ciriegia Inn, above St. Martin Vésubie, or the Madonna delle Finestre to the new Club hut. The ascents in this range which can be made from each of these three 'centres' are then described minutely. As far as I can judge these descriptions are very full and accurate, but it always seems to me that the scheme of the 'Climbers' Guides' (describing together all the routes up any one peak, and placing the passes in their topographical order amongst the peaks) is more practical than grouping the peaks and passes separately, and describing the routes up a peak according to the starting point. A map would give general information as to the proper starting point for any expedition, and the unit in a special mountain guide-book should certainly be the peak or the pass and not the 'centre.' Herr F. Mader contributes an article on the flora of the Argentera range, and Signor A. Viglino another on its geology. But to students of Alpine history Signor Mondini's chapter on the Alpine history of the range will prove the most interesting; this, though mentioned as early as 1784, was not thoroughly explored or mapped till 1879. The order followed in this chapter is strictly chronological, a course which in many ways is the most convenient when treating of a single mountain mass. But this plan renders it hard to ascertain at a glance the Alpine history of any one peak, a difficulty which is increased by the unfortunate omission of Signor Mondini to supply any index to his most excellent booklet. Some useful illustrations are scattered throughout its pages, and Signor Paganini's map is prefixed, though it is unluckily as illegible as his other map of the Cogne mountains, while attaining the same high degree of accuracy.

The second work on our list was issued on the occasion of the Congress of the French Alpine Club at Barcelonnette in the summer of 1898, and is due to the untiring labours of M. François Arnaud, the President of the local Section. The backbone of the book is formed by a translation (made by special permission of the Committee of the Alpine Club) of the portions of the new edition of vol. i. of Mr. Ball's 'Alpine Guide' relating to the Ubaye valley, particularly the Chambeyron group. The translation seems well done, though there are a few slips; *e.g.* my ascent of the Brec de Chambeyron took place in 1879, *not* in 1897. It is followed by a detailed bibliography (by the present writer) of the peaks of the Chambeyron group, a list that I was very glad to place at the disposition of M. Arnaud in acknowledgment of his kindness to me in 1879, and of his help in preparing the new

edition of 'Ball.' The book also contains full details as to the minor excursions in the neighbourhood of Barcelonnette, with notices of the history, geology, botany, and fauna of the Ubaye valley. There are a number of interesting illustrations and an index, but neither map nor table of contents. I am glad to learn that M. Arnaud has now in hand for speedy publication a very detailed monograph on the valley of Barcelonnette, a much wanted work which no one is better fitted to write than himself.

The two books just noticed deal mainly with the higher Alps, which are to a considerable extent neglected in the 'Guide du Briançonnais,' though I understand that this neglect is to be in part repaired in a forthcoming new edition. The 'Guide' in its actual form contains, however, a vast amount of information as regards districts which have never before been so fully described from a practical point of view. They may be roughly indicated as the French portions of the Viso, the Waldensian valleys, and Mont Genève sections of the new edition of vol. i. of 'Ball.' In particular the notices relating to the excursions and ascents to be made from the Névache valley, and in the region between Briançon and the Guil valley (or the Queyras), are very welcome. But the 'times' given are very long, while there are various strange statements—*e.g.* that the Viso has a French slope (an impossible bit of topography); that it has only once been ascended from the N., and that in 1886 (really there have been half a dozen ascents by this route, and the first was in 1879); that from La Grave the central summit of the Meije takes 1 hr. longer to climb than the higher W. summit, &c. There are the usual historical and scientific sections, while it is a real pleasure to find a table of contents, and an alphabetical index, and a special map. The illustrations and general get up of the book are better than those of the other Guides noticed in this summary.

M. Tivollier's work was to me at least a great disappointment. It starts with the false statement that the Viso is partly French, and gives a most imperfect and often misleading account of the excursions and ascents to be made in the ridges that enclose the beautiful Queyras valley. The author tells us that he knows the valley 'parfaitement,' but stress should be laid on the word 'valley,' as he certainly, to judge from his descriptions, can have had little personal experience of expeditions in the ranges that shut it in. But if the practical portion of the work is poor the historical sections are excellent, for here the author could draw on the splendid researches of M. Joseph Roman, while now and then (if I mistake not) he has been able to add very interesting and purely local details. The archives of the Queyras go very far back, and it is a consolation to learn that they escaped destruction by a lucky accident rather than through any special care in the recent terrible fire at Ville Vieille. This book has a poor map, but index and illustrations are wanting.

Herr Imhof's name will be known to many as that of the author of two previous volumes of the 'Itinerarium' of the Swiss Alpine

Club. In 1890 he described the Rätikon range, with the Plessur district, and the W. spurs of the Silvretta district, and in 1898 the Albula district, or the ranges extending from the Splügen to the Fless Pass, and rising N. of the Inn valley. The Silvretta group was chosen as the 'Excursionsgebiet' of the Swiss Alpine Club as far back as 1865. But it was then only partially explored, and the maps were very inaccurate. Hence the S. A. C. selected it again as its field of action for 1898 and following years, and naturally entrusted the task of compiling the 'Itinerarium' to Herr Imhof, who lives close to that group. Wisely, in my opinion, the S.A.C. decided to include in its sphere of activity not only the Silvretta district in its narrow sense, but also the Fluchthorn group, together with the still less known district S. of the Inn valley, and lying, roughly speaking, between the roads over the Bernina and Stelvio Passes. Hence the new 'Itinerarium' comprises what may fairly be called the whole of the mountains of the Lower Engadine. Herr Imhof was fairly well acquainted with the N. portion of these regions when he accepted the task of compiling the new 'Itinerarium,' and it is within my personal knowledge that he made also a large number of ascents and excursions in order to complete his knowledge, and to extend it to the Swiss bits of the more southerly portions of the districts to be treated. As a whole he has done his work extremely well, having spared no pains to procure full and accurate information as to even the minor summits included in his districts. The information given strikes me as even more practical and useful than that supplied in his previous works, and represents a vast amount of labour, for Italy and Austria claim a share in these districts as well as Switzerland, a fact which greatly increases the number of books, articles, and maps that have to be consulted. The divisions between the different groups might have been more clearly marked in point of typography, in my opinion, and the lack of a table of contents is much felt, while the separate indices for each of the two divisions of the work are very confusing. Once again I must express my preference for the strictly topographical order of the 'Climbers' Guides,' which seems to me the clearest method of arranging a mass of complicated details. The list of 'Abbreviations' given by Herr Imhof should have been arranged in alphabetical order. As I had the pleasure of helping the author to a considerable extent with the special bibliographies given for the principal peaks, I may be allowed to express a regret that my complete list of the titles of the works referred to was not inserted. In two cases Herr Imhof's indications are quite wrong, so I venture to point out that in my bibliographies 'Sprecher' does not mean the A. von Sprecher's 1856 edition of Lutz's 'Lexikon,' but the 1688 edition of Fortunatus à Sprecher's 'Pallas Rhaetica,' while 'Campbell' refers in my list to the Latin text of the 'Topographia Rætiæ' (Basel, 1884), *not* to the very imperfect German translations of portions of that work issued in 1851.

But, as a whole, Herr Imhof's book is fully up to the highest

standard, and it is to be hoped that some day he will crown his labours by writing a fourth 'Itinerarium' for the Bernina and Bregaglia districts, so that we may possess a detailed and up to date description (and that all by the same hand) of the whole region between the Splügen, Stelvio, and Reschen Scheideck Passes. Herr Imhof's book is accompanied by a most useful combination of several sheets of the Siegfried Atlas, which includes most of the Swiss portions of the districts described in his book.

W. A. B. COOLIDGE.

TWO PICTURE BOOKS.

A Travers les Alpes. Par Daniel Baud-Bovy. (Bâle et Genève : Georg et Cie. ; and Neuchâtel : Delachaux et Niestlé. 1899.)

Les Montagnes de la Grande Chartreuse. Par Henri Ferrand. (Grenoble : A. Gratiot. 1899.)

Both these splendid works appeared (despite the date on their respective title-pages) at the close of 1898, and both are essentially 'picture books' in the good sense—that is, the illustrations are accompanied by what in most cases is but explanatory letterpress.

M. Baud-Bovy's book pictures an excursion from Brieg to the Belalp, the Ober Aletsch Club hut, the Eggishorn, the Concordia Club hut (not then an inn), the Lötchenlücke, the Lötchenthal, and the Ferden Pass to Leukerbad. To those who, like the present writer, consider that the view from the Belalp is the most magnificent to be had from any inn in the Alps, and who are strongly drawn towards the quaint and as yet unspoiled valley of Löttsch, this book will be most welcome. Never before, probably, have the grand surroundings of the Belalp, and the primitive rusticity of the Löttschenthal, been more admirably set forth. Portraits of unmistakable Vallais men and women, interiors of their dwellings, and of Club huts, views of primitive Vallais hamlets, representations of some of the more striking glacier phenomena, little bits of *genève*, are scattered throughout its pages with a lavish hand, and in most cases admirably reproduced, often in bistre ink. In particular the scenes round the chapel of the Alpine hamlet of Bel and near the Concordia Club hut are very vivid and attractive in their realism. The text is enlivened by some curious legends, but contains some rather odd history. It would be hard to show that the Simplon Pass was traversed by the Romans, and that the village of Naters was founded at that period. My unfortunate friend Mr. Benecke and his comrade, wherever they may have perished, certainly did not disappear on the Löttschenfirn. It is quaint to omit all mention of the views from the Belalp and Eggishorn hôtels, the former being regarded merely as the residence of Amiel and Tyndall, and the latter as a sort of 'buffet;' nor did the syndic of Naters make the *first* ascent of the Aletschhorn in 1862, this being only the second, though the first from the Belalp side, while in a work published in the 'Suisse Romande' one does not expect to find Javelle's name misspelt. But after all the pictures are the main feature of this book, and *they* are delightful.

Some years ago M. H. Ferrand published an excellent guide-book to the mountains of the Grande Chartreuse, near his home, Grenoble, and in a way his new work may be treated as a pictorial companion to his Guide, for the letterpress in the new book is not much more than a running commentary on the illustrations. Of these there are no fewer than 165, all beautifully reproduced as phototypes. Few English travellers know much more than the monastery of the Grande Chartreuse itself, and the ordinary routes thither. Hence it will surprise them to find out what striking and picturesque bits of scenery are hidden in the upper valleys of the two streams which descend from this limestone plateau, the Guiers Mort and the Guiers Vif, with their affluents. The author tracks each from its source (in either case a most picturesque spot) to their junction at Les Echelles, and then the united stream till it falls into the Rhône not very far beyond the quaint town of Pont de Beauvoisin, which recalls that of Pont en Royans, in another limestone district. There are fewer *genre* pictures than in M. Baud-Bovy's book, but it is odd (and rather inconvenient) that in neither work is a list of the illustrations vouchsafed, so that one has to hunt through the text for any particular view that one remembers having noticed while turning over the leaves. As in duty bound, M. Ferrand ends his sumptuous publication by some views of the great monastery. It may astonish some readers to learn that the famous liqueur was only made known to the world at large in 1849 by some French officers, whose troops were then quartered in this region; previously it was only used (as it still is) by the monks themselves as a cordial in the case of weakness or illness. A still more unexpected fact mentioned by M. Ferrand is that when occasion calls the monks go to vote in local or political matters at the 'mairie' of the ancient village of St. Pierre de Chartreuse (formerly pronounced Chartrousse), which gives its name to the monastery. Perhaps the quaintest illustration in the book is that which shows us these solitary monks going, in their white habits, and almost in a formal procession, to fulfil their duties as citizens of the Republic, to which they pay such heavy taxes!

It is right to add that the illustrations in both books have been reproduced by the same house, the Société Anonyme des Arts Graphiques, of Geneva. W. A. B. COOLIDGE.

Through the High Pyrenees. By Harold Spender. With Illustrations and Supplementary Sections by H. Llewellyn Smith. (London: Innes & Co. 1898.)

Mr. Spender's pleasant book should serve as a reminder and a reproach to the majority of our members. The Pyrenees are in importance the second range in Western Europe. They abound in problems of rock-climbing, and if these are not mostly connected with their loftiest summits must not the same be admitted of the Alps? They are free from the mountain railways and sign-posts, the artificial aids to cripples, the personally-conducted huts and

crowds of tourists, of which in the Alps we read so many complaints. France and Spain have not yet set up any such monstrous system of frontier precautions as that which makes the mountaineer's excursions on the Italo-French frontier a perpetual game of hide and seek with the military forces of two nations. Above the Baths even in the French Pyrenees there are no hotels, only country inns, where the visitor does not live exclusively among his own countrymen, and where he has an opportunity of changing his company and his conversation as well as his climate.

Yet where are the followers of Mr. Packe and Count Henry Russell? We seem to hear a chorus of young climbers begin with one consent to make excuse; the Pyrenean peaks are stumpy, the glaciers are few and far between, the valleys are hot, good guides are rare, there are no convenient climbing centres. The true ground for the neglect of the Pyrenees, or one of the grounds, is suggested by Mr. Spender. They fall between two stools. They are not novel and difficult enough for the hardy explorer; they do not meet the requirements of the gymnast: he misses his atmosphere, the medium that gives heroic proportions to his climbs. In the Pyrenees the climber is nobody. There are no processional departures and returns at his hotel; no telescopes are fixed on him; no chief place is kept for him at *tables d'hôte*; the fair Parisians of Luchon or the Belgian *dévôtes* who drive up from Lourdes to Gavarnie would receive very coldly his offer of an escort over 'a nice bit of rockwork.' No 'Pyrenean Post' exists to glorify his high deeds. To climb unseen by men on peaks unknown even to geographers may be the fancy of a few; the reverse, despite their pretence, is the folly of the many. A better reason for the scarcity of our countrymen in the Pyrenees is the circumstance that the business or pleasures of life lead most of us to take our holidays late in the summer. From the middle of June to the end of July is the best season for the Pyrenees. Then the flowers—the daffodil meadows, the lilies, and the gigantic stonecrops—are in perfection; the heights are snowy; the waterfalls are at their fullest; every valley has its clear, brimming stream. In August the weather is often sultry and broken, and there is no glacier air to temper the heat and invigorate the climber.

Mr. Spender's volume is the record of two journeys along the central portion of the chain. He seems to have started with some intention of studying the institutions of the Republic of Andorre. He even tried to introduce 'interviewing' into that primitive community. But, happily, the President was equal to the occasion. He went to bed with a bad headache until the political student had departed. Mr. Spender, thus baulked in an ambition hardly worthy of an Alpine Clubman, was forced to turn his mind to higher things. He made tracks westward through the wild Spanish valleys to the base of the Maladetta. He climbed the Pic de Néthou, the Pic des Posets, the Vignemale and the Balaitovs. He camped out on the desolate pastures and ridges that surround

these crests. He visited many out of the way spots, and enjoyed several exciting rock-climbs. He has woven together his experiences into a very brisk and varied narrative, more akin to the earlier Alpine travels than to the technical notes of recent climbers. His pages give an excellent picture of the Pyrenees, their scenery and people, by no means an exhaustive picture, for he missed some striking spots, yet a sufficient one to enable his readers to decide for themselves whether the delights of the country are likely to suit their tastes. For those who may make up their minds to follow him he furnishes a good general map, a full bibliography, and much sound practical information and advice.

We ought to add that his companion, Mr. Llewellyn Smith, contributes a chapter on Andorre, and is responsible for several of the practical and scientific supplementary sections. The volume is adequately illustrated.

Il Biellese: Pagine raccolte e pubblicate dalla Sezione di Biella del Club Alpino Italiano. (Milan: V. Turati. 1898.)

This handsome volume is the memorial produced by the energy and taste of the Biellese section of the Italian Alpine Club of the Congress of that body held there in 1897. The district of Biella is subalpine, but the town is only a day's journey from Gressoney and Alagna, and the bold range of Monte Mars, which rises close to it, reaches the respectable height of 7,000 feet, while Monte Bo, Leonardo da Vinci's Mons Bosus, now a recognised view-point, with a hut, is accessible in a day. The region is one of many attractions, as yet known to very few of our countrymen. Above the vines and chestnuts the hill-sides are covered with birch and heather; they command views extending from the Maritime Alps to the Monte della Disgrazia. Mediæval castles line their edge. In their recesses are found pilgrimage shrines. One of these, Oropa, is among the most frequented and the stateliest in North Italy. The villages add to the extraordinary picturesqueness of the landscape, which unites the charms of foreground with spacious distances framed by the curve of the Alps southward from the Levanna to the distant Apennine.

The letterpress, which describes the country, the people, their industries, is a series of sketches and monographs contributed by writers, one or two of whose names are known outside Italy. We can do it no justice here. But we must find space to call attention to a matter of special interest—the illustrations. Here we have some eighteen photogravures (one of them 'Dawn on Monte Rosa,' by V. Sella, of remarkable beauty), and over 400 process views, finer in quality and much more artistic in arrangement than those we are accustomed to in this country. The typography is admirable; the paper and binding are both excellent. The cost of the book is 15 lire (12s.). One of our publishers would charge a guinea and a half. Why do we not all publish at Milan?

Rock-Climbing in the English Lake District. By OWEN Glynne Jones, B.Sc.
(London : Longmans & Co. 1897.)

It is no great number of years ago that the would-be rock-climber in the mountains of Cumberland and Westmoreland had to find his climbs for himself, aided only by certain passages in an ancient number of 'All the Year Round' and by the manuscript notes which tourists had left in the Wastdale visitors' book. All this is now changed, for in 1894 Mr. Haskett Smith published his pocket guide to the rock climbs of England, the bulk of which related to the Lake District; and now, in 1898 (though the title page bears the date 1897), we have given us, from the pen of Mr. Jones, an imposing 8vo. volume of 280 odd pages, dealing, from a different standpoint, with the same subject. Mr. Haskett Smith's book is a guide for the pocket, Mr. Jones's book is a tome for the library: the one aims only at being useful; the other claims, as well, to be graphic and readable even by those who have not made, nor wish to make, the climbs which are described. It must be freely owned that Mr. Jones has, to a large extent, succeeded, for he has produced a beautifully printed and splendidly illustrated work, which, being well arranged and for the most part clearly and readably written, gives an accurate and vivid picture of what rock-climbing in the Lake District is really like. Many comparisons might be drawn between these two books, but few of them could serve a useful purpose. It will suffice for us to say that Mr. Jones has evidently been at more pains to bring his book into line with modern Alpine literary usage, and the fact that his work bears traces of having been somewhat hastily compiled is perhaps no less evidence of this than is the size and thickness of the paper, the care which has been expended on the production of the illustrations, or the success of the author in avoiding the fault for which his forerunner was so properly censured of having failed to sufficiently emphasise the subjective in recording the exploration of the cliffs which he describes.

It is the illustrations which are sure to claim the first attention of any one who may chance to open Mr. Jones's book. They are thirty in number, and are reproduced in colotype from photographs taken for the work by Messrs. G. and A. Abraham, of Keswick. The author may be congratulated on the fact that he was able to secure the services of collaborators who, besides being excellent exponents of the art of photography, have so thoroughly entered into the spirit of the work, with the result that there is hardly a crag of any importance in Lakeland which is not here represented by one or more accurate and beautiful pictures, many of which show the details of rock surface with quite surprising success. Most, perhaps all, of the photographs bear evidences of having been retouched, and while by far the greater proportion are doubtless gainers in the process, one illustration at least, 'A Winter Afternoon on the Mickledore Ridge' (p. 52), appears to have been both faked and tilted, and presents sundry features which are very open to criti-

cism. 'Personally,' says Mr. Jones (p. 156), 'I should ask for information as to the treatment of any negative that has been employed for the reproduction of pictures,' a remark which may fitly be applied to this strange plate.

In addition to the photographs there are nine outline diagrams which enable the uninitiated reader to identify the various routes described in the text, and to locate the whereabouts of the 'Bottle-shaped Pinnacle Ridge,' and all the other 'ridges,' and 'pinnacles,' and 'pitches,' and 'gullies,' and 'chimneys,' and 'curtains,' and 'slabs,' and 'notches,' and 'ledges,' and 'noses,' and 'cracks' which bristle in the text, and which would seem, in these latter days, to have been submitted to a process of christening on an almost bewilderingly lavish scale. So great and rapid, indeed, has been the progress made in the space of a few years, by this system of nomenclature, that we may safely assume, in the case of some of the best known 'bits' at any rate, that every *step* will ere long be found supplied with some distinguishing designation. The system has obvious advantages, and must be of especial value to those who hope to rival in the power of recalling the details of their climbs the gifted author of this work, whose enviable talents can be gauged by his admission (p. 126) that 'to lie in bed and remember every foothold on the Matterhorn may require more ascents than one.' Should, however, so elaborate a system of labelling ever become applicable to the case of mountains in general, the Alpine literary output will become surprisingly extensive.

The text of Mr. Jones's work consists of an introduction and eighteen chapters. Four of the chapters (sixty-eight pages) are devoted to the cliffs of Scawfell (we follow the author's spelling), six (seventy-seven pages) to those of Great Gable, one (thirty-one pages) to the Pillar Rock, and shorter ones to each of the following: Pavey Ark, Doe Crag, Wastdale Scree, Coombe Ghyll (Glaramara), and Scawfell Pikes.

The descriptions of the climbs are almost uniformly clear, and if there is some sameness in the nature of the accounts perhaps it can hardly be wondered at. Has not the same criticism been applied even in the case of our own columns? Minor errors we expect to find, and select a few for comment. 'G.' instead of 'R.' Pendlebury (p. 254) is probably a neglected printer's error, but 'Dr.' Clinton Dent (Introduction, p. xix) is obviously intended, though it would hardly have been passed by that distinguished mountaineer or by any of his professional colleagues. 'Petty's Rift' (p. 31) was certainly not so called twenty years back, for the excellent reason that the Petty who climbed it visited the Lakes for the first time only fourteen years ago. The Pillar 'Nose' is not, as Mr. Jones supposes (p. 248), the short cliff below the terrace, but is an upright excrescence on the face of the higher precipice. The not infrequent use of Swiss phrases and words strikes us as needless and rather out of place: 'massif' and 'course' are examples. Then to call scrambles 'problems' appears somewhat pedantic; while to borrow from the high seas the word 'belay'

suggests the story of the commodore who singled out for comment the starboard leader of the coach. These are, however, very minor matters, and matters, too, on which opinion may very legitimately differ. The bulk of the work is excellent.

We have kept for final comment Mr. Jones's introductory chapter, which closes with a classified list of 'some sixty of the well known courses judged under good conditions.' These are divided into four grades, according to their difficulty, and it is probable—indeed, we understand it is well known—that the sequence of the 'courses' in this list has not only been adversely criticised by competent authorities, but that considerable indignation has been expressed by one or other of those who would themselves have arranged the list differently. In spite of this, and of the obvious criticism suggested by the fact that short *tours de force*, and long arduous climbs, find themselves in somewhat curious juxtaposition, the list is probably in our judgment as unexceptionable as that which any single individual would have produced; for it is certain that no classification of the sort would meet with universal acceptance. Different individuals find exceptional difficulty in different situations; a short passage, however severe, is to some less trying than a longer one of less intrinsic difficulty, and *vice versa*. Again, the height and length of limb of the climber obviously affect the matter considerably, as does also the method of climbing most affected by the individual, and those who, as Mr. Jones would seem to do, rely more upon the hands and arms than on the feet, will naturally find some places more difficult and others easier than they appear to a climber who, following the example of many at least of the Swiss guides, regards his feet as being the more important weapons of attack. Still there can be no doubt at all that, however taken, some of the rock-climbs here described will compare in the matter of difficulty with the 'difficult bits' which have rendered especially notable such mountains as the Grépon and the Fünffingerspitz. They are not climbs to be undertaken by beginners, nor yet by the best of mountaineers, unless in reasonably good training. In however good condition, though, it needs a good man to lead up the best of the 'bits,' and it would have been surprising if so acute a reasoner as Mr. Jones had failed to grasp this fact. That he has not so failed is, however, as obvious as it is satisfactory, and it is with feelings of sympathetic appreciation that we think we can trace—perhaps wrongly—in spite of the somewhat 'repulsive spectacle' (p. x) of the inactive crowds who watch a football match, some slight feeling of amiable and doubtless very legitimate regret that the expert rock-climber should be, by the nature of his calling, denied the even occasional opportunity of exhibiting his skill before 'applauding thousands' (p. x), instead of (as a maximum) the very limited number of critical experts who can be accommodated on a certain grassy ledge at the foot of a well known 'problem,' which has been nicknamed, we are told, the 'dress circle' (p. 165), because it is 'so popular for the observation of a performance.'

Den Norske Turist Forening's Aarboeg for 1898.

The high reputation of this Alpine Journal of the North is well sustained by this year's edition. Contributors describe in their papers mountain expeditions in Norway nearly 1,000 miles apart, all of which are well worth reading. The most delightful is undoubtedly a paper by Dr. Yngvar Nielsen, the president of the 'Forening,' 'Fra Nordland,' which deals with country made more or less familiar to us in days of childhood, when we read Miss Martineau's 'Feats on the Fjord,' and all lovers of that delightful book will be interested in seeing an illustration of Sulitelma. Herr Bing's paper on the ascent of Hornelen, where he emulated the deeds of that hero of old, King Olaf Tryggveson, shows yet once again that the spirit of adventure which urged the vikings to do great deeds is still present in the breasts of the Norskmenn of to-day.

A paper in English, by Mr. Oppenheim, reintroduces us to the charming peninsula between the Hjörund and Sökelv fjords, visited by Mr. Hastings in 1889, and a few years later by Messrs. Priestman and Barrow. Several short and modestly written papers direct our attention to the neglected Rondane, the now well known Justedalsbræ, and other interesting districts. Herr Hall again supplies us with a valuable list of ascents of mountains, by new and old routes, in 1897. A description of a so called 'new route' up Mjöltnir is surely an unnecessary luxury, as this very route was used on the descent of the mountain by the party who made its first ascent,* though they climbed up the opposite side. The only bit of new ground, the easy slopes from the broad col between the Romsdalshorn and the Western Vængetind to the edge of the Rensdyrbræ, was new only to mountaineers, but certainly not to reindeer-hunters. This is, however, the dull side of Mjöltnir, and the ascent by this route is not comparable with those from Kvandal.

The illustrations, as usual, are good, notably the reproduction of a photograph of the interior of a sæter by H. Bache, which is admirable, and must awaken many happy memories of bygone adventures met with by those who climbed in Jotunheim before the institution of the luxurious huts in recent years, and the present writer for one trusts that in the future he may see many more views reproduced from the work of this most artistic photographer.

WM. CECIL SLINGSBY.

Søndmøre. Af Kristofer Randers. Second edition.

Eight years ago Norsk and English tourists welcomed the appearance of a delightful guide-book which dealt minutely with all the then known mountain, valley, and fjord routes and general characteristics of this picturesque district in Norway, where lovely mountain forms are clearly mirrored on the smooth surface of two

* *Alpine Journal*, vol. xiv. p. 392.

of the most beautiful fjords in Norway, the Hjörund and Sökkely, and where the natives, who are descended from the Scotchmen who repeopled this region, which, with the exception of one woman who survived, was completely depopulated by the 'black death' in the fourteenth century, are still, I am glad to say, delightfully superstitious, and are thoroughly acquainted with the romance and legendary lore which abounds in Söndmøre.

This new edition is undoubtedly excellent, and the enterprising editor, Herr Randers, deserves much success, as a more painstaking and faithful representation in guide-book form of the country which he loves so well could not easily be imagined.

It is copiously illustrated with most artistic pictures, though it is perhaps a pity that the view of Kjölaastind, or Gluggentind, is not taken from some point nearer Standal, where the 'glugge,' or hole through the southern arête of the mountain which was pierced by an arrow shot by St. Olaf when out 'troll'-hunting, could be clearly represented.

The name 'Kölaastind' is, we are glad to say, the only instance we have seen where the old form of spelling has been changed to the slipshod, or perhaps pedantic, form adopted nowadays by the modern University student, and we heartily congratulate Herr Randers on the vigorous conservatism which he has shown in retaining the ancient mode of writing in the words Hjörund, Slogen, Kvitæggen, Sökkelven, and many others.

Some of the excellent diagrammatic mountain sketches of the late Herr E. Mohn are appended, and we regret that others which appeared in the edition of 1890 are now omitted. The large map at the end is very good except in one respect, viz. it does not define the glaciers sufficiently well. For that matter, however, the 'Amts karter' are no better.

Finally, the book will be found to be a mine of wealth to all who wish to become intimately acquainted with one of the most fascinating districts in Northern Europe.

WM. CECIL SLINGSBY.

CORRESPONDENCE.

THE ROPING OF MOUNTAINS.

To the Editor of the ALPINE JOURNAL.

SIR,—I doubt if most members of the Club are aware of the principles on which the mountains in some parts of the Austrian Tyrol are roped, or if the 'D.Ö.A.V.' itself appreciates the result of the latitude allowed to some of its sections. Everyone is, I suppose, agreed that on certain mountains (*e.g.*, the Aiguille du Géant) roping is an absolute necessity, and on others it may be desirable, whilst on yet other mountains it is both undesirable and unnecessary. In any and every case, however, it is suggested that some really competent and official body ought to decide the

question, and that the matter should not be left entirely to the discretion of guides, however experienced, and hotel keepers.

Cortina, one of the charming spots as yet unspoilt by the railway, boasts of a section all to itself of the 'D.Ö.A.V.' That section (called the 'Ampezzo' section) has about fifty-six members; but many of these members reside at a distance from Cortina; so that, in practice, the decision on all Alpine matters rests with the resident members, who are, as I understand, composed very largely, if not almost entirely, of guides and hotel keepers. I also understand that the 'Ampezzo' section of the 'D.Ö.A.V.' acts on its own resolutions, at any rate as to roping mountains, without let or hindrance from headquarters.

The guides and the hotel keepers at Cortina are as worthy representatives of their classes as could anywhere be found, and wicked indeed would be the climber who invoked aught but blessings on their heads. If, however, guides and hotel keepers are considered in the abstract, it seems clear that their aims and desires must be to make the mountains possible for the greatest number, and to convert a good climb into a walk up hill, so that the village may be filled with every class of person from the invalid to the athlete.

I fear that unless something is done it may become the practice of the 'Ampezzo' section of the 'D.Ö.A.V.' to collect subscriptions at the end of the season (in October) to enable ropes to be put up on one or other of the adjoining mountains. The climb on the Pfalzgauhütte side of Sorapiss has been spoilt by being roped; the Via Inglese on the Tofana* has been similarly spoilt, and last October one of the guides told me that the 'Ampezzo' section were thinking of getting up another subscription to do some more roping elsewhere. The *locus in quo* was not then definitely chosen, but it was felt that the intended performance (if carried out) must be in every way meritorious!

Is it not time that some steps were taken to prevent any roping being done without the consent of some superior authority, and is it not desirable that some drag should be put on before the Kleine Zinne and the Croda da Lago have respectively been converted into bath-chair parades?

Yours truly,
N. ARTHUR HEYWOOD.

ALPINE ACCIDENTS.

To the Editor of the ALPINE JOURNAL.

SIR,—In the article on the above subject which appeared in the November number of the 'Journal' (p. 264), the remark is made that 'sign-posts and marked rocks may be snares, not safeguards, to the unwary and inexperienced.'

If the practice were strictly confined to passes and uncertain

* *Alpine Journal*, vol. xviii. p. 534.

mountain paths, certain compensatory benefits to the less experienced might be recognised in the resulting freedom from the cost, and presence, of a guide necessary only to indicate the route. But I think that few will be prepared to justify the latest development of the system, wherein we find, as I am assured is the fact, that the S.W. route up the Kleine Zinne has now been 'red-marked' from base to summit.

So far this mountain has secured an immunity from fatal accidents, but it is impossible now to believe that this can long remain the case. It is inevitable that the invitation thus held out to attempt the climb without the aid of guides will be ere long accepted by the adventurous, but inexperienced, aspirant for fame, of which membership in an Alpine club which requires no climbing qualification tends to create too large a number.

The result, sooner or later, cannot remain in doubt. The climb of the Kleine Zinne is certainly to be classed as difficult, and there are places where, to all but the true expert, guideless climbing would be the height of un wisdom. No one need fall from the 'traverse' if he possess what is called a 'steady head,' but the lower portion of the Zsigmondy Kamin and the section just above the traverse, especially in descending, afford potentialities for a slip which in these places might mean absolute disaster.

The object in view in thus red-marking the route was, doubtless, not to encourage guideless climbing, but to render it safer for the single guide to navigate his Herr in the descent, for there are possibilities of variation from the accustomed route, especially just before reaching the traverse, which permit the Herr to lead both himself and guide into a very awkward situation. And it pays the guide to climb alone with the Herr, for the fee of the second guide is, by custom, lower than that of the leading guide, and the practice is to lump the sums together and divide equally between the two. But, whatever the object of the marking, its existence must inevitably tend to encourage attempts by guideless climbers of less, as well as more, experience. And what has been done on the Kleine Zinne may be done next season on other peaks of equal difficulty and potential danger. And so accidents are manufactured.

It is probable that the responsible authorities of the D.Ö.A.V. are in absolute ignorance of the circumstance referred to. In fact, too much seems to be left to the discretion, and action, of the local sections of the Verein, which appear to have it in their power, not only to red-mark, but to chain and rope, the mountains at their sole discretion. Already some of the finest climbs have been spoiled in this way, and there are indications that the work of destruction will go on.

The English Alpine Club cannot, of course, directly interfere in any effective fashion, but, surely, it should not be impossible to approach the authorities of the D.Ö.A.V. with the suggestion that, if these things are to be done, they shall at least not be left to

irresponsible local sections, but shall be placed under the direction and control of central expert authority.

Should an accident occur a very serious question of responsibility must of necessity arise.

Yours truly,

CHARLES E. SHEA.

January, 1899.

PROCEEDINGS OF THE ALPINE CLUB.

THE ANNUAL GENERAL MEETING of the Club was held in the Hall on Monday evening, December 12, 1898, Mr. Charles Pilkington, *President*, in the chair.

The following candidates were balloted for and elected members of the Club:—Messrs. C. E. Ashford, F. N. Ellis, E. B. Harris, W. T. Kirkpatrick, F. G. Leatham, G. Lipscomb, E. B. Moser, L. W. Rolleston, J. P. Somers.

The *PRESIDENT*, in proposing the Right Honourable James Bryce, M.P., as President for the ensuing year, said, 'We know Mr. Bryce as a mountaineering explorer, while the world knows him as a politician, traveller, and literary man. I have great pleasure in proposing that he be our President.'

Mr. LESLIE STEPHEN in seconding this proposal said, 'One does not often get much pleasure from reading a circular, but I seldom have received a livelier pleasure by such means than when I read the circular which announced that Mr. Bryce had been nominated for our new President. I begged permission to come to-night that I might take some part in his election, as I am unfortunately unable to attend in order to greet him at to-morrow's dinner. I have a claim which, I think, can hardly be disputed. I am probably the oldest friend of Mr. Bryce in this room. My friendship began at a period when a great many members of the Club, for very sufficient reasons, had no friends at all; and, what is more, I consider that I am, in a certain sense, the creator of Mr. Bryce as a mountaineer. When I first had the honour of knowing him he had achieved the very remarkable feat—I think it was an almost unique feat—of writing a prize essay which, instead of haunting its parent like a disgraceful progeny in later years, became at once a permanent part of English historical literature. This brought him the warm approval of Professor Freeman. I remember Mr. Bryce telling me that Freeman warned him against me as a seducer of youth. I did my best to seduce Mr. Bryce. Freeman thought it quite right to travel in Switzerland, in order to investigate the history of federal institutions, but necessary to forget that there were such things in Switzerland as mountains. I used to forget that there was anything else. It was my habit to surrender my mind to what the poet by a happy periphrasis calls a "wise passiveness"—that is, I forgot that I had any mind at all, and used my brain as a mere organ for correlating the action of my legs. I tried to initiate Mr. Bryce into

this principle. Freeman and I were the good and evil angels struggling for the soul of a human being, and, as generally happens on occasions when the good and evil principles come into conflict, they made a drawn battle of it. I did what I could with a success of which I am still proud. I remember going with Mr. Bryce on our first expedition together into the Carpathian mountains, a wonderful region for political philosophers and for all sorts of people, Magyars, Wallachians, Germans, and I know not what others, all there huddled together in a manner which delights the intelligent observer. He observed intelligently till I succeeded in dragging him off into the mountains, not so high as the Alps, but haunted by bears and wolves and more or less imaginary banditti. There he showed me that he was a thoroughly competent mountaineer, quite able to keep me at my full stretch when my powers were at their best. I met him afterwards in the Alps, and investigated the recesses of Mont Blanc with him and our common friend, M. Loppé. But of course I was most impressed when he made the ascent from which he takes his mountaineering title. He was not, I believe—in fact I am quite sure he was not the first person to ascend Mount Ararat. The earliest recorded ascent, or rather descent, took place a good many years before. But, though our ancestor deserves credit for his desire to get to the top of so high a mountain, he took means which would scarcely be approved of in modern times. The first ascent even of such a mountain scarcely justified the laying so large a district under water. Mr. Bryce showed he was a genuine mountaineer, who could go up a good mountain alone, with singular dash and independence, and for the love of it. He made some futile pretence of having gone to study the Armenian question. His true object, I have no doubt, was one more worthy of a President of this Club. Since then I have watched his career under my planet and the planet of Freeman. He has been attracted to the Rocky Mountains, the Andes, and the Himalayas, and, though clogged to a certain extent by his desire for political philosophy, he has sometimes had reason to regret his taste; he would perhaps have been better, certainly more cheaply, employed in climbing the Rocky Mountains than in investigating the political morality of the backslums of New York. But he has everywhere shown a desire which is not the less commendable because it could not be fully carried out. Any one who reads his last book of travels in Africa will feel that he has the root of the matter in him. He has written one of the most charming of modern books of travel; not only because it is full of information, but because it shows how fully he shares that passion which gives a justification to our favourite pursuit, the love of the wild and the grand in nature, whether of glacier-clad mountains or lion-haunted forests. Mr. Bryce appeals to the outside world chiefly from a political point of view. Undoubtedly he is one of those who redeem the House of Commons from some of the blame we might be inclined to attach to it; he proves that a man may be a politician and yet preserve a certain degree of moral sense; that a man may take a keen part in political contests and yet be capable of

something better; that he can raise the tone of the assembly; and that it is possible to be a party man and yet not give up to party what is meant for mankind. I am sure we shall all be proud to have such a man for our President, and hope that the House of Commons may be proud that for the second time (Mr. Ball was the first instance) in the course of its existence it has had among its members a President of this Alpine Club, the mother of all Alpine Clubs, as the House of Commons is the mother of all similar representative bodies. The qualities which we seek in a President of our Club are not those which always make for success in politics, but they are admirable qualities, which I cannot attempt to define, but shall try to indicate by saying that they belong to men who, even in moments of recreation, devote themselves to ennobling pursuits.'

'I only wish to say one thing more, which I could not omit without suppressing my strongest feelings. Perhaps you may not take some things that I have said quite literally, but this I mean in all possible earnestness. I have known Mr. Bryce nearer forty than thirty years, and I have always been proud to call him a friend, as I could not but be proud of the friendship of such a man. Besides being proud, I have been grateful for many kindnesses, and the more grateful because, as our lives have often run very far apart, I have never found, when I met him again after long separations, that his friendship had grown one whit less hearty and cordial. Having known him so well and so long, I am confident that in proposing him as President of this Club I am proposing not only a distinguished man, but one of the staunchest and most loyal of friends, and one of the most generous and high-principled and warm-hearted men I ever knew in my life.'

Mr. Bryce was then unanimously elected President for the ensuing year.

Mr. BRYCE then replied, 'I thank the Club most sincerely for the honour which has been done me, an honour which is enhanced to me by the thought that I am succeeding a long line of most distinguished men, many of whom were and are my intimate friends. It gives me additional pleasure to be proposed as President by my old and dear friend Mr. Leslie Stephen, who instilled into me by word and example the principles of mountaineering. I will try to do the best I can in the service of the Club during my term of office as its President.'

On the motion of Mr. Justice WILLS, seconded by Dr. WAUGH, Mr. F. O. Schuster and Mr. H. G. Willink were unanimously elected Vice-Presidents, in place of Dr. G. H. Savage and Mr. Frederick Gardiner, whose term of office expires.

On the motion of Mr. SLINGSBY, seconded by Mr. MUIR, Mr. A. L. Mumm and Mr. W. P. Haskett-Smith were unanimously elected new members of Committee, in place of Mr. Ellis Carr and Mr. T. L. Kesteven, whose term of office expires.

On the motion of Mr. C. E. MATHEWS, seconded by the Rev.

H. B. GEORGE, the other members of Committee and the Honorary Secretary, being eligible, were unanimously re-elected.

The HONORARY SECRETARY then read a statement with reference to the republication of Ball's 'Alpine Guide,' of which the following is a *résumé*: After congratulating the Club on the completion of the first volume and thanking the Editor and his coadjutors for their labours, the Committee have to point out that the financial position of the undertaking is not very satisfactory. The total receipts have been 1,046*l.* 19*s.* 1*d.*, of which practically the whole has been expended on Vol. I. This was largely owing to the very heavy cost of the maps, the bill for which amounted to half the total cost of the book. The Committee hope that the receipts from the sale of the first and second volumes may amount to about 700*l.*, and, as steps will be taken to reduce very largely the cost of production of the maps of Vol. II., at the same time that far fewer new district maps will be required, it is expected that ultimately the whole cost of Vol. II. will be covered by this 700*l.*

The practical point is that the second volume can only be proceeded with if the Club will endorse the action of the Committee in employing the Club funds for this purpose and risking a possible loss of some 200*l.* and a temporary locking-up of about 300*l.* or 400*l.* at the date of publication of Vol. II.

With respect to the third volume, the Committee feel that unless the Club are prepared to find the money, or the sale of the first two volumes is unexpectedly productive, practical financial reasons will probably prevent its publication. It must also be remembered that the present Editor has stated that he is unable, owing to lack of personal detailed knowledge, to edit more than the first two volumes.

It may seem to some that there was no necessity for providing maps, but the experience of all editors of guide-books for some time past has been that they largely depended for success on the maps. In the case of the Alps S. of the Little St. Bernard Pass there were and are no satisfactory maps existing which give both sides of the frontier, and those provided in Vol. I. will, the Committee consider, be found to be very useful practical maps. The General Introduction, to be published next spring as a separate volume under an attractive title, 'Hints and Notes, Practical and Scientific, for Travellers in the Alps,' it may reasonably be hoped, will cover the expenses of production, which are estimated at about 80*l.* to 100*l.*

Mr. SPENDER asked why Messrs. Stanford had been employed, and not the makers of maps direct.

The HONORARY SECRETARY explained that this was owing to Messrs. Stanford being part owners of the copyright and plates of the Alpine Club map.

Mr. HORACE WALKER moved, and Mr. Justice WILLS seconded, 'that the Committee be authorised to assist out of the Club funds in the publication of the second volume of Ball's "Alpine Guide."' This was unanimously agreed to.

The PRESIDENT then read an address. (See pp. 285-98.)

The PRESIDENT ELECT proposed and Mr. C. T. DENT seconded a vote of thanks to the President for his address and for his services to the Club during his term of office. This was carried unanimously and acknowledged by the President. The proceedings then terminated.

The WINTER DINNER was held at the Whitehall Rooms, Hôtel Métropole, on Tuesday evening, December 13, when 298 members and guests were present, the latter including Lord Russell of Killowen, Prof. Klein, Dr. Mitchell Bruce, the Hon. Lionel Holland, M.P., Mr. Onslow Ford, R.A., Dr. Gunther, and Sir H. H. Howorth, M.P.

An Exhibition of Alpine Paintings, by artist members and others, was held in the Hall from December 3rd to 31st, tea being provided on the 3rd and 13th. During the time the Exhibition was open it was visited by about 900 persons, exclusive of the two private view days, on the first of which about 400 and on the second about 500 members and their friends were present. For a detailed notice of the Exhibition see pp. 352-5.

Erratum.

Page 291, line 4, for second ascent read third ascent.

THE
ALPINE JOURNAL.

MAY 1899.

(No. 144.)

THE FIRST ASCENT OF TSITELI (CENTRAL CAUCASUS).

By C. T. DENT.

(Read before the Alpine Club, June 1898.)

I HAVE observed—and my experience of hearing and of reading papers at this Club is a tolerably long one—that it is customary at the outset to make an allusion to the Hon. Secretary. From this practice I will not depart. Indeed, seeing that in a paper dealing with the ascent of a mountain novelty of treatment is out of the question, I have come to the conclusion that the best possible excuse for lack of originality is the stern expression of a determination to adhere rigidly to precedent and tradition. It is usual for the reader to say that when invited or commanded by the Hon. Secretary to furnish a paper he was filled with surprise at the request. I, therefore, said so also; and, what is more uncommon, I really felt the surprise I expressed. I then suggested some one else more suitable and better qualified. That is invariably done. All Hon. Secretaries expect their victims to say that. Still, it is such a pleasure to fill just once again the rôle that I have played too often, and read ‘positively for the last time and for one night only’ before the most sympathetic audience I have ever bored, that I could but appreciate the invitation to step down from the shelf as a compliment. As such I persist in taking it, notwithstanding that I have the strongest grounds for assuming that it was found perfectly impossible to persuade anyone else to fill the gap at this June meeting. And that is how I come to find myself in my present position, in the splendid isolation of this desk.

At no time simple, the task is rendered on the present

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occasion trebly difficult by the excellence of my immediate predecessors. I have missed but few of these meetings during the last twenty-six years, and I can recall no more admirable papers than Dr. Filippi's simple and lucid account of a most perfectly organised expedition, or Mr. Vines's straightforward and graphic, yet all unconscious, demonstration of how vast a factor in success is the determination to succeed, and how egregiously we may be mistaken in prophesying as to the future limit of mountaineering or anything else, if we assume that we know, even approximately, the full value of the personal equation. How can the narrative of a minor ascent in a country, unfortunately, of limited interest to this Club satisfy those who are satiated with stronger fare? Inasmuch, however, as I cannot emulate, I will not seek to imitate, and aim only at showing you the sort of paper that used in the old days to pass muster: in the days when we met in that dear old inadequate two-pair front lodging, where I have known the reader grind out his narrative and hammer out his jokes in the front parlour, to an audience of fifteen or twenty, while behind the projections of the folding doors certain vivacious members told each other over a pipe the latest stories, furnishing, with a fine sense of proportion, the breadth while the reader supplied the length. The old papers, however, had a merit occasionally lacking in the modern. They were short. They had to be short. The people behind the folding doors wanted to fraternise with those in front, and the people in front wanted to hear the stories. It was all highly informal, slightly disconcerting, and altogether delightful. You will note with satisfaction my intention of observing tradition, and you will also observe that it used not to be held in the least necessary to stick to the subject. But have no fear—I am not going to linger in the musty chambers of reminiscences. Having now worked off the orthodox prologue, I may digress for a while to the subject of my paper.

Some allusion is always made to the topography of the district under consideration, and I am compelled, therefore, in accordance with tradition, to invite your attention for a few dull moments to matters of quite secondary importance.

As a rule, it is better to commence a mountain tour on the Caucasus on the N. side. The route to the mountains, it is true, is far less interesting, but if the season be a hot one, the relaxing climate of Suanetia is apt to be prejudicial at the outset. In '95 we made a compromise, and began our work, as in '89, in the most suitable district of all, the Adai Khokh group. The road through the Ardon gorge is by no means monotonous

in detail, being in parts so rough that even the guides preferred walking to being jolted in the arbas. Our baggage was in charge of a stout and jovial man of low commercial morality, and possessed of a tendency to illicit appropriation. Partly from a desire to keep an eye on our stores, and partly owing to the doubtful weather, we followed the road to Kamunta. There an eligible site for the camp was found in the immediate neighbourhood of the local cemetery. This reminds me that the village is already a rudimentary health resort. One or two invalids were undergoing a cure somewhere in the neighbourhood. Ice is brought down from the Songuta glacier, and the patients drink milk mixed with the glacier water till they are uncomfortably cold inside. They are then directed to skip about till they are warm again. The survivors are cured. We met another colony by the Zea glacier undergoing the same cure. Practically, however, the treatment is by the sound open-air method now so much in fashion. The climate is well adapted for the purpose. Boldly developed and well advertised, these valleys of the head waters of the Uruk, within easy reach of Vladikafkaz, might have been before this turned into a very profitable concern. No great capital is needed. The only requisites are a cow and a glacier. But the Russians show more energy and enterprise in spreading abroad than in developing at home. Of the art of advertisement they know nothing, and the profit, if made, would probably have been annexed by the Government. So the district, if its resources are undeveloped, at least has its scenery unspoilt.

From Kamunta a low pass leads to Gular and Zinaga in the Karagom valley. From the summit of the pass—the Gular saddle—a fine view is obtained of the Styr Digor valley. Laboda and Tsiteli form an imposing mass near at hand on the S. of the valley. Shkara, as usual, asserts its size and height boldly, and seems to dominate the distant mass. Gestola is just visible over the Shkara Pass, Tetnuld further S., while more to the N. Koshtantau and Dychtau show up over the foreshortened crest that culminates in Sukan and ends in Gulchi, overlooking the Cherek valley. In this range little climbing has as yet been done, beyond Signor Sella's ascent. Some grand high passes might be made across from N. to S., and the ascent of Gulchi would certainly repay anyone who wants a fine climb up a peak magnificently placed for a view. If bases were made and supplies stored at Styr Digor, Balkar, and Karaul, the exploration and climbing might be carried out in great comfort.

I feel that I am taking an unconscionable time in getting to my mountain—a sure sign that the actual climb was not a very remarkable one. But it used to be the fashion to deviate. Descriptions of mountain ascents in recent times tend to have an interest that is purely linear. Countries like the Caucasus are for mountaineers who can enjoy travel as well as climbing, and the degree to which the art of climbing has now been developed is perhaps prejudicial to the exploration of such regions.

The track up the Uruk valley is now very good. The gradients are gentle and the road shows engineering skill. As a rule, Caucasian paths follow a sort of point-to-point course. Styr Digor is not a particularly attractive hamlet, and we hoped we should not be misunderstood if we pitched our camp by the river, out of range of its immediate atmosphere. Fodder for the packhorses was not abundant, but we were able to conclude a bargain with a native, who chanced to be passing with a load of hay, on such favourable terms that we inferred the hay did not belong to him.

The small boys of the village soon spread the news of our arrival, and the population came down the hill to enjoy the dissipation so dear to them of a good stare. Among others an old acquaintance came to offer hospitality—Ismail Karabugaiff, who had migrated hither from Urusbieh. He brought with him, as a sort of letter of introduction, a well-thumbed collection of M. de Déchy's photographs, including portraits of himself and family. Evidently these were considered great artistic treasures, and had excited so much interest that the chief features were almost obliterated by loving finger-marks. The natives seem to understand a portrait or a view of a mountain quite as intelligently as the average Swiss guide. Inquiries as to provisions produced the usual satisfactory answers, but in this instance the performance was almost equal to the promise.

Having gazed their fill and laid up a good store for conversation, the natives slowly withdrew and wandered up the hill again. For a long time we could distinguish their forms as, perched on the walls or the roofs of the houses, they sat silently digesting the wonders they had lately beheld. The groups had that perfection of picturesque arrangement that seems to be the secret of dwellers in the East—when they are left to themselves. Behind the village the bleak and barren hills glowed in the warm tints of the sunset. For a while the dark motionless figures stood out in sharp silhouette. Then, as the dark shadows crept up the slopes, the village

seemed to sink back into the side of the hill, and the figures were blotted out one by one. Almost as the last one disappeared the tolling of a bell, perhaps a curfew, sounded through the valley, giving a weird dramatic finish to the whole scene, and adding to the sense of solitude. It is customary, you will remember, to introduce a description of a sunset before ascending a mountain.

We intended to make an early start in order to push as far as possible up the Tana glen, with the view of reconnoitring Laboda, but rain fell, and we had to modify our plans. Ismail, too, had signified that he hoped for the honour of a visit, adding, in the true Caucasian spirit, that we could easily come to his house first and go on to our mountain afterwards. This was equivalent to a royal command to take some photographs of himself and family. Accordingly I went up the next morning and found preparations going on. Ismail said the ladies would be ready in a minute; and, indeed, in about an hour they appeared in all their finery. The rest of the party had gone on to seek a camp, and I chafed at the delay, but it seems always judicious to take every opportunity of making friends with the natives. I hurried after my companions at my best pace, modified somewhat by several bowls of freshly soured milk.

An hour or two above Styr Digor the valley branches—the southern division leading direct up to the Tana glen, while the main path to the Shtulivsek lies to the N. of this in a wider valley. Our intention had been to go direct up to the glacier, but a cowherd, seeing us turn off in this direction, came running down to assure us that the rest of the party had followed the Shtulivsek path. Finally we came upon the baggage animals close to a point marked in the one-verst map 966 (= 6,762 ft.). To the S. of this point a low dip in the ridge seemed likely to give easy access to the Tana glen proper. The valley is narrow at this point, and good camping places are few. Indeed, we had to pay rent for a site for our tents, as an imaginative peasant, who said he was the owner, assured us that it was a very fine hayfield and that we should damage it greatly. To our eyes it appeared nothing but a stony desert; but after an hour or two of bargaining the matter was settled for a few kopeks. We had previously had a good view up the Tana glen, at the head of which stood Laboda. Laboda itself is the highest point in a semicircular crest at the head of the Tana glacier. Four other points show up prominently N. and S. of it. About halfway up the glacier a long rocky ridge running E. and W. divides the upper névé

into two. On either side of this ridge are fine icefalls, and the ridge itself culminates in the imposing peak formerly known as Tana, but now definitely named Tsiteli. In an early version of the one-verst map, made within the last few years by M. Bogdanov, the height is given as a little over 14,000 ft. ; but M. Jukov's revised survey of the same district, while assigning the name of Tsiteli to the culminating point of the rocky ridge, gives the height as a few feet under 14,000. Although Laboda was clearly the highest point on the crest we decided to attempt the ascent of Tsiteli, inasmuch as it seemed better placed for view. The ascent of Laboda itself, though it would probably present no particular difficulty, could, I think, better be made from a camp nearer to the Shtulivsek. Although the ascent would certainly be possible, though rather long, from the E., a more favourable and probably more interesting line of attack would be from the W. or N.W. side. There seemed to be good places for a camp high up on the N.W. flanks of the mountain. Little seemed to be known of the Tana glen. Like many a valley lying close to a much-frequented track, it had scarcely been visited, and our line of ascent for Tsiteli had the advantage of leading us directly up the glen. The expedition was clearly one that would occupy two days, and we decided to make an early start the next day and camp high up on the rocks.

An hour's walk the next morning due S. of our camp brought us to the top of the little grass pass, from which we could look down into the Tana glen. The scenery offered a strange contrast to that which we had been passing through for some days. Flowers were abundant ; there was plenty of variety of trees, and the foliage and colour, though rather colder in tone, reminded us at once of Suanetia. I have seen no valleys on the N. side so picturesque as this one. Our native attendant came with us for a little way. He was called Elia—why, I know not, for it was certainly not his name. He had six or eight names, but none resembling our appellation in the least. We went on for half an hour or so towards the glacier, and then the guides, characteristically, developed an idea which they laid before us. It appeared that the kettle had been forgotten. Their view of the matter was that we were extremely unwise in proceeding to a high camp without a tea-kettle and without tea. We agreed that there was some reason in this opinion, but pointed out that it was now too late to correct the mistake. This view they did not share, and urged that we had ample time before us to get as high up the rocks as it would be necessary. As on another

memorable occasion, the teapot bid fair to become the cause of a division between friends. Warming with their argument, the guides declared it would be worse than folly to go unprovided with a tea-kettle. We on our side said that if such was really their view we would give in to it, and they might decide by lot which of the two should go down to fetch up the article. This solution had not occurred to them, and put a different complexion on the whole affair. They said there might be very hard work the next day step-cutting, and they thought, on the whole, that our good friend Elia had better go to fetch what had been forgotten. Finally this compromise was agreed to, and Elia was sent off with a letter. After a couple of hours he returned, and the guides then thought it was desirable to make tea at once to see that the whole apparatus was in good working order. It will be judged from all this that the day was an extremely hot one, and that the grassy banks of the Tana glen were most inviting for repose. However, it was true that we had time to spare.

The lower part of the Tana glacier is very level and free from stones, and a great contrast to most of the Caucasian glaciers as regards comfort in walking. Arrived at the junction of the two ice-streams at the foot of the dividing rib of rock, we made our way up the slopes by the left bank of the southern icefall. The best line up the Tana glacier itself is towards its right bank. Soon the grass slopes gave way to fairly steep rock, and we had to zigzag a good deal. After some four hours' walking we decided that we were high enough for our bivouac, and the usual altercation immediately began as to the best place. Eventually a little platform was selected under a slightly overhanging rock. Here we made a *kosh*. A few stones piled together in the form of a crescentic wall, with the pointed ends turned inwards, forms a *kosh*.

On the S. side of the valley the crest of the main chain dips low, but the mountain forms, though small, are fine. The ridge might be crossed almost anywhere, and more direct passes made to the valleys of the head waters of the Rion than the well-known Sharivsek, Edena, or Gezivsek—passes of about 11,000 ft.

I am concerned to find that hitherto I have made no mention of eating, drinking, or tobacco. Woolley's foresight had provided amply. As usual, the bread had disagreed with the guides, but we were able to thrive on the familiar flabby brown loaves. The chronic trouble still persisted of not being able to get enough or know when to stop consuming it.

I have read somewhere of a schoolboy who in the course of an essay on politeness remarked—probably with a sigh—that it was not considered good manners to eat too much at meals, and added, as the practical result of his own experience, that you would be happier if you ceased to eat when you felt you were tightening. This principle, otherwise possibly sound, cannot be rigidly observed when Caucasian bread forms the staple of diet. You are obliged, so to speak, to stretch a point.

The night was cloudless, but warm, and in the early morning the peaks stood out with just the proper amount of definition—not over sharp and clear in outline, as when rain is threatening, but veiled and blurred a little, and bathed in the softest tints of the coming dawn. So we got under way in high spirits. The actual starting is really one of the supreme moments of a new mountain expedition, and one that custom can never stale. I cannot understand the ill humour that is commonly said to predominate as the result of very early rising. Mr. Woolley may give a different version of my mental condition. A rough scramble over the rocks took us at once on to the most detestably irregular snowpatch, furrowed obliquely with great troughs, over which it has ever been my lot to walk. An hour or two of this work brought us well into the trough on the southern side of Tsiteli; we kept well on to the left bank of the snowfield. The first part of the icefall here is insignificant, though towards the centre numerous big blue masses of fallen ice show the movement of the glacier. The Tana glacier itself shows no particular marks below either of advance or retreat. At the head of the southern glacier the snow-slopes bending northwards narrow to a species of col, marked by two big square towers of rock, which jut out a little below the crest. From the top of this col, which runs E. and W., we were bound to look down on to the cirque of the northern glacier and Laboda. This was obviously our line of attack. Some two hours and a half after starting we touched the rocks for the first time on the left bank of the glacier, and, after the manner of mountaineers who have got on rocks early in the morning, at once determined to breakfast. This, however, was a very brief ceremony, for we were anxious to get well up on to the ridge before the clouds came. Keeping close under the main ridge dividing the N. and S. glaciers, we worked our way W. and occasionally N.W. by the left bank of the southern glacier. The way up lay chiefly over the snow, though with an occasional bit of rock climbing. You will, I trust, pardon

the omission of any elaborate details as to each particular hand- or foothold. The mountain is somewhat remote and the surface so loose and friable as to be liable to change. Suffice it to say, in the phrase ordinarily employed, that the handholds were absent and the footholds fortuitous. Nearer home, a microscopic analysis of cracks, projections, and finger-holds may be advisable in the description of gullies, chimnies, and pitches, with an up-to-date report of their reliability, the precise extent to which they have been worn, and the name of the climber who first touched them. But our climb was not of the sort where success may be imperilled if the 'Climber's Guide' be left at home, so that the mountaineer forgets which leg he ought to start with first up a given passage; where a little extra snow may render a whole chapter worthless, or the fall of a small piece of rock entail a new edition. As a matter of fact, we accomplished this part of our ascent by the methods that, however mountaineering may develop, will still be found valuable—namely, by sticking to it and pounding away steadily.

In about three hours from the start we reached the base of the first rock tower and saw now that the col lay a good height above it. Further away to the left of the col a ridge, bearing a tolerably heavy cornice, showed out, and this we took to be the commencement of the arête. We were quite prepared to find that the actual summit of the mountain was not the point we had seen from a little above Styr Digor, but that the real summit lay further back—that is, more to the W. We were both of us too seasoned to imagine that in a new district the point which first looked like a top would prove to be the actual summit. A traveller who crosses a Caucasian pass with any such idea must be very sanguine and very youthful, and he had better possess a strong power of control over his feelings. The towers of rock proved to be a great deal higher than we had imagined, and the snow becoming bad, progress was very slow for a time—so slow, indeed, that by the time we had worked our way above the level of the first tower the chance of getting up the peak at all seemed suddenly to become a matter of doubt; yet until an hour before we had felt perfectly certain of it. As usual, we began now to regret that we had not slept higher up, started earlier, and walked faster. Yet we had started as soon as there was any light to walk by, we had gone a good deal faster than either of us supposed we were capable of, and we had seen no possible place to sleep other than the one we had chosen. The mental barometer of a mountaineer when on a new peak

is extremely sensitive, and swings over from 'set fair' to 'very stormy' from very slight causes. Without delay we made our way up above the second and smaller rock tower, keeping still to the snow. Feeling that tough work might be before us, and that a new peak was not to be won by any unnecessary delays on the route, we had left the cameras behind; so that the temptation so prone to beset the photographer of finding attractive views more frequently when ascending a steep hill than at any other time was on this occasion kept wholly at bay. Beyond the second tower we turned towards a slight rib of rock on our left hand, and imagined from its appearance that progress would be easier; but in this we were at once disappointed. The rocks were so small and loose that it was impossible to climb them, and we had to keep on the edge of the snow, for the most part scraping out steps. At times in the shade there was ice, but if this was cut into deep enough to give foothold the rock beneath broke away; so throughout, as the slope was very steep, we had to make our way up with the utmost care.

At about the stage of the paper that I have now reached the mountaineering difficulties usually reach a climax, and at this culminating point the writer's power of description suddenly fails him. What always happens is as follows:— A guide goes on in front and performs feats too surprising for words, with the result that he gets to the top of some rock or other; frequently progressing by an invisible crack up a smooth precipitous wall. The height of the wall or chimney is usually estimated by the length of the rope and its angle of inclination by pure conjecture. The remarkable nature of the climbing feat is enhanced by a description of the difficulty that the other members of the party experience in surmounting the obstacle. This is especially marked in the case of the writer, whose modesty asserts itself at this point. Though assisted from above and stimulated from below he finds that he has never been in quite so bad a place before. Arrived safely he cannot imagine how the first man managed to get up. In our time the first man was always a guide, and he had to climb a rock. A modern variation of the situation often sends a distinguished amateur on the forlorn hope, and the obstacle is called a *gendarme*. Anyhow some one or other invariably gets up and the place is sure to be some kind of rock. The narrator is always in a dilemma when he reaches this critical situation. He has to go one better than some one who wrote before him. If he stops short, he is dull: if he goes on, hysterical. I am quite

disqualified from competing. Besides I am dealing with the Caucasus—not the Dolomites, nor the English Lake district.

Our passage, if difficult at all, was highly prosaic. An hour or two of careful step selection brought us to a minute snow ridge that curved up gently to a cornice. My impression was that on breaking through the cornice we should find ourselves at the commencement of a fairly long, but probably easy, ridge of snow leading to the summit; but to our surprise the cornice itself was actually one end of the short ridge that formed the top of the mountain. We gently rose towards the north end, which was perhaps 20 or 30 feet higher than the point at which we had struck it, and in a few minutes we found ourselves on the highest point. All anxiety as to the weather and the possibility of the midday clouds obscuring the view was set at rest as we glanced round. In almost every direction the view was perfectly clear. There was scarcely a breath of wind and the temperature was precisely what was wanted. In the course of a tolerably long mountaineering experience I have never come across more perfect conditions than were provided for us that day. The mountain itself somewhat resembles in shape the Fletschhorn, and the route we had followed in going up it resembled that which would be taken by a party ascending towards the Fletsch Joch, and then crossing over towards the Laquinhorn. Our eyes were first directed to Laboda, which lay to the north-west of our point and rose decidedly above us. However, we did not regret our choice of peaks, for it seemed as though the view from Laboda towards the Adaikhozh group would have been a good deal interfered with by the mass of the mountain on which we stood. To the west of Laboda the ridges fell away tolerably precipitously, and from our point of view we could not trace any easy lines of ascent, thus confirming the view that the ascent of Laboda would be best made from the head of the Styr Digor valley by the north-west slopes of the mountain. From the N. or Shtulivsek side, though a safe way could probably be found, it would not be very simple. The final ridge too would be long, but easy. The great cirque from which Laboda juts out, though not very colossal in scale compared to other Caucasian mountain views, was decidedly impressive, and the distant hills beyond the Shtulivsek formed a good background of dark colour against which the snow and ice ridges stood out well. It seemed to us that Tsiteli itself was accessible from the west, though it would prove a far more difficult climb.

The crest of the main chain, stretching away south-east and

then east, and forming the southern boundary of the Tana valley, drops down to a curiously low level, which it maintains for a long distance. Evidently it could be crossed easily at many places. The familiar routes leading down to Gebi were all very obvious. Far away in the distance Kasbek stood up nobly, its snowy flanks tinged with the peculiar yellow that the greatest mountains alone seem able to assume. I had never before been able to judge so well of the immense proportions of this very grand peak, which is far more impressive than when seen more closely, as when crossing the Darial pass. The Adaikhoikh group was perfectly clear, but the separate ridges were so foreshortened from our point of view that it was difficult to make out much of the topography, and I could not satisfy myself at all as to the best point to cross in making the Zea-Karagom Pass. This pass is a snow problem that only wants determination for its solution. It is likely to prove one of the finest snow passes ever made. Kaltber stood up clear and distinct. Dazzled by the brilliancy of the snowfields it was a relief to turn the eyes towards the green patch which marked the position of Gebi. The view in this direction had all the charm of contrast and variety of colour that the Val Anzasca has from Monte Rosa. The jagged range of which Gulchi and Sugan are the crowning points formed a prominent object. The central group was as imposing as it always is no matter from what point it is seen. The tawny mass of Elbruz showed up plainly enough, and through the haze and slight mists which lay over Suanetia we could make out the glittering snow domes of the Laila group. I trust that anyone who follows will be wiser than we were and take a camera to the top. Description of the view is vain, and I rigidly suppress any account of the emotions engendered by a successful first ascent. I wish you however to note one signal merit in this paper. As it deals with a mountain only 14,000 ft. high the question of rarefied air cannot possibly be raised.

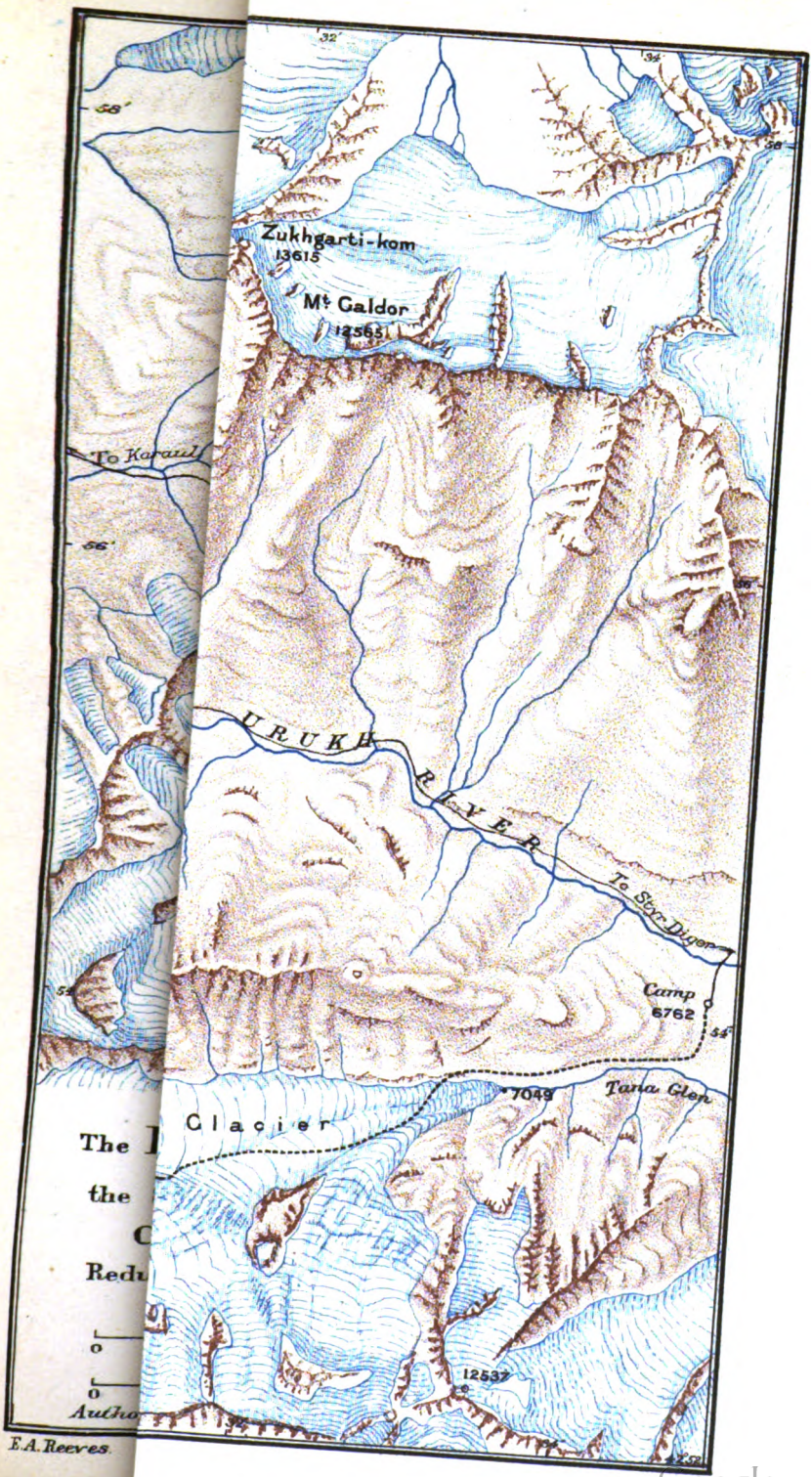
For more than an hour we sat in comfort on the top, and then as the snow beneath us melted and began to soak through the guides' provision bags which were used as seats, we concluded that it was time to go down. Warnings enough have been given by those who have had experience of mountaineering in the Caucasus against starting late for any climb of magnitude. These have been founded chiefly on the difficulty of adequately realising the real extent of the expedition. The Caucasus is, of course, on a larger scale than the Alps, but the difference is by no means prodigious. Still, the advice

given cannot be too often reiterated. The Caucasian traveller who starts at an hour that would suit in the Alps, will soon realise the truth of the line, 'The little more and how much it is.' But there are further reasons. In the Caucasus, more often than in the Alps, the clouds rise up over the high mountains after midday. In some regions, especially in the central group, this will often happen with the utmost regularity, for day after day, even in fine weather. Added to this, the snow is subject to more sudden variations of condition in the Caucasus, and as a rule the snow becomes bad more rapidly after midday than in the Alps. Of this latter drawback we soon had proof. The moment we were off the summit ridge, and down through the cornice, our troubles began, and it was only with great difficulty that we were able on the steeper part to get moderately safe foothold. For only a few steps were we able to go down with our backs to the slope. Then we had to turn and descend as if on a ladder, kicking steps in the loose and melting compound. On reaching the ridge of rocks on the eastern side of the mountain matters became worse. Progress was, consequently, extremely slow and monotonous. With our faces to the slope, we worked down for some 1,500 to 2,000 feet. Such passages are not usually called difficult or dangerous. Really, they are both. It is just in such places that the accidents happen, and the man who can come down them without making any mistake is a really good mountaineer. It was highly undesirable that any one should slip, or fail to keep the rope taut, or relax his attention in securing the safest possible foothold during the whole of this part of the descent. I notice here one departure from orthodox lines. Properly speaking, I ought to introduce at this point the character who, in a mountain ascent, furnishes such invaluable assistance—as padding. I have known him so long, and used him so often, that no one can regret the absence of the incompetent porter more than I do. However, his ways and his failings are only too familiar to you.

The fall of a good-sized avalanche from the hot-plate in the icefall warned us to keep well to the edge of the snow trough. At length we emerged on to a huge snowfield, arranged on the most detestable pattern. The whole was furrowed as if scraped down by a gigantic rake, and the intervening ridges were of the most exasperating height possible. The snow was just hard enough to slip on, just too soft for glissading. We threw off the rope, for the perpetual jerking, as people floundered over the ridges, became intolerable; and, furthermore, no

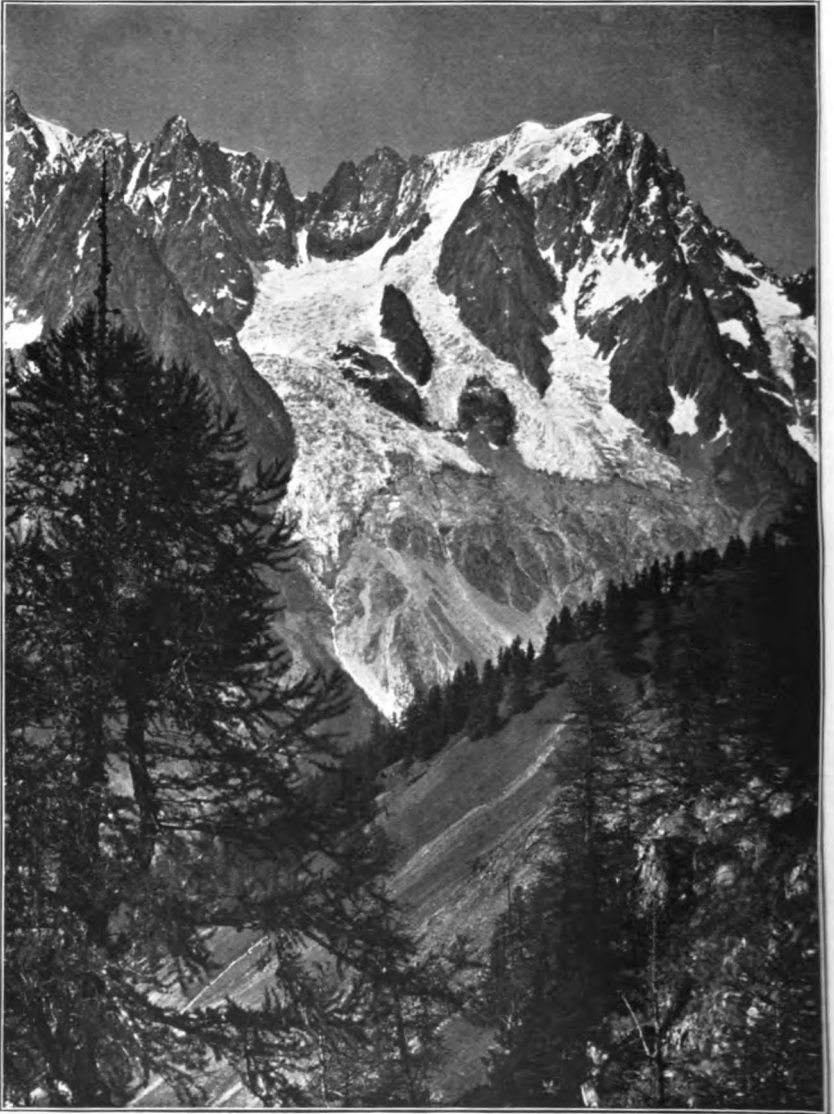
two of us agreed as to the best line of descent. In a few minutes we were dotted all over the slope. One of the party made a horizontal traverse directly above in the hope of at least getting a good glissade to end with; another went straight down a furrow, fondly imagining that he would not find it objectionable to walk up hill again in order to reach the sleeping place; another set his teeth, and keeping the rock that marked the bivouac well in view, made straight for it. This dogged person certainly arrived first, but distinctly in a worse temper than anybody else. By 4 o'clock, however, we had made our camp and our last tin of Irish stew was set cooking. In due course this was sent round, together with a spoon, each person being permitted to take two dips with the spoon before he passed on the tin. Politeness forbade us to watch too closely our companions to see what success they had with their dips, but Irish stew is a form of comestible that is not readily divided up with perfect equality among four, and it was not easy to avoid marking certain choice morsels, and wondering if they would survive till one's turn came next. By 7.30 we were back in the camp, and found an argument as to horses for the next day, which had been started before we left on our expedition, still going on merrily. Under the influence of dinner, and stimulated by the recollection of an extremely successful and very beautiful climb, we all made merry. On the way down there had been little conversation. It is not easy to discuss matters of any interest after kicking steps backwards for some hours. On such occasions I always find full occupation for my thoughts in marvelling at the extreme energy that I had shown earlier in the day in ascending to such a remarkable height. Refreshed after dinner, we felt quite equal to take up again the thread of the interrupted conversation about the horses. This was pursued with energy until bedtime, when, seeing that we were not in the mood for further discussion, an elderly horse-dealer accepted our original proposition made two days previously to provide six horses and six men to take us to Karaul for two roubles apiece.

Two days later we were at our old camp at Karaul, a spot that brought old and treasured associations back to my mind as vividly as reading this paper here to-night has brought back others, brighter, but not less ineffaceable, and not less valued.



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E.A. Reeves.



A. Holmes, photo.

Swan Electric Engraving Co.

LES GRANDES JORASSES, FROM LA SAXE.

(Col in centre of ridge.)

THREE LITTLE-USED PASSES IN THE MONT BLANC RANGE.

BY EDWARD A. BROOME.

THE *raisons d'être* for this short paper are, like the classic cols crossed last year, three in number. The first, the Col de Rochefort, I wish to strongly recommend to the numerous 'topmounters' passing backwards and forwards between Montenvers and Courmayeur. The second, the Col des Grandes Jorasses, I hope to clear from the evil imputations under which it has lain for a quarter of a century. The third, the Col du Mont Dolent, had such a reputation for difficulty, and has interested me so much for years past, that having, after several attempts, at last managed to get over it, I feel I must add a note about it.

The Col de Rochefort.—This is called in the 'Climber's Guide' a 'variation of the Col du Géant,' but it is a big and very interesting variation, being over a totally different glacier on the Italian side, and having two peaks (the Aiguilles Marbrées and the Mont de Jetoula) standing well up between the two routes. In crossing the Col de Rochefort there is all the interesting and typical ice-work of the Glacier du Géant, common to both passes; and then leaving on one side without regret the hôtel (!) newly built on the top of the Col du Géant, and the well marked path on the Italian side thereto, a pleasant substitute is found in good rocks and a steep glacier. This pass was first crossed by Mr. Eccles in 1877; and, though it must certainly have been traversed since, neither he nor we could hear of any further passage, till Mr. P. A. L. Pryor and I came over it twenty years later.

Starting from Montenvers, we left the usual Col du Géant track nearly an hour below the pass; we then bore to the left to the foot of the Aiguilles Marbrées, skirted them, and made for the lowest depression in the ridge, about half-way between them and the Aig. du Géant. The descent on the S. side was at first by very steep and broken rocks bearing off continuously to the right; and when the lower part of the rock wall was reached, we thought there seemed some little danger of ice falling from the cornice on the top of the col. This, however, could certainly be avoided, and a perfectly safe way off the rocks found. On reaching the Rochefort Glacier a traverse should be made across it (leftwards) to its E. side, the exact route, of course, depending on the state of the glacier, which we found much crevassed and interesting to work through. We struck the grass slopes on the left bank of the

final icefall, and, after a pleasant walk down the meadows, joined the Val Ferret cart road a few hundred yards E. of the Mont Fréty mule track. Four hours were taken from the summit to Courmayeur, but it could easily be done in three by any average party. I hope to recross this pass in the reverse direction another year.

Col des Grandes Jorasses.—The first crossing of this high pass by Mr. Middlemore (July 18, 1874), and his interesting paper on it, made quite a sensation, and led to a warm debate at the Club, and subsequent correspondence in the 'Journal,'* in which Messrs. Hinchliffe, Leslie Stephen, Dent, and others took part. The climb up the Italian side was voted too dangerous for anything, and its repetition more or less tabooed by the authorities; and, as a matter of fact, it never was recrossed, unless a report (which I have so far been unable to verify) as to one passage in the reverse—i.e. N. to S.—direction is correct. Years afterwards I read the paper and correspondence, and, having frequent opportunities of studying the pass from both sides, naturally took the greatest interest in the matter. I formed the idea that if we kept further to the right than our predecessors, and declined to be 'nearly forced into the gully,' † the rocks might perhaps be more difficult, but there would be less risk of having our heads broken.

Pryor and our guides being ready and willing to try, with the weather everything that weather ought to be, we toiled up to the Grandes Jorasses hut after luncheon on August 15, 1898. Leaving at 4 o'clock next morning, we reached the big schrund at the foot of the pass soon after 6. Here we began at once to ascend rapidly up the steep snow couloir, but kept well to the right of the avalanche track, and, after getting to the first rocks on the left bank of the gully, halted for breakfast at 8 o'clock.

From this point we had just two hours of truly magnificent climbing to the top, with little or no danger. The rock-ribs and chimneys selected were very steep, but also sound; and though once or twice we reached an impracticable bit, a traverse across a secondary couloir (and one of these was sensational and took half an hour) would always land us at the foot of another sound and feasible arête. The main thing was to mind the many missiles, and thus prevent possible punctures. At 10.45 we reached a lovely little snow basin, the south rim of which touched our topmost rocks, while

* Vol. vii. pp. 311-3 and 402-4.

† See *Alpine Journal*, vol. vii. p. 228.

the north rim formed the summit of the pass, probably a little E. of Mr. Middlemore's point. If the next party over should be geological in taste, and, while searching for specimens, should discover a somewhat unusual 'little bit off the top' in the shape of a favourite silver drinking cup left there, it is at their service.

Descending from the col, the first nearly vertical 250 ft. of blue ice (seen from the Montenvers Hôtel) took 1 hr. 35 min. ; and the Mont Mallet Glacier being even more intricate than usual, we were quite satisfied to reach our quarters at 5 o'clock. I strongly recommend the climb, and should add that we were splendidly led throughout by J. M. Biener.

The accompanying picture, from a photograph by Mr. Alfred Holmes, shows all the southern side of the Grandes Jorasses Col,* also the route up the well-known, but often dangerous, peak.

Col du Mont Dolent.—There are two passages in print of this precipitous pass—the first by Mr. Whymper (from S. to N.) in 1865, and the other by Messrs. Hartley and Davidson (from N. to S.) in 1878. Mr. Whymper speaks of it as one of the stiffest things he ever did, and his account of the descent † has not encouraged others to cross from the Italian side. Some years ago I went with him to the head of the Argentière Glacier, and had a good look at the col, while he photographed it. I believe it has been attempted on other occasions, and I know I tried (and failed) twice. The difficulty was getting up the huge smooth upper lip of the big schrund at the foot of the great couloir, which is usually black ice, generally overhanging, and only negotiable in one place. At any rate this is where we twice turned back, and I came to the conclusion that when the pass was impossible it was probably easy, and when practicable it would prove difficult—meaning by this that ice below would go with rocks in good condition higher up, while a climbable bergschrund would involve obliterated or glazed holds above.

Pryor and I slept at the Lognan chalet (now much improved, August 3, 1898) ; but next day it rained, hailed, and blew, with some fresh snow aloft, so we had to stop there, cool our heels, and get through the time in the best way we could. This bad weather, however, did us good by lessening the above-named initial difficulty, and on Friday, the 5th, with

* This Col was crossed from Montenvers to Italy by Mr. Evan Mackenzie on Sept. 8, 1894. *Rivista Mensile del C. A. I.* Jan. 1895.

† *Scrambles amongst the Alps*, p. 333.

J. M. Biener and A. Imboden, we started betimes, and got to the bergschrund in 3 hrs. from the chalet.

At the foot of the couloir the fresh snow was in capital order, and we got up the steep wall above the big schrund with very little difficulty. Once over this the slope must be quite 1,100 ft. high, and over 50° angle, while there is usually a choice of ice or rocks. In our case the difficulty now was to find out where the rocks ended and the ice began, for deep snow covered everything. We, however, drew no hard and fast line as to our route, but keeping always well to the left worked our way up wherever we could do so quickest, and, sometimes on ice, sometimes on rocks, but always in snow, got to the summit very wet and cold in 4½ hrs. from the foot.

Here we both were much struck by the extraordinary accuracy of Whymper's engraving of the 'Summit of the Col Dolent,'* as well as impressed by the narrowness of the corniced parapet and the steepness of the wall on both sides. A very short tunnel would be long enough to pierce the foot of this pass.

The descent of the Italian couloir to the Pré de Bar Glacier calls for few special remarks. The rocks are loose, and need care if any further services from the leading man are ever likely to be required! Also stones fall all the way down, and plough a great track in the broad snow slope at the bottom of the gully. We gave this track a wide berth till we reached its foot, but were then forced into it in order to cross the big crevasse at the only practicable place; and here one large stone whizzed by, much too close to be pleasant. Two and a half hours was the time taken from the pass to unroping on the lowest rocks of the Grépillon, whence it is no great distance down to the Petit Ferret path and the direct route to Courmayeur.

MOUNTAINEERING IN ARCTIC NORWAY.

BY WILLIAM CECIL SLINGSBY.

(Read in part before the Alpine Club on March 7, 1899.)

Lyngen Fjord.

'WHERE there's a will there's a way,' is a proverb which stay-at-home and fireside philosophers are fond of quoting. Its truth, however, is more than doubtful. At any

* *Scrambles*, p. 334.

rate, in the year 1851, Professor James D. Forbes wished to explore the glacier of Reendal, and to make some mountain ascent on the promontory of Lyngen, but though the will was present the way did not appear. Many persons who have seen the peaks of this remarkable region have had the will to climb, our President, and possibly also a former President (Mr. Bonney), among the number. The German Emperor and Dr. Von Gussfeldt, a few years ago, even went so far as to engage the services of Emile Rey to accompany them to Lyngen, and the latter, in consequence, persuaded Miss Richardson, who had previously engaged him for her summer campaign, to allow him to cancel the engagement. However, political or other reasons prevented the fulfilment of this dream of the Imperial mind, and, in consequence, the regiments of rock Trolds, which guard the many mountain crests, were spared the honour of an imperial review. Apparently, the Norsk mountains do not behave kindly to his Imperial Majesty, as on one memorable occasion, when the Emperor ascended for some little distance on the ice of the well-known lower Suphellebræ he was not fortunate enough to see an avalanche fall from the upper glacier, and, in consequence, a man was sent up with a crowbar to the crags above, to send down a mass of rock as a substitute for the séracs which would not fall to order.

In 1897, Mr. Priestman got together a small but select party, and took them to the Lofoten Islands, about which, in the 'Alpine Journal,' Vol. III., the Rev. R. St. John Tyrwhitt says, 'An exploration of the Loffodens would be a work worthy of the Club, in every sense of the words.' In Vol. IV., the Rev. T. G. Bonney, in his admirable paper on 'The Lofoten Islands,' says: 'The peaks, in a word, should be looked at from below, not from above.' After Mr. Priestman's party had spent some weeks amongst the Lofotens, the men of leisure of their party went further north to Lyngen, where one of them, by a *tour de force*, ascended Jæggevarre, the Mont Blanc of the North, and the ball was opened in earnest.

For nearly twenty years I have wished to climb in Nordland and Finmark in general, and about Lyngen in particular, but was always deterred by two reasons, first, the great distance from home—still eight days, and until a few years ago, nearly a fortnight; secondly, the impossibility of getting companions to accompany me. It was, however, now high time for me that my will to visit the

North should force my way to appear, as I take a kind of paternal interest in climbing in Norway.

It was all arranged round the fire at Kinloch Ewe, last Easter, and eventually the party consisted of Messrs. Hastings, Haskett-Smith and myself. Many were the arrangements to be made before leaving. The old campaigners, Hastings and Haskett-Smith, were entrusted with the collection of supplies and the outfit in general, and during the last fortnight in June, telegrams and postcards were despatched to town at the rate of two or three a day, such as the following :—

‘ Where is the jam ? ’

‘ Have you got the plum-puddings yet ? ’

‘ Seen that fellow about aluminium ice-axes and boot-nails yet ? ’

‘ Barograph not arrived ; how is that ? ’

‘ Only five thermometers and seven barometers come ; where are rest ? ’

On me devolved the duty of engaging a porter, and through the agency of Herr Bing, of Bergen, to whom we are deeply indebted, we secured the services of Elias Monssen Hogrenning, of Loen, in Nordfjord, the best and cheeriest Norsk porter with whom I have yet had the pleasure to climb. This stalwart young fellow was married only two or three weeks before he set off to join us, over eight hundred miles and eight degrees of latitude away from his bride and his home.

Nothing is much easier or more pleasant in its way than a journey up to the North Cape, along the romantic west coast of Norway, on the well-ordered, clean, and comfortable mail steamboats. But, early this century, it was far different, and the few travellers who visited Hammerfest and Tromsø usually went in winter by way of the Gulf of Bothnia to Torneå, and from thence over to Alten by sleighs. This probably accounts for the extraordinary inaccuracy of the ancient maps of the north of Norway. I have an interesting one of Lapland two hundred years old, in which ‘ Lingen ’ and ‘ Trumsoe ’ are each shown to stand near a lake whose waters drain into the Torneå river, and so into the Gulf of Bothnia. Sir A. de Capell Brooke, in 1820, was probably the first Englishman who travelled from Throindhjem to the North Cape by the western coast. This part of his journey occupied forty days. In the middle of the seventeenth century mariners even considered it desirable to buy from the Lapps on the shore, who called themselves ‘ wind merchants,’ the

winds which were necessary to carry their ships in the direction they desired. These Lapps had the power to 'stop ships in their full course, so that they cannot stir from the place, let the wind blow never so strong.' On a voyage taken in 1653, a suitable wind was bought from a Lapp necromancer, 'for ten crowns and a pound of tobacco.'

We thoroughly enjoyed the voyage, though I own it is at times very tantalising to be a deck-tied passenger, and not to be able to get hold of the grand scenery with one's hands as well as to feast upon it with one's eyes.

We were fortunate in having for a travelling companion Professor Mohn, the well-known meteorologist. He is a brother of my old friend Emanuel Mohn, with whom, in the year 1876, I had a most successful mountain campaign in Jotunheim and afterwards amongst the then unknown Søndmøre mountains, where we unravelled several strictly guarded secrets of nature. Professor Mohn gave us much information about Nansen's famous journey, and about Arctic exploration in general. He is a great admirer of Lord Dufferin's delightful classic 'Letters from High Latitudes,' and has named a large glacier in Jan Mayen after this distinguished statesman. We also met Herr Caspari, a schoolmaster of Hamar, who formerly had a post at Tromsø, and when there, had explored many of the mountain fastnesses of that wild country. We invited him to pay us a visit when in-camp, and to take several expeditions with us. Fortunately for all concerned, this came to pass.

The mountain playground for which we were bound is passed and seen in clear weather by all North Cape and Spitsbergen tourists three or four hours after leaving Tromsø, and is termed the promontory of Lyngen. It runs due N. and S., is about 45 miles in length, and has an average breadth of some 12 miles. On the E. is Lyngenfjord, and on the W. are the Ulfsfjord and the Sörfjord, which latter are connected by a narrow channel, where there is a very extraordinary tidal race. Just north of this channel, and about halfway up the promontory, a deep and narrow arm of the Ulfsfjord, called the Kjosfjord, runs E., and almost bisects the promontory itself; in fact, the isthmus or 'eid' between the head of this little fjord and Lyngseide on Lyngenfjord is only about two English miles across.

In this comparatively small compass of 540 square miles nature has placed a complicated mountain system, where she has developed her wildest and most eerie forms, where the glacial phenomena are more characteristic of the Arctic

regions than—so far as is yet known—any to be found elsewhere in Norway; she has hidden away many remarkable lakes, and laid interesting problems which we conceived it to be our duty to attempt to solve.

Hastings, a deep plotter, who had been in Lyngen in 1897, had arranged in his own mind that we should set up our camp at the head of the Jægervand. He kept his designs dark until we arrived in Tromsø, on July 9, when he unburdened his mind. This Jægervand, or Hunter's Lake, is on the west side of the great promontory, and lies roughly parallel with the Ulfsfjord, which it very nearly joins. It is about five miles long, and its head, or south-eastern end, is overshadowed by a noble mountain, the Stortind or Great Peak, also called by the Lappish name of Garjel-gaissa or Russian Peak. Many other noble mountains are within easy reach, and it was certainly a most suitable place for our first camp.

At Tromsø we first met Mrs. Main and her party, who were on their way to Lyngseide. After some little bargaining we hired the steam launch 'Sandvik,' to alter her plans for the day and to put us down at the little hamlet of Jægervand on the Ulfsfjord. Our already enormous amount of stores was supplemented by the addition of a keg of butter, half a sheep, and a pair of Hermann Woolley's boots, left at Tromsø the previous year.

In due time we got aboard the launch, and backed off through the crowd of quaint craft which is typical of the northern harbours of Norway, and when almost clear of the shipping, by not making sufficient allowance for the strongly running tide, we were carried broadside on to the bow of a timber-laden jagt, whose spare anchor got hooked on to our taffrail. The strong current held us jammed fast for over an hour, in spite of all attempts on the part of our crew to get free, until at last, when the tide had somewhat slackened, and much uncouth and nautical language had been fired off, we got under weigh.

For the next two or three hours at odd intervals our captain kept saying, 'It's a — of a job is this ere,' showing thereby his great linguistic attainments. When we passed Grøtsund, and saw in the rich golden evening light the land of promise ahead of us, we all felt certain that, granted good weather, we had a rare good time to look forward to.

Arrived off Jægervand, we whistled shrilly and loudly for a long time for a boat to put off to take us ashore, as ours was stove in. At last a man and boy brought up a large boat.

alongside. Our many heavy packing-cases, land and water bags, and miscellaneous assortment of baggage, nearly filled the boat, and we got in very gingerly. How we ever got safely to land across that choppy sea, with the gunwale close to the water-level, was, and always will be, a mystery, even to the two yachting members of our party.

We ascertained that at high water a large basin in the river, which drains the lake, would be practically connected with the fjord, and that we could take our stores in a boat into the basin, and that by doing so a portage of barely a hundred yards would only be necessary to take our luggage on to the shore of the Hunter's Lake itself. As the tide would not be high enough to serve our purpose until 5 A.M. next morning we pitched our biggest tent on the grass just clear of a collection of fishes' heads which were ranged along the shore to dry, probably for winter consumption by the horses. The young squire of the place indicated precisely the ground which we were to occupy.

A few minutes after we had gone to roost, an innocent cuckoo came and warbled as sweetly as its rather limited vocal compass would allow, and I regret to say that my two companions showed an antipathy to the science of ornithology which was quite depressing. Certain it is that my notice of the cuckoo on this, the only occasion when we heard it in the north, afforded the wit of our party a theme around which many humorous variations were worked in during the next few weeks.

Next morning we made, willy nilly, an early start, and, with one exception, it was the only occasion on which we did so during our campaign. Willing hands helped us to reload a boat, to row it up through the pool, and to carry our baggage to the lake itself. The shores of this pool were bright with *Gentiana Alpina*, *Trollius Europeus*, *Pyrola minor*, a lovely yellow flower which I believe was *Pedicularis Sceptum Carolinum*, *Menziesia*, and many another lovely flower, all wide open to catch the sunbeams, and every species larger and brighter in colour than their brothers and sisters in southern Norway or in England. We found this invariably to be the case during our stay in the north. The *Saxifraga oppositifolia*, *Linnaea*, *Silene*, various sorts of *Orchis*, *Drosera longifolia*, *Viscaria Alpina* and others were always exceptionally fine.

We took two boats on the lake, had a lovely five-mile row in the early morning, and saw six peaks which we afterwards ascended. The Stortind, to which I have already referred,

is the end peak of a fine range, the Jægervåndtinder, whose axis is roughly N.E. and S.W. When we arrived at the head of the lake, the choice of a camping-ground formed the subject of much discussion between two of us. The one suggested a picturesque bog near the river and under the shelter of a high bank. The other wished to camp upon a dry promontory near a disused sæter and an excellent covered shed. The æsthetic member of the party was so thoroughly convinced of the superiority of his choice, that he set up the big tent at once on a carpet of moss surrounded by choice bog plants, but took the precaution of digging a trench all round it. I put up an old Whymper tent, used first in 1874, on some small bilberry plants which lifted me above the bog. The others, probably nurtured in the lap of luxury, rejoiced in the soft ooze and sphagnum moss, and longed for bed-time to come. Three days later, after some heavy rain, our æsthetic friend suggested that we should do well to go to the dry promontory. This we did. The positions of both camps were exceedingly beautiful, more or less in a grove of birch and alder trees with lovely mountain and lake views, and only some 25 ft. above sea level.

The Jægervand is fed by a large glacier river which drains the many glaciers on each side of the Stortinddal, a valley which pierces two-thirds of the distance across the promontory of Lyngen, which we expected to traverse very often.

After paying our boatmen and making arrangements with one of them, whom, for want of a better name, we called Mr. Red Shirt, to keep us supplied with milk, fish, &c., we set off to explore the Stortinddal. At first we had a lovely walk of half a mile through a birch wood, which was carpeted with ferns, mosses, and Alpine flowers. So far as we were able to judge during our campaign, the birches are much more kindly disposed to the mountain wanderer in the north than they are in the south of Norway. Even on the steepest hill sides where we found them growing they were always erect, while in Sogn, Hardanger, Nordfjord, and Romsdal they are often found to be growing nearly horizontally, having been beaten down by the winter snows. We emerged from the birchwood on to a terrible wilderness of stones, which, during countless ages, had tumbled down from the crags of the Stortind. It reminded us of the well-known valley of stones in the lap of the Aiguille des Charmoz on Mont Blanc, where there are bad, worse, and worst, but no good routes. We noticed that the ground across the river was rather better, but there was no chance on this day of being able to

ford so great a stream. On several future occasions we forded this river and always found it to be a matter of considerable difficulty. Two of our party prolonged their reconnaissance too long, and gained a mistaken addition to their geographical knowledge which cost us dearly.

The Kjostind and Stortind.

In 1897, Hastings had seen the Kjostind from several places and rightly concluded that it was the most suitable mountain for us to begin with, as, from its summit, a most comprehensive view of the mountains both north and south of the Kjosfjord could be obtained.

This we proved to be the case, but the principal feature of the ascent of this really fine peak was our entire corroboration of the truth of the twentieth proposition of the first book of Euclid, which we worked out most patiently, most stubbornly, and most painfully, and we proved after $34\frac{1}{2}$ hours of hard plodding, to which a twelve-year-old schoolboy is a stranger, that the two sides of the triangle which we traversed to the base of our peak, and which cost us $19\frac{1}{2}$ hours to accomplish, were greater than the one side which we followed with weary footsteps on our return, but which, nevertheless, only absorbed 5 hours. The classically-minded member of our party apparently considered the working out of this problem to be beneath his notice; certain it is that he turned back to camp when we had reached the end of the first side.

When climbing up the crags a few hundred feet below the summit of Kjostind Hastings paid me the one compliment with which he has ever honoured me, and I am very proud of it. It was in the good Yorkshire dialect in which we sons of the North are so fond of indulging when out on the fells, and was merely 'Thar't a toff un.' The summit of Kjostind (5,680 ft.) is a beautiful snow dome, and the views were exquisite. While Hastings photographed, I carefully studied the northern mountains, and was able to solve one or two orographical puzzles. Our return was enjoyable despite our fatigues. We had a magnificent glissade down a long snow gully; we discovered four hitherto unknown lakes, two of which are formed by huge ancient terminal moraines. All of these drain into the Stortinddal. We passed hundreds of reindeer, and had a most romantic walk past the lakes into the big valley, and $34\frac{1}{2}$ hours after leaving camp were welcomed back by Haskett-Smith.

Never was a companion more attentive and kind than he. In pouring rain he ministered to all our wants. He toiled

with the fire, gave us soup, tea, and innumerable delicacies; he set out our tents, fitted up the mosquito curtains, allowed us to go to sleep and to remain asleep for 12 hours, despite the fact that three reindeer came and looked round the camp, at that time a novel sight.

We all mentally—though, I now think, unwisely—resolved to have nothing more to do with the upper portion of Stortinddal, and consequently we neglected to make on the two occasions when we could easily have managed it, a grand glacier pass down the large glacier which heads the valley, though we had carefully noted the route, rather an intricate one, between two ice-falls, when we were on Kjostind.

Stony valleys are the rule rather than the exception in Lyngen, and indeed this is generally the case where the geological formation is mainly of gabbro, provided that the valleys or glens are narrow and the mountain-walls steep. It is so in many a place in Jotunheim and to a smaller degree in Söndmöre. At Arolla, some of the mountains are gabbro, some of the valleys are stony. It is also notably the case in the wilder corries of the Coolins in Skye. Think of that terrible Corrie Labain. As a rule, the rocks on the ordinary faces of gabbro peaks are very loose, especially in the gullies, but the ridges and buttresses afford magnificent climbing. The faces of crags where the angle is greater than 45°, however, are generally firm and good. In steepness therefore is safety. Very many of the finest mountains in Norway are now proved to be topped by gabbro, even the Loföten Hills and the saw-toothed peaks of Söndmöre which, only a few years ago, were considered to be granite. This is a corroboration of Professor Forbes' theory, who, in 1851, saw the mountains of Lyngen from the deck of a steamer, and thought that from their shape and general characteristics, they had a similar geological formation to the mountains in Skye.

The day after our return from Kjostind was brilliantly fine, but we seemed to spend all our time over the fleshpots. Hastings was chief cook, or as our porter pronounced it 'head cock,' and certainly he treated us to most unwonted delicacies. He often served up a meal of seven or eight courses, some of which the less hungry members of our party fought shy of. These were all without eggs, which, as a matter of fact, I knew were obtainable but had not the hardihood to suggest. Many expedients, quite unknown to me, such as the burying of meat in a bog in order to keep it fresh, were resorted to. All proved to be successful.

There was, however, one meal which the 'head cock' could not manage to provide. This was breakfast. To Haskett-Smith undoubtedly the credit is due that we ever got up at all in the morning. Almost invariably, whether he was wakened up by the sea-gull which had its nest close to us or no, he was up first, lighted the fire, and usually had the porridge ready before he called us. If ever an early human bird deserved a worm it was he, and I attribute much of the general success of our campaign to his devotion to comparatively early rising. In this land of nightless days the temptation to go to bed late, which of course means to get up late next morning, is very great, and one naturally, but quite wrongly, imagines that it is as rational a proceeding to start on a mountain expedition at midday as at 6 A.M. In the one case there is the risk of losing a day altogether; this happened on several occasions. In the other case, a long climb on one day could easily be followed by a short one the next day.

In the afternoon Herr Caspari and Hogrenning, our porter, arrived. The latter was decked out in a richly-embroidered wedding vest. As it was a glorious evening it was quite evident that if we stopped up a little later we should see the midnight sun. We did so, and were well rewarded for our pains. The colouring was rich and varied to a degree that I had never conceived to be possible, and the beauty of the scene was enhanced by the fact that at midnight the sun was seen a little to the W. of Fugleö—Bird Island—a mountain island whose wondrous beauty has impressed many travellers. Much of the beauty of the north of Norway is due to the Gulf Stream, whose warm waters give a certain degree of humidity to the atmosphere, which softens the lines of the hills, deepens the colours, and blends them into a most harmonious whole, entirely unknown in the drier air of the Alps, and not quite equalled in the highlands of Scotland, which is saying a great deal.

In the year 1875 Messrs. Cook first tempted the unwary tourist to visit the North Cape, and issued a very flowery-worded prospectus, in which, if my memory serves me aright, the tourist is told that on a certain day he will be able 'to see the reindeer browsing on the moss-covered slopes of the North Cape under the benign influence of the midnight sun, while far away to the south will be seen the moon, thin, pale, and jealous.'

Next day, Thursday, Hastings and I were still too tired to undertake a long expedition, so Haskett-Smith and Caspari

took a long reconnoitring walk into two glacier valleys on the N.E. of Stortind. As the one could not speak Norsk and the other had only a limited knowledge of English, they had to resort to Latin and Greek, in which two languages these gentlemen had long conversations about nomad Lapps, glaciers, narrow arêtes, ice-axes, oatmeal porridge, motor cars, and many other subjects equally well known to the ancients whose language formed the medium of their conversation.

During two days of lovely weather the Stortind had beckoned us to try our metal upon its grisly rocks, and at last the call was irresistible, and we felt forced to obey. Our way lay through a beautiful parklike birch grove, where the boles of many trees were nearly 2 ft. in diameter. We saw many reindeer, some quite close, but whether they were old or young, black, brown, or white, all looked as if the use of a curry-comb would have done them good. They used to come to graze nearly every evening near our camp, and one day an inquisitive young calf very nearly poked its head into my tent. The Lapps, their owners, fortunately for us, were encamped near Lyngseide, across the mountains.

Above the woods we followed reindeer tracks on to a broad shoulder. Below us, on the eastern side, was a round tarn of turquoise blue, singularly like Le Lac Bleu at Arolla, and fed like it by a stream which, after emerging from a glacier, is for a long distance lost to daylight beneath a huge moraine. The rocks above are, I believe, of the same geological formation in both cases. The shoulder came to an abrupt end abutting against the narrow N. ridge of Stortind. There was a gap and a wall beyond. No doubt the wall is scaleable; we did not test it, but turned down to the western face, where, for nearly 3 hrs., under my leadership, we tried in vain to traverse the face over to a broad gully which apparently would have taken us to the ridge again. We all climbed an exceedingly steep and nasty chimney, and Haskett-Smith shoved me up another beyond, whilst the others were perched on a sort of 'tennis-court ledge.' It was nearly feasible, but not quite, so we had to return. The rocks, all firm and good, were singularly like the huge slabs on the N. face of Sca Fell. Two hundred feet lower down, a narrow stony gully led to the arête. Hastings went up it, and as he reported favourably we all followed.

From here we had as jolly a ridge climb as one could wish to see. It was never too easy, but never supremely difficult. It afforded much variety, the rock was always good in steep



G. Hastings, photo.

Swan Electric Engraving Co.

JÆKKEVARRE AND FORNOESTIND (DISTANT)
AND RANGE OF ISSKARTINDER.
From Store Jægervandtind.

places, and the holds were excellent. We had narrow ledges over grim precipices, chimneys where a leg up and a broad shoulder helped the first man, who in turn performed the duties of a derrick. We reached a low peak, and here we tested the masonic powers of Hogrenning, who soon put up a respectable cairn. It was doubly delightful to me, as, in spite of the fact that I had gone wrong on the face, my companions unselfishly allowed me to lead up to the very top of the mountain.

A short steep descent brought us to a gap. Here we were driven below large slabby rocks to the top of a steep snowfield on the eastern side. Our route was simple enough along the crest of a snow wave, which ultimately led us to a steep snow slope which terminated in ice below smoothly-polished rocks. Here I had to cut some good steps, the size of a Viking's helmet, and great care and watchfulness were necessary. After the slabs of rock we entered a narrow and steep snow gully, from which a good winding rock staircase led us on to the final arête, and we came unexpectedly to the top, a perfect and spotless cone of snow.

Our two Norsk companions acquitted themselves admirably. Hogrenning, accustomed to *roches moutonnées* from babydom, and to walks on the glacier a few hundred yards above his home from more advanced boyhood, proved to be a tower of strength. Caspari, who had never been on a fine mountain before, went most pluckily, and thoroughly enjoyed himself, thanks in great measure to Woolley's boots, which he wore. I have never heard of Woolley's heart and pluck disappearing into his boots, but I do believe that Caspari got some mysterious inspiration from the borrowed footgear. Unluckily, a cloud curtain hid most of the view from us, but now and then through rifts we had most dramatic peeps of fine mountains E.

The scientific member of our party now arranged his implements before him, but though we spent nearly two hours on the top no good photographs were possible, and the plane table could not be used. However, he had four or five barometers of various construction—mercurial and aneroid. Each told a different tale. Once this same friend was with me in a fog on the top of Uranaastind, in the Jotun Fjelde, when three compasses, a few yards apart, told three very different tales. 'When doctors differ patients die!' What happens to a mountain when its height is being ascertained by varying barometers?

I am told that Stortind is 5,140 ft. above sea level. I believe it too.

Ye climbers who climb for sport, avoid science like poison when ye climb, unless valuable information can be obtained by its pursuit. Avoid barographs below—and paragraphs, too, for that matter—and unwieldy instruments above. As for a plane table and a prismatic compass, not necessarily heavy to carry, leave them severely at home, where they may be useful.

This is gross heresy, I am aware. Well, if it be, I will limit my advice to climbers who climb within the Arctic circle in the summer time, and who, having no night, are tempted, and constantly yield to the temptation, to spend twenty-four hours on an expedition which could easily be performed in sixteen. At the same time, it is only fair to state that many of the magnificent series of views which our photographer secured were the outcome of long hours of waiting, which, I acknowledge, were well repaid.

The Stortind rises out of the Stortinddal with grand precipices, but it could be climbed from that side by ascending a little glacier to a col at the head of the Forholtbræ. Haskett-Smith, Caspari and I descended the snow dome towards the E. to see if we could circumvent a savage-looking crag and gain this col far below and then descend by the Forholtbræ. Our reconnaissance was most unsatisfactory, as we could see nothing but ghosts grinning through the gloom, so we harked back again to the summit.

Our descent was very enjoyable. Hastings was last on the rope, and when one by one we crossed the smooth rock bosses and gained the snow below we felt that it was well to have a good man above.

At the gap between the two peaks we looked down at our tents far below, and hesitated whether we should attempt to descend by the snows of the great central gully, but as there was one rather doubtful place we decided to leave it alone, though at a later date we clearly saw that it could have been negotiated. Caspari, with the boldness of a lion, proposed as an alternative a descent by the eastern face to the Forholtbræ, but as it would probably have involved the cutting of 5,000 steps, and the risk of starting an avalanche, we turned to our old course, and for a second time enjoyed the ridge climb.

We reached camp in detachments, the first arriving at 12.45 A.M. Bed pulled very hard after this, and we did not get up till 1 P.M.

The Pass of Strupen.

Our next expedition, the exploration and passage of the Strupskar, was in some respects the most interesting which we undertook, and though the distance from the northern end of the Hunter's Lake on the W. of Lyngen promontory to the well-known cove of Strupen on the E. side is only a dozen miles as the crow flies, so far as Caspari could learn, no one had ever crossed the pass, though, apparently, it was a 'Gate of the Hills,' designed by nature to be a highway, at least, on to Strupenbræ. There was an air of mystery about the pass; every one knew there was some obstacle in the way, no one knew what that obstacle was. As for us, our duty was clear.

Late on Sunday night, July 17, we halted in a mist on a bank of loose rocks, a lake behind and below us on the W., and another in front of and below us on the E. We had already met with great surprises. We had been face to face with the finest mountain in the Arctic circle, which rises with terrific precipices out of two remarkable cirques or botner, which give the name of Storebotndal to the valley; we had found four lakes not known to the maps; we had ascertained that the valley was probably unknown solely from the fact that there was no herbage there beyond plants of *Viscaria Alpina*, and hence, no grazing for reindeer.

'Now we are on the top of the pass,' said some of us, 'let us build a cairn.'

'Nonsense,' said Hastings, 'we are only about 2,000 ft. above the sea, and last year I was over 2,500 ft. up on Strupen glacier, and never saw the pass; we have at least 500 ft. yet to ascend, and that new lake drains through the scree into the other, W.'

All the votaries of science, this time four in number, brought out their aneroids, and the height was estimated to be 2,040 ft. above sea level. Nevertheless, the cairn building was continued.

The clouds were heavy, the wind cold; we had been out 9½ hrs. but had only rowed four miles and walked six. The eastern lake, 140 ft. below us, looked dark, deep, and forbidding, and was apparently hemmed in by high mountain walls, and we felt sure that if there were any serious obstacle to our progress it was near at hand.

By sheer good luck we took to the N. shore, and traversed a long snowfield, which sloped steeply into the lake. As usual, the snow was in excellent condition, and there was no need to use a rope. Beyond the snow came the inevitable

screens, which we followed down to the water. About a quarter of a mile from the pass, crags were seen rising precipitously out of the water. At this point we came to a place where the surface of the lake was almost covered with long rectangular ice-floes projecting some 18 in. above narrow lanes of cobalt blue water. This offered to most of us, including the two Norskmenn, who were used to such an icy highway, a tempting route at least round the crag, and would, as we eventually proved, have saved us considerable time. One of our party, however, who was not born to be drowned, perceptibly shivered at the bare notion of entrusting himself to such an apparently risky enterprise, and would have none of it.

We advanced along a spit of land below the crag until further progress in that direction was impossible. Then we turned back a few yards, and climbed over smooth rock bosses to a platform 150 ft. above the lake. Through the mist we saw some icebergs like dismal ghosts rising 30 to 40 ft. above the floes, and knew well that they were séracs which had been calved from the snout of some neighbouring glacier: where, we knew not. Success seemed to be very doubtful to us on the line we had taken, a horrid looking corner ahead was our only hope, and even it seemed to end in clouds. We put on the rope, and for nearly an hour Hastings skillfully led us up and down, across and around, glacier-polished rocks which were anything but easy, and where great care was necessary, as the angle was very steep. In one place, when we had climbed up several hundred feet above the lake, we were all but cut off by a huge curtain of rocks, but after speering about we discovered a ledge below us by which we soon got on to a rough scree slope under the peak Rendalstind. Here, as well as on the slabs, we were in more or less danger from falling stones, and Hogrenning often looked wistfully through the mist and pointed to the ice-floes below. In the year 1874, with two other men, I crossed a lake on similar floes in Morka Koldedal, above Vetti, in the Jotun Fjelde.

In crossing a scree-filled hollow we started a stone avalanche, a most uncanny sight. I was second on the rope, and only rode a few feet down on this stony train, as it was not yet urged onward by the force of stones from above. Those behind, however, had to deal with a swiftly-flowing river of stones perhaps a dozen feet in width, which was very trying to the ankles. The rope was most useful here. This avalanche played away for over two hours to our knowledge.

Soon after this we apparently reached the end of the lake, the shore of which sloped gently upwards towards the N.E. A little stream trickled into the lake, and Hastings was triumphant. 'Didn't I tell you that we had 500 ft. at least yet to climb, and the water from this lake drains W. under the scree mound and your confounded cairn?'

A sceptic followed the shore some way S., but remembering that water was boiling for tea he soon hurried back to where the others were huddled together under the lee of a rock, trying to look as if they enjoyed the cold drizzling rain. Warmed by his tea, the sceptic set off again, this time on to rather higher ground. After half an hour of weary waiting, there was a welcome rift in the clouds, and he saw that the place which had appeared to be the end of the lake was only a little bay in a promontory, and that the lake went on considerably further. A few minutes later the heavy clouds rolled away for a time, and a wonderful view was revealed. We were at the junction of two valleys—one was occupied by the lake, whose northern shore we had been traversing; the other was filled by Strupen glacier, which, flowing down from a great height, crossed the mouth of our valley and dammed up its waters with a magnificent dam of ice, and thus was the cause of the hummock-covered lake. It was a glorious sight, and as soon as the discoverer had ascertained without the shadow of a doubt the reality of the vision, he ran back to his companions as quickly as his somewhat stiffened limbs would carry him, and with wild shouts proclaimed his discovery. After a hasty packing up of heavy rucksacks, all hastened on to the promontory, and, though the sulky clouds never entirely disappeared, we saw bit by bit most of the wall of the Rendalstind, the northern boundary of the lake, and the spur of Strupentind, which rises out of it with sheer precipices, and bounds it on the S., as well as supports the left bank of the upper portion of Strupenbræ.

This remarkable Norsk example of a Märjelen See character is much grander than its Swiss rival, even before it was artificially drained.

Strupenbrævand, as we naturally term this lake, is about an English mile and a half in length, and a good half mile wide. The glacier, having no wall there to hold it up, spreads out like a fan into the lake, and from its sides the icebergs calve and are drifted by the wind a considerable distance up the lake.

It was a welcome and delightful climax to our uncertainty, a very uncanny scene, which had much of the ghostly

element about it, with its icebergs, large floes, blue water, grand séracs, and black rock pinnacles now and then leering at us through the mist, and is the most thoroughly typical Arctic scene I have ever enjoyed, and is one which I long to see again.

Hogrenning and I ran down to the lake, and were soon jumping over blue watery chasms. Near the land the ice-floes were the last winter's lake ice, and were only a couple of feet out of the water. Soon, the floes increased in size, and one could easily distinguish between the lake ice and the floating seracs. Some water lanes were not easy to negotiate, and we had to zigzag about a good deal, but in 20 min. we stood on the glacier itself.

The three other men toiled round the bay, the eastern extremity of the lake, and joined us on the glacier. We had to ascend several hundred feet in order to cross to the right bank to ground which Hastings knew, and found that he had only failed to discover the glacier lake a year earlier by having then followed a natural trough on the eastern side, from which it was invisible. The crevasses were very wide and deep, and we had to exercise great care. Strupen glacier is a noble ice-stream, perhaps 6 miles in length and nearly a mile broad, and it curves beautifully round the rugged headland S. of Strupen cove. It is connected directly with another fine glacier, the Kopangsbræ, to the head of which we descended from one of our best ascents eight days later.

The foot of Strupenbræ is well known to North Cape tourists, who are taken into the wonderful cove, on each side of which are stupendous cliffs nearly 4,000 ft. in height, and in front, a rock wall of some 1,200 ft., down a corner of which frequent ice avalanches fall, which form a secondary glacier, whose snout almost touches the sea. A commercial speculation connected with this secondary glacier was, perhaps fortunately, unsuccessful.

Once on the glacier we hurried on, in the hope of finding a fisherman and his boat in this capital fishing ground, the cove of Strupen. It meant much to us, a wait of possibly 12 hrs., a high glacier pass, or a quiet sail down the coast. "Hurrah, there's a boat!" We glissaded like madmen down snow-slopes, and even down a little moraine, we climbed down slippery rocks, forced our way through rain-dripping birches and *Aspidium filix femina* 4 ft. in height, we forded a glacier stream as best we could, and about 3 A.M. we hailed the boat, in which were a man and a boy. Caspari soon

made a bargain with the stolid fisherman, a so-called Sö Finn or Sea Lapp, a race rather different from the nomad Lapps who frequent these coasts in summer, as the former have more or less mixed blood in their veins. We were soon shivering on our way to Fastdal. The walk from this little hamlet to Lyngseide through lovely sylvan scenery where the ground was everywhere carpeted with the fairest of flowers, was a dreadful toil for five weary, heavily-laden men, and took 3 hrs. to accomplish. At a little bay called Rottenvik we tried to hire a boat to take us the mile and a half which still remained, but it was low water, and the boats were all stranded high and dry. Wearily and unsteadily, like drunken men, we plodded on, and about 8 o'clock we were welcomed by Fru Gjæver with thorough Norsk hospitality at the cosy house at Lyngseide. Soon an excellent and what we considered to be a well-earned breakfast was placed before us, and when I looked across the table I saw my old friend Joseph Imboden and his son Emil, who were the first to congratulate us upon our success.

Our fatigue did not arise from the distance we had walked or the height which we had climbed, as both were small. It was the result of much cold waiting on the shores of the icy lake, and to the fact that we each carried a considerable weight. The pass could be crossed from the hamlet of Jægervand to Strupen cove in 6 or 7 hrs. When we were crossing the glacier we discussed the probability of the water from the lake draining away under the glacier. This was proved to have actually happened soon after our crossing by Herr Caspari, who, on August 3, accompanied by one male and two lady friends, paid a second visit to this remarkable lake.

Caspari says in a letter, 'I could scarcely recognise the lake. It had drained away at least 100 ft., and the great blocks of ice lay on shore far from the lake.' After suggesting that a large avalanche had fallen into the lake, and had broken up the icebergs and floes, he says, 'the lake was diminished in extent and in grandeur.' On August 12 Hastings looked from the ridge of Rendalstind down upon the lake, then apparently full of water, which was re-covered with ice-floes.

Professor Amund Helland, the celebrated geologist, was staying at Lyngseide, and was much interested in our discovery of Strupenbrævand. He gave us much information about the physical geography of Norway, and, as a result of his investigations in Greenland, he is one of those

geologists who attributes much greater powers to glacial agency than is the case with many men of the present day.

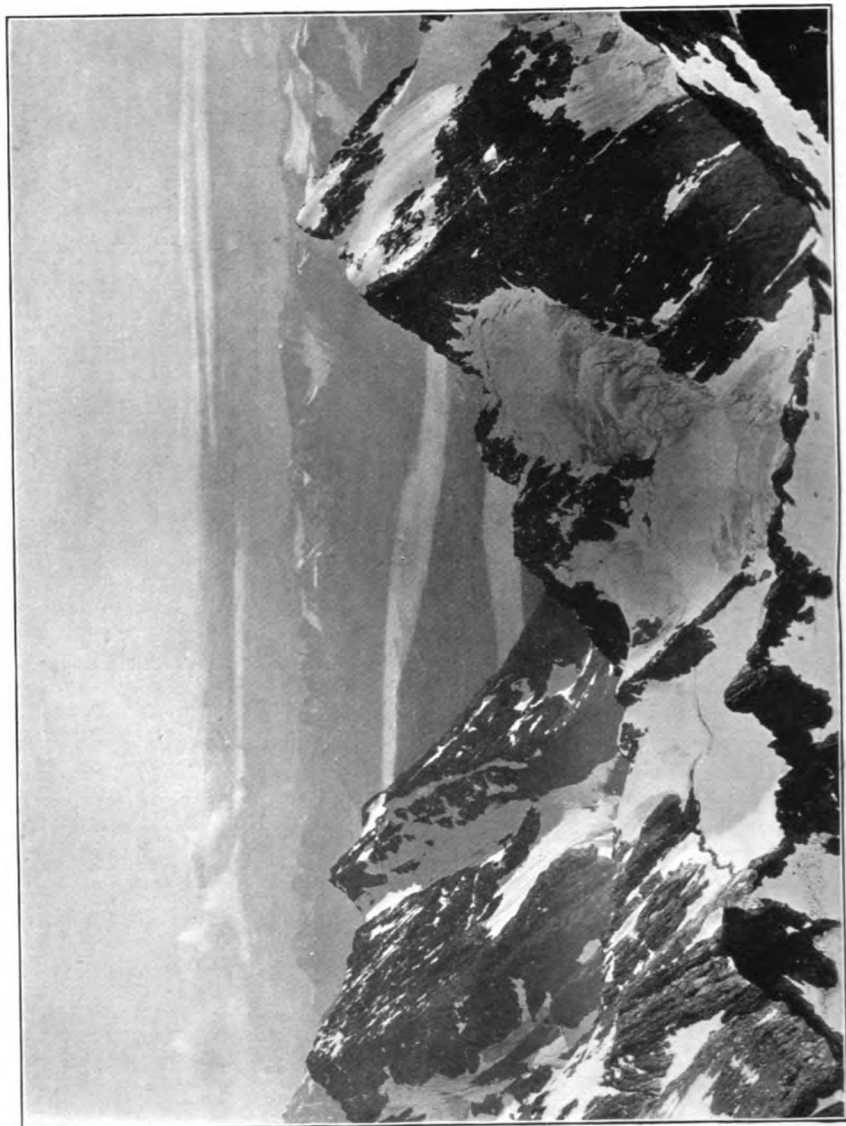
Helland is the great authority on the formation of botner, or cirques, in the Alps, as well as in Norway. He was much pleased to see, in a stone which Caspari had brought from the top of Stortind, a partial corroboration of his theory that all the peaks of Lyngen are, in the main, composed of gabbro.

In the evening we met Mrs. Main, and were shown by her the first fruits of a very successful series of photographs, and heard her adventures and told our own. Lyngseide is a delightful place in which to linger, especially in glorious sunny weather such as we found there. The kindness and hospitality of Herr Gjæver and his wife are unbounded, but I regret to have to relate that their pretty house was burnt down to the ground a fortnight after we left it.

The richness of the meadows, woods, and gardens at Lyngseide, which is nearly on the 70th parallel of N. latitude, shows what wonders are wrought by the Gulf Stream, where, without its aid, life would be only tolerable to Eskimos. The neatness, substantial appearance, and beauty of the houses dotted about the shores of this lovely bay all speak of the wealth and magnitude of the northern fisheries, which contribute in so large a degree to the welfare of the natives of the far north. Readers of that powerfully-written novel 'Afraya,' the scene of which is laid about Lyngen and Balsfjord, must not imagine that the character of Hølgestad is typical of the northern merchants of to-day, as that would be doing them a great injustice, nor can I think that the hero Afraya has his counterpart to-day.

On our arrival at Lyngseide, Caspari and I found it to be necessary, from the condition of our garments, to adopt the custom of courtiers when retiring from the royal presence, and to resort to various other expedients outside the house, which was, to say the least, rather embarrassing.

Next day we set off to return to camp, and at Kjosen found a cattle show in progress—a picturesque sight—on the brow of a hill sloping gently down to the fjord. Each cow was tethered to a peg, driven in the ground by the sturdy Norsk girl who had charge of her favourite. Each animal had a little pail of water and some grass given to it, and I believe that a prize of some little value was given for each exhibit. Cattle shows are now general all over Norway, and are said to have led to a great improvement in the stock. There is a large Lapp encampment on the isthmus between Lyngen and Kjosen, and we saw Lapps of all ages.



G. Hastings, photo.

STORE ISSKARTIND. (on left)

Suwan Electric Engraving Co.

STORTIND.

The Isskartinder.

From our camp at Jægervand a range of four principal and several minor peaks, the Isskartinder repeatedly beckoned to us. The third highest had been climbed by an officer and our friend Red Shirt, who proudly pointed out to us the cairn which he had built.

What a jolly day three of us had up there, in spite of the rain! Did we not climb two new peaks, and cross two new glacier passes? We climbed two peaks, because we were uncertain which of two was the higher; we call the pass beneath the highest peak Tivlerensskar, or the Doubter's Pass, on account of our doubts. Let me transport you to a ridge 25 ft. below the top of the eastern peak. In front and above was a huge slab, where there was one great crack, which did not come down to the ridge, but to the head of a fearful cliff. It was probably feasible. We preferred the better part of valour, and descended about 100 ft. on the snowy ledge up which we had come to a place where there was a split block in a corner of a vertical face about 20 ft. high—a place almost exactly like the so-called East Pisgah climb on the Pillar Rock.

Clearly this was the place for Haskett-Smith; in fact, it might have been made for him, and Høgrenning and I much enjoyed seeing him overcome the difficulties, which were by no means small. The wedged stone in the Pisgah climb was absent, otherwise the similarity was complete. Rucksacks and axes were hoisted up, and for that matter so were two human burdens.

A series of broad, gently inclined slabs, curiously and deeply cracked here and there, soon led us to a model top where, in process of time, a huge cairn was erected. As the top is not unlike the brow or stem of an old viking ship, I have taken the liberty of giving the mountain the name of 'Hringhorn,' or Baldur's Ship. The view was superb; but it was clear that we were only on the second highest. A treble-peaked mountain in the same range—now called Tre Gygre, or Three Witches—looked very grand. It was climbed a few weeks later by Mrs. Main.

How well Høgrenning led up the steep arête of the highest peak, and what a jolly glissade we had down the big central gully! Then, too, think of our new pass—the Isskar—which gives its name to the range; no carelessness allowable here amongst the big séracs. 'Anchor well in that ice, while I cut steps across to the rock.' 'More rope do you say? Well,

you cannot have more than 4 ft.' 'I must have 10 ft.' Slowly, cautiously, and surely our leader reaches the rock. There is but a 2-in. crack in it; and on him (Hogrenning) for 5 min. devolves all the responsibility. Look at him, firm as the rock itself.

We are off the glacier on a terrace, 1,200 ft. from the base of the gorge below. There is one feasible route—but feasible only for a madman—almost under the glacier itself, which terminates on the brow of a cliff. No, no, no! The terrace leads us to a lateral gorge. Hideous! We must descend to the main gorge down the rock wall itself, and within rather narrow limits, too. Hogrenning led us, step by step, up, down and across, most cleverly, principally down a huge boss of rock. We were only half an hour in descending; but who knows how much that half-hour meant?

This cliff, coped with ice, is a conspicuous object from the W., and is well named *Iskaret*, the Ice Gap.

We arrived in camp at 10 o'clock, and, in spite of unfavourable weather, had had one of the most successful expeditions during our campaign.

The Store Jægervandtind and Lenangentind.

Now we were in full swing, and during the next fortnight we had nothing but success. Each succeeding mountain expedition, if possible, seemed to possess more interesting characteristics than the last one we had undertaken; each was, in fact, most enjoyable.

We shall long remember the bergschrund into which on another day our leader cut a way, and hacked an icy staircase up through the overhanging lip on the other side; nor shall we soon forget the wicked Troid which looked down upon us maliciously all the time, nor the steep couloir above, and the element of uncertainty as to our position, which urged us quickly onward. 'Ah! Now we know where we are. Forward!' See our new leader swinging himself out of sight at the end of the first of the three peaks which together form the *Store Jægervandtind*. Hear him call out, 'Come along, you fellows; it's all right.' See the narrow snow ridge; no fear of cornices in this nightless land. Look down far, far below on both sides to the glaciers. But on, on, on. A second peak, another gap and narrow connecting ridge, and the top.

Was ever such a view seen in Finmarken before? In every direction it was clear, and everywhere it was beautiful. North, beyond *Pipertind* and the Bird Island, was the open sea.

Beyond that, so far as is known, is no land between it and the Pole. A maze of grand peaks surrounded us. North-east was the Jökulfjord and the one glacier in Europe which launches a flotilla of little icebergs into the sea direct. This remarkable glacier was explored a few weeks later by Hastings. The head of the long forest valley of Reisendal could be seen. South-east, beyond Lyngen, could clearly be seen, not 40 miles away, the sterile uplands of that intrusive Russian land. A little further south were the hog-backed Swedish mountains, from which in spring the nomad Lapps drive their reindeer away from the plague of flies to the sea coasts of Lyngen, Balsfjord, and other places.

By far the most impressive section of the view was that of the Storebotntind, or Lenagentind, which towered grandly above a large and wide snow-field. The western face of this mountain is bisected by a long trap-dyke, a very long and narrow snowy highway, which undoubtedly offered the only probable route up the mountain on this side, and it looked very savage. The three ridges of the peak bristled with petrified Trolds, who had been turned to stone for disobedience in stopping out after sunrise. What they were supposed to do with themselves during the weeks of the midnight sun is a question which I cannot answer. A steamboat on Lyngenfjord was also a pretty sight. But, no more.

What a store of happy memories we laid up on our ascent of the Lenagentind, the highest and finest mountain north of the Kjosfjord, and in many respects our most interesting expedition; and how uncertain was our success, even to the last! How full of interesting details was our route! How well Hogrenning cut up, up, up, always up, that couloir—a couloir which in Southern Norway or in the Alps would probably never be attempted on account of the danger of avalanches; in this case nil. How small we felt when we reached the ridge and were cut off from the top, as was the case on the ascent of the Dent du Requin! We reached the summit five minutes before midnight, and had one of the strangest and most fascinating views which I have ever seen, of sharp peaks and the midnight sun above a pall of clouds which enshrouded the lower regions.

Expeditions from Gjøvik.

Time will not allow me to describe the ascent of the Fornæstind, the Romsdalshorn of northern Norway, on which we had the most difficult rock climbing we had hitherto met with during our campaign. Shall I say that it was

partly owing to the fact that we lost our way through a fog? No; why should we give ourselves away? We descended by another route in bright sunshine, and met with greater difficulties than on the ascent. Through a break in the fog we saw the Spectre of the Brocken, and very uncanny it was. It is the only time I have seen it in Norway.

How delightful it is to look back upon our crossing of the Fugleskar, or Bird Pass! Surely there is no more romantic a glacier pass in Norway! I must not attempt to describe it; I will instead invite my friends to follow our footsteps. The ice scenery is, in some respects, wilder even than in the valleys west of the Justedalsbræ. What can I say more?

See those huge black ice-capped precipices of Jæggevarre. See below them that large secondary glacier, or glacier remanié, probably the best example of the kind in Europe. See, too, how far its snout projects into the dark waters of that weird Fugledalsvand, and tell me, if you can, where this scene has a rival.

I left my companions still climbing, and, in spite of bad weather, they met with much success, though undoubtedly I was fortunate enough to have been in the most remarkable and enjoyable expeditions. Mrs. Main's party also were very successful. Certainly this far northern region is a delightful playground, where, if the weather be at all decent, everything is in favour of a well-equipped party, and breathe it, not openly, there is plenty of new work yet to be done by those who possess the eyes of a mountaineer, and have the power to follow the dictation of those eyes.

I quote the following extract which, at the request of the Editor, I wrote to an English paper published in Bergen, as I think it sums up pretty fairly the favourable conditions which we met with:

'We were never troubled by ice-glazed rocks on the mountains whilst I was climbing, owing to the fact that, as there was no night, there was no frost. We never found ice or snow where it ought not to be, and it is an undoubted fact that several of the seven new peaks which we ascended this summer would have proved to have been very tough fellows indeed if they had been in southern Norway or in Switzerland, instead of being nearly on the seventieth parallel of latitude. The climbing is really first rate in Lyngen. The natives are delightful and most hospitable. The mosquitoes are not half so bad as we expected to find there, and whereas further south, everyone was complaining of a deluge of rain, we had, on the whole, good weather, and as we were nearly three weeks



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VESUVIUS. AN EXPLOSION AT SUNRISE.

Tempest Anderson, photo.

living under canvas we could not help knowing whether there was rain or not.'

What delightful memories we all have of the week spent at Gjøvik—bonny Gjøvik—on the Kjosfjord! What jolly hours we spent in the garden with our genial host and hostess and their children!

Farvel, Gjøvik, farvel; but may I sometime grasp that hand again, friend Gjøver, and hear your cheery voice say, 'Velkommen tilbage!'

VESUVIUS: A NOTE ON THE ERUPTION OF SEPTEMBER 1898.

BY TEMPEST ANDERSON, M.D.

THE end of August 1898 found me in Switzerland with Yeld. We had brought a very satisfactory holiday to a close by visiting Champex, and were thinking of returning home, when we saw in the papers that Vesuvius was in eruption. Here clearly was an opportunity not to be missed, though as the heat was great even in Switzerland it would be probably much greater at Naples. However, the reports of the eruption continued, so on September 2 I crossed the St. Bernard to Aosta, where I found the climate of a Turkish bath. At Turin it was even worse—that of an oven, at least. What must it be at Naples? Luckily these gloomy forebodings were unfounded. The voyage from Genoa was genial; the heat at Parker's Hotel, Naples, quite bearable, with a pleasant breeze in the evening, and at the Hermitage on Vesuvius the weather was delightful. Through the kindness of Dr. Linden, of the Aquarium, I got excellent quarters here, and both Mr. Faerber, Messrs. Cook's agent, and Mr. Noble Fell, who was engineering the railway extensions on the mountain, showed me many kindnesses. The latter especially gave me much information, of which I have availed myself freely in the following notes. Here I stayed more or less from September 7 to 13, exploring the mountain in the daytime and spending every evening on the top of the observatory close by, which commanded a full view of the eruption.

Most members of the Club will scarcely need to be reminded that in the great eruption of A.D. 79, which overwhelmed Pompeii and Herculaneum, and cost Pliny the elder his life, a great part of the then mountain was blown away by an explosion comparable to that of Krakatoa in 1888, and a vast crater ring, perhaps two miles in diameter, was formed, of which Monte Somma still remains as a great crescentic moun-

tain with a precipice several hundred feet deep overlooking the Atrio del Cavallo, the valley where the horses used to be left for the ascent of the cone of Vesuvius itself, which has since been formed in the S.E. portion of the Plinian crater. The observatory and Hermitage stand on another elevated fragment of the old crater ring, separated from Somma by a deepish valley, the *fossa vetrana*. The rest of the old crater ring was lower, and has been mostly covered by *ejecta* from Vesuvius, though traces of it are still evident, and are called the *pedimentina*.

The last great eruption was in 1872. Mouths opened in the Atrio del Cavallo at the foot of the great cone, from which floods of very hot fluid lava escaped with great rapidity; so rapidly, in fact, that several spectators were overtaken and overwhelmed. The lava descended both by the *fossa vetrana* and also by the *fossa grande*, at the other side of the observatory, and destroyed several villages in the course of two days. Don Filippo, the custodian of the observatory, gave me a graphic account of the grandeur of the scene and the heat which radiated from the molten lava. He and others stayed at the observatory, rightly considering that they were safer up on the hill than in the valley below, though practically surrounded by molten lava. These beds are now crossed by the road up to the observatory and the station of the Funicular Railway.

The present eruption has taken place from a point to the S.W. of that of 1872, and has thrown up a large lava cone at the entrance of the Atrio del Cavallo, the slopes of which reach to the foot of Somma on the W. side, the cone of Vesuvius on the E., and nearly to the hill of the observatory on the S.W., a prolongation of which, the *Crocella*, described as of great beauty, has been entirely covered up. The eruption had been going on gently for about two years in this locality, but had never been very active. Small streams of lava had been almost constantly poured out, but they had all cooled and solidified before reaching the foot of the mountain, though several had got some distance down the *fossa vetrana* and *fossa grande*, where the carriage road to the Funicular Railway had more than once been covered. Consequently the greater part of the lava had solidified near the point of its eruption, and had accumulated into a cone of respectable size, perhaps 400 or 500 feet high above its base.

The eruption attained its maximum at and soon after the time of my visit in September 1898, and at that time pre-



Tempest Anderson, photo.

Swan Electric Engraving Co.

NEW CONE, September, 1898.



Tempest Anderson, photo.

Swan Electric Engraving Co.

CORDED LAVA, VESUVIUS.

sented a most striking spectacle when viewed from the top of the observatory after dark. The streams of lava were mostly 20 or 30 yards wide, and during the day the fresh ones could be distinguished by the clouds of thin vapour which hung over them, and by the masses of solidified lava which kept rolling down their ends as they slowly crept along, but no fire was visible. At night all was changed; several streams invariably showed themselves red-hot, and often two or three white-hot, but every night they were different; the moving streams of yesterday having usually cooled and solidified while new ones had taken their place. With a field-glass we watched the red-hot masses falling down with a constant clattering noise; then a stream would perhaps make its way down among the woods of Somma and two or three trees would catch fire and blaze up. I tried to make the hot streams photograph themselves by their own light, and with partial success, but the exposure required was very long (a quarter to half an hour), and even then I don't think I got all of those only faintly glowing. It was the *festa* of the Virgin at Naples and fireworks were let off every evening, which we could see by turning our backs to the mountain, but they could not compare in grandeur with the natural fireworks in front.

The lava in the earlier part of the eruption had been of the corded variety, but the crust had in many places been broken up into great slabs and rocks like miniature séracs. That which was being poured out in September was scoriaceous, or cindery. A broken lavafield never affords easy walking, and broken as some of these were it would have been easy to lose oneself in a labyrinth; but I had taken with me my trusty guide, Sylvain Pession, of Valtournanche, and he found a path among the great blocks as easily as he would on a crevassed glacier. One night we went up to the molten lava after dark with torches, and Sylvain gained great renown by bringing back a party of sightseers whom we had found entangled among the big stones. The local guides, so-called, are utterly useless in a place like this; moreover, in other respects they hardly inspire confidence. Messrs. Cook have done much to promote order among them, but they still hold undisputed sway on the top of Vesuvius above the railway station. They even demanded payment for Sylvain as a visitor, and rather than have a disturbance I paid them something.

Though the lava welled out as above described near the foot of the great cone, the greater part of the vapour, which is the motive power in these eruptions, escaped at the main crater at the summit of the great cone. It was sometimes

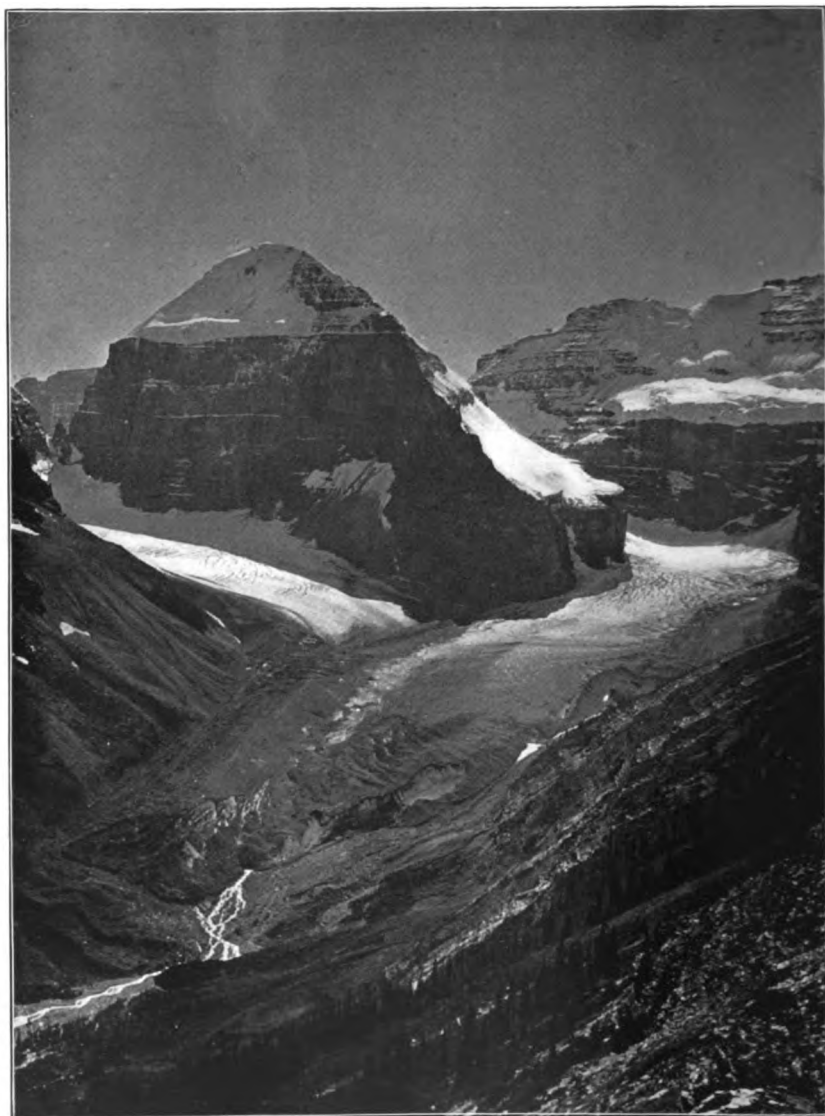
a steady column like smoke, but more usually varied by a series of explosions carrying up with them volumes of ashes and masses of pasty, red hot lava. One day when things were pretty quiet, Sylvain and I went to the top, and, having 'squared' the official guides, began to observe the crater. A small explosion brought a shower of lava round us. Sylvain stood still and watched the projectiles, ready to dodge them. I was trying for a snapshot when the two local villains seized me by the arms with the cry 'È molto pericoloso,' an interruption which called forth remarks more forcible than polite. However, I soon found they were more easily led than driven, and the exhibition of a bottle of wine enabled me to get as many snapshots as I pleased. The great crater was in 1888 nearly filled up, and had a small cone near the middle from which small explosions were taking place. In 1898 I found all this had been blown out, and there was a large crater 200 or 300 yards in diameter and of considerable depth. The bottom was invisible owing to clouds of vapour, but I got views of the sides of the crater, showing the usual disposition of the beds dipping outwards in all directions. The great cone seems to be permeated with hot vapour in all directions. It issues from cracks and crevices all up and down the inside of the crater, and there are several active *fumaroles* on the top of the cone just outside the lip. There are also some large ones half-way down on the W. side.

I hope that these brief notes, with the accompanying illustrations, will give some idea of what Vesuvius was like in September 1898.

The full-page illustration shows an explosion from the main crater of Vesuvius just at the moment when the sun was rising behind the cone. Notice the ring of halation round the sun. The photo was taken from below the observatory in an unfavourable position. There was, of course, no time to choose a better, and the mountain is consequently foreshortened.

The second shows the new cone from the top of the observatory, with the numerous small lava streams, molten and solid, described above. The main cone of Vesuvius is to the right and Monte Somma to the left.

The third shows the details of one of the smaller lava streams of the earlier part of the eruption. It gives a good idea of the appearance of corded lava.



Norman Collic, photo.

MOUNT LEFROY.

Swan Electric Engraving Co.

CLIMBING IN THE CANADIAN ROCKY MOUNTAINS.

By J. NORMAN COLLIE, F.R.S.

IN 1897 Professor Dixon asked me to join him in an expedition to the Rocky Mountains of Canada, and, as an outcome of that expedition, last year he read a paper before the Alpine Club on 'The Ascent of Mount Lefroy, and other Climbs in the Rocky Mountains.' Since that time I have been again to those wild valleys of Western Canada, and, in company with Hermann Woolley and H. E. M. Stutfield, pushed farther to the northward, partly in order to explore the main chain of the mountains north of Laggan on the Canadian-Pacific Railway, and partly in search of two mountains Brown and Hooker reputed to be 15,000 and 16,000 ft. high.

Mountaineering as a recreation amongst these Canadian mountains was first undertaken by members of the Appalachian Club, of Boston, our cousins in Canada not yet having arrived at that state when they find it necessary to rush off the moment they have a holiday to ice- and snow-covered mountains surrounded by a country without roads, and often even without trails. But perhaps Canadians may be excused from blame on this account, because it is a fact that only within the last thirteen years—that is to say, since the Canadian-Pacific Railway has been opened—has this country been within the reach of ordinary travellers. But the fact still remains that Americans from the States were the first who seriously began mountaineering in this district. To Professor Dixon, however, belongs the credit of being the first member of the Alpine Club who has explored the main range of the Rocky Mountain system in Canada. It is true that the Rev. W. S. Green climbed ten years ago in the Selkirks, but he made no new ascents of snow-peaks on the dividing range of the continent.

Whilst Professor Dixon's party was at Laggan in 1897, two peaks were ascended—Mount Lefroy on August 3 and Mount Victoria two days later. As Professor Dixon gave no account in his paper before the Club of the ascent of Mount Victoria, a brief description of the route followed will not be out of place. Accompanied by Professors Fay and Michael, and Peter Sarbach as guide, I started early on the morning of August 5. Under the brilliant stars we stepped out of the door of the chalet at Lake Louise almost into a boat, and in

the silence slowly rowed across to the farther end of the lake, where the stream from the glacier enters. As we pushed up the valley we were able to make much better progress than two days previously, for we now knew the best route to take. Following the glacier up through the huge gateway (the Death-trap) between Victoria and Lefroy, we clambered up to the col—Abbott's Pass—that lies between Lefroy and our peak. Here, turning to the right instead of the left, as we had done in the ascent of Lefroy, we rapidly gained height by climbing a series of small terraces of excessively rotten rock. Occasionally during a halt we would look back at the snow-slope of Lefroy up which the party had so laboriously toiled forty-eight hours before, and we were glad that we had not to do it over again, for now the ice was showing through in many places in long, dirty streaks—the result of two days of hot, fine weather. The long arête was soon reached that can be seen against the sky from the chalet at Lake Louise.* Below, on our right, the ice-slopes fell away with great steepness to the bottom of the Death-trap, whilst on the western side of the mountains a sheer black wall of rock plunged down as far as we could see to the bottom of the O'Hara Valley. The climbing along this ridge was not difficult, but required care; and it was only the last five hundred feet of arête that were at all narrow. About midday, after breaking many steps in soft snow, we finally came to the summit—a small pinnacle of soft snow. From here we made all sorts of signals to our friends at the chalet on Lake Louise to inform them of our successful ascent. On our return, however, it turned out that not only had they missed all our signals, but had failed even with a good telescope to see us. This failure on their part set me pondering on the question of danger signals on mountains, and I shuddered as I thought of our chances of succour should an accident have overtaken any of us, and if we, relying on the sun and an empty sardine-box as a mirror for conveying the message to the bottom of the mountain, had fondly expected that succour to arrive. The view to the S. and W. was across a sea of jagged rock peaks, and, as far as the eye could see, mountain succeeded mountain. The most striking in height and form were Hungabee, Goodsir, Ball, and, farther S., the black rock pyramid of Assiniboine.

On August 7 G. P. Baker joined the party, and with men, horses, and an outfit we all started up the Bow Valley with

* See *Alpine Journal*, vol. xix. p. 98.

the intention of climbing Balfour. Professor Dixon has already, in his paper last year, described how we missed Mount Balfour but ascended Mount Gordon instead, and how from its summit the high peaks to the N. were seen. It had been my intention at the end of the week, when our American friends left us and Professor Dixon returned eastward to the British Association meeting at Toronto, to go S. to the Assiniboine country; but those peaks farther N., when seen from Gordon, seemed far more attractive, and made me change my mind, so that, after returning to Banff in order to outfit for another expedition, Baker and I, with P. Sarbach, finally returned, on August 17, up the Bow Valley with three men—W. Peyto, L. Richardson, and C. Black (as cook)—a dozen ponies, and provisions for at least a month, to plunge into that unknown country beyond in search of a magnificent rock-peak which we had seen towards the N.W. from the summit of Gordon.

The weather was very hot, and travelling up the Bow Valley was slow, for the burnt forest and muskegs are bad in the lower part of this valley; in fact, Peyto even suggested that, in order to avoid the excessively mean trail, for the first fifteen miles we should make a detour up the neighbouring Pipestone Valley, and then, by means of a pass at the back of Hector, come back again into the Upper Bow Valley. After three days we camped about a mile short of the pass, and on the morrow Baker, Sarbach, and I ascended a couple of rock-peaks just W. of the pass, between 9,000 ft. and 10,000 ft. high. Mr. Parker, one of our American friends, had started a plane table survey of the Balfour group. His results he had kindly handed over to Baker to continue as we went N. along the main range of the Rockies, and from the top of our peak Baker's survey began.

The horses having had a rest, next day the party pushed on to the N.W. over the pass (6,800) and down Bear Creek or the Little Fork of the Saskatchewan, passing on our way a stretch of burnt forest and two beautiful lakes with wild-fowl on them. On the 23rd, after a long day through great pine-woods that entirely filled the bottom of the valley, the foot of Bear Creek was reached where it joined the main Saskatchewan (4,500). The scenery on the W. side of Bear Creek is wild and forbidding; half-way down by the two lakes a rocky wall rises sheer from the bottom of the valley for at least 4,000–5,000 ft., making the eastern faces of the Pyramid and Howse peaks look exceedingly grand, especially in the evening light, when the gloomy shadows hide the

somewhat uninteresting colour of the parallel limestone terraces of thin precipices.

During the last fortnight the weather had been fine and excessively hot; consequently the rivers were in full flood from the melting snow and ice, and it was with not unmixed feelings of fear and anxiety that on the morrow I watched Peyto on his mare trying to ford the stream coming down from Bear Creek—first at one place and then at another. The best of these Indian ponies are wonderfully clever at this kind of work, and as a rule may be left to find their own way across most mountain torrents. This I only found out later, and, in the meantime, to see all one's baggage and provisions for the trip entirely at the mercy of a self-willed pony who is expected to follow the leader over a difficult and dangerous crossing is—at least, I found it so—very anxious work. This particular ford, when the river is in full flood, is distinctly a dangerous one; although the water is not deep, yet it is running rapidly, and the bottom is treacherous with boulders. Should a horse stumble and fall here, he would have but little chance of escaping the numerous rapids and deep pools that are below. My saddle-horse was an old grey, stiff at the knees, but wonderfully surefooted; whilst threading the intricacies of the pine-woods never would he as much as brush my leg against the stem of a tree, and I have known him on our return journey avoid a bad piece of muskeg that he had only just got into several weeks before and over which the whole of the rest of the horses had gone. He was a most gentlemanly old animal, never frightened, never in a hurry, very fond of going to sleep and having his own way, and his way was usually the right one. When it was necessary, he would carry as heavy a pack as any of the other ponies. Wilson, who owned him, and who supplied us with the 'outfit,' told me that this old grey in his younger days had done more than one hundred miles over the prairie in the twenty-four hours. After having safely crossed Bear Creek we pushed in a westerly direction up the Saskatchewan.

On the 25th we climbed our next peak—Sarbach, 11,100 ft. (named after our guide). The first thousand feet was through primæval forest, then up a steep gully through a limestone escarpment, and finally over steep scree to the foot of the final peak. This mountain, like so many others in this district, is a mass of crumbling rock; everything is loose, and the greatest care is required in order to avoid launching tons of debris on one's companions should they be

below. The actual summit ridge of Sarbach is, however, somewhat better in condition, very narrow and precipitous on both sides. Unfortunately for us, the clouds were drifting over the peaks nearly the whole day, and anything over 11,500 ft. was hidden; consequently we could only guess which was the base of the peak we were in search of. To the N.W. we had a good view of the great Lyell ice-field and a snow and rock peak (Mt. Lyell) at its head. To the right of the rock peak there must be an excellent snow-pass from Glacier Lake on the S. to the upper part of the W. branch of the North Fork of the Saskatchewan. To the westward a great glacier could be seen winding down through the hills towards us, and we concluded that the peak we were in search of was probably near to this glacier, so we could explore both together. Below us stretched the valley of the Saskatchewan, filled to the foot of the hills on either side with stones, whilst the river itself made tangled courses through all this debris. These shingle washouts are common in these parts, not only at the head-waters of the Saskatchewan, but, as we found later on, the Athabasca as well.

Next day, leaving Mt. Sarbach behind us, we turned due S., following the Middle Fork of the Saskatchewan, and soon came to a wooded island that lies in the middle of the valley; on its western side the river has cut a way through a rocky canyon, and on the eastern side a particularly bad muskeg barred the way. We were perforce therefore obliged to cut our way through the thick timber over this knoll and down the other side, and it was not till late that we camped on the S. side of a shingle flat, with one big peak opposite to us in a north-westerly direction.

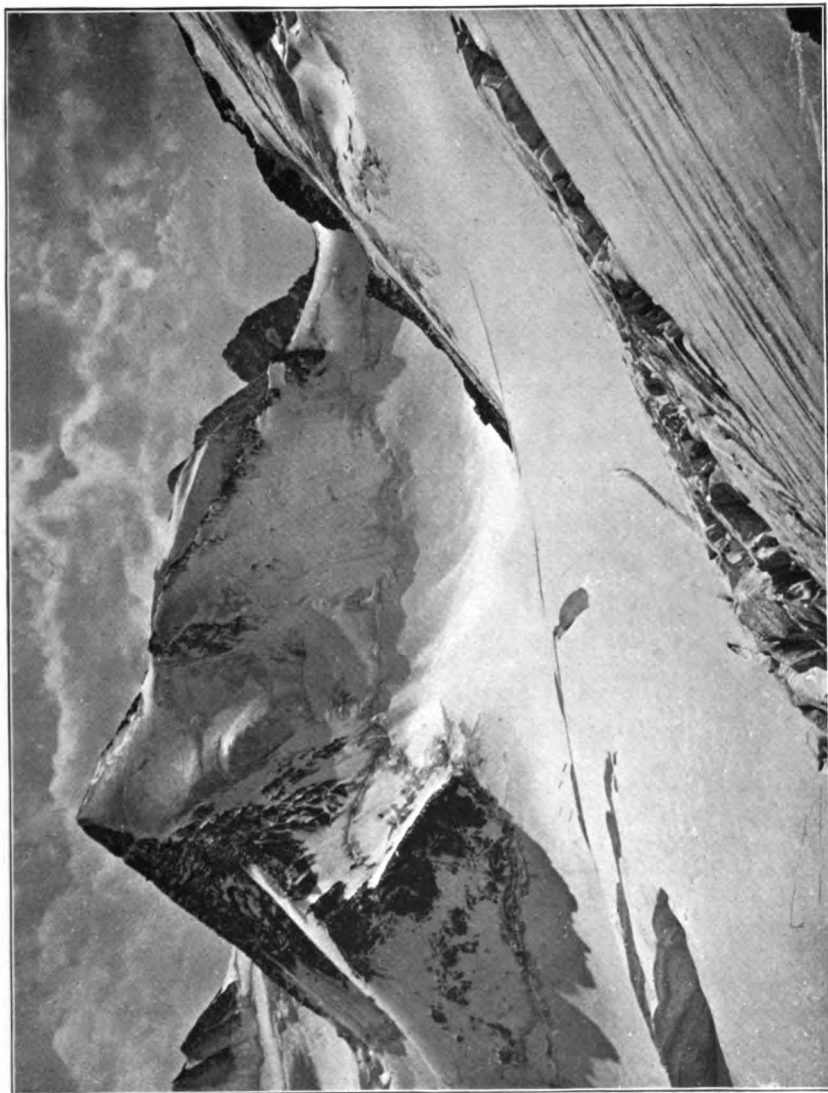
The weather, that had been almost perfect since the 9th, now began to get steadily worse, snow-showers falling and powdering the giant precipices of our peak (Mt. Forbes, about 14,000 ft.). This peak is the finest rock peak I have seen amongst the Rockies. It is a combination of the Matterhorn and the Dent Blanche, and as it rises straight from its base, which is only 4,600 ft. above sea-level, the precipices that surround it, especially those above Glacier Lake on its northern side, are exceptionally grand. In the condition we found it, it would have been folly to attempt an ascent. As far as we could see, the only feasible route of ascent lay up the S.W. ridge to a very sharp arête with broken towers, whilst just below the pointed snow summit the arête was heavily snow-corniced, and did not look as if the last bit of climbing would be either safe or easy.

It was particularly disappointing that on the very day we had found our mountain and sat down at its base the snow-showers—the first for weeks—should so spoil our chance of a successful ascent.

On the 28th we climbed to about 8,000 ft. on the peak that lies at the junction of the two streams that drain the Freshfield and the Forbes glaciers. The higher we went the more imposing Mt. Forbes became, and the better were we able to see the S.W. ridge of the great mountain. From what we saw we were quite certain that up to the final arête there was nothing to stop us, and we imagined that the weather would soon clear again. Whilst we were waiting for the snow to melt off the precipices and ridges of Forbes, a visit was planned to the glacier (Freshfield Glacier) that had been seen from Sarbach. So, taking a couple of ponies and the men, we pushed as far up the valley as we could, and camped on the northern side of the glacier.

The morrow (August 30) was gloriously fine, but it was late before we finally started, and later the penalty was paid. We followed the glacier, which is remarkably free from crevasses, till, when the sun rose, we found ourselves on a vast ice-field. Before us rose three shapely peaks; the one nearest to us seemed the highest. During the time spent over breakfast we discussed the best route up. On its northern face this peak was precipitous down to the glacier; but on the south-eastern side a ridge ran down to a glacier whose level was about 500 ft. above the snow-field we were on. To reach this upper glacier we should have to ascend a very broken ice-fall; but finally we determined that it was not safe to attempt it, and eventually climbed the steep rock precipice on its northern side. The glacier above was crevassed, and it took us some time also to cut our way up an ice-slope before we ultimately succeeded in reaching the ridge that led to the top.

The day was perfect; in every direction except to the W. the mountain land stretched away into the far distance. Consequently, Baker at once began his plane table survey. Just S. of us were two mountains—the nearer a rock peak, the farther covered with snow. The peak we were on (Mt. Freshfield) has been named after Mr. Douglas Freshfield, the two others after Mr. Pilkington and Mr. Walker. This method of nomenclature has been in vogue since the early days of discovery in the Rocky Mountains. There are no Indian names, for the country is, and always has been, uninhabited.



Swan Electric Engraving Co.

MOUNT PILKINGTON.

J Norman Collie, photo.

On the day we were on Mt. Freshfield, Baker was the only energetic member of the party. Sarbach had been carrying Baker's photographic apparatus, &c.; he now went to sleep in the sunshine—I presume as a sort of protest, for, during our ascent of the rocks below, when I had suggested that we should move a little faster, he had called my attention to the camera, and I heard something that sounded like 'furchtbar schwer und ganz gefährlich.' As both Sarbach and Baker seemed to be enjoying themselves, I basely broached the idea that to climb the peak was what every ordinary member of the Club would do under the circumstances, but that plane tabling was far more difficult, more useful, and generally that it behoved Baker to take extraordinary care over the work he was engaged in, which was of the greatest importance; moreover, that it was late, and that, as our men had returned to the lower camp, should we persist in going on there was certainly no doubt that we would have no dinner, neither would there be the faintest chance of our leaving the glacier that night. The result was quickly attained, and all intentions of climbing further were abandoned. We had reached an altitude of about 10,000 ft. Since then many times have I regretted that we did not push on—not because I should have got to the top of the mountain, but because to this day I do not know what lies on the farther side of Mt. Freshfield. But whilst the interesting operation of surveying the country was being proceeded with by Baker I did not waste my time. I went round a rock ridge and across a small rib of snow to find out what the view to the N. was like. It is curious often how small things directly determine the course of future events. The view that lay before me was to be the means of bringing me back to Canada in 1898. Far away—perhaps thirty miles to the N.W.—a magnificent snow-covered mountain was to be seen, its western face falling sheer for thousands of feet; and from the way it towered above its neighbours it seemed to me to be at least 15,000 ft. high. Mt. Forbes from this point also overtopped all the surrounding peaks by about 3,000 ft.—a rocky pyramid capped by snow. The mountain far away to the N.W. interested me far more, for only two peaks of that size N. of Lyell are marked on the map. These are Brown and Hooker, 16,000 ft. and 15,000 ft. high. I returned to Baker, woke up Sarbach—who was scandalised that we were not going to make any attempt on the peak when the top was so near—and, having packed up all our baggage, proceeded

down the mountain, finding an easier descent through the rock-wall on to the ice-field below. On the lower part of the Freshfield Glacier are a series of large blocks of stone, some even as much as 10 ft. to 15 ft. cube. It is a curious fact that Hector, in 1860, who probably was the only other person that ever has visited this glacier, noticed the same thing. He says: 'Its surface is remarkably pure and clear from detritus, but a row of angular blocks followed nearly down its centre; its length I estimated at seven miles.' The interesting question at once arises, Can these be the same blocks? Hector may have seen them some distance up, as he states he went three to four miles over the ice; we noticed them within a mile of the snout, yet less than three miles in thirty-eight years is very slow progress. We also noticed that the snout of the glacier was ploughing up the debris in front.

After the sun had set we emerged from the forest into the shingle flat within a quarter of a mile of our camp, but on the wrong side of the torrent. With great difficulty I just managed to ford the rapidly running stream, but Baker and Sarbach, being less impatient, lit a fire, and waited till Peyto brought over one of the ponies.

On the next day (September 1) we started up the valley that comes down from Forbes, taking the men and a pony with us. To start with, some difficulty was experienced in skirting through the woods in order to avoid a rocky canyon; but ultimately that night we camped in the forest at the foot of the mountain, in wet weather. Next morning Sarbach and I pushed up almost to the limit of the trees on the slopes of Forbes, but we were soon soaked to the skin from the wet undergrowth, and heavy snow and rain finally drove us back down the valley to our camp on the desolate shingle flat. The weather was getting worse and worse, and it was near the time when we should be thinking of our return journey; moreover, at the beginning of September, often heavy falls of snow occur before the Indian summer sets in, and none of us were anxious to be snowed up amongst such inhospitable wilds for the best part of a week, and so far from provisions and civilisation. Therefore on September 3 the camp was packed up, and, saying good-bye to Forbes—or at least to as much as we could see of him—we made our way S. over the summit of the Howse Pass. On the N. side the ascent to this pass is hardly appreciable, and it is difficult to say almost where the summit may be. Its height is about 4,800 ft. These low passes across the main chain, sur-

rounded by lofty mountains, are quite a feature of the Canadian Rocky Mountains. As soon as we got into the Blaeberry Creek, the woods, being on the western side of the main chain, became very dense, and we had considerable trouble in getting the horses through. On the second day the valley opened up a little, but the weather continued wet and gloomy. It was soon found to be quite hopeless to think of taking horses farther down the valley, owing, first of all, to the fallen timber, and, secondly, because a forest fire was burning lower down. Our only chance was to try and force a way over some pass to the S., in the hope that we should ultimately reach Field on the Canadian-Pacific Railway. Having ascended a peak about 8,000 ft. on the N. side of the Blaeberry, the most promising dip through the mountains opposite was picked out, with the hope that it would prove to be possible for our baggage-animals. The party therefore, on September 5, started for this pass, and, after a very stiff ascent of nearly 4,000 ft. through thick forest, finally camped at the limit of the pine-trees, at about 7,500 ft. Next day the pass was reached (6,800 ft.) which I have called Baker Pass. During the night a heavy snow fell, which cleared the air; and then, just as we were leaving the mountains, brilliantly fine weather again set in. No difficulty was experienced in descending the valley to the S., and after three days we arrived at Field. On the last day Baker and Sarbach climbed a fine rock peak, called Mt. Field, which can be seen from the railway. This ended our expedition for 1897.

During the winter I consulted all the literature I could obtain that dealt with this district. In that rare book 'Palliser's Journals' was the only record of previous exploration through the Mt. Forbes country. I also found out that Professor Coleman, in 1893,* starting from Morley, had instituted a search for Mts. Brown and Hooker; because, although these peaks are to be found on every map of Canada, yet so little was actually known about them that it was vaguely reported that they did not exist.

To quote from Green's paper †: 'For many years much mystery has hung about the sources of the Athabasca, where Mts. Brown and Hooker were supposed to tower above all adjacent mountains to a height of over 16,000 ft. More recent travellers threw much doubt upon the measurements. Mts.

* *Geographical Society's Journal*, January, 1895.

† *Alpine Journal*, vol. xvii. p. 295.

Brown and Hooker gradually came down in the world, and so rapidly was this descent accomplished that some United States geographer predicted that in the end it would be found that they were no more than hollows in the ground.' According to Professor Coleman, 'there seems no record as to who determined the reputed heights, nor how the work was done.' In a work by Robert Greenhow,* Mr. Thompson, who was acting as astronomer for the Hudson Bay Company, is said to have estimated these peaks at 16,000 ft. and 15,700 ft. respectively. Beyond these references I was unable to find out anything more concerning them, except that David Douglas, the botanist, was credited with their discovery during one of his early journeys across the mountains with the Hudson Bay Fur-trading Company's servants. The only pass across the Canadian Rocky Mountains used in those days was the Athabasca Pass, and these two giant peaks were supposed to stand guarding this remote gateway connecting the E. with the W. In Professor Coleman's paper he describes how he finally arrived on the summit of the Athabasca Pass, and how some of the party climbed the highest peak on the northern side of the pass, but found it to be only 9,000 ft. ; he also further identified the pass he was on by the presence of a small circular lake on the summit called the Committee's Punch-Bowl.

Now, from the slopes of Mt. Freshfield I had seen a mountain that appeared to me to be about 15,000 ft. high. Of course, the idea at once suggested itself that perhaps it might be either Brown or Hooker. This explanation, however, entailed the supposition that the Athabasca Pass Douglas had traversed was not the one that Professor Coleman had visited. Now, there was not the slightest doubt that Professor Coleman had reached the pass which now is called the Athabasca Pass ; therefore, unless it could be proved that the peak that I had seen was on one side of a pass which crossed the main chain and connected the head waters of the Athabasca with the Columbia, and a second mountain almost as high was on the other side, I could bring forward no argument in favour of Mt. Brown, after all, being 15,000 ft. in altitude. If I could have found some description of Douglas's journey, I might have been able to settle the question ; but I could find no reference to any, and Professor Coleman, who had studied the literature of the subject, gave none in his

* *Memoir Historical and Political on the North-West Coast of North America and the Adjacent Territories, 1840.*

paper. So the end of the matter was, I returned to the mountains in 1898, with H. E. M. Stutfield and H. Woolley as companions, in order to find the peak I had seen from Mt. Freshfield, and determine how the land lay round about it. I also wished to finish Baker's plane table survey and clear up some points connected with the map. Of course, also, this map could be continued along the main chain N. of Mts. Freshfield and Forbes as far as we should be able to get.

On July 31, with Peyto as our head man, Nigel Vavasour, Roy Douglas, and M. Byers as cook, together with thirteen ponies, we started from Laggan railway station. Instead of following up the Bow Valley, as we did in 1897, I determined to reach the Saskatchewan by means of the Pipestone and Siffleur Valleys, in order that we might investigate another somewhat mythical peak (Mt. Murchison), reputed by Dr. Hector to be 15,789 ft. high. On the maps it is placed just at the bottom of Bear Creek on the E. side. But Baker and I had never seen such a peak from the top of Gordon nor from the peak above the Bow Pass nor from Sarbach, that should be within 10 miles of the mountain. On arriving at the Pipestone Pass I climbed a small peak (8,700 ft.) that rises out of the centre of the pass (8,400 ft.). A high mountain could be seen far away to the northward, but all the mountains in the immediate neighbourhood were none of them higher than 11,000 ft. at the most, and it was only later that we were able to settle the question of the approximate height of Mt. Murchison. In fact, I do not believe that Murchison is visible from the summit of the Pipestone pass, and Hector was mistaken when he thought that he saw it. From the pass we descended to the valley of the Siffleur. At first the country was open, and we made rapid progress; but soon we came to the pines and camped amongst them for the night. The valley of the Siffleur drains to the northward, but about 12-15 miles down it is joined by another valley that comes in from the westward. It was up this valley that Mr. Thompson's party had gone a day or so before us; they describe the valley (the Doone Valley) as fairly open at first, with glaciers on the western side and a large lake about five miles up, but higher there are more than one narrow canyon and horses can only be got through with difficulty. Ultimately, after several days, they managed to cross a high pass and joined the Bow Valley a short distance below the Upper Bow Lake. We, however, pursued our way down the Siffleur, which now, owing to the melting snows, had become a fair-sized river, and it was with some difficulty that we managed to cross it. As all

our horses were being used as baggage-carriers, Peyto's mare Pet was pressed into the service, and after half a dozen journeys backwards and forwards she finally landed us all safely on the western bank. Of course, the lower down the valley we went the worse the timber became, but we were on some sort of trail*—at least Peyto said so, although to an inexperienced eye there was not the slightest difference between our track and anywhere else in the tangled mass of fallen timber, thick undergrowth, and marshy pools; a quick eye might have noticed every fifty yards or so a notch cut on a tree—a 'blaze,' to use the correct expression—and it was by these that Peyto was guiding us through these vast woods. To prove that he was on the track, he found a weather-beaten edition of 'Hamlet' dropped by some prospector who had lately been through the valley. At last the main Saskatchewan was reached; a wide valley lay before us with undulating country mostly covered with fir-trees. In the old days, at the beginning of the century, it was here that a meeting took place yearly between the Kootenay Indians from the western side of the Rocky Mountains and the fur traders from the E., and in consequence this piece of moderately open country hidden away amongst the mountains was called the 'Kootenay Plains.' Now for over half a century it has remained undisturbed save for an occasional hunter or prospector who has wandered thus far into the mountains. We were in hopes that a moderately good trail would be found along the S. bank of the Saskatchewan to Bear Creek, as the valley was open, and the woods were, to start with, not too thick; but, although we were not wrong in our surmise, yet the flooded Saskatchewan was a factor that had to be dealt with—a vast, whitish river, sometimes half a mile wide, and in many places over its banks. It also had often flooded the muskies by its banks, making it impossible to take the horses through.

The weather was terribly hot and sultry, a smoke haze hung over the whole country, probably due to vast tracts of country that had been fired, perhaps two or three hundred miles away to the N., on the Athabasca and Peace rivers, by those who were attempting to reach Klondike from the S.E. from Edmonton. The mosquitoes and flies as usual

* Fifty years ago there were good trails through all these valleys; now, however, there are hardly any, for the Indians seldom go near the head waters of the Saskatchewan.

swarmed in countless thousands, the trail went in and out along the banks of the river, and the horses had more than once been within an ace of falling into the rushing water. I was walking in front round one headland, and warned Peyto that it looked very nasty, for the trail was partly under water. However, he thought he would risk it. I watched, and with my heart in my mouth—for to lose our baggage meant the ruin of the trip and possible starvation as well until we got back to civilisation. The first horse just managed to get round this corner, but the second slipped off the trail sideways into the deep running water, then, after one or two feeble struggles, allowed himself to be carried off swimming down stream. One by one our horses, before they could be stopped, followed the leader, and I saw half our baggage swimming to what certainly appeared to me very like perdition. Fortunately they managed ultimately to land on an island, but it was only after a considerable time that they were coaxed back again to join the rest of the outfit.

This mishap caused us to camp at once in a dreary spot, so that the baggage might be dried. On the next day the river was still rising, and the low marshy ground by the side of the stream was partially under water; through this we had to splash. Finally the muskeg became so bad that we took to the woods, and it was not till half-way through the afternoon that an old Indian trail was struck; this enabled us to push on more rapidly past some lakes, and late that evening we arrived at our old camp at the bottom of Bear Creek. It was now August 8—we had therefore taken nine days from Laggan; if we had followed the Bow Valley, instead of the Pipestone, the journey could certainly have been done in seven days.

The next day we gave the horses a rest, and cached about three pony loads of provisions for our return. On the morrow the old crossing of Bear Creek River had to be made, and we were all glad when we were over; six of our horses were now free to ride, and we hoped to make better progress. The trail led for some distance along by the S. bank of the Saskatchewan. As soon as it was possible, about 2 miles below the junction of the stream, from Glacier Lake and the Middle Fork of the Saskatchewan, we forded the stream, and camped on the western bank of the river that comes down the North Fork.

On the morrow Stutfield and I started early from this camp (4,550 ft.), and climbed a rock peak—Survey Peak (8,650 ft.)—from which the plane table survey was started,

or rather Baker's map of the previous year was continued. The weather was hazy, as usual, and thunderstorms threatened all day. From the summit of Survey Peak we were able to see all the peaks of Mt. Murchison,* just across the valley opposite to us. This mountain certainly cannot be higher than 11,500 ft. There are several summits, and one in particular—a great obelisk of rock—seemed quite impossible to climb, at least on the three sides that we could see. We got back to camp late, and found that poor Woolley had been nearly eaten alive by the mosquitoes.

Next day our object was to proceed up the North Fork; it could be seen that the going was much easier on the eastern side of the stream, but it was absolutely impossible to ford the rapid and swollen torrent. The next four days was one protracted struggle with woods, muskgs, horses, and our tempers; from early in the morning till late in the afternoon Peyto and the men chopped, and yet as a result of it all we only made about 10 miles. All day long, within almost a stone's throw of us, was the opposite side of the river, with moderately open country, and yet we could not cross. On the fourth day, August 15, Peyto, who had gone out early with Byers and Nigel to cut the trail, returned about noon with the information that a large tributary came in from the westward some two miles farther up, that this new valley was one mass of muskeg and water, and that no sane person would attempt to push on farther. This called for heroic measures, so I ignored Peyto's picturesque language and suggested whisky. This saved the situation; for when it was carefully argued a little later that the river must be crossed at any cost, Peyto at once agreed, and finally we all got across somehow, thus making it unnecessary to ford the West Fork at all. This West Fork drains a very large area; all the glaciers on the N. side of Mt. Lyell supply it with water; and although we did not explore this valley, yet, from what I saw of it some days later from the summit of Athabasca Peak, it seems to lead to an easy pass over the main chain of the Rocky Mountains, possibly to the head-waters of the Bush River. Above where this W. branch came in, of course the river in the North Fork was much smaller, and gave us little trouble. One of the sources of the North Fork is in a great glacier that comes from the westward. On August 17, after

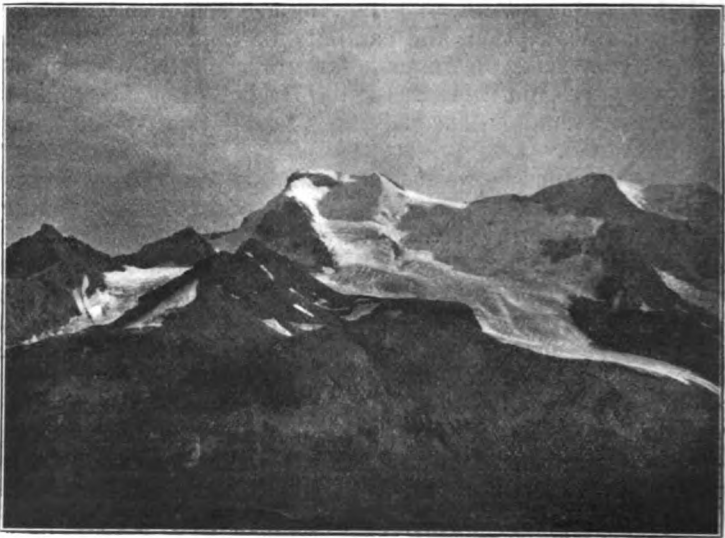
* Mr. Charles S. Thompson who ascended Observation Peak (in 1898) in the Doone Valley just N. of Mt. Murchison, failed also to notice any peak higher than about 11,000–11,500 ft.

a very long day, during which we rapidly ascended through magnificent pine-woods, we camped on the watershed between the Saskatchewan and the Athabasca. It had taken us, therefore, nineteen days from Laggan railway-station to get to our base of operations. Although the distance travelled had not been very great—about 150 miles—yet we had wasted no time; and it may be well to point out that during the beginning of August, owing to the great heat, the rivers are nearly all unfordable, and the swamps by these rivers are all more or less under water as well. The fallen trees offer great obstructions to ponies, and where woods have been burnt by forest fires, as soon as the roots of the pines are rotten every gale blows them down, and the tangle becomes so bad that it is beyond description, and can only be appreciated by being seen. This state of things is far worse on the western side of the range, and it is very doubtful whether ponies could be used, at least advantageously, in the valleys that drain into the Columbia.

The watershed between the Athabasca and Saskatchewan consists of a flat open valley with plenty of open country through which tiny streams meander. Excellent feeding for horses can be found, whilst occasional clumps of pines afford shelter for tents. Our camp was pitched at about 7,000 ft., not far from the stream that farther N., after having been joined by many tributaries, is the Great Athabasca River. Opposite to us a glacier-clad peak looked most promising from a climber's point of view, and we all were pleased that at last we had managed to get within striking distance of a really good mountain. Woolley especially hailed the prospect of a snow-and-ice climb with delight, for in his Caucasian wanderings nineteen days' travel through valleys had never been part of the programme. On that evening, however, when the commissariat department was overhauled, a most alarming state of affairs disclosed itself—food only sufficient for a week at the very most was found. Of course we had more at Bear Creek, but not very much, and in the meantime our most serious mountaineering had not even begun! The final result of an after-dinner conclave was that Stutfield volunteered to give up the climb and hunt for sheep instead. As it turned out, this piece of self-sacrifice practically saved the expedition.

It was very late on the morning of the 18th that Woolley and I started for our peak. Just after we had emerged from the pine-woods some valuable time was wasted over killing two ptarmigan with stones, but the small glacier on

the E. side of the peak was soon reached. It was not much crevassed, and keeping to the right we soon hit the north-eastern arête. This ridge for a short time gave us good climbing, but, like so many of these limestone crags, was very rotten. As the glacier to the westward appeared moderately easy, we clambered down on to it, and worked our way up into the great basin just underneath the summit. A choice of routes then lay before us—either we could skirt under some overhanging ice-cliffs on our right up to the northern arête, or, by cutting up an ice-slope on our left, the north-eastern ridge could be again reached. We chose the latter, and



ATHABASCA PEAK.

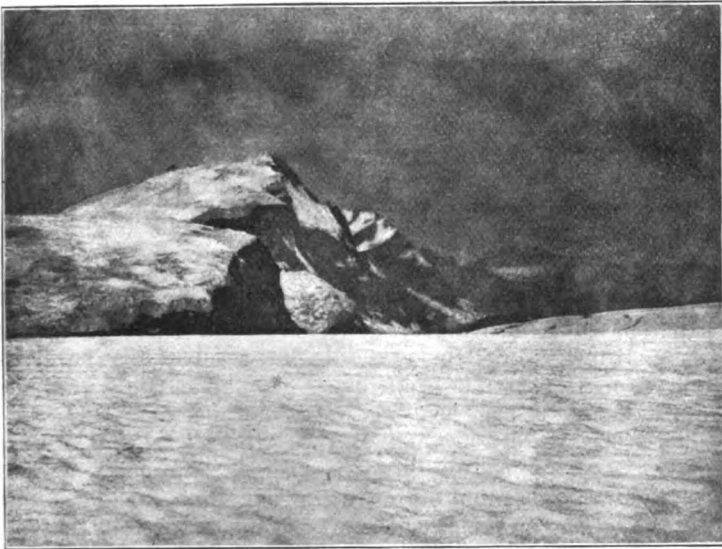
Woolley rapidly led me up on to the ridge; but a very narrow and steep ice arête lay before us. At first there was sufficient snow to enable us to ascend by merely kicking steps, but soon Woolley was hard at work with the axe. For two hours almost without intermission was he cutting, and the ridge was almost too steep to allow us to change places. Finally we arrived at a small platform just underneath the precipitous rocks that guard the summit, only to find that they were perpendicular. By carefully skirting round their base to the right a narrow chimney was discovered. It was our last chance: either it had to be climbed, or we should have to

return beaten. Owing to the excessively broken state of the limestone rock, produced probably by the great extremes of heat and cold, the climbing was not difficult, but there were many loose rocks that to avoid needed excessive care. With much caution bit by bit we managed to climb up this narrow chimney, expecting to come out within easy reach of the summit; but as we gained the ridge a wall of overhanging rock 15 ft. high seemed to bar further progress. After what we had gone through down below, 15 ft., even though it did overhang, was not going to keep us from the top. How it was conquered I have forgotten, but I remember how we saw the summit almost within a stone's throw of us, and how at 5.15 P.M. we stepped on to it. By mercurial barometer its height is 11,900 ft.

The summit consists of a narrow ridge of snow running E. and W. On the S. side, about 10 ft. below this ridge, is a rocky platform from which the snows have been melted, and which forms a sort of pathway right along the whole ridge. On this platform we halted. The view that lay before us in the evening light was one that does not often fall to the lot of modern mountaineers. A new world was spread at our feet: to the westward stretched a vast ice-field probably never before seen by human eye, and surrounded by entirely unknown, unnamed, and unclimbed peaks. From its vast expanse of snows the Saskatchewan glacier takes its rise, and it also supplies the glaciers that feed the head-waters of the Athabasca; whilst far away to the W., bending over in those unknown valleys glowing with the evening light, the level snows stretched, to finally melt and flow down more than one channel into the Columbia River and thence to the Pacific Ocean. Beyond the Saskatchewan glacier, to the S.E., a high peak (Mt. Saskatchewan) lay between this glacier and the W. branch of the N. fork, flat-topped and covered with snow, on its eastern face a precipitous wall of rock. Mts. Lyell and Forbes could be seen far off in the haze. But it was towards the W. and N.W. that the chief interest lay. From this great snow-field rose, solemnly, like 'lonely sea-stacks in mid-ocean,' two magnificent peaks, probably about 14,000 ft. high, keeping guard over those unknown western fields of ice. One of these, that in shape reminded us of the Finsteraarhorn, we have ventured to name after the Right Hon. James Bryce. A little to the N. of this peak, and directly to the westward of the peak we were on (Athabasca Peak), rose probably the highest peak in the Canadian Rocky Mountains. Chisel-shaped at the head, covered with glaciers

and ice, it also stood alone, and I at once recognised the great peak I was in search of; moreover, a short distance to the N.E. of this peak another, almost as high, also flat-topped, but ringed round with sheer black precipices, reared its head into the sky high above all its fellows. At once I concluded these might be the two lost mountains Brown and Hooker. As rapidly as I could, I drew lines in all directions on my plane table survey towards these peaks and put up my mercurial barometer; but, hurry as fast as I could, it was 6.30 P.M. before we started down from the summit, and Woolley's patience must have been sorely taxed by all these semi-scientific observations. I was not at all anxious to return by the route we had ascended, for it was too difficult to allow of any undue haste being made; I therefore suggested we should follow the rocky platform on the summit, and see how far down the north-western arête it would lead. Moreover, I thought that I had sufficiently reconnoitred a route down this arête whilst Woolley was cutting ice-steps up towards the final summit. At first our new route was all we could wish, and a run down 500 ft. of snow quickly took us clear of the summit; but soon the arête narrowed with rock precipices on the left and ice-slopes on the right hand. Moreover, the rock was of the loosest possible kind, whilst the ridge again and again was broken by perpendicular drops, some of which we had to get down as best we could; others, however, we were able to turn by means of ledges and side gullies. The daylight was rapidly going, and we were by no means clear of difficulties. Below, on our right, was the glacier. Should we reach it before darkness finally came? By hurrying as fast as possible, just as the last colours of the sunset faded out of the sky, the more or less level ice of the glacier was reached. Fortunately there were no crevasses to stop us, so, rapidly crossing to the eastern side, we managed to stumble down in the dark through the small bushes on the mountain-side to the pine-woods. A Canadian pine-forest is bad enough in the daytime, but at night, when one is tired, it is terrible: fallen trunks seem to cover every square yard, whilst the thick underwood, that can be avoided somewhat in daylight, necessitates hard fighting to overcome. After we were clear of the wood the difficulties were merely changed, muskegs, streams, and tangled brushwood were encountered; but we finally came back to camp by 10.45, to find that Stutfield, who had arrived about an hour before us, had managed to kill at least three sheep, thus saving us for the present from starvation.

Of course our next expedition was to this great ice-field that we had seen from the top of the Athabasca Peak. Two days later we all three camped with our sleeping bags as far up the right bank of the Athabasca Glacier (the source of the Athabasca River) as possible, and in the dark next morning started at 3 p.m. by lantern light. The Athabasca Glacier descends from the great snowfield above in three successive ice-falls, the highest one being very crevassed. Through this upper ice-fall we slowly made our way, and after many zig-zags between séracs, ice pinnacles, and yawning chasms of immense depth, at about 7.30 we finally emerged on the



MOUNT COLUMBIA.

unknown snow-fields above. The day was warm and sultry, making us all tired, but for several hours we tramped across this almost level ice-sea towards the goal of our ambition—that great glacier-clad, chisel-headed peak, Mt. Columbia. To the south Mt. Bryce sent its three peaks high above us into the air. To the N.W. rose two isolated summits, a rock and a snow-covered one that we have named the Twins. But the peak we were walking towards was farther off than we imagined, for it lay on the opposite shore of this frozen ocean. It did not look as if it would be difficult to climb, but finally we had to give it up. It was now nearly noon, and we had

arrived almost at the edge of a vast amphitheatre, into which part of the ice of the glacier we were on emptied over a great cirque of precipices that start with Mt. Columbia and continue round the head of a valley as far as the Twins. This amphitheatre is the source of the western branch of the Athabasca River.

To the eastward of where we stood, and almost on our way home, rose a great dome of snow. After a hot and very tiring climb through snow that broke under our feet at every step, we finally attained the summit at 3.15 p.m. We have named this peak the Dome (11,650 ft.). Another peak just to the north I have called Peak Douglas, after David Douglas, the discoverer of Mts. Brown and Hooker. Although we did not know it at the time, we were standing on probably the only peak in North America the snows of which, when melted, find their way into the three oceans—the Pacific, the Arctic, and the Atlantic; for the glaciers from this peak feed the Columbia, the Athabasca, and the Saskatchewan Rivers. Before we returned to camp a thunderstorm overtook us, and when we arrived at our tents just before 7 p.m. we were wet through.

From what we had seen during the day, my idea—that the chisel-headed peak (Mt. Columbia) and the great rock peak farther to the N. (Mt. Alberta) were respectively the two lost giants, Brown and Hooker—did not receive any support. We were more mystified than ever. As far as could be made out, there was no pass leading westwards between these two peaks. The western branch of the Athabasca River, whose source lay at the feet of these peaks, was hemmed in on all sides by the loftiest mountains in the Canadian Rockies. The solution of the problem, therefore, seemed still to baffle us. After our exertions we rested and talked over what the next move was to be. On the afternoon of August 23 Woolley climbed to the summit of a rock peak (Peak Wilcox) that lay N. of our camp (about 10,000 ft.).

Finally it was agreed that we should move half our camp over the Wilcox Pass down into the main valley of the Athabasca, in order, if possible, to find the Athabasca Pass. We imagined that perhaps it might be only two or three days' journey distant; now we know that it would probably have taken us two weeks to get there.

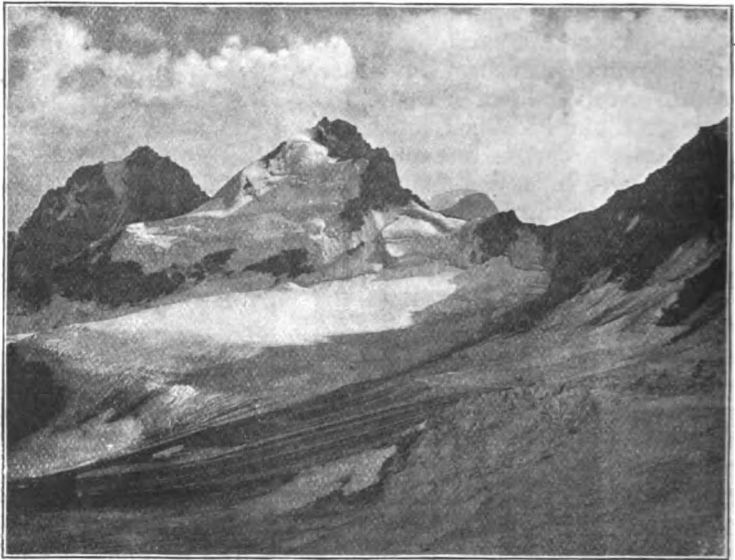
On August 24 we moved over the watershed, leaving Roy Douglas alone in camp to await our return. Once over the pass (7,500 ft.) a rapid descent of nearly 2,000 ft. took us to the Athabasca River that, like so many of the rivers in this

district, has filled the bottom of the valley with an ugly shingle-flat.

After a long day's march we camped at an elevation of 5,600 ft. We had hoped that possibly we should find some valley that would take us to the bottom of Mts. Columbia and Alberta, but soon found that it would occupy the best part of a week to accomplish this, and that to ascend this western branch to its source we should have to descend the eastern branch for at least twenty-five miles to the junction of the two streams. For this we had neither time nor provisions, so we contented ourselves with climbing a peak (Diadem Peak, 11,500 ft.) that lay between these two branches of the Athabasca River, in order that we might at least see as much of the mountains and valleys to the N. as possible. In order to do this we slept out as far up the side valley as we could, just at the foot of Diadem Glacier. The night was wet, and after our breakfast under a dull grey sky we started up the glacier towards a fine rock peak (Peak Woolley, 11,700 ft.). We intended to ascend a steep glacier that descended between Peak Woolley and Diadem, but just as we were putting on the rope several tons of ice came bounding down the centre of the glacier, warning us that danger lay in that direction. Accordingly, we turned aside to climb the face of the Diadem Peak instead.

At first we had to make our way up some slopes of loose shale and ice, but soon a sort of miniature rock-rib gave us greater safety from falling stones, and we followed it up to the summit of the mountain. The rocks, as usual, were terribly insecure and splintered. Near the top they were, fortunately, somewhat firmer, for on the upper part of the mountain the rib was distinctly steep. The summit of the peak consists of a crown of snow about 100 ft. high, set on the nearly flat top of the rocks; and it was owing to the curious appearance of this white crown above the rock precipice below that we gave it the name 'Diadem.' As it was bitterly cold on the top, we only stopped to make a plane table survey, read the height of the barometer, and look over into the western branch of the Athabasca. A few miles away the flat-topped rock peak, Mt. Alberta, rose more than 2,000 ft. above us, with its circle of black cliffs falling sheer on the three sides that we could see. Thunderstorms had been passing over us since early in the morning, and it was with a feeling of relief that we ultimately got on to a glacier below. Just below where we had camped the night before a glacier from the peak I have named after Stutfield had moved down and

filled up the whole valley to a depth of at least 200 to 300 ft. This was due to a huge rock-fall having covered the glacier, presumably, many years ago just under Peak Stutfield. This immense amount of rock prevented the glacier below from melting. Consequently the glacier had moved bodily down the valley, and its snout, a couple of hundred feet high, covered with blocks of stone the size of small houses, was playing havoc with the pine-wood before it. The weather now had decidedly changed for the worse, and we arrived in camp drenched to the skin. During the night more thunderstorms and heavy rain rendered the camp next morning about as



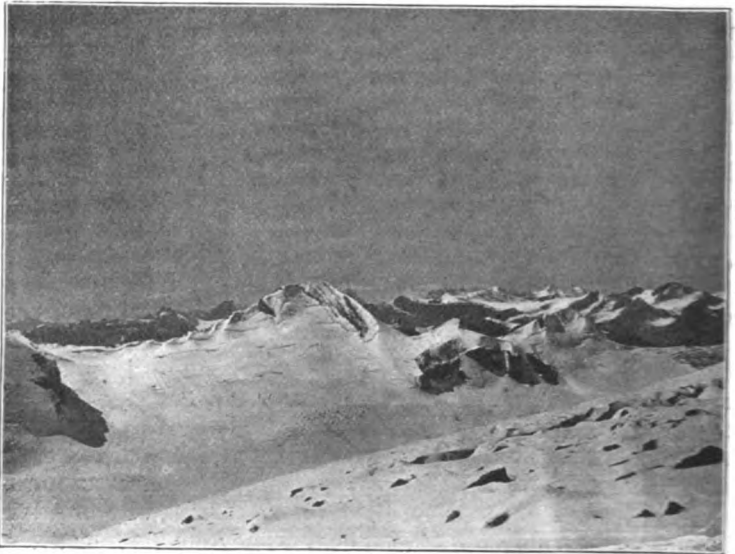
PEAK STUTFIELD.

cheerless as it could well look. We had learned a little more about the geography of the district by our climb—namely, that farther N. the peaks were not so high as those we were amongst, also that the W. branch of the Athabasca could only be reached by a long tramp of about 20 to 25 miles down the valley we were in. Peyto during our absence had been exploring this eastern branch or main branch of the Athabasca, and reported shingle-flats, muskegs, and no feed for the horses. It was dreary enough where we were, and we were not anxious to push farther into these inhospitable wilds; so the wet tents were struck, and, returning over

Wilcox Pass, we rejoined Roy and the rest of the outfit. Our provisions were now getting very short, so there was nothing to be done except turn homewards towards Bear Creek. The weather had broken in just the same way as it had done the year before whilst we were trying to ascend Mt. Forbes, so on August 28 we started. During the late afternoon and evening it rained in deluges. August 29 was fine, enabling us to make a good journey down the N. fork of the Saskatchewan, but next day it rained worse than ever, forcing us to remain in camp, and as we had no meat and very little bread our meals consisted chiefly of 'bovril' and chocolate. Fortunately next morning was fine, so by getting up very early and pushing down the E. side of the river late in the evening we reached our old camp at Bear Creek, where our surplus provisions were cached. During the day's march, which was made on the E. or left bank of the river, we passed no less than five camps that we had made a fortnight before on the opposite side. We were a little anxious about our cache, for if it had been rifled we were still nearly a week from civilisation. However, it was found intact, and that evening we feasted on bacon, apricots, and other delicacies that we had been talking about for some time past. In civilised countries it is not the custom to spend a large portion of the day thinking and often talking of food. But given an individual with a good healthy appetite and an insufficient supply of edible material wherewith to satisfy that appetite, an interesting exhibition will ensue of how the body can tyrannise over the mind. A natural result followed after we had our 'good square meal': we remained in camp all next day. At least, I must except Stutfield and Nigel, who prowled through the woods near for foolhen. They most fortunately got ten. From our camp at Bear Creek on September 2 we attempted to climb Mt. Murchison, but owing to the bad weather only succeeded in reaching a point 8,800 ft., on a ridge. Here I found some most interesting fossil remains of what looked like a petrified pine-forest, where the trees had been broken off about a foot from the ground. I have been told, however, that it is probably the remains of some gigantic prehistoric seaweed.

For the next two days the weather continued gloomy and damp, till the afternoon of the 4th, when a heavy snow-storm came on whilst we were trying to get to the Bow Pass. It forced us to camp in a cold miserable spot just short of the pass. But this was the last of the bad weather, and just as gloriously fine weather followed the snowstorm on Baker

Pass on September 6, 1898, so the same kind of change occurred in 1899. The week that followed was perfectly fine; the haze that had hidden all the distant views during the previous four weeks of the trip was gone, and two days later, when we ascended our last mountain, Thompson Peak* (10,700 ft.), lying just on the N. of the top of the great ice-fall of the Upper Bow Glacier; from its summit by far the most distant and clear view that we had during the whole of the expedition was obtained. To the S. Assiniboine, Ball, Temple, Lefroy, Hungabee, &c., were clearly seen. A large unknown mountain covered with glaciers was visible about 20 miles



THE FRESHFIELD GROUP, FROM THE SUMMIT OF THOMPSON PEAK.

S. of Sir Donald, which latter seemed almost close. Corners of Bryce and Columbia were visible between Lyell and Forbes. the whole Freshfield group, the Howse Peak, the Pyramid, and the many summits of Murchison completed the view.

On September 8 we arrived at Laggan railway-station once more, having been away from civilisation for nearly six weeks. The free mountain and camp life was at an end—all our diffi-

* Named after Mr. Charles S. Thompson of Chicago, who has for several years past done excellent mountaineering work in the Canadian Rockies.

culties and struggles would now be with the complex fabric of civilised life, not with the forests, rivers, glaciers, and snow-clad peaks. It was at first hard to realise that we should no longer sleep with the open air playing across our faces during the still nights, nor should we listen to the murmurings of the streams nor the wind in the pines much longer. Our small world was shattered, our conversation and all the small things that had interested us for the last six weeks, when placed before the inhabitants of the ordinary world, would either fail to interest or fall on the ears of those who would not understand. Still, civilisation has its advantages and gains often by contrast with the life that is experienced amongst the mountains and the wild and desolate places of the earth.

The question, however, of Mts. Brown and Hooker had not been entirely settled, and it was not till I returned to England that the difficulty was finally cleared up. Again with greater care I looked up every reference I could find that dealt with the Rocky Mountains of Canada and British Columbia. At last I discovered a reference in Bancroft's 'History of British Columbia' to the journal of David Douglas, the naturalist, which had been published, together with a variety of other matter, in the 'Companion to the Botanical Magazine,' vol. ii. pp. 134-137, by Dr. W. T. Hooker. Douglas's journal contains a description of his journey over the Athabasca Pass, and also how he climbed Mt. Brown. Here, then, was an authentic description of these two mountains and the Athabasca Pass. To quote the journal: after he had started from Boat Encampment, on May 1, he reached the summit of the Athabasca Pass on May 1, at 10 o'clock in the morning. 'Being well rested by 1 o'clock, I set out with the view of ascending what seemed to be the highest peak on the N. Its height does not appear to be less than 16,000 to 17,000 ft. above the level of the sea. After passing over the lower ridge I came to about 1,200 ft. of by far the most difficult and fatiguing walking I have ever experienced, and the utmost care was required to tread safely over the crust of snow. A few mosses and lichens are observable, but at an elevation of 4,800 ft.* [*sic*] vegetation no longer exists. The view from the summit is of too awful a cast to afford pleasure. Nothing can be seen in every direction, as far as eye can reach, except mountains towering above each other, rugged beyond description. . . .

* 14,800 ft. more probable.

The majestic but terrible avalanches, hurling themselves from the more exposed southerly rocks, produced a crash and groaned through the distant valleys with a sound only equalled by that of an earthquake. Such scenes give a sense of the stupendous and wonderful works of the Creator.* This peak, the highest yet known in the Northern Continent of America, I feel a sincere pleasure in naming "Mt. Brown," in honour of R. Brown, Esq., the illustrious botanist. . . . A little to the southward is one nearly the same height, rising into a sharper point. This I named "Mt. Hooker," in honour of my early patron, the Professor of Botany in the University of Glasgow. This mountain I was not able to climb. The Committee's Punchbowl, is a small circular lake, 20 yards in diameter, with a small outlet on the west end—namely, the Columbia; and another at the east end—namely, one of the branches of the Athabasca.'

Now it would have been quite impossible for Douglas to start at 1 in the afternoon, and get to the summit of either of the peaks that we thought might be Brown or Hooker; in fact, it is highly improbable that he could have climbed them under any circumstances. That he ascended the peak that Professor Coleman's party climbed is much more probable, and to Professor Coleman belongs the credit of having settled with accuracy the real height of these mountains—namely, 9,000 ft. For nearly seventy years they have been masquerading in every map as the highest peaks in the Canadian Rocky Mountains; they must now retire from that position, and Mts. Forbes, Columbia, Bryce, and Alberta will, in future, reign in their stead. The mountain region round the great Columbia ice-field is, therefore, entirely new ground; and placed where it is, at the sources of the Athabasca and Saskatchewan Rivers, it must probably be the culminating point of the Canadian Rocky system.

* Compare Ross Cox's description of the Athabasca Pass in 1817. He relates how one of the *voyageurs*, whilst surrounded by the great mountains and amidst the crash of the avalanches, after a period of silent wonder and admiration, exclaimed, 'I'll take my oath, dear friends, that God Almighty never made such a place.'

SOLITARY CLIMBING :

SOME REFLECTIONS OF AN 'ALTES MURMELTHIER.'

THE practice of solitary climbing has, from very early times, incurred, and, no doubt, properly incurred, the severe reprehension of Alpine moralists. Other practices in other departments of ethics have likewise, from time to time, incurred the censure of moralists, with little or no attempt at justification, even on the part of those touched by it. Yet, somehow or other—theologians tell us it is owing to original sin—the practices do not become extinct, as according to all logic they might be expected to do. As we say, human nature is too strong for us. Mr. Stephen is a professed moralist ; but when he found the top of the Cima di Ball, who was his companion ?

It is a good many years since Sir W. M. Conway took occasion in this journal to formulate a theory, or several theories, touching the various motives by which those who seek their recreation in mountain ascents are impelled, and to classify such persons accordingly. We all know his famous subdivision of mountaineers into the groups of 'centrists' and 'excentrists,' as determined by the proportion in which the various motives referred to combined to drive them Alward. Another division, nearly, but perhaps not quite, coincident with that given above, was into 'gymnasts' and 'climbers'—'wanderers' would, perhaps, have been a better contrasted term. The gymnast was defined as 'a man for whom the overcoming of physical obstacles by means of muscular exertion and skill is the chief pleasure of mountaineering.' The definition of the other class was left to the reader's imagination ; we cannot go far wrong if we make it consist of those for whom the overcoming of such obstacles as present themselves in mountain travel by the exercise of observation and intelligence is the chief pleasure of mountaineering. Of course, the two are not mutually exclusive ; indeed, they were combined in many of the first exponents of the mountaineering pastime, and must be combined in any guide who would attain excellence in his profession. Tactical skill alone will not make a great soldier ; but still less will swordsmanship alone.

Of late, no doubt, as Sir W. M. Conway and others have often insisted, the tendency has been to magnify the gymnastic motive and to undervalue the others. The present writer was once talking to an eminent Viennese climber, and regretting the great development of the 'Wegmarkirung' system in the Austrian Alps as destructive of the pleasure of exercising one's powers of observation in finding the road. He met, however, with no sympathy. The more easily and rapidly one could be brought to one's object—that is, to the point where the gymnastics began—the better. Surely this kind of thing goes far to justify Mr. Ruskin's satire about greased poles.

Yet there must still be a few who enjoy pitting not their muscles only, but their wits as well, against all the hindrances which the Spirit of the Mountains, aided as he is apt to be by the Prince of the Power of the Air, would put in the way of those who seek to penetrate his fastnesses. To find your own way over an unknown pass in a blinding snow-storm, even when no glacier is in question, is a very different and far more exhilarating business than plodding over behind a guide, with nothing to think about except how many dry articles you will find in your rucksack at the end of the day; and here we come to our point. There can be little doubt in the mind of any one who has tried it, that the interest is vastly increased if you have no companion at all. For as Euclid might put it, with a reminiscence of Shakespeare, if two go together, either they must be exactly equal in experience and capacity (a case that hardly occurs), or one must be older in practice, abler, in better condition, than the other. Such an one will naturally be the leader. If it is the other man, you will again be merely the plodder behind; if it is yourself, the added responsibility of getting somebody else out of the scrape besides yourself may heighten interest to the point of anxiety.

But even in fine weather one may sometimes, without being precisely a sage, see charms in the face of solitude. 'The untrammelled freedom of the wanderer's life,' to quote Sir W. M. Conway again, is ten times more untrammelled if he has nobody's little fancies to consider but his own. He can choose his own hours, his own *Proviand*—his own temper, shall we add?—unchecked, uncriticised. Oddly enough, too, he is likely to get even more society. Fellow-travellers at their inn in the evening are apt to be mutually self-sufficing; unless, indeed, as will at times happen, they have fallen out by the way. But the solitary is perforce thrown on such society as the quarters afford; it may be the *Wirth*, it may be the *Curat* or other local personage; it may be a fellow-guest. In any case he is pretty sure, in the less frequented parts of the Alps, to find civility and intelligence, to say nothing of profitable exercise in the language.

So much for solitary roaming. Solitary *climbing* stands on a somewhat different footing, and appeals, perhaps, to a somewhat different part of human nature. It cannot be denied that the gambling spirit is gratified by it. The stake is the same as in the orthodox climb—upon this part of the metaphor each reader may put his own interpretation; the odds against the player are longer, and the pleasure of 'pulling it off' is accordingly greater.

Here we must clearly distinguish between solitary climbing and climbing without guides. That is quite a different matter; and the propriety of it in any particular instance must be judged by its results. A guideless party differs in degree only from a party led by any amount of professional talent; it is exposed, except incidentally, to no greater dangers; it can attempt the same expeditions, it can go into the same places. The sole limit to its achievement is the capacity of its members. With the solitary

rambler or climber it is quite otherwise. What is safe or easy for two or more is dangerous or impossible for one. For danger, the well-known case of the snow-covered glacier may serve, or rocks on which, in a party of climbers, only one would move at a time. The following instance will show how the presence of a companion may convert impossibility into ease. There is a certain tor on Dartmoor, the summit of which is formed by several granite blocks, in shape like gigantic pillows, superposed one on another. As you stand on the slope of one the edge of the next catches you about the top button of the waistcoat. There is no handhold, and the height is just too great to allow of a steady hoist of the body from the flat palms. An acrobat might manage it, but hardly an ordinary gymnast. The writer was there once with a friend who had climbed every tor in the neighbourhood from almost every side, but had never conquered this. When two were together, however, the problem became ridiculously simple. For one to drop on one knee, and for the other to mount on the corresponding joint of his other leg was, as the old romances have it, the work of an instant; from thence it was easy to scramble on to the upper 'pillow'; an outstretched hand afforded the grip necessary to enable the second member of the party to surmount the obstacle, and the first recorded ascent of — Tor was made. Every one who has travelled in mountainous regions and stepped off the beaten tracks will be able to quote similar instances from his own experience. Some things the solitary climber must let alone.

On the other hand there is a large class of situations in which the main difference between solitude and society is that the former demands increased attention and more extended prevision. Where with a companion you ought to be sure of ten steps ahead, alone you ought to be sure of twenty. Slopes of old snow must be negotiated with caution; they are apt to thin out at the lower end, and if you abandon yourself to the delights of a glissade for a few yards too far, you may suddenly find yourself, as the present writer once did, with the upper part of your body prone, head downwards on a steepish incline, your loins gripped by a frozen crust, and your toes dangling in vacancy above a little torrent—an attitude undignified at the best, and one from which it is not always easy, without the aid of a friendly hand, to resume the normal. You must also take increased heed to your footing, remembering that when there is no one at hand to render or seek assistance, a trifling disablement—sprain, twist, or bruise—may have very serious results.

Other rules for solitary climbers or rambles are: study your map minutely—if you propose to cross a pass, most minutely on the descending side, remembering that while it is much easier to lose the way going up hill, it is ten times more serious to lose it going down. Be very clear, especially on the descent, about the side of the stream you should be on. On the ascent look back frequently, and notice objects which you *have* passed; so that in the event of your having to retreat, the way may not be unfamiliar to

you. The same remark, of course, applies to climbs when you mean to come down the way you went up. Take especial note of the openings of side-valleys, and the points where their torrents join the main stream. Always carry a compass, and in cloudy weather consult it every few minutes. In fine weather, accustom yourself to steer by the sun till you get your orientation instinctively. This last hint would seem superfluous did not experience show how many people may have been familiar with a place for years without knowing the 'aspects' of it, or how few seem to see instinctively on which side of a tree you ought to lie if you want the shadow to pass on to you and not off you. Conducted in this way, there can be no doubt that solitary mountaineering is a fine school for teaching endurance, foresight, and skill, to say nothing of observation; qualities for which no one is ever the worse in the mountains, even where no great 'technical' difficulties are before him. After all, it is in the unlikely places that accidents happen; and the man who is accustomed to going alone learns to regard no place as more likely than another, and therefore is on his guard in all.—*Explicit advocatus diaboli.*

THE COL DE LA SAUCE.

A NOTE

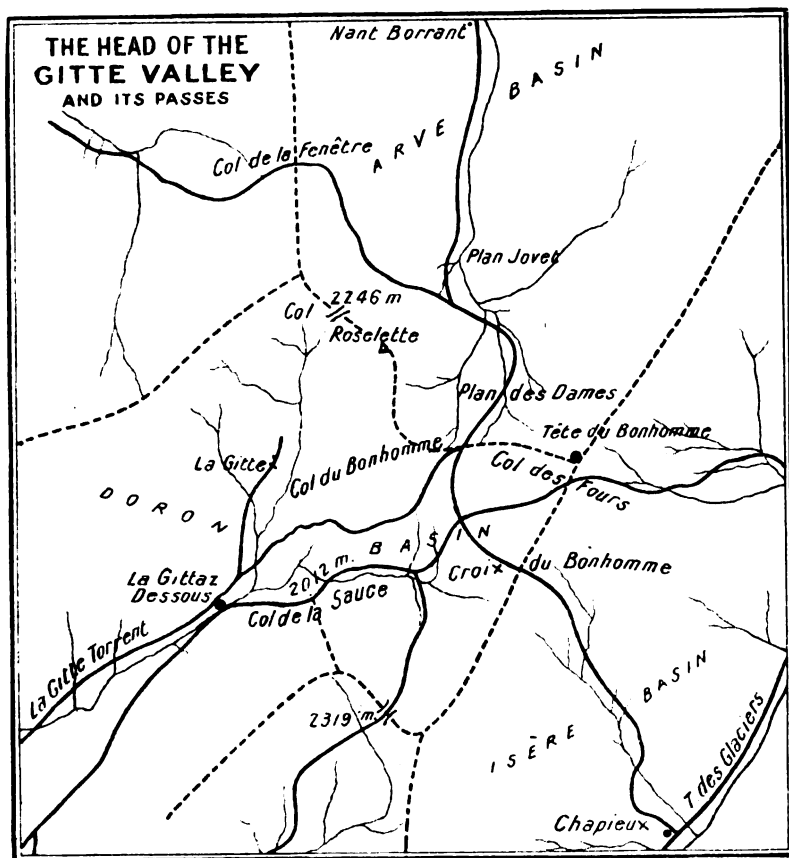
BY DOUGLAS W. FRESHFIELD.

INVESTIGATIONS connected with the revision of the 'Alpine Guide' have recently led Mr. Coolidge and myself to the discovery of a curious confusion, or rather sequence of mistakes, with regard to the passes on the mule track round Mont Blanc between Contamines and Chapieux, which had up till now escaped the vigilance of successive editors—including ourselves—in the Guide-books we have at various times edited. I have also, I think, been successful in identifying in a long superseded map the origin of a double error in topography and nomenclature which seemed at first sight surprising in so careful a writer as the late Mr. Ball.

The traveller on the 'Tour of Mont Blanc,' if he has in his pocket both a modern guide-book—Ball, Murray, or Joanne—and one of the standard French Government maps, whether the 1866 mother map, or the more exact 'Carte de la Frontière Militaire' (the clearest as to paths), or the later but not always trustworthy 'Carte Vicinale,' will find it quite impossible to reconcile his books and maps.

The French maps all agree in indicating accurately what every one who traverses the track in clear weather sees to be the fact, that the path between Nant Borrant and Chapieux crosses two ridges, the first the water-parting between the Bonnant, a tributary of the Arve, and the Doron, a tributary of the Isère, which flows through the valley of Beaufort, the second the parting between the Doron and the torrent that flows from the western glacier of Mont Blanc past

Chapieux to join the Isère at Bourg St. Maurice. The 'Carte de la Frontière' and the 1800 map name the first pass the Col du Bonhomme, and the second the Croix du Bonhomme, names which, as readers of Principal Forbes's 'Travels in the Alps' are aware, have been long in local use. The former map further shows two paths mounting from La Gittaz Dessous, in the Beaufort valley, by the right and left banks respectively of the Gitte torrent, one of the sources



of the Doron, to join the Bonhomme track. The path on the right bank meets the track at the Col du Bonhomme. The path at first on the left bank crosses in order to avoid a defile a low spur (2,012 m., 6,601 ft.) named the Col de la Sauce. The name is given to the same spot on all the three French maps. This path then crosses the Gitte, after attaining its highest basin, and joins the Bonhomme track midway between the Col and the Croix,

at the point where the way to the Col des Fours branches off uphill.

It is clear from the maps that a pedestrian going from La Gittaz to Nant Borrant will find the most direct route by leaving the Bonhomme altogether to his right, and crossing the crest at the depression marked 2,246 m. N. of the chalets of Gitte, and N.W. of the Roselette—not to be confounded, as it is in the guide-books, with the aiguille of the same name, which is further to the N. This is the second Col de la Fenêtre afterwards mentioned.

Let us now take up our guide-books. In the unrevised 'Alpine Guide,' Section XII, Route F, we find a description of a 'Col de la Sauce' (*sic*) 'between the Tête du Bonhomme and the Roussette at the junction between the valley of Beaufort and that of Montjoie, and, though 1 hr. distant, not much below the level of the Col du Bonhomme.' 'To reach Bourg St. Maurice from the Col de la Sauce it is necessary to follow the track to the Col du Bonhomme, and descend in 1½ hr. to Chapui.'

Turning to Section XVI, Route B, we read, 'Another ascent leads to what appears to be the desired col, but on reaching the summit, which lies between the Tête du Bonhomme and the Aiguille de Roussette (9,843 ft.), it is seen that the pass, which does in truth lie between those summits, turns sharply to the W., and descends through the Vallon de la Gitte to St. Maurice de Beaufort. It is still a distance of 1 hr. across bare stony slopes, usually flecked with patches of snow, to the true pass. The Col du Bonhomme (8,195), marked by a large cross, is the watershed between the basin of the Arve, and that of the Isère.' These passages are both transcriptions from the 1860 edition of Joanne's 'Savoie.' In both the *Croix du Bonhomme* of Professor Forbes and the French maps is obviously miscalled the *Col*.

In Brockedon's 'Journal of Excursions on the Alps' and the first edition of Murray's Guide (1838) (in which this Route was written by Brockedon) the 'Col du Bonhomme' of the modern French maps is called the 'Col de Gauche,' and this name was retained till, in the 1861 edition (ninth), which was edited by Mr. Ball, 'Col de la Sauce' was substituted.

Now let us jump to the text of the 1891 Murray. I found this text and failed to correct it, as also did Mr. Coolidge, who added the heights. We read that from the 'Plan des Dames (6,796 ft.) another wild ascent of 40 min. leads up herbless slopes to what from below seems to be the Col, but it is the Col de la Sauce (6,601 ft.) (this height is transferred by an obvious slip from the Col de la Sauce of the French maps—D.W.F.), between Le Bonhomme and Mont Roselette, leading W. to Beaufort. Bearing left from this point, another hour S.E. across a pathless waste brings the traveller to the cross of the Col du Bonhomme.' The heights given on the Carte Militaire for the Col du Bonhomme are 2,340 m., 7,678 ft., and for the Croix 2,483 m., 8,146 ft.

Again, on p. 594 (Rte. 150) we read, 'At the head of the Val de la Gitte is the Col de la Sauce, opening on the Col du Bonhomme,

and at the head of its W. branch a second Col de Fenêtre, leading to the little inn of La Barne.'

The Col de la Sauce is said to be 'straight ahead' from the upper valley of the Gitte, and the 'Enclave de la Fenêtre,' to its left.

Joanne in his 1877 'Switzerland,' p. 192, says that after passing the col 'between the Aiguille de Rousselette and the Tête du Bonhomme' the traveller leaves to the right a path leading by the Col de la Sauce (2,012 m.) to the valley of Beaufort.

In his more recent 'Savoie,' 1895, p. 249, Joanne gives the name 'Col de la Sauce' to a gap (2,319 m.) in the hills on the left of the Gitte in the same ridge, near but higher than the Col de la Sauce of the maps, thus adding one more mistake to the tangled web; but in the new (1898) rewritten edition this mistake is corrected (p. 310), the col 2,319 being named 'Col des Chavannes,' the name of Col de la Sauce being apparently (pp. 250, 309) given to the gap marked on the French maps with that name.

It will be manifest to the attentive reader of the extracts given above that the old Ball's 'Alpine Guide,' while conveying in one sentence the impression that the second pass on the mule track leads directly from the basin of the Arve to that of the Isère, asserted somewhat inconsistently that from a first pass called the Col de la Sauce, a path leads to Beaufort, and that this pass is the gap between the Tête du Bonhomme and the Rousselette, the Col du Bonhomme of the French maps. In the new 'Ball' Mr. Coolidge has gone some way towards correcting these errors. On p. 216 he recognises the distinction made by Professor Forbes and the French maps between the Croix and the Col. But on p. 370 he relapses, and writes 'The true Col du Bonhomme (also called Croix du Bonhomme) is the watershed between the basin of the Doron and that of the Isère.' Further, the direct path from La Gittaz to the first Col (the Col du Bonhomme of the maps) keeps to the right bank and does not cross the Gitte torrent or go near the Col de la Sauce. Mr. Coolidge states this quite accurately on p. 216. But on p. 370 he writes, 'This pass (the Col du Bonhomme) leads W. by the Col de la Sauce (2,012 m., 6,601 ft.) through the Gitte glen to Beaufort.'

A little study revealed to me the probable origin of all this confusion. When Joanne wrote and Mr. Ball (who proves to be responsible for both our English standard guide-books so far as introducing the Col de la Sauce is concerned) copied from him, the standard and the only map of this region was the $\frac{5}{8}$ inch *Sardinian Map*. On this the lie of the ridges is misrepresented, the Bonhomme track being indicated as never crossing the watershed of the Beaufort valley at all, and the name *Plan de la Sausa* ('Sausa' is said in a dictionary of Savoyard patois to signify a shoe with a wooden sole) given to the spot where a path is shown connecting the Bonhomme track with that valley.

Hence the name 'Col de la Sauce'—which, according to the best modern maps, has no business at all on the N. side of the Beaufort valley, but ought to be kept for a lower hill-path beyond the Gitte

torrent which leads ultimately to the Bonhomme track, but never goes near the true Col du Bonhomme—came to be given to that pass and to the track on the right bank of the Gitte torrent descending from it to La Gittaz and Beaufort.

While regarding Government maps as a standard authority to which it is often expedient to bow, at least in matters of nomenclature, we have much reason to know that they are far from infallible as representations of local usage, and I should not be surprised if enquiry on the spot proved that 'La Sausa,' or 'Sauce,' was a name applied to the whole highest basin of the Gitte, and, consequently, that all the tracks leading into it were at one time indiscriminately called 'Cols de la Sauce.' The native form of the word seems to be 'Sause,' which is quite a common local name in Savoy. This would be entirely in accordance with my general experience of the origin and growth of a local nomenclature in mountain regions.

The 'second Col de la Fenêtre' is not named on the maps, though its height is given as 2,246 m., but it is easily recognisable, and I have accordingly inserted it in what is otherwise a partial facsimile of the Carte Militaire. This col has also been a cause of confusion to editors. Murray (1891), p. 559, Rte. 139, says, 'From the base of the Chalet à la Barne a track mounts left to the Col de la Fenêtre, leading to Beaufort by the valley of the Haute Luce, and further on another col, approached by a long slope of débris, leads to the same place by the beautiful Val de la Gitte, joining the path from the Col de la Sausce.'

The editor goes on to say that the Vaudois on their 'glorieuse rentrée' crossed the 'Col de la Fenêtre, Rte. 150,' passed the Chalet du Mont Jovet, 1½ m. above Nant Borrant, and went on by the Col du Bonhomme. But in Rte. 150 (p. 598) he tells us, 'At the head of the N. branch of the Val de la Gitte is a second Col de la Fenêtre, crossed by the Vaudois in 1689, leading to the little inn of La Barne.' This is inconsistent with the course laid down for the Vaudois in the previous route, which implies that they crossed the more northern Col de la Fenêtre leading from Mégève to Nant Borrant. In the new 'Alpine Guide,' pp. 212 and 214, Mr. Coolidge has corrected this small slip and designated the more N. Col de la Fenêtre 2,263 m. as that crossed by the Vaudois.

IN MEMORIAM.

C. J. ARKLE, M.D., F.R.C.P.

CHARLES JOSEPH ARKLE, a member of this Club since 1886, died from pneumonia on February 22 last, aged only 37 years.

He was educated at the Liverpool College and University College and Hospital, London. He graduated M.B. in 1885 with honours in medicine and forensic medicine, and M.D. in 1887. After filling various responsible positions in University College

Hospital he was appointed in 1892 pathologist and teacher of bacteriology at Charing Cross Hospital. In 1895 he became assistant physician at the same hospital, and in 1897 was appointed to a similar position at the Brompton Hospital for Consumption and Diseases of the Chest. These two last positions he held at the time of his death.

In 1898 he was elected a Fellow of the Royal College of Physicians.

His professional career has, however, been treated by others, *e.g.* by notices in the *Times* and the *Lancet*, and members of this Club who knew him and climbed with him wish to think of him less in that capacity than as a mountaineer and a friend.

He was a real lover of the mountains, whose greatest pleasure was to return to them year by year after a hard year's professional work, and, while climbing with his brother, Mr. R. N. Arkle, he had done much good work in various districts.

He had all the best qualities of a mountaineer—great strength and activity—as he had shown not only on the mountains but in the football field as captain of a strong team of the United Hospitals Football Club, and great steadiness, coolness and resolution, proved on many a peak and difficult pass in the Oberland, the Vallais, Dauphiné, the Graians, the Dolomites, and elsewhere.

As a companion no one could be better. Members of this Club know well how a man's qualities are tested during long nights spent in the hut or in the open, and long days spent upon rock, snow, or ice, and tried by these tests there was no better comrade than Dr. Arkle.

Always cheerful and good humoured, he never showed irritation or impatience at any deficiencies of his companions, or any of the difficulties and inconveniences that are from time to time inevitable.

A man of great ability, of many and varied interests, of quick observation and keen sense of humour, a day spent with him either on the mountain or in the valley on an off day was always a pleasure.

He was a staunch and true friend, and to those who knew him well and climbed with him often, a holiday in the Alps without him can never be the same as before.

W. P.

EXHIBITION OF PICTURES OF ICELAND BY W. G. COLLINGWOOD.

THIS exhibition was opened in the Club rooms on March 4 and closed on March 25. It consisted of a very interesting collection of Icelandic landscapes, mostly small water-colour sketches, made on sea and on land, and all illustrating Icelandic scenery with a view to the book on the Sagas which Mr. Collingwood, who has lately become a member of the Club, is writing, and for the purposes of which his visit to the island was undertaken a year or two ago. A considerable proportion of his most successful work was, unfortunately, not available on the present occasion,

having passed out of his possession at a previous exhibition of these Icelandic sketches, held elsewhere before the Committee had arranged for the present show. Enough remained, however, to amply justify their action.

There having been no printed catalogue, and the present notice being written from memory, the pages of the Journal must forego the picturesque topographical nomenclature which might otherwise have adorned them even as the sketches adorned the walls of the gallery. Not that any parallel is suggested between the somewhat rugged Scandinavian orthography and Mr. Collingwood's style of painting; for, as we may hope to see on many future occasions, his brush is handled, even under the uncomfortable circumstances of travel, with a delicacy which it is unlikely that any Viking ever attained.

Iceland, as revealed to us by Mr. Collingwood, is—at any rate, in summer—a land of colour, if not of very marked feature. As might be expected, there is a strong resemblance along the coast to the island-beaded fringe of Norway, but the mountains do not in height or ruggedness approach those of the Horungerne or Justedal districts. Inland, the swelling sweeps of moor carry the eye to ranges of distant crags flecked with snow, but seldom seamed by glacier, and of no great height or boldness of outline. There is apparently more to attract the artist than the climber, and perhaps the Saga-lover more than either. That Mr. Collingwood was able to bring home a portfolio filled with so many sketches of interest and beauty is alike creditable to his industry and perception, and full of promise to the Club of other exhibitions in the future dealing with regions nearer home.

THE ALPINE CLUB PHOTOGRAPHIC EXHIBITION.

THE usual exhibition of Alpine photographs was held in the rooms of the Club and was open from April 11 till April 27. Mr. Sydney Spencer was intrusted this year with the hanging of the photographs, and his efforts resulted in a collection of subjects which left on the visitor who habitually attends these exhibitions an impression that the one just closed was far above the average.

This result is due in a large measure to the artistic perception of some of the exhibitors, but at the same time the modern improvements in photographic apparatus, and the greater facilities which are now offered for enlarging and printing on special papers, tend in the same direction.

The quality, then, that is to be looked for in any photograph of the present day, is not so much technical excellence—which can in most cases be obtained by a strict attention to manufacturers' rules and tables and a little practice—though of course that must be present, but rather such qualities as artistic merit, pleasing atmospheric effect, good aerial perspective, and correct colour values. It

is therefore from this point of view that the following remarks are made.

Mr. Spencer had a number of good views, and probably his picture of the 'Mont Dolent from the Tour Noir' was the finest thing in the exhibition. Besides showing great artistic skill and clever manipulation, an unusual emphasis was given to the glacier, which, without being hard or insistent, produced a distinct excellence of composition.

On the end wall were some fine views of Spitsbergen by Mr. E. Garwood, and one especially, called 'The Midnight Sun,' was remarkable for its rendering of cloud. His pictures have the great merit of emphasising the sky without detracting from the interest of the foreground. Most excellent, too, as a cloud picture was Mr. Howard Priestman's large photograph called 'Sunlit Clouds,' but the illumination seemed almost unnaturally bright in the centre of the picture, and perhaps the effect might have been improved by printing the negative in softer tones. Another exhibitor who succeeds with sky and clouds is Mr. J. Eccles. His subjects are chiefly in the Mont Blanc group and were remarkable for their excellent technique and accurate rendering of tone values.

Mention must also be made of Mr. S. Donkin's 'Dawn on the Ferpècle Glacier.' This long narrow photograph has a most luminous sky, reminding one of Daubigny's pictures, with some streaks of cloud lying low down on the horizon. The sky and the obviously horizontal illumination of the whole picture produce an effect which is so like the true effect of dawn seen from high altitudes that one forgets that the picture is in monochrome and imagines the colours of the scene.

The effect of a photograph of mountain scenery in brown tones was well seen in Mr. Woolley's view of the Rolten Rocks, Lofoten. The effects produced by carbon enlargements in dark green, and even dark blue, are so often inappropriate to the subject that one wonders why warm colouring is not more used when glaciers and snow do not form the chief objects of interest in the picture.

As an example of this there was a wonderfully fine photograph of a Tyrolese valley and lake by Mr. Charles Lord in dark green tones, and close by it an interesting study of the Eiger by moonlight (Mr. H. Somerset Bullock) in warm black tones. Surely it would have been more fitting to reverse the colours and to have chosen warm tones for the valley and chill ones for the peak.

Mr. C. T. Dent showed many large views, which all had good atmospheric effect and charming delicacy of tone. They express the wonderful detail of glaciers and the soft undulations of snow more faithfully than would seem possible.

Monsieur de Déchy sent some half-plate views of the Eastern and Western Caucasus, which are delicate, rich in half-tones, and cannot fail to interest such members of the Club as have visited those mountains.

Mrs. Main exhibited some interesting photographs of the sort one has learnt to expect from her—studies of winter scenes in brilliant

sunshine—and there was one in particular, called ‘Early Morning in the Engadine,’ which was a very good example of its kind. She also showed a large series of photographs taken within the Arctic circle.

There were two views of considerable topographical interest, which attracted much attention—Mr. Whymper’s ‘Tête du Lion,’ recalling the history of the Matterhorn, and Mr. Speyer’s very cleverly executed panorama from the Viescherhorn.

Mr. O. K. Williamson and Mr. J. J. Withers sent interesting work, and Messrs. Landecker and Brown showed a very fine collection of reproductions of Signor V. Sella’s well-known photographs.

One word as to the frames. They really were in some cases magnificent, and so charming in themselves that, lost in their contemplation, one forgot to look at the photographs they enclosed.

In fine, this was an exhibition on which the Club may well congratulate itself.

Following out a suggestion in the notice of last year’s photographic exhibition the exhibition sub-committee have asked Mr. Eccles, Mr. Spencer, and Mr. Donkin to present to the Club for their permanent photographic collection a copy of one of their photographs in the present exhibition.

Mr. Eccles has given ‘On the Glacier D’Orny,’ Mr. Spencer ‘Mont Dolent,’ and Mr. Donkin ‘Dawn on the Ferpècle Glacier.’

ALPINE NOTES.

DEATH OF M. CHARLES DURIER.—At the moment of going to press we hear with deep regret of the death of M. Charles Durier, President of the French Alpine Club, and an honorary member of our own Club.

BALL’S ‘ALPINE GUIDE.’—The ‘General Introduction’ to the ‘Alpine Guide’ will be published in May, under the title ‘Hints and Notes, Practical and Scientific, for Travellers in the Alps.’ The new edition has been thoroughly revised by Mr. Coolidge, and many sections have been almost entirely re-written. Among the contributors, in addition to the Editor, are Professor Bonney, Messrs. Percy Groom, P. L. Selater, W. Warde Fowler, and Sydney Spencer. This little book cannot fail to interest all lovers of the Alps. Copies will be forwarded to the subscribers to the Republication Fund as soon as it is published.

THE ALPINE CLUB OBITUARY IN 1899.—Maurice Black (1893), C. J. Arkle (1886).

CORRIGENDUM IN NO. 143.—The Fusshörner from the S.W., facing p. 316. *For* Rothhorn, 3,701 mètres, *read* Aletschhorn.

AN EXHIBITION OF ICELANDIC SKETCHES, by Mr. W. G. Collingwood, was held at the Club from March 4 to March 25. Refreshments were provided on the afternoon of the 4th. About 500 persons visited the exhibition. (See pp. 475-76, *ante*.)

GIFTS TO THE ALPINE CLUB.—The late Colonel Barrow, long a member of the Alpine Club, has bequeathed to the Club three paintings by Monsieur Loppé—‘The Séracs of the Col du Géant,’ ‘Märjelen See,’ and ‘The Mer de Glace from Montanvert’—and a painting by Edward Batty, ‘An Ascent of Mont Blanc by a Member of the Alpine Club (Colonel Barrow),’ together with a number of valuable books.

BUCKINGHAM’S ALPINE ROPE.—All climbers will hear with regret of the death of Mr. John Buckingham, the maker of the famous Alpine rope. The rope will, we are glad to learn, be made exactly as heretofore by Mr. Buckingham’s successors, Messrs. Beale & Cloves, 194 Shaftesbury Avenue, W.C.

THE CABANE ON THE AIGUILLE DU MIDI.—We are indebted to Mr. S. B. Peech for the following information:—On August 22, 1898, in company with Mr. Pank and our two guides, I spent the night there, and during our short stay we were visited by storms of hail, snow, and rain, the latter heavy. The door is somewhat unsteady, but, once adjusted, we found the shelter quite waterproof. The stove, blankets, and mattresses are *excellent*. The floor, on the occasion I mention (and, if I am not mistaken, always) was of ice, which of course became decidedly damp in the course of the evening. There was also a solid coating of ice some three or four inches thick on one corner of the planks of the lower sleeping-shelf, but not large enough to reach the foot of the mattress.

COL DE CRÉTON (8,924 m.), BREUIL TO PRARAYÉ.—August 30, 1898. Messrs. A. W. Andrews and Oliver K. Williamson, with the guides Jean and Antoine Maître, left Hôtel Mont Cervin 4.40 A.M. Proceeding in a south-westerly direction, they crossed three secondary ridges descending from the Valpelline-Valtournanche ridge. The fourth of these secondary ridges they followed until immediately below the rocks of the Bec de Créton (8,637 m.). After an attempt to ascend the Bec de Créton by the E. face, which they discreetly gave up owing to the unsettled weather, they traversed the hillside in a southerly direction by steep rocks, crossing a great couloir of loose stones. They then reached the couloir descending eastward from the Col de Créton, probably well above its middle. The rocks above them to the N. of the couloir being absolutely vertical and distinctly smooth, they took to the couloir itself, ascending the hard snow as quickly as possible, the slope being very steep. After $\frac{3}{4}$ hr. they decided to leave the couloir to the S., taking to an easy ledge of rock, being still several hundred feet below the top of the couloir. The rocks above them on the S. side of the couloir were here vertical or overhanging. The easy ledge of rock was followed to a secondary ridge of rock descending from the col in a south-easterly direction. This was followed by easy rocks to a point a few minutes below the col, overlooking the great couloir. The col was reached at 12.25 P.M., and the easy snow-slopes on the W. side descended, Prarayé being reached at 4.25 P.M. The ascent to the col, excluding halts,

occupied $5\frac{1}{2}$ hrs., of which $\frac{3}{4}$ hr. was spent in the abortive attempt on the Bec de Créton; 2 hrs. 20 min., excluding halts, were spent in descent. The scenery of the couloir is grand in the extreme; none of the party had ever seen anything of its kind to equal it. The expedition was an enjoyable one, and is a very direct route from Breuil to Prarayé, but should be taken in the direction in which the party took it, and early in the day, as there is some risk from falling stones in the couloir. The first recorded passage of the Col de Créton was made by Messrs. Conway, Carr, and Davies from Prarayé to Breuil.*

THE RIDGE BETWEEN LES BANS AND THE MONT GIOBERNEY (DAUPHINÉ).—Recent explorations have cleared up the exact topography of this ridge and its Alpine history, so that it seems well to put on record a note of the true state of the case.

1. *Brèche and Pointe de Conte Faviel*.—Immediately W.N.W. of the N. summit of Les Bans there is a high snowy shoulder, W. of which is a slight eminence that overhangs the col numbered No. 2 in this list. The suggested name is taken from that applied on the old map of Bourcet to the upper portion of the Pilatte glen. The height of the pass may be c. 3,180 m. This shoulder was reached on July 6, 1878, by Mr. Coolidge, with Christian Almer, senr. They took $2\frac{1}{2}$ hrs. to the Brèche from their old camp of 1873, at the foot of the N.E. ridge of the Mont Gioberney,† the last bit being up a steep snow wall, after crossing a bergschrund at its foot. The descent towards the Valgaudemar seemed very sheer, and perhaps impossible. But the party had only come hither to examine Les Bans, then still unclimbed. Hence they mounted in a few minutes to the eminence (Pointe de Conte Faviel) W. of the Brèche. As the result of the examination was not promising they returned from the Brèche in $1\frac{1}{2}$ hr. to the 1873 camp.

This is the expedition alluded to in 'A. J.' vol. ix. p. 93, and the 'Annuaire de la Société des Touristes du Dauphiné,' 1878, p. 50 (where S. is misprinted for N.). By a misapprehension on the part of Mr. Coolidge it is stated (erroneously), in 'A. J.' vol. xviii. p. 524, that in 1878 he reached the pass next to be noticed.

2. *Col du Clot* (c. 3,165 m.).—This pass, N.W. of No. 1, was first traversed on July 12, 1897, by Mr. Littledale,‡ who in 1898 again reached from La Bélarde the arête, a little to the S. of the col, in order to join (on the 'upper glacier') M. Reynier's 1895 route up Les Bans.§ As this pass is the lowest in the ridge between Les Bans and the Mont Gioberney, Mr. Littledale has agreed to alter the name at first selected to that of 'Col du Clot.'

3. *Pointe Richardson* (c. 3,300 m.).—This peak is the highest summit in the ridge between Les Bans and the Mont Gioberney, and has been named in honour of the well known lady climber, the first lady to conquer the Meije. It was attained from the Col

* *Alpine Journal*, vol. xv. p. 306.

† *Ibid.* vol. vi. p. 292, and vol. vii. p. 143.

‡ *Ibid.* vol. xviii. p. 524.

§ *Ibid.* vol. xvii. p. 572, and *Revue Alpine*, 1898, p. 168.

de Gioberney on August 12, 1898, by M. Maurice Paillon (with Pierre and Eugène Estienne), who then christened it.

4. *Col de Gioberney* (c. 3,325 m.).—On the same day M. Maurice Paillon made the first passage of the snowy depression of the Col de Gioberney, between the Pointe Richardson and the Mont Gioberney; it was reached by very easy rocks on the W. side, and the descent seemed perfectly easy by moderate snow-slopes to the Glacier de la Pilatte (that day the E. side of the Col du Says was rendered difficult by numerous crevasses). M. Paillon the same day made two new routes up the Mont Gioberney; he ascended it by its S.E. arête from the Col de Gioberney, and descended by its N.W. arête to the Col du Says.*

W. A. B. COOLIDGE.

F. L. LITLEDALE.

M. PAILLON.

WINTER ASCENTS.—1. *Piz Morteratsch*, 3,754 m.—December 10, 1898.—Mr. E. L. Strutt, with Martin Schocher, left Pontresina at 12.30 P.M., and reached the Boval Hut at 4 P.M. They proceeded *via* the Medial Moraine of the glacier, wearing snow-shoes. Starting at 7 A.M. next day, they reached the summit at 11.55 A.M. There was a great deal of snow on the rocks, and there seemed to be some risk of avalanches; in descending they avoided the rocks, and kept down a couloir more to the S.W. of the mountain, the hut being reached in 1 hr. and 15 min. from the summit. The weather was doubtful, and very cold.

2. *Piz Bernina*, 4,052 m.—February 11, 1899.—Mr. William Williams, with Martin Schocher and Sebastian Platz, reached the Boval Hut, with the aid of snow-shoes, in 4 hrs. from Pontresina, the snow being very soft. They left the hut at 4 A.M., and reached the 'Labyrinth' at 6.30., where they left their snow-shoes. The séracs gave no difficulty, but the snow above the usual breakfasting-place was in bad condition, and they did not reach the arête till 9.30; from there to the top they consumed till 12, finding much snow on the rocks, and the upper part of the ridge was of ice. The weather was magnificent, and the minimum temperature recorded was -5° (Réaumur). The hut was reached in $3\frac{1}{2}$ hrs., where they spent a second night. February 14.—Mr. Herbert Pennington accomplished the same peak, also with Schocher and Platz. Finding the previous tracks of much use, they reached the summit in $7\frac{1}{2}$ hrs. from Boval, getting down again to Pontresina the same night. February 16.—Messrs. A. C. Roberts and L. Rawlence, with the same guides, also accomplished the mountain in 6 hrs. from the hut, being back again at Pontresina by 4.30 P.M.

3. *Bellavista* (3,860 m.) and *Piz Zupo* (3,999 m.).—February 18.—Messrs. W. Williams and E. L. Strutt, with the guides Schocher

* The expedition made by M. Allotte de la Fuye, and mentioned in the *Annuaire de la Société des Touristes du Dauphiné*, 1878, p. 50, was simply an exploration in the direction of the Col du Says; an explanation to this effect has been received by M. Paillon in a letter from M. Allotte de la Fuye, dated February 10, 1899.

and Platz, left Boval at 3.30 A.M., and, proceeding *vid* the 'Festung,' reached the lowest (eastern) peak of the Bellavista at 8 A.M.; from there they attained the three other summits in 2 hrs., and, following the arête, gained the summit of Piz Zupo in $\frac{1}{2}$ hr. more—*i.e.* at 11 A.M. They descended through the 'Labyrinth,' and had regained the hut by 1.45 P.M. The snow was perfect throughout, and the weather magnificent.

4. *Crast Agüzza*, 3,872 m.—*February 21.*—Messrs. H. Pennington and L. Rawlence, with Schocher and Platz, left Boval at 4 A.M., and reached the summit at 10. They found the steep slope below the rocks of ice, but the rocks themselves quite dry; they traversed the mountain, finding it everywhere like in summer, and they were down at the hut by 2.20. The weather was fine, but rather cold.

5. *Piz Rosegg*, 3,927 m.—*February 26.*—Mr. E. L. Strutt, with Schocher and Platz, reached the Mortel Hut in $4\frac{3}{4}$ hrs. from Pontresina, wearing snow-shoes for the whole time. Starting by moonlight, at 1.50 A.M., they reached the summit at 7.20 A.M., the snow being perfect, and the mountain in excellent condition throughout. The party suffered much from cold, all their provisions (even spirits) being frozen, so that they were unable to eat anything till they had regained the hut, which they did at 10.15 A.M. Pontresina was regained at 3.30 P.M.

6. *Piz Julier*, 3,385 m.—*February 28.*—Messrs. L. Rawlence and J. Bell, with Schocher. Leaving St. Moritz at 7 A.M., and the Julier Pass at 8.45, they gained the summit at 11.30. They descended *viâ* the Scharte, finding some snow on the rocks, and were back again at St. Moritz by 4 P.M.

7. *Piz Palü*, 3,912 m.—*March 4.*—Messrs. L. Rawlence and E. L. Strutt, with Schocher and Platz, left St. Moritz at 3.30 A.M., and the Bernina Houses at 5.30. They reached the summit at 11.15 A.M., the bergschrund below the eastern peak giving much trouble, and delaying them fully three-quarters of an hour. They descended by the Bellavista Sattel and the Loch, reaching Pontresina at 4.45 P.M. The heat was as great as in summer, and the snow of the most admirable quality.

8. *Piz Bernina*, previous to this year, has been three times ascended in winter, *i.e.*:—*February 4*, 1880. By the Rev. Cecil Watson. *January*, 1894.—By Prince Scipio Borghese. *February 18*, 1897.—By Mr. E. L. Strutt. Schocher was leading guide on each occasion.

9. *Piz Rosegg* has once been climbed, *i.e.*:—*December 28*, 1893.—By Herr Swaine, of Strassburg, accompanied by Christian Klucker.

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- Handbook to Entertainment. 4th edition. [1853.]
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- Tschudi (Iwan). Schweizerführer. 4te Auflage. 8vo. St. Gallen, 1862.
- Wilkinson (Thos.). Tours to the British Mountains. 8vo. London, 1824.
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THE DOM AND TÄSCHHORN IN ONE DAY.—In the number for May,* 1898, Mr. O. G. Jones mentions that 'in August 1895' he made the combined ascents of the Dom and Täschhorn in one day. A slight inaccuracy in this statement must be my excuse for the following note on a subject which is perhaps of interest to mountaineers in general.

The ascent of the Dom from the Domjoch was first made by

* *Alpine Journal*, vol. xix. p. 113.

Sir Martin Conway on August 19, 1878, and is described in a paper headed by the appropriate quotation, 'Infandum regina jubes renovare dolorem.*' That of the Täschhorn by its northern arête was first effected by the Hon. Gerald FitzGerald and Sir Frederick Cullinan on September 2 of the same year.†

The history of the other routes on the two mountains, which are referred to below, is too well known to require detailed reference now; but the first persons to ascend the two mountains in one day were Messrs. Corry and Garwood, on July 26, 1894.‡ Since then six parties at least have repeated the expedition, some beginning with the Täschhorn and some with the Dom, and ascending or descending the former mountain by almost every known route. These expeditions were made by the following parties.

(1) The Hon. Gerald FitzGerald, August 16, 1895, with Ulrich Almer and Fritz Boss. Mr. FitzGerald ascended from the Täschalp, which he left at 1 A.M., struck the S.W. arête of the Täschhorn high up, and followed it to the summit of that mountain, which he reached about 10 A.M. Thence to the Domjoch the party was exposed to a cold north wind, which twice forced them to shelter behind a cornice on the south side of the mountain. Progress was consequently slow, and 3½ to 4 hrs. were spent in the descent to the pass. For some distance thence they found the southern arête of the Dom comparatively easy; but it soon becomes broken, steep, and rotten. One flat boulder in particular, perched on the actual crest, was so loose that Almer was convinced that it would topple over on one side or the other if any of the party deviated even a few inches from its actual centre as they wriggled over it. A little higher up they were forced for some time on to the Saas face of the mountain. The face was steep and covered with powdery snow; it was almost impossible to see which rocks were firm and which were not, and Almer had to work altogether without snow spectacles. The top of the Dom was reached about 7.30, and the remaining forty minutes of daylight were used in running down to the Festijoch. Before the glacier was reached lanterns had to be lighted, and Almer, who was complaining of considerable pain in his eyes, could not see well enough to find the way in the broken part of the glacier. The party had to bivouac on the rocks on the right bank, and found in the morning that Almer, who had suffered greatly during the night, could not open his eyes. He had to be led down to the hut, and, after his eyes had been bathed in tea, was able to walk down to Randa. Sixteen days of magnificent weather intervened before the ascent was repeated.

(2) On September 2, 1895, Mr. W. Wickham King and the present writer, with Alois Supersax and Alois Biner, left the Festi hut at 3 A.M. The morning was muggy and dark, so much so that Mr. Davidson, who was camping out with his guides above the Langenfluh, with the intention of attacking the Täschhorn from

* *Alpine Journal*, vol. x. p. 104.

† *Ibid.* vol. ix. p. 109.

‡ *Ibid.* vol. xvii. p. 257.

that side and then proceeding to the Dom, did not start. In fact, the weather threatened all day and caused us some anxiety later on, while when we were on the summit of the Täschhorn there was a thunder storm over the Val Anzasca. We spent about twenty minutes in step-cutting and a little time waiting for daylight, and reached the top of the Dom at 9. We found the ridge to the Domjoch fully as unpleasant as its reputation. Luckily we had none of the disadvantages which hampered Mr. FitzGerald; the rocks were clear of snow, but as rotten as any I have ever seen, and I have a distinct and painful recollection of the boulder described by Mr. FitzGerald. We reached the Domjoch at 1, and spent under two hours in ascending the steep but beautifully firm rocks to the Täschhorn. Our troubles were not yet over, however, as the hot day had spoilt the bridges in the Kien Glacier; we had to make a long *détour*, and only got on to the moraine at 6 P.M. and to Randa at 9.15.

(3) On the next day Mr. O. G. Jones reached the Täschhorn from the Täschalp by the arête followed by Mr. FitzGerald, and thence descended to the Joch in 1 hr. 20 min., and ascended the Dom thence in 2½ hrs., descending to Randa by the usual way. His total time from the Täschalp to Randa was 17 hrs. 25 min., of which about 1 hr. 5 min. were occupied in halts. He was quite ignorant of the fact that we had been on the mountain the previous day and of Mr. Davidson's intentions.

(4) Meanwhile Mr. Davidson, who had retreated from the Langenfluh on the afternoon of September 2, returned on September 3, and on that night slept at a gîte under some rocks about ¼ hr. across the Fee Gletscher from the top of the Langenfluh and just beneath the point 2,991 on the Siegfried Atlas, about 2½ hrs.' walking from Saas Fee. With Chr. Klucker and Daniel Maquignaz he started at 4 A.M. on the morning of the 4th, and having lost considerable time waiting for daylight, reached the Mischabeljoch at 6.50 A.M., and arrived (with two halts of 50 min. in all) at the summit of the Täschhorn at 11.15 A.M. Leaving at noon, the party reached the Domjoch at 2.10, and, after halting 35 min., the summit of the Dom at 5.15 P.M., whence they took about 4 hrs.' actual walking to Randa. Mr. Davidson knew nothing of the intentions or of the accomplishments of the two last mentioned parties, and, as he followed the Mischabeljoch arête throughout its entire length, and reached it at a different point from a different side from Mr. Jones, he can hardly be said to have followed in that gentleman's steps.

(5) and (6) I have not been able to discover that any ascent of the two mountains in one day took place in 1896 or 1897. But on September 10 of this year (1898) Mr. O. G. Jones repeated his expedition of 1895 in the reverse direction and with a variation. Accompanied by Hermann Perren he left the Festi hut at 4 A.M., reached the summit of the Dom at 8, and after ¼ hr.'s rest proceeded to the Täschhorn. The passage from peak to peak occupied only 2½ hrs. He left the Täschhorn at 12 and made the first

descent of the Teufelsgrat in 4½ hrs., reaching Randa at 7.5. Mr. Jones led throughout and did all necessary step-cutting, which was not much, as the conditions were good. On the same day another party followed in Mr. Jones's route as far as the top of the Täscherhorn, whence they descended to Randa by the ordinary way.

In conclusion I should like to most strongly recommend the expedition, whichever way it be taken, to any mountaineers at Zermatt who are on the look-out for something a little out of the way. There can be very few 'Gratwanderungen' in the whole range of the Alps which lie for so many consecutive hours at so great a height and present such varieties of snow and rock. The ridge from the Täscherhorn to the Domjoch is as firm and delightful as that from the Domjoch to the Dom is rotten, but both command magnificent views and call for care and skill. Possibly the best way to take it would be to start from Saas Fee at midnight, with a full moon, and to descend to Randa, as this avoids both a night in a hut and the interminable descent of the Kien glen, which is at its worst in the gloaming. A strong and quick party should have no difficulty in accomplishing the ascent in this way, and, if time fails, the luxury of the Festi hut is far preferable to the unpleasant bivouac below the Kien Glacier, which is the refuge of the benighted on the Täscherhorn.

C. S.

REVIEWS AND NOTICES.

Hints and Notes, Practical and Scientific, for Travellers in the Alps. By the late John Ball. A New Edition, prepared, on behalf of the Alpine Club, by W. A. B. Coolidge. Pp. 164. (London: Longmans. 1899.)

THIS is the second instalment of the 'New Ball,' for (as I pointed out in the November 'A. J.')

the 'General Introduction' is an integral part of Mr. Ball's great work, though (with the solitary exception of the first edition, 1863, of the 'Western Alps') it has always appeared as a separate pamphlet or booklet. It is thus in no sense (and was never meant by Mr. Ball himself to be) an 'Introduction to the Alps,' for it has never contained any account of what the Alps are, or where they are, of their various divisions, of Alpine rivers, lakes, &c., such as may be found in Umlauf and other similar works. The book under notice is thus the 'preliminary chapter' to a special and more detailed work. Rightly or wrongly this was the character given by Mr. Ball to the book, and I have, of course, felt myself bound in preparing a 'memorial edition' to keep this fact always before my eyes and in my thoughts. It need hardly be added that the book is thus concerned with the *Alps* exclusively, and not with mountains in general. The new edition of the 'General Introduction' is but thirty-four pages longer than the previous edition. It has been thoroughly revised by myself, with the assistance of many helpers, to whom my heartiest thanks are due. It has been thought best to slightly alter the title, so as to re-

arrange the articles under two main heads. The articles number fifteen (as in the former edition), but the new edition contains also two appendices. One article ('Hypsometry') has been omitted in the new edition, as the publication of the great Government surveys have now rendered it superfluous.

Of the ten articles classed under the title of 'Practical Hints' but one is new—'Life in an Alpine Valley.' I have therein tried to sketch the way in which Alpine valleys were settled, and villages gradually formed, and to give some idea of the daily life of the inhabitants of a typical Alpine valley (many illustrations being drawn from that of Grindelwald as very well known, and my present residence). Considerable space has been given to an account of the Alpine pastures, which, I think, contains much information new to many Alpine travellers. Under Article I. ('Preliminary Information') some advice is given as to passports, money, luggage, telegraphs, time, measures, and such like useful matters. In Article II. I have endeavoured to enumerate the 'quickest and shortest route from London to each of the chief districts of the Alps.' General indications only are supplied as to the Eastern Alps, with which my acquaintance is comparatively limited. But as regards the Western and Central Alps I have tried to classify the chief places which it should be the traveller's object to gain, giving somewhat minute details in the case of each of the forty sections in which the Western and Central Alps are described in the body of the work. As I mention only the 'shortest and quickest routes from London' this will explain why many ways of reaching the chief Alpine centres are omitted, not accidentally, but of set purpose. In Article III. ('Modes of Travelling in the Alps') the paragraphs relating to mules, 'vetturini,' and 'chaises à porteurs' have been shortened, as of little practical use nowadays, while the new mountain railways are put in the forefront. Article IV. ('Plan of a Tour') is practically unchanged, while V. ('General Advice to Travellers in the Alps') has been but slightly altered, save an expansion of the paragraphs relating to the different languages spoken in the Alps. In VI. ('Advice to Pedestrians') much use has been made of the report of the A. C. Committee on 'Equipment of Mountaineers,' but in VII. ('On Mountaineering') Mr. Ball's classical notice has been retouched only to the very smallest extent. Article VIII. ('Guides and Porters') has been considerably enlarged and revised, as the state of things in these respects nowadays differs very much from what it was in Mr. Ball's time. Little change has been made in the sections of IX. as regards 'Inns,' but two pages (entirely new) are devoted to 'Club huts,' which are now of such importance to travellers in the Alps.

In revising these 'Practical Hints' my aim has been to follow Mr. Ball in supplying information suitable for those who have already some knowledge of the Alps and of travelling abroad, the book being in no sense intended for trippers and the host of ordinary tourists.

Very great changes (and I hope improvements) have been made in

the case of the five articles included under 'Scientific Notes.' Professor Bonney has taken infinite pains to bring up to date the 'Geology of the Alps' article (XI.); in fact, it is mostly rewritten and now fills over thirty pages. At the end a list of geological works and maps is added, but Professor Bonney has thought it best to omit the elaborate account of the geological divisions of the Alpine chain contained in M. Desor's original article, for 'the subject is one which cannot be satisfactorily treated in the present state of our knowledge of Alpine geology.' Mr. Percy Groom has carefully revised Mr. Ball's article on the 'Climate and Vegetation of the Alps' (XIII.), and has added most valuable 'Supplementary Notes,' which form in reality a miniature treatise on Alpine botany, a subject which, oddly enough, Mr. Ball passed over in silence in former editions. A list of modern works relating to climate and botany is appended to Mr. Groom's admirable article. Article XII. ('Alpine Zoology') has been carefully revised by several specialists of repute. Article XIV. ('The Snow Region of the Alps') has been enlarged by the mention of the best modern works relating to glaciers, of some statistics (taken from Professor Heim's work) as to the number and extent of glaciers in the Alps, and a list of the best monographs on Alpine glaciers and glacier lakes. Otherwise this article remains much the same, being intended to serve as a *general* account of glaciers, and therefore intentionally passing over the more minute phenomena which they exhibit. Finally Mr. Sydney Spencer has written an entirely new article on 'Photography in the High Alps,' of which it need only be said that it is worthy of so excellent an amateur photographer.

I myself am more or less exclusively responsible for the two appendices. The first is an expansion of Mr. Ball's list of books and maps relating to the Alps. Under the former head it 'is intended to include all the important books relating to the Alps,' excluding purely scientific works, articles in periodicals, and guide-books. It has been drawn up with the greatest pains and trouble, and it is hoped that no really important book has escaped mention. Naturally the mountaineering side of the subject has been kept chiefly in view, but representative books have been added in the domain of military history, local history, Alpine economy, Alpine dialects, Alpine legends, songs, &c. I am much indebted to many persons for help in compiling this list, and particularly to three Austrian friends who have supplied me with invaluable information as regards books relating to the Eastern Alps. The list of maps is mainly confined to the great Government maps, reference for more complete indications as to local maps being made to the three volumes of the 'Alpine Guide.'

As in the case of the 'List of Books,' the 'Glossary of Alpine Terms' (which forms the second appendix) is meant to be *select*, and not in any sense exhaustive. This glossary 'aims only at including the principal *technical* and *patois* terms—*slang* excluded—that may puzzle an English traveller or reader.' The selection has cost me very great trouble, and doubtless some terms are

omitted that should properly have figured in this glossary. But a great number of glossaries, &c., have been examined, and I hope that this glossary may be of practical use, while we are waiting for the complete Alpine glossary that it is surely some one's duty soon to undertake.

An index closes the new edition of this part of Mr. Ball's great work, and thus makes good a somewhat surprising omission in former editions.

W. A. B. COOLIDGE.

Die Alpenflora der österreichischen Alpenländer Südbaierns und der Schweiz.
By Prof. K. W. v. Dalla Torre. (München: J. Lindauer. 1899.)

This little book of some 250 pages is published as a companion to the 'Atlas der Alpenflora' issued by the D. u. Oe. Alpenvereine. As a handy pocket flora for the Central and Eastern Alps there is nothing left to be desired. The method employed is the familiar one of a *clavis*. From the first table the generic name may be ascertained, whilst with the second (which forms the bulk of the book) the species may be run down. The systematic enumeration of families follows the modern system used by Engler and Prantl in their 'Die natürlichen Pflanzenfamilien.' Dalla Torre knows his Alpine plants well, and there can be no question of the excellence and usefulness of this volume. Mere valley plants are excluded, as also are such as occur in mountain regions without being in any way characteristic of an Alpine or sub-Alpine flora. With each description is added the season of flowering and the distribution of the species. A useful enumeration of local floras precedes the body of the work.

Jahrbuch des S.A.C. (Bern). 1898.

This volume (xxxiii.), both in subject matter and in illustrations, differs little from its immediate predecessors. In the special district there are five articles, out of it one of the principal contributions (on the Mont Blanc district) is from the pen of a lady. The editor hopes that this may lead to articles on this district (which are much desired) from the other sex. In the lesser articles, reviews, &c., the editor has done much. There are few notices except from his pen. The list of new expeditions (most of them only variations) in the Swiss and adjoining Alps is larger than usual and very carefully compiled.

In the first article several of our old friends appear again. Herr A. Ludwig (S. Gallen), with E. Imhof and E. Heinzelmänn, paid a visit to the Bernina district. After climbing Piz Morteratsch and Piz Bernina, on August 10, 1897, they ascended the Piz Palü from the Fuorcla Bella vista. From the summit they effected a new descent by the S. face, not without undergoing considerable risk. Descending over some rocks Herr Ludwig, who was last, moved a stone, which struck the leader, Herr Imhof, on the leg and caused him to fall. Herr Heinzelmänn, however, held fast. Soon after it was thought advisable to change the direction, and Ludwig now led. In order to gain a ridge which seemed easier

they had to cross a couloir. Herr Ludwig stepped on to it without sounding. There was ice under the snow, and in a moment he was on his back. Again Herr Heinzelmänn, who seems to have been exceptionally steady, held him fast. He recovered himself so quickly that Herr Imhof did not even observe what had happened(!). These two incidents showed Herr Ludwig how far they were behind good guides in habitual caution, if they surpassed them in 'Kletterei.' On reaching the glacier they gained the Zupo Pass, then ascended the Piz Bella vista, returned to the pass, and made the traverse of Piz Zupo, descending to the Boval Hut.

Herr D. Stokar (Randen) describes several excursions near Bergün. On August 11, 1897, he effected the ascent of Piz d'Aela by a new route. Leaving Bergün at 2 A.M. he and his guide reached at 8 A.M. a gap in a ridge running N.E. from the summit. Here they expected to find a ledge which they had observed from below. Not finding it they descended a very steep rock face, and then discovered that the wished for ledge was on the same level as the gap, but some hundred paces distant. They climbed up to the ledge and by it reached the upper glacier, which since 1894 had so much diminished that they were able to work up by rubbish slopes and terraces on the E. bank. On August 19, in descending from the top of the Nadel of Piz Kesch, Herr Stokar stepped on some rubbish which gave way with him. Fortunately Mettier held fast, but lost his axe. He complains much of the remarks that have been made about this accident. It showed, however, a want of caution, and without Mettier would probably have had a fatal result. Herr L. Helbling (Bachtel) and his friend, Herr Labhardt (Uto), on September 15, from the Duncan Pass, climbed the Gletscher Duncan (3,020 m. = 9,908 ft.), and then traversed the ridge to Piz Crealetsch (2,986 m. = 9,797 ft.), and descended by a couloir on the S. face. This, he says, affords the most direct route from Davos to Bergün. He thinks Piz Michel has been much neglected. He and Herr L. made the ascent on August 6, 1895. Endeavouring to ascend by the S. face (which Mr. Coolidge had effected in 1867) they were forced to rejoin the ordinary route. In an ascent of the Tinzenhorn, four days before, they were unwise enough to start from the Aela Club hut as late as 2 P.M. They would have succeeded had not Herr H. hurt his hand, which made progress so slow that they were benighted, and compelled to pass the night on the mountain. The guide P. Mettier, in his pamphlet on the Piz d'Aela group, makes some severe (and Herr H. says untrue) remarks about this expedition.

Herr E. Heinzelmänn (S. Gall) describes an ascent of Piz d'Esen (3,130 m. = 10,270 ft.). This mountain lies on the S. bank of the Inn between Zutz and Zernetz. With his two friends he ascended from Val Trupchum by the S. face. They had a difficult climb over rocks, but only two critical places. Dr. E. Walder (Uto) describes an ascent of Piz Linard, and gives a very interesting history of its exploration. Herr W. Paulcke (Davos), after giving an account of the different routes up the Verstantkla horn, describes

an ascent made by him and Herr Frerichs on August 28, 1897. They left the Silvretta Hut 3.20 A.M., and attacked the rocks on the N. face at 6.50. Here they encountered many difficulties. They had to hammer in iron pegs (number not mentioned), to hack out the handholds and footholds with the axe, and three hours passed before they found a place to sit down. After this they came to a 'Platte,' where footholds could not be made, and crossed it with difficulty spread out flat, one pushed from behind and the other pulled. The top was finally reached at 5 P.M. The descent was made to the Vernela Pass, and the Vereina Hut was reached at 11 P.M.

Out of the special district Herr Gustav Euringer describes a number of expeditions in the Cogne district. After two unsuccessful attempts on the Grivola in 1895 and 1896, being driven back by falling stones or bad snow, he succeeded on August 17, 1897. On this occasion no stones fell, but he thinks the mountain the most dangerous of all that he knows. Mademoiselle Eugénie Rochat describes a number of difficult excursions in the Mont Blanc district, amongst others the Aiguille du Géant, Aiguille du Dru, and the Aiguille Verte, and ending with the very difficult traverse of the Grépon pinnacles. Most of these were made in 1895. The attempt on the Aiguille Verte was made in 1897. No ascent had been made since 1895, which year was an exceptionally favourable one, the snow being good and the rocks dry. The mountain is the one most feared in the Chamonix district, from the danger of falling stones and avalanches. She started from a bivouac at 12.50 A.M., with two guides, and also the porter, who asked to be allowed to go with them. At 11.15, when, under favourable circumstances, the top was less than one hour distant, the state of the snow compelled them to turn. At 1.15 P.M. they were off the rocks, and made the first halt after going 12½ hrs. Here they had to cross a dangerous spot. They had to wait 3½ hrs. till the avalanches ceased, and reached the bivouac at 9 P.M. They were then only too thankful that the porter had gone with them, for otherwise their wraps would all have returned to Chamonix.

M. Julien Gallet (Chaux de Fonds) presents us with some hitherto undescribed routes made by himself and his wife in the Bernese Alps, several of which are new. On July 12, 1897, from the Schwarzegg Hut (Grindelwald) he crossed the Strahleck and the Studer Joch to the Oberaar Hut (3,233 m.=10,607 ft.). From this it was easy on July 13 to make the first ascent of the Oberaarrothhorn (3,458 m.=11,345 ft.). On July 14 he passed by the Gemslücke and Grünhornlücke to the Concordia Hut and the Hôtel Eggishorn. On July 17 he made the first ascent of the Ebnefluh by the N.E. arête. On July 22 he made the first ascent of the Dreieckhorn from the Aletsch Joch. A difficult descent was effected by the N.E. arête, to avoid the long traverse of the Mittel Aletsch glacier. On July 26 he ascended the Gletscherhorn by the N. arête, and on July 27 the Mittaghorn by the N. arête. Both of these routes were new.

Herr Paul Montandon (Bern and Blümlis Alp) describes the first

ascent of the Hugi-horn (3,622 m. = 11,883 ft.) on August 13, 1897, and of the Lauteraarhorn on August 15.

Herr R. Reber (Bern) describes the valleys of Mesocco (Bernardino) and Calanca. The mountains are not of the first order, but afford very fine views and plenty of fine climbing.

Dr. Rudolf Zeller (Bern) takes us away from the Alps to scenes of an opposite character. He describes a visit to the Lybian desert, W. of Cairo. Here in Wadi Natron are a number of small salt lakes, the nearest being about 30 miles W. of the Cairo and Alexandrian Railway.

The eighteenth Report on glacier movements is made by MM. Forel, Lugeon, and Muret. This is illustrated by a map, on which the glaciers coloured red are advancing; those coloured black have recently passed from advance to retreat; and uncoloured glaciers (by far the largest number) are retreating.

The annual meeting of the Club was held at La Chaux de Fonds on September 4-6, 1897. M. Emile Courvoisier (president of the section), in his address, gave some interesting particulars about the town. The first watch was made there in 1679. In the year 1896 no less than 387,000 watches were made here. The entire Swiss export of watches in that year amounted to 95,000,000 francs, of which La Chaux de Fonds claimed 60,000,000 francs. The first climber was Célestin Nicolet, who settled there to practise as a doctor. He became intimate with both Agassiz and Desor. The latter, when at Bern, found Agassiz in want of a secretary, and obtained the post, becoming afterwards the friend and fellow-worker of his employer. The names of these three persons are engraved on the N. side of the rock, which obtained the name of the Hôtel des Neuchâtelois.

Herr W. Schibler (Davos) describes the Upper Alpine flora of Davos. This is an interesting article which would deserve a longer notice. No less than 209 species have been observed above 2,600 m. (8,530 ft.), and of these five have been seen above 3,250 m. (10,663 ft.), but only separately and at distant intervals. He thinks the thickening and the extra hairiness of leaves at great heights is meant, not to protect from cold, but to prevent loss of moisture.

Dr. E. Bosshard (Winterthur) writes on the electrical appearance called St. Elmo's fire, and describes a specially fine display which was seen on August 19, 1897, at the Muttsee Hut (2,483 m. = 8,146 ft.), on the way to the Kisten Pass. He also experienced a display of it on the Roththalgrat, when his party was compelled to abandon an ascent of the Jungfrau. He thinks there is always danger attending these manifestations, especially when on ridges or exposed points, and that the only thing to be done is to get away from such places as speedily as possible. The Col de Tracuit (3,252 m. = 10,670 ft.) is seldom traversed. It was first crossed in 1859 by the late J. J. Weilenmann alone. Herr Pfarrer E. Babler, of Thierachern, describes a passage of it made by him on August 4, 1897, from Zinal to Gruben. Starting at 3 A.M., the

pass was reached at 9 A.M. The descent was more difficult, and 4 hrs. were occupied in clearing the glacier.

Herr Rudolf Kummer-Krayer (Bern) recommends a much neglected district between the valleys of Tavetsch and Piora, especially the Piz Rondadura and Piz Blas.

Herr Hermann Hopf (Bern) contributes a number of interesting extracts from the old 'Fremdenbuch' of the Grimsel Hospice between 1840 and 1845, including notices from many distinguished explorers.

At the end of 1897 the credit balance of the Club was 28,005 fcs. (1,120*l.*), showing an increase of 11,544 fcs. (461*l.*) This was largely due to the 'Jahrbuch,' which, after showing a loss of 1,066 fcs. in 1894, showed in 1895 a profit of 861 fcs., and in 1897 a profit of no less than 3,526 fcs. The committee complains of the tendency of the sections to throw all expenses upon the central fund. Thus, no section can be found to undertake the charge of the Bétemps Hut. Many of the huts seem to be in bad condition. Including the four old ones the number is now fifty-two. The Matterhorn Hut is to be repaired and enlarged. The Hüfi Hut must be rebuilt. This the Section Pilatus has undertaken with a subvention of 100*l.* from the central 'cassa.' The Weisshorn Hut has disappeared. A new hut has been erected on the Col de Bertol. This will serve for many more excursions than the Stockje Hut, which could only be used for two passes and two peaks. The Concordia Hut has been replaced by a 'Pavillon Auberge.'

The Schamella Hut (Scesaplana) is also to be replaced by a 'Pavillon-Hôtel' a little lower down. In the new building a 'salle' to hold twelve persons is to be reserved for the S.A.C.

The Tschierva Hut is to be built, to which the Club contribute 3,000 fcs. (120*l.*). A hut is also to be built on the Altenoren Alp (opened last September).

At the end of 1897 352 guides were insured for 1,155,000 fcs. (46,200*l.*), to which the Club contribute an annual payment of 5,775 fcs. (231*l.*). The Canton Tessin has undertaken to issue a separate 'Annuario,' to which the S.A.C. will contribute 150 fcs. (6*l.*) a year.

The number of members at the end of 1897 was 5,197, showing an increase of 205.

In the folding case attached to the volume are a view of the Libyan desert, showing two of the Natron lakes, a panorama from the Torrenthorn, and the map of the Club district for 1898-9. This is a very beautiful work. There is also a pamphlet with views of all the Swiss Club huts, fifty-two in number.—J. S.

New Climbs in Norway. By C. E. Oppenheim. With illustrations by A. D. McCormick. (London: T. Fisher Unwin. 1898.)

From the name of Mr. Oppenheim's book one is apt to surmise that it deals with ascents in a new district, and there is consequently a feeling of disappointment at the outset when one finds the party using, as a centre, a large new hotel on one of the famous

driving roads, and it seems inconsistent to use such epithets as those in which the author indulges respecting other travellers for whose accommodation the hotel was originally built. In a country as large as Norway it is surely possible to keep out of the way of 'Demons,' and even in Søndmøre it is as easy to avoid one's fellow countrymen as it would be in Siberia, unless an hotel is an absolute necessity to the climber.

The vivid and picturesque descriptions of life at the new Øie come as a revelation to those who only knew the place when the little inn was connected, or rather separated, from Hellesylt by 'the worst road in Norway,' and when even local steamers never disturbed the deep waters of the Hjørundfjord; but the majestic coast scenery of the district is well worth the best of Mr. Oppenheim's descriptions, and it is on far too grand a scale to be spoiled, for the present, by the building of hotels, or the visits of liners.

The party must have had some splendid weather, and it is interesting to follow their boat over the glassy waters of the fjord as they start from their delightful headquarters, and to hear how they made their way breast deep through birch and alder, to the sæters, in a manner which is very typical of all mountaineering from sea level in Norway.

We do not see that there is much in the book which is likely to attract the non-climbing public, for Mr. Oppenheim has wisely omitted descriptions of sensational situations from his climbing records; and we fear that the public are apt to lose interest in the account of a climb, unless there is some possibility of a catastrophe to the party; whilst as yet the majority of Englishmen who travel in Norway are inclined to regard all mountaineering as an unprofitable waste of time and energy.

From the climber's point of view the book lacks interest, for it contains no information about the ascents of all the highest and most difficult mountains in the district which were climbed long ago, and there is so much extraneous matter to wade through before one comes to the description of new climbs, that it would be easier to turn up the concise accounts in the 'Alpine Journal' list of new expeditions than to hunt through 250 pages of a book without map or index.

The chapter headed 'We build our first four cairns,' loses too much of its point when one reads that three of the four cairns were erected in different places on the Vellesæterhorn, of which the two highest points were climbed in 1890, and the ascent of Raana by Mr. Hastings's route seems hardly to justify the space which is given to it.

The book is nicely bound and printed, and the illustrations add materially to its interest. Mr. McCormick's drawings are very typical of many parts of upland Norway, though they are too suggestive of dull weather. The frontispiece is a fine example of photographic reproduction; but, unfortunately, the illustrations, as a whole, are of little topographical value, and they even fail to bring back familiar outlines to the memories of those who know the hills.

It is difficult to understand why Mr. Oppenheim should go out of his way to use Norwegian words, and insert a note to say that 'it has not been thought necessary to insert the modified "o" in its native form,' for in that language 'ø' or 'ö' is a letter entirely distinct from the unmodified 'o,' and often alters the whole meaning of the word. For instance, in a footnote he explains that 'ol = ale.' This is incorrect, for 'ol' does not mean 'ale'; it means 'fourscore.' The fact that the book contains modified vowels (as in 'Rücksacs') makes their omission in the Norwegian all the more flagrant, and the author offers no apology for the omission of all diphthongs and the frequent use of 'o' for 'y.'

To the ordinary man who has wandered in Norway, many of the words so freely interjected are quite unintelligible, but when one seeks the aid of a dictionary the study becomes fascinating, and one finds that the 'fladbrod' which Mr. Oppenheim came to 'loathe,' was a 'flat spike,' and was, doubtless, indigestible; and the 'mosost,' which he found so refreshing, on account of its pungent taste, was doubtless a 'cheese compounded from lichen.'

Systematic mis-spelling is bad enough in the case of single words, which the reader can only attribute to the author; but it is obviously unfair to Mr. Randers to insert passages which purport to be quotations from his book which would be visibly incorrect to the most illiterate Norwegian. But the author treads on much more dangerous ground when he tries his hand at translation, for we take it that every one who has travelled in Norway knows that a 'landhandler' is not an 'hotel.' The word signifies the keeper of a country store, and his shop is usually the only place within many miles where the necessaries of life can be bought.

It is a pity that this first work on modern mountaineering in Norway has been treated so superficially, for there is little doubt that it is a subject which will some day be of general interest, and we hope, ere long, to see the work undertaken thoroughly by some one who is conversant with every part of the country where mountains have yet been explored.

CORRESPONDENCE.

THE ACCIDENT ON PIZ PALÜ.

To the Editor of the ALPINE JOURNAL.

DEAR SIR,—I send you an account which I have translated from the 'Mittheilungen des Deutschen und Oesterreichischen Alpenvereins' for October 15, of the fatal accident during a descent of the Piz Palü on September 1 last.

It is fitting that such a record should find a place in the pages of the 'Alpine Journal' for several reasons. In it is described an act of bravery on the part of one of the guides for which it would be hard to find a parallel in the annals of mountaineering.

It is well also that some erroneous statements with regard to the use of the rope on this occasion, which found their way into the English papers, should be corrected. And, further, the death of Professor Nasse seems to emphasise a warning, already painfully impressed on us by the loss of Mr. Norman-Neruda, that there are special dangers awaiting those whose vital organs are not perfectly sound, and who undertake the exertion and fatigue of long or difficult climbs.

Faithfully yours,

G. SCRIVEN, F.R.G.S.

The party on the Piz Palü consisted of Professor Nasse and Dr. Borchardt, of Berlin, with the guides Carl Klimmer, of St. Jacob, and Schnitzler. The following account of the accident is written by Dr. Borchardt:—

‘At eight o’clock we left the Diavolezza hut, and at 12 noon were on the summit of the Palü. After half an hour’s rest we made our way further, to the second and third peaks, and then along the ridge to the Bellavista saddle, which we reached in 1 hr. 15 min. This ridge had to be carefully traversed, as the soft snow was in many places piled into overhanging cornices. Nowhere, however, did any special difficulties present themselves, as can easily be seen from the comparatively short time in which we left the ridge behind us. Everywhere there was considerably more fresh snow than I had expected. We sank into it ten or twelve centimetres, seldom up to or over the calf of the leg. About two o’clock we left the Bellavista saddle in order to descend over the “Hole” westwards from the Fortezza to Boval. After climbing for half an hour, or perhaps an hour, down the névé, which is here rather steep, we found ourselves on the edge of a wide bergschrund. Without much searching, Schnitzler, who certainly knows the Palü exceptionally well, stepped on to a snow bridge, which he had already often crossed and over which led a track. Suddenly I saw Schnitzler and Nasse fall headlong into the abyss without a sound. It was the work of an instant. I was dragged forward some steps after them, but managed to make myself fast on the very brink of the precipice, by driving my ice axe vertically with all my weight into the snow up to its head. I have only one circumstance to thank that my body was not instantly dragged with them into the schrund by the weight of the fall—namely, that at the critical moment I held in my hand a loop of the rope tightly stretched. At the same moment and in like manner as myself Klimmer had anchored himself higher up, but still on a very steep surface, so that we bore together the brunt of the tremendous jerk caused by the fall of our companions. Fortunately the snow held firm, above all on the exposed spot where I found myself, which was, as it afterwards proved, overhanging. This I did not know, but I had the uneasy feeling that it must be so. What had happened in the crevasse we knew not. We were so shocked at the first moment that I believe it never occurred to us to shout to those below.

After some anxious moments there rang a hollow-sounding shout from below, "Pull!" With all our might we tried to pull—in vain. I wanted, for safety, to put a coil of the rope round my axe, but we were unable to lift it more than a few centimetres. Again and again we tried to pull, again and again without effect. At each fresh attempt the rope cut deeper into the snow, and as the resistance increased our strength diminished.

"Undo yourself from the rope, Klimmer," I shouted up to him; "make fast the rope to the ice axe above, come down to me and help me to pull." In this way I thought we should do more. I was unable while pulling to step back, so that part of Klimmer's strength was more or less wasted on my body through the loop of the rope.

"I cannot, sir," answered the brave fellow. "I can't unrope myself, and my hands are nearly powerless. Your position is too bad; I dare not give up my own." He was quite right. On him depended afterwards our only hope of safety. "My God!" I heard Schnitzler cry below, "I can't get out! I can't get out!" What was to be done? It was hopeless to think of pulling them out. As we had already failed we could now certainly not succeed; we were far too much exhausted. If those below could not help we should all four be lost. The soft snow into which I had worked myself began to slip away, so that to get a better hold I had to hook my right arm round the ice axe. "Can't you cut yourself off?" I shouted down. "No," answered my friend, "impossible." "Can you not help at all?" "No," shouted Nasse, "only hold tight and pull." Perplexed, we looked around, downwards to the Morteratsch, then over to the much frequented Diavolezza. Nowhere was a human being to be seen, who could help us. Far up on the ridge of the Piz Palü Klimmer sighted the figures of men. They might help us! But they neither see nor hear us, and an eternity must pass before they can reach us. "Hold tight!" came a sudden shout from below; but, before I clearly understood the warning, there followed a fresh and violent jerk, which dragged me forwards from my firm position.

I now lay bent forwards on my knees, my head over the yawning gulf, without, however, being able to see into it. My right hand, stretched out behind me, tightly grasped the ice axe; my back supported almost the entire weight; with my left arm I tried to raise my breast away from the snow on which I lay. The consciousness that the next jerk would send me flying head over heels into the crevasse was awful. "Pull me back, Klimmer," I shouted. "I can't," he answered. He would now have had to pull back alone a load of four hundredweight.

Slowly my left arm buried itself in the snow to the elbow. It was quite numb, and the strength of my right arm was also failing. "I can stand it no longer!" cried my friend in a weak voice. "I can stand it no longer!" "You must pull me back, Klimmer, or I shall fall headlong into the bergschrund." At last, by a tremendous effort, the brave Tyrolese succeeded in pulling me back. "I can

stand it no longer!" cried the dying voice of my friend once more. It was the last sound we heard from him. Perplexed, we tried again to pull—again without effect. I could now only help with my right arm, as my left hand was so benumbed I could not close it. Of Schnitzler we heard nothing. I did not know whether he was dead or still alive. We shouted to him, but got no answer.

‘He had meantime performed an act of the highest bravery. He had attempted to anchor himself with his ice axe on the vertical ice wall opposite to him. Having gained a footing, he tried to climb up, but the step gave way, and he fell again a metre or a metre and a half. By this fall I was dragged over the crevasse. Having recovered from this mishap he steadied himself a second time, and, with the courage of despair, cut himself off the rope. He fell down the face of the ice wall and safely reached the floor of the crevasse. Whether he could get out, and how this was to be done without help, he had no idea. He made his way along the whole length of the crevasse, for, perhaps, 70 m., and found at the end a small ledge of ice which brought him out.

“Schnitzler is coming out!” shouted Klimmer to me. Only very slowly could Schnitzler work his way up; he reached us panting and exhausted, but did not rest a moment! With his help we untied the rope as quickly as possible. The knots had become so tightly drawn together that to undo them took more time than we expected. The rope was made fast to the ice axe above, and all three pulled together with might and main to no purpose; we raised our unhappy comrade perhaps a foot. “Help yourself, Professor,” shouted Schnitzler; “push yourself off with your feet.” But there came no answer, no effort; he was no longer among the living. In doubt Schnitzler knelt down nearer to the precipice, unroped, and in an awful position, heedless of our warnings, he broke a huge hole with his left hand in the overhanging snow, then made a last attempt. It was impossible to pull up the body. We must lower it down. The rope was carefully undone and made fast to the lower ice axe. With all speed Schnitzler hastened into the crevasse. “Come on,” he shouted. Klimmer descended, while I waited on the western edge of the crevasse for the party which might bring us help. This party now turned out to be only a single Englishman, Mr. John G. Cockin, A.C., with whom I climbed down into the bergschrund. Schnitzler had meantime worked himself up once more on to the ice wall. Holding himself steady with his axe, which he grasped in his right hand, with his left he pushed down the dead body of the Professor. With Klimmer’s help the corpse was cut off the rope. Artificial respiration and clapping over the heart failed to restore the life which had passed away.

‘I must be excused for not attempting to describe our agitation. Klimmer was the first to recover himself. We must get out of that icy grave and think of our own return. We roped ourselves with the friendly Englishman, who had most thoughtfully withdrawn,

and slowly wended our way down the mountain. At 7 o'clock we reached the Morteratsch Hotel, and at 8 arrived at Pontresina. At 11 P.M. a party of guides, with Schnitzler and Klimmer, left Pontresina and brought down the body of my friend from the mountains.

'To the above account, in which I have tried to detail as far as possible how the sad occurrence took place, I will add some further remarks by way of explanation.

'As to the time occupied in the accident, I can make no exact statement. None of us took note of the hour. I only know that we left the scene of the accident at 4.30, so that we had spent from 1½ hr. to 2 hrs. there. In my opinion Professor Nasse lived for 15 or 20 min. Half or three-quarters of an hour must have elapsed till Schnitzler made his way out of the crevasse. The crevasse was about 2½ m. to 3 m. broad above, 4 m. below, and 30 m. deep. Its floor was formed of snow and pieces of ice which had fallen from above; under this floor the crevasse went deeper. Whether I should have ventured to take that leap of death I do not know. In any case it would never have occurred to Professor Nasse to cut the rope. I also believe that he could not have been saved in this way.

'One cannot say for certain what was the position of the two foremost of the party at the moment when the bridge broke. I think that Professor Nasse, as he stepped on the bridge, imagined that Schnitzler was already over it; perhaps, too, he mistook for firm *névé* what was really a treacherous bridge; so that Schnitzler fell on his knees on the opposite edge of the crevasse, and was dragged back by Professor Nasse.

'I can only speak with reserve as to the actual cause of death, since no *post-mortem* examination was made. I must, after careful consideration, reject the idea of suffocation. The rope was properly knotted throughout, and the loops were not appreciably tightened. If the knots had not been properly fastened such a tremendous jerk as our rope sustained would have pulled in the circle of a loop at most two or three centimetres, when the knots would have become so tight that any further contraction would have been impossible. For this reason alone, it seems to me, the idea of suffocation must be dismissed. Moreover it has long been known that the sensation of oppression experienced in suffocation is desperately painful, and that a man who is being suffocated, at least if conscious, cries at once, "I am suffocating." I am quite certain that Professor Nasse in these circumstances would have cried, "Let me go! I am suffocating!" This he did not do, but shouted again and again, "I can stand it no longer!" and before this, "Hold tight and pull!"

'Many circumstances point to paralysis of the heart. We know that sometimes a strong, healthy swimmer perishes from heart failure. At any rate the action of Professor Nasse's heart was defective at high altitudes. Even on the top of the Palü he had remarked that his "breathing" was becoming more difficult every year, and

that for next year he must get into better training. Want of breath in climbing is, without doubt, a symptom of deficient heart power. I must assume that the first fall had already given Professor Nasse a tremendous shock; then, though usually a most alert and active man, he was utterly unable to help himself at all; his ice axe, the only thing about him which I saw for a moment, hung powerless, like a weak reed in the wind. Next day it was seen that his axe had left hardly any marks on the ice wall. Schnitzler's second fall evidently hastened the end. In addition to the physical shock there was the restriction of his breathing, which was doubtless occasioned by the severe pull, both from above and below, without any tightening of the loop of the rope. From medical experience we know that obstruction to the expansion of the chest walls may lead to paralysis of the heart. Added to all this, Professor Nasse had previously suffered from a severe attack of pleurisy and inflammation of the kidneys, diseases which frequently weaken the muscles of the heart. But it is also possible that he received serious internal injuries; indeed, this is quite as likely a view as the idea of paralysis of the heart. Nasse had the rope fastened round the lower part of his chest, so that the loop lay over the liver and spleen. It can easily be understood that the fall for the second time of so heavy a man as Schnitzler, with his weight of perhaps 90 kilos., may have caused a rupture of these organs in the first instance. Our two guides, Schnitzler and Klimmer, deserve the highest praise. They did the utmost in their power, and we have to thank chiefly their skill that we did not all four perish.'

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held in the Hall on Tuesday evening, February 7, at 8.30 P.M., the Right Hon. James Bryce, *President*, in the chair.

The following candidates were balloted for and elected members of the Club:—Messrs. L. C. M. S. Amery, A. W. Andrews, J. H. Doncaster, Alfred East, A. E. Field, R. P. Hope, C. E. Martineau, J. R. Pank, H. Speyer, F. J. Stevens.

Professor NORMAN COLLIE read a paper entitled 'Climbing in the Rocky Mountains of Canada during 1897 and 1898,' which was illustrated with lantern slides.

Mr. WOOLLEY thought that no one had more carefully studied the district than Mr. Collie; and the paper had therefore been a most interesting one. The great drawback in travelling were the forests, which rendered progress very slow. Their presence had, however, preserved the district from exploration by the tourist. As it was, one day one was a tourist on the railway, and the next an explorer in a new district where one could discover and name mountains. The custom had hitherto been to name mountains

after persons. Making all allowance for mosquitoes and the smoke of forest fires, the climate was very healthy.

Mr. BAKER said that the Canadian Rockies as seen from the prairies had not impressed him, for no peak appeared to assert itself above another ; but when in the midst of them they presented a more imposing spectacle, and he felt he had never seen before anything to resemble them. They were more like the mountains in Norway, steep rocky sides and narrow valleys, the beds of which are clothed with rank growth of pine and spruce forests. To the climber the condition of the rocks proved very rotten, owing to the great extremes of temperature to which they were exposed. As there were no maps of the country the party sought the assistance of T. E. Wilson, of Banff, who was originally employed by the surveyors of the Canadian Pacific Railway in 1881-1882. He was able to make a rough plan of the valleys to be traversed, indicating the number of lakes to be passed and the glacier streams and ' washouts ' to be met with.

Wilson gave an account of one of his journeys up the Bow Valley, over the Howse Pass, and down the Blaeberry Valley to the Columbia River, which he undertook on foot and alone in 1882, on behalf of his chief, Major Rogers. It was a distinctly hazardous exploit, and took him eleven days to accomplish. In describing the dangers of the journey he said ' he had made many trips into the mountains, but never since had he carried so great a load of doubt, and so little grub and blankets, as on that occasion.'

Mr. STUTFIELD said that sport had been very disappointing : he had not seen a single deer, and only once a small bear.

The PRESIDENT agreed with Mr. Baker as to the Canadian Rockies being quite unlike any European mountains. The Glärnisch or the Cirque de Gavarnie were perhaps most like them. They differed, too, from other parts of the Rocky Mountains. Mr. Collie deserved the thanks of the Club for putting an end to the myth about the two peaks 17,000 ft. high, and for having traced its origin. He had shown there was a fine field awaiting future climbers, to which, however, there was the objection that it took at least twelve days from Liverpool to get there.

A hearty vote of thanks was accorded to Mr. Collie, and the proceedings terminated.

A GENERAL MEETING was held in the Hall of the Club, 23 Savile Row, on Tuesday evening, March 7, at 8.30 P.M., the Right Hon. James Bryce, *President*, in the chair.

The following candidates were balloted for and elected members of the Club :--Messrs. W. G. Collingwood, S. B. Donkin, Joseph Gibson, and R. T. Glazebrook.

The PRESIDENT said he was sure that members would hear with regret that since the last meeting one of their members, Dr. Arkle, had died. He had to inform the Club that the Committee had elected as honorary members Mr. G. F. Watts, R.A., who had done so much to interpret mountain beauty by his paintings, and

Dr. Sven Hedin, whose remarkable work of exploration and mountaineering in Central Asia all members were acquainted with. He had also to announce that the former Presidents had presented to the Club a handsome carved chair for the use of the President at the Club meetings.

The accounts for 1898 were then submitted by Dr. WILLS, honorary secretary and treasurer. He said: The most salient point about the accounts for the past year is the extinction of the debt incurred on our removal to 23 Savile Row. Mr. Wicks prophesied that it would take three years from January 1, 1896, to pay off this sum of 558*l.* 2*s.* 10*d.*, and his prophecy has been very accurately justified, as on January 1, 1899, the balance in favour of the Club, after paying off the remaining 123*l.* 3*s.* 9*d.*, was 1*l.* 3*s.* 4*d.* We therefore start our present year with no past liabilities, but we must bear in mind that we have before us a possible temporary locking up of some 300*l.* or 400*l.* during the publication of vol. ii. of 'Ball's Alpine Guide,' of which some part may not be repaid. The income for 1898 was 74*l.* 0*s.* 4*d.* more than 1897, this increase being made up of 35*l.* in subscriptions and 38*l.* in entrance fees. There was an increase of 44*l.* in 2-guinea subscriptions, and a decrease of 9*l.* in 1-guinea. Of course, as all new members come on at 2 guineas, there is a gradual tendency for these subscriptions to increase. The sale of equipment reports &c. was an even smaller item in 1898 than in 1897, and the profit on teas has sunk to zero. With regard to the use of the hall, it will be seen that in 1898, as in 1897, the hall was only lent on nominal terms on a few occasions, but the Committee having received a request for the letting of the hall (apart from the rest of the rooms) for a longer period in January 1900, have decided to consider that proposal, and any other proposals that may be made to them, provided that the letting of the hall in this way does not interfere with its use by the Club. We shall thus recoup ourselves for our increased expenditure on exhibitions. Our expenditure has increased by 111*l.* 5*s.* 4*d.*, which at first sight appears rather alarming, particularly as the excess of income over expenditure has decreased by 38*l.* 5*s.* But after all we never expected to do more than pay off our debt in the course of three years, and that we have done. Actually, however, a considerable portion of this increase is due to extraordinary causes, which need not recur, and which have been held over until the extinction of the debt was fairly in view. The principal items are 21*l.* 17*s.*, for a ventilating shaft to the hall, an increase of 32*l.* in furnishing, due to re-covering the settees in the hall, which sorely needed it, and 21*l.* for preparation of the new library catalogue, making in all 74*l.* 17*s.* We have, further, certain extra expenditure which cannot be called extraordinary, but, at the same time, was unavoidable. I refer to the increase of the 'Repairs and Cleaning' item, owing to the inclusion in this of the cost of our triennial outside painting, 43*l.* 14*s.*; also an extra expenditure of 25*l.* on our exhibitions, owing to our having three private view teas instead of one. Judging from the number of members and their friends

attending these feasts for the soul and body, they are fairly popular, and the expenditure is, I think, amply justified. Lastly, the Committee felt it right, at the beginning of 1898, to raise the salary of our assistant secretary at the same time that his hours of attendance were increased and readjusted. It was very pleasant to me personally to be able to recommend this increase to the Committee, as Mr. Mackintosh is naturally of the utmost assistance to me, and now that he has a thorough grasp of the Club work his services have undoubtedly increased in value. I know the hon. librarian will second me in saying that Mr. Mackintosh's interest in the library has had a great deal to do with its recent development. I may as well add that the sum of 21*l.* for the preparation of the new library catalogue is only preliminary to a further expenditure this year for the printing of this catalogue, as the hon. librarian feels that a new catalogue is now absolutely necessary for the working of the library. The item of 'Stationery, Printing, Postages, and Petties' has been subdivided this year into 'Printing' and 'Stationery, Postages, and Petties,' as it was thought that when this item amounted to 65*l.* it was getting rather unwieldy. No other items call for mention except the 'Alpine Journal.' It will be seen that the cost to the Club was 59*l.* 19*s.* 1*d.*, as against 82*l.* 0*s.* 2*d.* in 1897, a decrease of about 22*l.*, due to a decrease in cost of production of 10*l.*, and an increase in the amount of sales of 12*l.* It is a time-honoured remark for the treasurer to make that the cost of the 'Alpine Journal' is extraordinarily variable, so I will not repeat it, but if we may judge from the February number, just issued, the pendulum will swing the other way this year.

The fall in receipts for advertisements is unsatisfactory. It has steadily decreased from 49*l.* in 1896 to 31*l.* in 1898. The contractor says he cannot get more advertisements. Perhaps, if we have an Equipment Exhibition next December, it may stir up the exhibiting firms to fresh expenditure. The only comfort comes to me, not as treasurer, but as a member. It is obvious that, as a body, the members of the Alpine Club are too wise to buy the things they want or do not want simply because they are thrust before them in an advertisement; hence, advertising in their journal does not pay.

With respect to the Alpine Guide Republication Fund, the items of this account were mentioned at the December meeting.

Mr. WALLROTH considered that the Club might congratulate itself on having paid off its debt and having the prospect of an increasing income. He had pleasure in moving the adoption of the accounts.

Mr. C. E. MATHEWS, in seconding the adoption of the report, asked why the Alpine Guide Republication Fund showed no receipts from sales.

Dr. WILLS explained that Messrs. Longmans' account for sales of the 'Alpine Guide' would only be received in May of the present year.

Mr. MUNRO asked whether the 'Alpine Journal' could not be brought out in the beginning of the month, like the Royal Geographical Society's and the Scottish Mountaineering Club's journals.

Mr. FRESHFIELD thought from his former experience the chief difficulty lay in getting members—officers of the Club and others—to send in their contributions in proper time.

Mr. SCHUSTER thought the Club should express its gratitude to the honorary secretary for the manner in which he had carried on the finances of the Club. He thought the accounts were very satisfactory. There had been no stinginess and thorough efficiency, and yet the debt had been paid off.

The PRESIDENT considered the Club was in a better financial condition than the British Empire, as it had a balance on the credit side.

The accounts were then adopted.

Mr. W. CECIL SLINGSBY read a paper entitled 'Mountaineering in Arctic Norway—Lyngen Fjord,' which was illustrated by lantern slides.

Mr. HASKETT-SMITH said that Mr. Slingsby had been a most admirable leader. He had made a profound impression upon the Swedish gentleman who accompanied them, who had said that Mr. Slingsby was perfect except on one occasion, when he led them to a vertical wall of rock constructed as if of sheets of iron, and told them that was the way they had to go. Then their Swedish friend objected. 'Never have I seen a man so aged go so far; but when he would go up at the night, where we should go down at the morning—oh, no, he is not pleasing.' A great feature of Norwegian climbing—and very often a great drawback—was that one always had to row to and from the mountain that was climbed.

Dr. WILSON and Mr. MUNRO also spoke.

Mr. BRYCE considered the Norwegian peaks to be very grand as far as Lyngen Fjord, after which the grandeur of the mainland scenery disappeared. He noticed that Mr. Slingsby had not dwelt so much on the climbing difficulties, as climbers in the Lofoten Isles, where the mountains are not quite so high, are wont to do; nor did he refer to mosquitoes, which within the Arctic Circle are a great pest, as a rule, in all the valleys. The trouble of getting to the mountain seemed, as in Iceland, to be great, and took up much of the time that would otherwise be available for the climb itself. Lyngen Fjord was interesting as being one of the best places for studying the customs and manners of the Lapps, both sea Lapps and reindeer Lapps. Some members might have read a German romance about the Lapps, in which a Lapp chief conceives the idea of conquering Norway and driving out the Norwegians; to have even thought of such a notion showed great imagination in the writer. He was sure he was expressing the sentiments of all when he said they were much obliged to Mr. Slingsby for his paper.

A hearty vote of thanks was accorded to Mr. Slingsby, and the proceedings terminated.

A GENERAL MEETING was held in the Hall of the Club on Tuesday evening, April 11, at 8.30 P.M., the Right Hon. James Bryce, *President*, in the chair.

Mr. W. Rickmer-Rickmers was balloted for and elected a member of the Club.

Mr. J. S. PHILLIMORE read a paper entitled 'The Wrong Side of some Dolomites.'

Mr. RAYNOR wanted to know what the definition of the wrong side of a dolomite was, although he felt that, as Mr. Phillimore's companion, he ought not to criticise the title of his paper.

Mr. CLAUDE SCHUSTER considered that Antonio Dimai was a very fine guide. As to wrong sides, there was such emulation among the German-speaking Dolomite climbers that a wrong side might soon be converted into a right one. As a Viennese climber said to him, pointing to the smooth wall of an hotel, 'If I climbed this wall, next year every member of the Club in Vienna would be trying it with their hands tied behind their backs in order to outdo me.'

Mr. WOOD said that the ascent of the Popena by the South side was worth mentioning from the moral point of view. It was necessary to try wrong sides in the Dolomites in order to find the best routes up them, as the ordinary routes were often dull and sometimes dangerous. Also, as most men climbed rocks for the actual pleasure of climbing, it was necessary to find out where the best climbing was.

Mr. STUTFIELD thought the right side of a mountain was the side one wanted to get up, but considered the question a good subject for the dialectical faculties of the Club.

The PRESIDENT regretted the shortness of Mr. Phillimore's paper. He was surprised at the unusual unwillingness of the meeting to discuss the ethical question put forward in the discussion. Dolomites undoubtedly possessed an extraordinary fascination for those who knew them. While mountains in Norway often proved more difficult than they looked, Dolomites usually looked worse than they really were. Still there was, doubtless, danger from rotten rocks, locally termed 'croda morta.' He remembered, many years ago, when he wanted to ascend the Pelmo with a friend, they could only get a shoemaker from the Val di Zoldo to lead them, no regular guide being available. But he was a good climber, though he quite declined to use the rope. When they came to within 100 ft. of the top, they found a slightly curving ridge of very rotten rock leading to the summit, up which the shoemaker declined to lead them. The President and his friend, however, traversed this ridge without difficulty, and the guide ultimately followed. They also ascended the Langkofel two days after the first ascent by Dr. Grohman. The President concluded by moving a hearty vote of thanks to Mr. Phillimore.

Mr. PHILLIMORE, in reply, said he considered the best side to climb a mountain was the hardest side—not necessarily the most dangerous side, but the side most nearly impossible. Early climbers wanted to capture virgin peaks, and so chose the ways up them with most screes and easy ledges. A monument was recently erected at St. Ulrich to Dr. Grohman as the discoverer of the Dolomites.

The proceedings then terminated.

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CLIMBS IN THE ANDES IN 1898.

By SIR MARTIN CONWAY.

(Read before the Alpine Club, May 2, 1899.)

I PROPOSE to-night to describe very briefly certain ascents made in the latter half of the year 1898 in the central Andes. Before doing so it will be best to give a brief description of the arrangement of the mountains. The Cordillera Real, which is the backbone of Bolivia, is a long, straight range, almost continuously snow-clad, culminating at its northern end in Mt. Sorata, and in the S. in Illimani. Half-way between the two rises a very fine peak, named Cacaaca. The N. end of the range abuts on Lake Titicaca, a great sheet of water, fourteen times as large as the Lake of Geneva, and lying at an altitude of 12,600 ft. above the sea. From this lake there spreads S.W., along the foot of the range, a high plateau, almost desert (except during the rainy season), called the Puna. About two-thirds of the way along the range this plateau suddenly gives place to an extraordinary valley, which drops away by an almost precipitous cliff from the level of the Puna. In it lies the town of La Paz, the capital of Bolivia. La Paz was our natural starting-point. We reached it from the sea by landing at Mollendo, and ascending over the outer Cordillera by a remarkable railway, which at its highest point attains an altitude of 14,666 ft. The railway debouches on Lake Titicaca, and a steamboat conveys the voyager, generally sea-sick and mountain-sick at one and the same time, to the Bolivian port of Chililaya, whence a good road leads to La Paz. The two mountains of which I immediately decided to attempt the ascent were naturally Illimani and Sorata. I took Illimani first, being strongly attracted to it by its extraordinary

beauty, whether seen from the Puna or from La Paz. La Paz, indeed, is more intimately connected with this mountain, which looks into the windows of most of its houses, than is any other town that I know with any of the great mountains of the world.

After a few days' delay we started from La Paz with our caravan and made for Illimani. The route we followed need not here be described in detail. It lay down the wonderful valley of which I have spoken: a valley for the most part desert, save where artificial irrigation quickens it into extraordinary fertility: a valley bordered by rugged water-cut slopes, and occasionally flanked by earth pyramids of astonishing size and complexity. The further we went down this valley the more difficult was the way, and the hotter was the atmosphere. At last, after passing through a gorge of great magnificence and truly tropical temperature, we commenced ascending our mountain from the side opposite to La Paz. We chose this route because—though I think it might be possible to make a successful ascent from the N. side—there is little doubt the way would be difficult, for the glaciers are long, steep, and very crevassed (resembling the Glacier de Bossons on Mont Blanc in general appearance), whilst the upper slopes appear to be frequently swept by avalanches. What the other side might be like we, of course, did not know; but such information as could be obtained at La Paz suggested that a high level might be attained there without any great difficulty. Moreover, it was certain that the snow did not come down so far on that side as on the N. This point was one of importance to us, seeing that we were dependent for portorage upon Indians, who cannot be induced under any circumstances to venture into the regions of perpetual snow.

Our first steps up the lower slopes carried us through a beautiful little valley, whose sides were decked with canes and vines and fruit trees of various sorts. Further up came orchards of peach trees—at that time in full blossom—and beyond them an agricultural country still lying in the bonds of winter. We were hospitably entertained at the farmhouse or *hacienda* of Cotaña, a most beautiful place, buried in eucalyptus trees and surrounded by orchards. The sight of the snowy summit of Illimani beheld through the blossoming peach trees was one I shall never forget. From Cotaña, accompanied by Señor Ezekiel Guillen, jun., we rode to a higher farmhouse, named Caimbaya, where we were enabled to enlist the unwilling services of four or five Indians. With-

out the help of Guillen this would have been impossible, for the Indians not only talk no language but their own impossible Aymara, but have a rooted suspicion of Gringos, if not an antipathy to them, and that we were Gringos was obvious to the meanest intelligence. Moreover, like almost all uncivilised mountain folk, they regard the mountain region above the level of cultivation as particularly uncanny. There abide the demons that they fear; there roam the spirits of the departed. To go into such company is the last thing an Indian desires.

Two or three days were spent in reconnoitring the mountain from different low points of view. From one side it was clearly impossible; all the way round from the summit to a lower peak, which I call the Pico del Indio, there falls a precipitous cliff of rock, overhung for the most part of its length by the broken edge of a glacier, which casts down from time to time enormous avalanches. No line of ascent that can be safely followed is to be found anywhere upon this wall. It was necessary, therefore, for us to go round to the back of the Pico del Indio, where we were informed that a broad, steep gully led high towards that summit. Our mules carried us to near the base of this gully; from that point we had to climb without their help. We camped one night at the foot of the gully, and the next day the real ascent began. It was difficult to urge the Indians to any activity. They were the slowest porters I have ever employed. It was not that their burdens were very heavy, or that the ground was difficult; it was stony and rough ground, no doubt, fatiguing to ascend, but that was all. Yet upon this slope we found it impossible to advance more than 2,000 ft. a day, so that in two days we had hardly gained 4,000 ft. This sufficed to bring us to the base of a fine wall of rock, up which a route was discoverable. The following day we started to climb this wall. All the Indians deserted us except two, an old man and a boy of 16. They yielded to the temptation of large bribes, and undertook to come further with us. The ascent of the wall was by no means easy. It was steep, and presented some points of real difficulty. At each of these difficulties, as they came, the Indians wished to turn back, and it was only by standing at the top and holding out small silver coins for them to climb for that I was able to tempt them forward. In this somewhat unusual fashion we slowly advanced until some two-thirds of the wall had been successfully climbed. Then there came a vertical gully filled with ice, in which steps had to be cut, and there the Indians absolutely declined to proceed; they threw down their burdens, turned tail, and

descended. An hour or two later we heard the loud shouts of glee with which they announced their arrival at our deserted tent platform. Fortunately, we were not very far from the edge of the snow-field above, and the guides, by burdening themselves with monstrous loads, succeeded in raising all our baggage on to the snow-field, along which we advanced for a short distance to a convenient place well sheltered by rock, where we pitched our highest camp. What the remainder of the route would be like we had not the faintest idea, but we knew that we had now passed above the great wall of cliff which surrounds the whole of the mountain on this side, and above which there was every reason to believe that the slopes would be of a relatively easy kind. We were, in fact, close to the right bank of a glacier which descended, not from Illimani itself, but from the watershed a little further S. This glacier broke off at the edge of the rock wall I have described, and cast its shattered fragments down the wall into the gully, up which we had ascended, where they reformed and made the glacier's snout.

It was still early in the day when camp had been pitched and breakfast eaten. We spent the rest of the time in wandering about and attempting to gain some view of the route we must follow on the morrow. Guillen now manifested himself a born mountaineer. In his inexperience he cared nothing for hidden crevasses, and he wandered about in the most perilous, reckless fashion, in and out amongst schrunds and over snow-fields that to experienced eyes looked far from safe places for a solitary traveller. But no ill-luck occurred to him, and the only time he ever fell into a crevasse was on the following day, when he was securely roped with the rest of the party.

After a good night's sleep we set forth, at 2 A.M., to try issues with the final ascent. Following the glimmer of a single candle, we felt rather than saw our way up the glacier, in and out amongst great crevasses, and finally up a long undulating snow-field firmly held in bonds of frost. Thus, while it was still night, though the last crescent of the waning moon now dimly illuminated the weird scene, we stood upon the watershed at the head of the glacier.

On one side was the snow-slope we had come up; on the other a cliff furrowed by snowy couloirs dropped 10,000 ft., with that look of sheer abruptness which every mountaineer will understand, to a low valley of fertile Yungas. The crest that divided these very different regions stretched up on our left hand towards the Pico del Indio. We determined to

ascend by that. The first steps were far from easy, for a great lump of ice, round and smooth, in size like a walrus, stuck out of the ridge and had to be climbed. It was the most slippery ice conceivable, and even when big steps had been cut in it my sensations, as I stood in them in the darkness, were far from pleasant, for a slip on one side would have sent me into the bergschrund, whilst a slip on the other would have scattered the fragments of me all over Yungas. Above this came some quite difficult rocks—at least they were quite difficult to ascend in the still prevailing night. They were followed by a snow-slope, fairly steep and very hard to cut into. The snow-slope led under a great overhanging cornice with a vertical ice face fully 30 ft. high. We tried to get round this, on one side and the other, and then to climb it, but all attempts failed. It was, as a matter of fact, fortunate that they failed, for we afterwards found that that line of ascent would not have led us in the direction we ought to have followed. Thus stopped, the only thing to do was to turn to our left and traverse horizontally the steep face of the peak, going, in fact, back in the direction from which we had come, but at a much higher level. For 2 hrs. we were upon this face; it was a snow-slope to begin with, but it soon turned to ice, fortunately covered with a thin coating of hard snow. Step-cutting here, at an altitude of 20,000 ft. above the sea, was a very arduous process, in which Maquignaz and Pellissier took turns. There was an overhanging cliff of ice below, and the slope down to it was appallingly abrupt. For 2 hrs. we advanced across this face; then at last the slope somewhat diminished, and we were able to tread steps up to the ridge that bounds the mountain on the other side. In fact, standing on it, we were just at the edge of the great cliff visible from Caimbaya. We struck this ridge at a little saddle with a hump of rock on one side, and 100 ft. or so of narrow snow arête leading up to the Pico del Indio on the other. And now for the first time the final cone of Illimani came into view. This great mountain has a coronet of summits which surround a high plateau of snow, and differ from one another in altitude to a very slight extent. If we had not known by distant inspection which was the highest, we could not have discovered it from this point. As it was, there was no doubt; the peak lay right over against us, separated from us by an undulating snow-field toward which a gentle slope led down from our feet. At the far side another gentle incline sloped up to a saddle at the foot of the final cone, giving access to it by what

was evidently an easy snow arête. It only remained to cross this snow-field, reach the saddle, and climb the ridge; nor was there a single difficulty in the way, save only that permanent impediment which diminished atmospheric pressure provides for all climbers at altitudes of over 20,000 ft. above the sea. The snow happened to be in splendid condition; it was as hard as a board. We descended merrily enough to the flat part of the plateau. Thence the long slow ascent began; and however long it may have been it seemed infinitely longer to our wearied and panting frames. We did not halt but went steadily, however slowly, forward. One hour passed after another and still the saddle seemed to maintain its distance; but such trials ultimately come to an end. When we were almost despairing of success, the distance intervening between us and the col seemed suddenly to vanish, and, before we knew, we were upon it, and the slope on the La Paz side was dropping away at our feet. A halt of five minutes, a little food, and we were off once more, climbing the easy round snow-ridge, which alone intervened between us and the top. Of that ascent I have hardly any recollection. It seemed endless though it was short. In somewhat less than an hour I was, as it were, awakened from a dream by hearing Maquignaz invite me to take the lead and be the first upon the summit. For the moment we had no sense of joy; none of that delirious satisfaction which used to overwhelm the Alpine climber in the days of Alpine conquest. All we knew was that our great toil was at an end and we could sit down, take breath, and regain the control of our functions. But in five minutes the pain was past and we felt (so long as we did nothing) little otherwise than as if we had been at sea-level. The view, of course, ought to have been magnificent. As a matter of fact, clouds enveloped the greater part of the horizon. The splendid snow-cliffs and ice-cascades of the mountain itself, upon which we stood, part concealed and part revealed by the wandering clouds, were perhaps the most splendid features in the scene. Towards the great Bolivian plain there were large clear areas, and the eye could follow to its remotest margin the great desert expanse that stretches to the S. All the mountains of the Cordillera itself were hidden from view. La Paz was under a cloud-roof, so that our little Union Jack, which waved from a cane flagstaff we had carried up for it, was not seen through the telescopes ready for it in the town. Before clear weather returned it had fallen, being implanted only in snow.

The descent of the mountain requires little description. Its most painful part was the long re-ascent involved by the

interposition of the Pico del Indio between our plateau and the glacier below. By neither flank could the peak be turned ; it was absolutely essential to climb over it. After greater toil than any we had thus far experienced, we regained the little saddle and cast ourselves down upon the rocks. My hand fell upon something soft and clammy, the last kind of substance one expects to meet with in the regions of eternal snow. I picked it up and found it to be a rotting piece of Indian goathair cord. The fact of its presence where I found it was proof that an Indian had been there, probably many years ago. There is a legend at Caimbaya that an Indian, many years ago, declared he would visit the abode of the gods up aloft, and that he was last seen by the people of his village in the neighbourhood of the point where now we sat. But he never came back again, for, as they say, the gods turned him to stone. That this was his fate we saw no proof, but the presence of the piece of rope confirms, at all events, the first part of the tale.

We did not now return across the face, but descended straight down the slope at our feet, leaving far to the left the overhanging cliff, above which we had traversed on the way up. The slope we descended was exceedingly steep, but was covered by snow in good condition lying upon hard ice. We advanced with great care, very slowly, moving only one at a time, and carefully paying out the rope. Again it seemed as though the bottom would never come, so slowly did the broken ice-avalanches that lay about upon it seem to approach ; but just as the sun was setting we passed by a lucky bridge over the wide bergschrund, which was only there to be traversed, though this was a fact that we did not realise until a mere good fortune had actually brought us to the bridge. We picked our way amongst the fallen ice-blocks and so came into a region of enormous crevasses, far larger than any I have ever seen in any other part of the world ; yet with some difficulty a way was found through them before the twilight was far advanced, and a few minutes later we rejoined our upward tracks and regained camp without further difficulty. Next day we descended to Caimbaya, and rode back to La Paz by another and more interesting route than that by which we had come.

Our next undertaking was, of course, the ascent of Mt. Sorata. We had seen this mountain from several points of view in coming to La Paz, first from Lake Titicaca, where it rose in marvellous splendour, apparently from the waters ; again from the Puna, whence it was almost continuously

visible until we approached La Paz. It has the appearance of a great rounded wide-spreading mass, enveloped by large glaciers, which slope down towards the S., whilst on the N. they tumble over tremendous cliffs to the deep valley in which the town of Sorata lies. The north was clearly not the side by which to attack it. From the south we had looked upon one glacier in particular, which, though infested with ice-falls, seemed to offer a possible route to a high plateau, round which stood several summits. If this plateau could be gained, we knew that we could climb high on the highest pyramid, though whether the last part of the ascent would be possible we could not say, for the distance from which we examined the mountain was 20 to 30 miles at the least. Our worst problem, of course, was the universal problem of portage. We hoped to ascend beside the glacier along rocks and moraines to a considerable height, but when once it became necessary to take to the ice we knew that the Indian porters would forsake us. As the upper slopes leading to the plateau were relatively unbroken in appearance, I decided to have a sledge made, and to attempt dragging our kit up on it. Maquignaz had acquired experience in sledging while accompanying the Duke of the Abruzzi up Mt. St. Elias in Alaska, whilst I, of course, had had plenty of sledging in Spitsbergen. The best sledge La Paz could produce was rather a crazy affair, but it sufficed.

The nearest village to the glacier we had determined to attack was named Umapusa. It is situated on one of the tracks leading from La Paz to Sorata, and it contains a wretched mud-hut which serves the purposes of an inn to the few drivers of caravans who go that way. This hut was our headquarters. We were again fortunate enough to obtain the services of an intelligent Bolivian, Caesar by name, who enlisted some Indians for us—far better mountain men, as they afterwards showed themselves to be, than those we had had on Illimani. We now commenced to ascend towards the mountain by long, gentle slopes, which in their lower part produced miserable crops, chiefly potatoes, whilst higher up were grazing grounds for llamas. A day's ride up these slopes carried us to the top of the outer range of hills, behind which, at the foot of a steep cliff, we were surprised to find a secluded valley. Into this valley the glaciers of the mountain descend, and they once extended down it several miles further than where they now end. In their retreat they have left lake-basins behind, one still occupied by a large sheet of water, but the others already silted up and turned into grassy meadows. We descended from the crest of our



Sir W. Martin Conway, photo.

MIDDLE CAMP ON MT. SORATA.

Steam Electric Engineering Co.

hill into the highest of these old lake-basins, and there left our mules to graze, whilst we carried up our baggage a few hundred feet further to an excellent little camping ground close to the foot of the glacier and near an abandoned gold mine, named Isca Aucania. This was about 16,000 ft. above the sea. I must here explain that the Aucania glacier and its great neighbour to the E., which I call the Ancohuma glacier, spring from a common snow-field, but are divided from one another at and below an altitude of about 18,000 ft. by a rocky ridge. It was on the slopes of this ridge and the moraine at its foot, the left moraine, that is to say, of the Aucania glacier, that we ascended next day. We made our higher camp at the point where the dividing ridge emerges from the ice. Just there is a secluded rocky hollow in which we pitched our tents and where we collected our baggage. The Indians left us at this point, and returned to the camp by the gold mine. Next day we loaded up the sledges and started on. At first the snow-slopes were not difficult, though they were rather steep for sledge-hauling. For some hours we made steady if slow advance, and then came to where great crevasses split the snow-field across. These crevasses were very wide and doubtless very deep, but it fortunately chanced that we always found in those we had to cross bridges spanning the chasms, generally at a depth of from 10 ft. to 20 ft. below the upper edge of the crevasse. How these bridges are formed, and why they should be planted at this lower level, was a problem for which I could find no solution. There, at any rate, the bridges were, and they were our salvation. We had to cross seven of them in all, at an altitude of somewhere about 19,000 ft., and the labour of hauling the sledges on to the bridge, of climbing down the almost inevitable vertical wall which had to be descended, of conveying the sledge across the uneven and pitted surface, of climbing up the other side, usually mounting by each other's shoulders, and finally of hauling up the sledge on to the level of the snow-fields beyond, was naturally very great. These seven crevasses kept us busy for about 4 hrs. When the last of them was left behind there followed a very steep slope of snow, quite even, and fairly hard, up which we hauled the sledge by fastening the whole length of our rope to it, advancing to the end of our tether, and then drawing up the sledge to the point we had attained. By repetition of this process we ultimately gained the less steep region. A sheltered hollow was found between a big sérac and a wall of ice, and we decided to camp.

Soon after sunset a violent storm sprang up. The tent

boomed and flapped and the wind whistled in the tent-ropes. It almost seemed as though we might be blown away. The storm lasted throughout the night, and there was a plentiful fall of new snow round us when we looked out in the morning. Of course, under these circumstances, to continue the ascent was impossible. About the middle of the morning the clouds broke and the sun shone faintly. We seized the opportunity to visit the great plateau and examine the approach to the foot of the final peak. An hour's walk brought us well on to the plateau, which, however, instead of being flat, sloped steadily up to the peak. The last face that we should have to climb was wreathed in clouds, which opened fitfully here and there, revealing at one time or another practically the whole route. We concluded that, though there doubtless would be some points of considerable difficulty, yet on the whole the ascent was practicable. We returned to camp, intending to spend another night there, but the storm broke again, so I gave the word to descend to the base of the mountain to await a settlement of the weather.

It was fortunate we did so, for regularly bad weather set in and lasted about a fortnight, during which interval I visited the town of Sorata and other places. Ultimately we returned again to the same high camp, found it practically as we had left it, set up the tent once more and ensconced ourselves for the night. A great change had taken place in our absence, and it was one that was destined to prove fatal to our hopes, for an immense amount of new snow had fallen, and there was no prospect of its removal before the coming on of the rainy season. The climbing season in Bolivia, it may be observed, is very short, commencing as it does only towards the end of August and ending at the end of October. Next morning, before 2 o'clock, we started with a lantern and retraced our steps to the plateau, where several large crevasses were met with and were turned as they came, more by feeling our way round them to possible bridges than by sight. But as we approached the final peak the crescent of the waning moon lifted itself for a moment above the horizon, then vanished behind a dense mass of clouds, so that we reaped little advantage from its light. The higher we came the softer was the snow, but I think we made fairly rapid progress, and at last, still before the advent of the morning twilight, we found ourselves at the foot of the steep slope. From our previous examination we knew where to start up the slope, and we accordingly commenced the ascent.

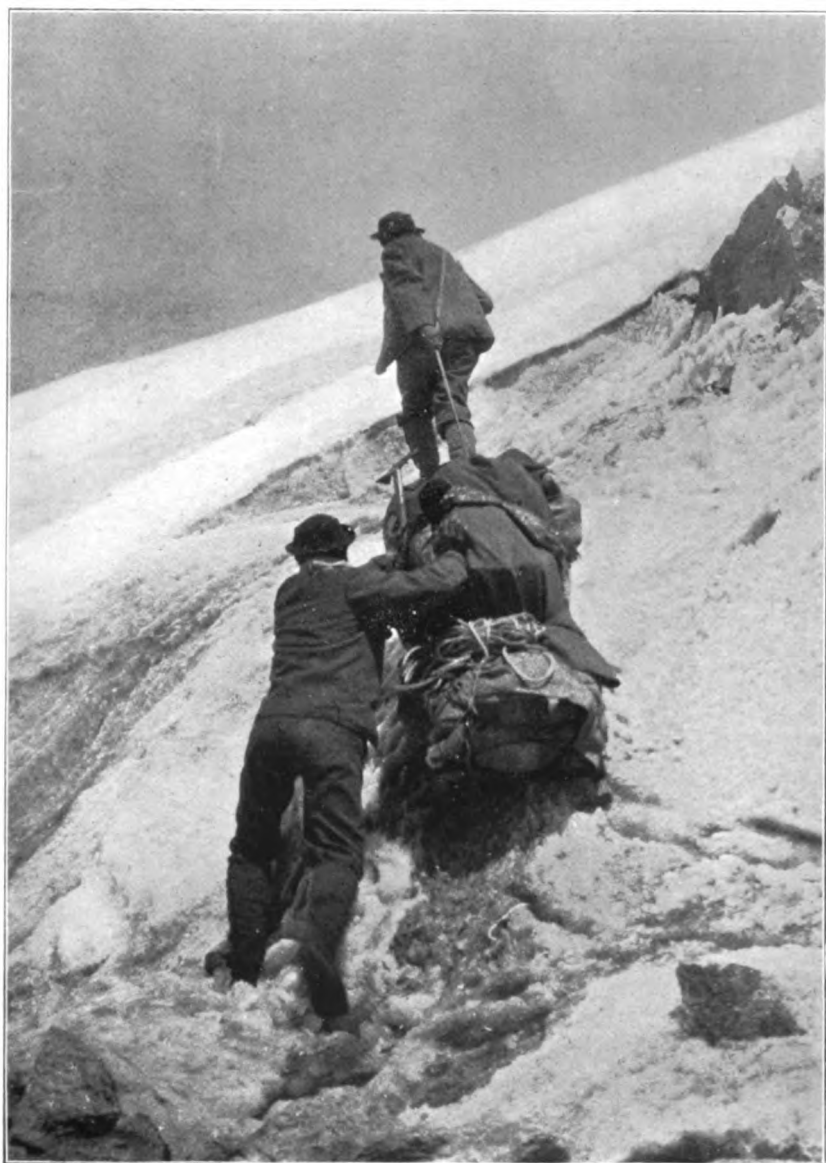
The snow was in a most powdery state, hard frozen, the



Sir W. Martin Conway, photo.

DRAGGING SLEDGE AT 19,000 ft., MT. SORATA.

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DRAGGING SLEDGE AT 19,000 ft., MT. SORATA.

temperature being probably many degrees below zero Fahrenheit. If it had not been possible to mount straight upwards, we should not have dared to attack this slope at all, for it was in an essentially avalanchy condition, but the bergschrund at the bottom was filled up, and there was little danger of coming to any harm. But if, in this part of the ascent, the danger was not great, the labour was excessive, for the steps gave way under the feet, and had to be trodden and re-trodden and trodden again, and even then they did not hold. The snow became deeper and deeper, and, if possible, looser and looser, so that our advance naturally grew to be continually less rapid. The dawn, when it came, brought no diminution of cold, and the feet of both my guides were frost-bitten. After climbing in this fashion for over 2 hrs. we were high up on the face, when we came to the edge of the last bergschrund. This was a very wide chasm, stretching away far to the right, whilst to the left it soon gave place to a great ice-precipice, some 100 ft. or perhaps 200 ft. in height. The summit was now close at hand above us to the left. In order to reach it, it would have been necessary, after crossing the bergschrund, to mount the slope diagonally, first above the bergschrund itself, and afterwards above the cliff. As the slope was buried in loose snow, such as that we had mounted over, it was obvious that any such traverse could only be made, if made at all, at the cost of an extreme risk. I decided that the risk was unjustifiable, and I turned back at this point. We may, perhaps, have been as much as 300 ft. below the top. Assuming this to have been the case, the altitude of the summit of Mt. Sorata, as determined by an observation taken with a mercurial barometer at this point, and an almost simultaneous observation at La Paz, was 24,255 ft., which agrees almost exactly with the altitude given—I know not on what authority—in the 'Encyclopædia Britannica,' and practically agrees with the altitude marked on Raimondi's map of Peru (the Government map). Unfortunately for me, the careful triangulation which I afterwards made from the Puna, and connected by levels with the known level of Lake Titicaca, gives for the mountain an altitude of only 21,710 ft., so that instead of being, as at that time I imagined, higher than Aconcagua, it is, I think, undoubtedly lower than that peak.

Of my ascent of Aconcagua * I do not propose to speak to-

* Left Valparaiso December 1; crossed the Andes to Baths of Inca, December 2. December 3, rode up Horcones valley and

night, for, as everybody knows, that mountain was ascended by Mr. Vines and Zurbriggen, members of Mr. E. A. FitzGerald's expedition in 1897. Mr. FitzGerald was an old

camped at the head of it, about half a mile below FitzGerald's 14,000-ft. camp. December 4, sent baggage up to site of FitzGerald's 16,000-ft. camp. December 5, ascended to 16,000-ft. camp. December 6, ascended to about 18,500 ft., and camped near the south edge of the great north-western slope of screes. We thought this was FitzGerald's top camping-place, because we found an old duster there, but it must have been brought by wind. December 7, started at 8.30 A.M. up the screes, following thenceforward a line of ascent different from FitzGerald's. At 7 A.M. Pellissier turned back ill. Between 9 and 10 A.M. reached foot of second or third gully (counting from north-east to south-west) in the highest rock-wall. Climbed this gully to the summit ridge, which was struck about midway between the highest peak and the lowest point in the summit ridge. Turned to the left (north-east) along the narrow snow *arête* towards the highest point, and climbed over several undulations to the top of a peak near, and not many feet lower than, the highest peak. It was then about noon.

There was absolutely no difficulty between this point and the highest peak, though the ridge thus far had not been easy. All difficulties being thus overcome, and the ascent not being a first ascent, I decided to descend, for two reasons: (a) because it was advisable to get back to Pellissier as quickly as possible; (b) because Vines, when he ascended Aconcagua, made a record for altitude, and I thought it likely that, if I reached his peak, I should be accused of mere jealousy, whereas if, after overcoming all the difficulties of the mountain and being within ten minutes of, and at the very outside 50 ft. below, the highest point, I turned back, I could not be so accused.

At noon exactly we turned back and went down the way we had come. Reached top camp in $2\frac{1}{2}$ hours. Found Pellissier badly frost-bitten, and realised that it was essential to get him down to mule-level at once. Descended with all baggage in forty minutes to middle camp; packed that up, and descended in forty minutes to foot of slope, fifteen minutes to FitzGerald's 14,000-ft. camp, fifteen minutes to our base camp, which was reached at 6 P.M. December 8, descended with all baggage to Inca. December 9, sent off baggage for Valparaiso. December 10, started at 5 A.M., crossed the Cordillera, and reached Valparaiso at 11 P.M.

The above account shows that to call my ascent of Aconcagua an 'attempt,' as I see was done in a daily paper on May 4, is to use a misleading phrase. If I had conceived such a statement to be possible, I would have gone to Vines's peak and stood on the top of Zurbriggen's cairn; but such pedantry in the mountains is ridiculous. Mine was a simple ascent in which all the difficulties of the mountain were overcome. The reader may apply whatever qualifying adjective he pleases.

friend of mine. I had followed his proceedings with the deepest interest, read all he had written on the subject, and conversed with him about the mountain before leaving home. He had urged me to make the ascent, and had given me all the information possible to facilitate it. My ascent of Aconcagua was not a scientific, but a merely sporting expedition. The mountain had been measured by FitzGerald with greater accuracy and care than any other high mountain in the world has ever been measured. He had also fixed its position astronomically with great exactitude, and had mapped the peak and its neighbourhood most beautifully. When his book comes out the public will learn, as they do not yet know, how excellent was the work done by the FitzGerald party. When I returned from my ascent, after only 10 days' absence from Valparaiso, the opinion of uninformed persons was that I had in some fashion surpassed the exploits of my predecessors, who spent 7 months or more on or about the mountain. This was not true. To begin with, had they not preceded me I should probably have wasted the best part of a month in searching for the way, which is by no means obvious. Again, the time actually spent by them on the ascent was but little longer than that taken by me. Each of their camps was a well-fitted observatory; at each they made long series of observations; the mere determination of the position of the Inca Hotel, from which they started, as I did, took them a month or more. They made a complete examination of the geology and natural history of the neighbourhood. Thus my climb cannot be compared with their expedition in any way, and I am the last to desire any comparison between the two to be made. If hereafter the summit of Mt. Sorata is attained by some more lucky climber than I was, he will owe to me the same recognition that I gladly render to FitzGerald.

Returning to England by way of the Straits of Magellan, I stopped for a few weeks at Sandy Point, where by the kindness of the Chilian Government a small steamboat was placed at my disposal to enable me to attempt the ascent of Mt. Sarmiento, the highest mountain on Tierra del Fuego, or indeed anywhere near the southern extremity of the continent. The frequent bad weather that infests that part of the world rendered it most unlikely that on any particular day we should be able to make the ascent. But I determined to take my luck and see what could be done. After 60 miles steaming from Sandy Point we reached the foot of the mountain, but all its upper part was heavily enveloped in

cloud. A great glacier descended down its northern face, and another down its W. face, and both curling round the lower slopes almost reached the sea, from which they were cut off by a forest-clad belt of moraine. By which of these glaciers we should commence to ascend was a problem that could not be solved until the mountain was disclosed. Both glaciers below the cloud level were broken up by almost continuous ice-falls. The western glacier gave access to a snow arête, which was practicable as far as we could see it; but presently a cloud opened and disclosed its upper portion, a crest of precipitous pinnacles densely packed over with icicles similar to those encountered by Mr. Garwood and me on Mt. Hedgehog in Spitsbergen. They were absolutely unclimbable. We therefore decided to try the northern glacier, and it is fortunate we did so, for that is the right way. A day was devoted to a preliminary reconnaissance, finding a way through the dense forest belt, then over an area of rough ground from which the glacier has retreated in recent times, to the foot of the actual ascent. The next day, starting at 2 A.M., we rowed ashore and returned to this point. I was accompanied only by Maquignaz and a Chilian sailor on this occasion, for Pellissier was in hospital at Sandy Point, suffering from the serious effects of frost-bite received on Aconcagua. The climb began immediately. A wall of glacier-smoothed rocks, very steep, but hidden by trees growing in chinks and crannies, had first to be mounted. We climbed it by the trees, not without considerable difficulty, for all the branches seemed to be rotten, and many of them broke off when they were required to support our weight. Above the forest came a bog, then a short grass-slope, and finally snow. The snow-slope narrowed to a ridge, which soon became a rocky crest. Scrambling over the rocks, we made good progress, and when we halted for breakfast we were on the top of a little peak about 4,000 ft. above sea-level. From this point the view was magnificent; the great lower basin of the glacier was spread out at our feet, and we saw how, filled with ice to the brim by the supply pouring down the N. face of the mountain, it trickled over in glacier tongues, protruding E. and W. and N. respectively. Fine mountains were in sight on all sides; broad sounds, dotted with islands and broken by many a headland, stretched themselves away towards the horizon in different directions. Magellan's Strait was visible far in the N., Cockburn Channel to the W., and I know not what other multitude of snow-clad and uninhabited islands were sprinkled all round. The

summit of the peak was now about 3,000 ft. above our heads. We were separated from the slope leading up to it by a level snow-saddle reached by a descent of about 200 ft., which might have been avoided if, instead of climbing the summit of the little peak, we had traversed round its slope.

Thence the upward route led through a very broken *névé*, up continually steepening snow-slopes, where the way is by no means easy to find. But we were never destined to reach the top of these slopes. If we had done so, we should have then come to the foot of a pinnacle of rock 200 ft. or 300 ft. high, apparently very abrupt and plastered over with icicles. I only saw this pinnacle twice, both times from a relatively low level, and I cannot therefore speak of it with certainty; but I do not think it was climbable, from the two sides from which I saw it, in the icy state which is probably its permanent condition. There may, however, be a snow-slope or some possible line of access behind. At all events we were never able to try conclusions with it; for, before we gained the level of its base, there swept down from the N. such a storm of hail and wind, and such a blackness of all-enveloping cloud, that further progress was rendered quite impossible. All we could do was to hasten down with the utmost rapidity, in hopes to escape to safer regions while the route was still discoverable. In five minutes we were ourselves plastered over with ice and rendered quite unrecognisable. It was not until we got down to the level of the glacier below that the hail and snow turned to rain, which soaked us to the skin. We reached the shore after a very fatiguing expedition, and that was the end of my mountaineering in *Tierra del Fuego*, for the fine weather never returned until I had left those waters for home.

I cannot conclude without returning my heartiest thanks to the Governments of Bolivia, Peru, and Chile for the facilities they gave me, without which I could have accomplished nothing. I must likewise acknowledge very cordially the merits of my guides. Antoine Maquignaz is, beyond question, one of the few really great guides capable of leading anywhere where a man can go. Like many other guides he loves climbing better than travel, but, once on the mountain-side, he is as good a companion as a man can desire. Louis Pellissier was the very perfection of a second man, an excellent traveller, a sound mountaineer, a man of perfect temper, unflagging cheerfulness, and a natural kindness of heart which makes his society always enjoyable. To their help the success of my mountain expeditions was chiefly due.

USHBA.

By W. RICKMER RICKMERS.

SUMMER has gone. On the hill-sides of Svanetia the autumnal forests are a sumptuous feast of colour. The foliage of the mountain-ash flames in scarlet and purple.

The day is dull ; 'tis but a whitish glow that filters through the softly moving curtain of the clouds.

There is a pale and ashen light on the grim grey towers of Betsho, those stately landmarks of a stubborn race.

In the north a towering wall rises to the low-hung sky and proclaims the mighty presence which frowns behind the veil. O painter, if thou wouldst move my soul to tears, paint thus defiance, scorn, and solitude.

There is a fitting melody ; the murmuring of October winds moistening the moss-grown rocks with sprays of chilly mist ; the whispering of leaves falling in the forest—slowly, slowly.

A little cavalcade breaks through the water-laden bushes in the valley. Patiently the horsemen plod over the sodden ground, and the steam rising from under the heavy cloaks mingles with the everlasting drizzle. They climb the slopes by crooked and stony paths ; the habitations of man, the last lone fir are left behind. Then come white-barked birches in the company of heather and moorland shrubs : then higher still emerald pastures, till, at last, the shifting mists hide the travellers from the world below. Here tumbling boulders, the angry breakers of the mountains' rocky surge, encroach upon the verdant velvet of the Alpine lawn. An ice-begotten breath heralds the powers that gave him birth, and presses against the canvas of the tent as if to ward off the intruders.

Again man had come to challenge the haughtiest of Caucasian mountains.

My friend Hacker and I had spent the summer of 1895 on the Kartch-Chal group in Transcaucasia, and from its summits had several times obtained a glorious view of the great central range. This proved too much for our mountaineering spirit, and, though it was late in the year, we hurried across to Svanetia. On October 8 we left Betsho none too hopeful with regard to the weather, and pitched our camp at a height of about 9,000 ft. We had passed Mr. Cockin's last camping-place much lower down

—where fire-wood was more handy; ours was close to the magnificent Gul moraine which comes down in such a beautiful curve.

We had determined to hold out on the high level as long as possible, in order to be ready for any opportunity which offered.

Accordingly the ministry of ways and means had made substantial arrangements. The music of cackling fowls, bleating sheep, and shrieking pigs formed a bold contrast to the silent but appealing poetry of hexameters of cheese-bread, alliterations of eggs, pœans of butter, and ritornelles of milk, into which sardine tins and packets of chocolate threw a note of lighter vein.

Over the whole breathed the inspiring perfume which rose from the tight rotundity of a wine-skin, reposing on the meadow like a jovial pasha.

When our horses had left there remained only our interpreter, Makandaroff, and Muratbi, the hunter, to keep us company.

Night soon came. We sat in the tent sipping tea in the dim radiance of a candle. The atmosphere was heavy with the fragrance of the weed and the thoughts of mountaineers; it was the calm before the storm, the last deep breath before the grim encounter.

Next morning the sun rose victorious, so we set out to reconnoitre. We had not far to go to that narrow stretch of snow which lies against the left side of the great moraine.

On the rocks (ca. 10,500 ft.) near the lower end of the Gulba Couloir * we put on the rope and began to explore the glacier, which was, as may be imagined at this season, like the skin of a ripe plum bursting in its fulness. It was our intention to sleep on the rocks, to cross the glacier in the night, and to attack the S. peak. In order to lose no time among the crevasses in the dark, we made a trail as far as we safely could—that is to say, to the dumping-ground for avalanches, and so arrived at the foot of one of the innumerable rubbish-shoots which furrow the glittering slope.

Just as we came to the end of our tether, and were contemplatively staring right into the teeth of hell, a crackling noise, high up, attracted our curiosity. After some time we located it far, far above, among the intricate maze of rock and ice. What seemed to be a few pailfuls of snow were sliding down there, forming tiny cascades over diminutive ledges.

* Leading to the ridge between Gulba and the N. peak.

But the noise grew, as did the moving mass, and we became intensely interested in its progress, wondering where it would go, for as yet its final destination was a matter of conjecture. But it grew and grew, and became a long fat serpent which wriggled and bobbed in and out among the rocks, hissing louder and louder. Suddenly it shot round an unexpected corner with a raucous yelp, and then we knew it wanted to play with us. 'Run!' I shouted, and I did run until a restriction round my waist threw me floundering into the snow.

I was up again in no time, and, as I felt that further progress was impeded, I cast an inquiring glance backward. The man at the other end of the rope seemed to be rising from the same kind of predicament, for he was white all over. He was also gesticulating, and though his words were drowned in the approaching pandemonium, I could, despite the uncertainty of circumstantial evidence, safely infer that his language was a match, if not in volume, at least in quality, for that of the mountain. Evidently there was some misunderstanding, but no leisure to argue the point.

Fortunately the avalanche stopped where its predecessors had ended, but it spat out two huge blocks of ice the size of writing-desks. These it shot far beyond us, depositing them about six feet from us on each side, thus evincing a care for symmetry which we thought rather cynical at the time.

Explanations ensuing, it transpired that the seven-foot Titan, who has the bump of combativeness and is a fine swordsman, wanted to stand up and dodge the fusillade. I had ignominiously turned my back, with the result that the rope proved the strongest of the three. Finally we settled the matter by congratulating ourselves on our caution in having selected a slight bulge of the snow as our observatory. We had felt the pulse of nature as intimately as possible, and retraced our steps fully satisfied.

At one o'clock we were back on the rocks, where we spent the afternoon sleeping or watching the unholy battle-ground where the fierce sun sucks the marrow of icy giants whose corpses cover the white arena. Only death gives them a voice and the power to shatter, but it is the same death which bids them call forth new life down in the valley, on the field, and in the flower-garden.

Towards evening the clouds withdraw and sink away behind the Leila chain, to break forth again at noon, like wolves from ambush. At last the evening glow flares on the summits of the Caucasus, and soon the stars scintillate in the

clear blackness of the night. Only far below over the Ingur valley lies a thin transparent cloud-sheet, frail and delicate as a cobweb carpet for the dance of elves. A little light twinkles on a rock island among the snows of Ushba; there the besiegers lie in wait.

The night is calm and the silence is solemn; there is only the faint trickle of a streamlet babbling from under the séracs near by. Now and then a rattling and rumbling reaches the ear from the ice-fall, but finally frost throws its spell over everything.

The moon rises and illuminates the valley. Something moves among the boulders; shouts are heard; the hour for starting has come.

Following the guiding spoor, which we had laid out in the morning, we soon reached that part of the glacier where every fissure was choked. We first had a tedious struggle over agglomerations of those insidious avalanche fragments, and then made speedy progress in the smooth and hard, if somewhat uncanny, channels—the tracks of demoniacal toboggan parties. In spite of our undaunted assurance that nothing would fall in the night, we hurried on with bated breath and reached the bergschrund in 3 hrs. from our bivouac. We had some difficulty in getting across, for the only snow-bridge collapsed when I tried to ‘swim it,’ and we were kept at work for an hour till we got to the rocks of the E. face.

By the E. face I mean, of course, the precipice from the summit to the Gul Nevé, and which is at right angles to the great couloir. The S.E. incline is quite another thing. Freshfield says, in his Topographical Appendix: ‘It is possible the cliffs of the E. face may be surmounted by a long, complicated, and arduous climb. In appearance they are not unlike those of the Meije, but on a grander scale.’

I agree with the above, and have come to the conclusion that by a continuous climb of, say, 15 hrs.’ duration the summit can be reached over these cliffs. They are feasible everywhere, but comfortable nowhere; it is hardly possible to find an easy place on them. Huge slabs, 10 ft. to 30 ft. high, are piled up one above another, leaving narrow ledges at the joints. But the material is firm. No water can be obtained, and it is doubtful if a sleeping-place could be discovered.

Looking upwards they are deceptive; hope fashions paths, progress is slow. For long hours there is the grating of boot-nails, the rattle of ice-axes, and the rasping of the rope.

The searching hand gropes for crannies and ledges, the feet seek support, and the knees cling to the rough surface of the granite. Hour passes after hour, and still deceitful hope leads on. The sun rises high, and burns on the stone; the blood boils in the cheeks, the lips are parched with thirst. Tireless toil without end, always the same.

Is it a demon, is it a god—the 'I must' which pitilessly urges us onward? One thought only holds the mind enthralled—where are handholds, where are footholds, where's a way? Higher and higher still, always the same play of fumbling fingers, of muscle and sinew lifting the reluctant body. Heavily the ardent desire weighs on the half-conscious brain.

Suddenly a vicious shock starts the sultriness which hangs about, a sudden horror grips the heart; eye seeks eye. A harsh and aching note rends the sullen air, as if the mountain groaned. Then a crackling, seemingly so near in the stagnant silence of the snowy desert, as if it were the gnawing of a mouse in the corner of a cold and empty marble hall. A sérac, higher than a steeple, slowly sinks, and while it sinks everything is quiet. Then comes a crash, a crash so terrible that the fingers clutch the rock in despair. It thunders down and wreaks destruction among the blue columns and spires of the icy palace. Everything is mown down, all sleeping powers are awakened.

Blocks are hurled in high trajectory, pounding to dust, exploding on the rocks, ramming, smashing, banging. The slope is in riotous uproar, which swells and swells until all the chaos united in one compact mass is irresistibly borne valley-wards. The tumbling of boulders and bursting of bombs is swallowed by one long-drawn, menacing roar that makes the mountains tremble.

A huge white cloud rises in front of the fuming monster; it rises so high that the distance is hidden from view.

Gradually the clamour grows weaker and dies away, a mere muttering in the bowels of the glaciers.

The avalanche reins in, and from the pressure of the settling pack issues in agony of death a stertorous, angry hissing. At last it is still—quite still; only now and then a little stone buzzes down the slide.

We were staggered, to say the least; the thing was appalling in its savage, unfettered magnificence. It made us feel small, pilloried as we were, exposed to the gibes of sniggering goblins who thought us at their mercy.

Our spread-eagled glory and mental condition suggested a coat of arms as a symbol of our position :

1. Ermine, two climbers rampant in distress proper on a wall.

2. Azure, a tent argent flanked by a Svanetian in dress improper, waiting.

3. Sable, an ibex clymant or on a mount in base gules and with a grin sinister.

4. Vert, a sérac white.

Crest: A summit. Motto: 'Never again.' Supporters: Dexter and sinister, a Russian gendarme bowed with a smile affable, holding in his dexter paw a paper with inscription 'Palmoil.'

But still we went on, until the hour of the day compelled us to hold wise counsel. It is true we were not quite unprepared for a night on the E. face of Ushba—as testified by our bags, filled to bursting—but then it was an awkward place in case of retreat from bad weather; moreover, the avalanche had somewhat grated on our nerves, and we were tired and weary in spite of our splendid form.

After 6 hrs.' hard work we had only reached a height of about 400 ft. above the base of the wall, and the top was still some 1,500 ft. higher. So we backed out, and were glad to reach the snow again 2 hrs. later, the descent being rapid, as we found convenient knobs for hitching on the rope.

Our fears concerning the ice-fall were not very grave, for we considered that the glacier had been so thoroughly and efficiently flushed out as to pass muster for some time to come; nothing in the least shaky or insecure had been left behind. The long, broad trough, asphalted with beaten ice-dust, proved an ideal highway. We shot down post haste, and in ten minutes were out of the dangerous zone which the night before we had taken 2 hrs. to traverse.

For the rest of my mountain career I shall not give the séracs such a chance again. Once in a lifetime is enough; the thunder-sermon is not preached in vain.

Our programme for the 12th was to act 'A Night Out,' and this time Muratbi, the ibex-hunter, was to have a share in the display as porter. He did not confine himself to the part assigned to him, but sometimes dropped out of it, and into that of a burden. On the whole, however, he did admirably, and only occasionally gave us an opportunity of practising the gentle arts by which guides 'elate' their victims; besides that his frame, robust as it seemed, could not have borne long our studies in dynamics.

The intervening day was given over to elaborate preparations. A sombre spirit pervades the scene, as over every

article arises the grave dilemma 'to take or not to take.' We managed, however, to limit the three knapsacks to 30 lbs. and to come to terms over the method in which the rope was to be coiled. One feels always very deeply about this, though the destruction of the work of art at the roping station adds but another pang to the gloom of the coupling process.

I distinguished myself on this day by giving the world a splendid invention—a patent food, which will be greeted with glee by the guileless mountain-babies, who so sternly cling to the breasts of nature and who want a tonic to stimulate their earnest endeavours.

Listen! Take cocoa and milk and plenty of sugar, and cook a sweet mixture. When cool add raw eggs *ad lib.* (be wily, reckless climbers, there is sometimes something that reeks to heaven over the slaying of unborn chicks). Flavour with not too much brandy nor too little. It is a thing of beauty; it smoothly glides down, food and drink combined; it has the weight of richness, and leaves on the tongue a delicate hint of the flavouring. The wanderer's throat thrills with delight.

I prepared half a gallon of the precious nectar and tenderly deposited the capacious vulcanite bottle in my rucksack. No mortal lips but mine had touched it; only heroes on the field of battle were to taste the ale of gods.

We did not start very early next morning, our route lying almost entirely over rocks. The bivouac was to be at the base of the great prism, Ushba's tiara. The S.E. face over which we wanted to climb is a triangular buttress, whose apex supports the S.E. corner of the crowning pyramid. The rocks are not difficult, but fearfully complicated; the surface is immense, and at close quarters dissolves into a maze of gullies, ledges, snow-patches, platforms, chimneys, and other details of a mountain's intimate anatomy.

We crawled diagonally towards the N., finally reaching the edge where the face breaks off to the Upper Gul Glacier. This edge or ridge we took as guide, advancing steadily and without much difficulty till about 4 o'clock, when an overhanging crack solicited a lengthy interview. Hacker took up the argument. He at once tackled the premises, accentuating his definitions with choice quotations from a popular vocabulary, and came out uppermost as the crowning conclusion of his muscular deduction. But the crack interpellant jumped to a side-issue, and when the baggage was to be hoisted it stuck somewhere invisible from below or above. A little see-saw soon loosened it. I felt an impact on my head, and knew it

was an ice-axe rebounding with that springing elasticity we all know ice-axes exhibit in contact with hard surfaces, and which makes them describe such elegant curves when careering down the hill-side. I saw the flag of Uncle Sam frantically wavering before my eyes, and when I regained consciousness I descried a plump green object jumping over scree and shelf. My innermost being was convulsed, choking the shriek of rage. The bag disappeared, but an unseen voice proclaimed from above, 'I can see it, there it is.' Three hundred feet lower down I found it, just on the verge of space.

I hardly summoned enough courage to untie the string; I shirked the fearsome revelation; all hope had died. Within those capacious folds a loathsome chaos met my gaze: candles, bread, gloves, sugar, maps, petroleum-machine, and the fragments of the big flask—everything coated with a brown and slimy ooze, the sweet fragrance whereof drove the stealthy tear of regret into my eye. The *Wiederssehen* which a glowing imagination had pictured to me was that I should be able to exclaim with Faust:

— Hail precious phial, thee with rev'rent awe
I from thine old receptacle withdraw.

But the gods were jealous as ever, and with one fell stroke abolished the drink and the quotation, the vile matter and its ethereal transfiguration.

When after an hour and a half we were again united the twilight was approaching. But as if to jeer us out of countenance the day kept its eye open long enough to help us on a little further, to the shaky top of a shaky pinnacle. This was one of those things which generally manage to crop up in similar localities. A few loose pillars and blocks piled up without regard to the Building Act, with a cunning staircase *à la Cheops* on one side, and a smooth perpendicular drop on the other. Our disgust on finding ourselves lured to this advantageous point of view was as unlimited as the stop was sudden and decisive. Within a range of 500 ft. to our left—on the right there was no range at all—we had followed the only decent line of ascent. Our eyrie stood on the rim of a smooth and oily flow of slabs, whereas beyond there stretched the boundless tossing cataract of rugged rocks brimful with potentialities of paths. Donkin and Fox realised one of these, for they stood at the foot of the final wall.

We retreated to the gay tune of 'We won't go home till morning,' and a few yards under the top found a nook in the atmosphere—a stone wall on one side, and a floor, 4 ft.

square, being the only impediments to a consummated *nirvana*. Being in a way prepared for emergencies, we bore with equanimity the ironical leer of the rising moon and set to making tea. The 'Excelsior'* roared lustily, in spite of the bold curves which its component parts had received in the fall, and soon our castle in the air was the scene of merry-making and mountain talk. Going to bed was a thing of comparative luxury, as we had taken our blankets and Tiflis leather jackets. Hacker, who has not kept his body within regulation length, found as little sympathy from Ushba as from Russian innkeepers, and was therefore obliged to project into infinity one end of his finality, which philosophical problem lasted him till sunrise.

I felt the cold more than I expected; also somebody's feet were in my face, and stones were actually growing into my flesh, in spite of all the rigidity of mineral science. Muratbi was constantly groaning, and I dared not stir for fear of disarranging the scientific and well-planned intricacies of the common couch.

Nevertheless I slept very well, admiring the landscape or tracing out a brown study called forth by a little shower of snow which fell at midnight. The scene was weird, gruesome beautiful as a 'blue-print' photograph. In the mysterious twinkle of a myriad of stars Ushba rose cold and stern like a gigantic sphinx which hides our destiny. Below on the glacier voracious jaws yawned in the pale moonlight; on the ridges stood the black and threatening towers, the hurlers of deadly missiles; white, lurking snakes of mist glided through the lonely passes.

The returning sun was greeted with joy; it warmed the rocks with its friendly rays. We were not in a hurry, and spent the day in one long descent, snoozing or breakfasting wherever an inviting locality offered itself.

The following night I dreamt of an ice-bag on unwonted regions of my surface, and when I awoke I found that the tent had collapsed under some tremendous weight. Struggling to our feet, we succeeded in shaking off the incubus and in propping up our abode, after which sleep was resumed with a businesslike earnestness.

In the morning a winter landscape greeted our eyes, and we descended to Betsho to watch and wait. Betsho was a vale of tears, and the blank walls of the *Cancellaria* refused to give up their secrets. My learned friend is a great cook, but as

* By the way, a most useful and reliable camp comfort.

we could only dine every two hours much time remained, the slaying whereof was at the sacrifice of as much repose of mind.

Our library consisted of an account of Merzbacher's Caucasian tour and a volume of legal information. The travel-tale had been perused—with profit—dozens of times, but the other work of fiction did not seem to rouse much interest, even in him who had brought it over the sea and far away for his own particular delectation. Our attentions to Merzbacher were rewarded by a brilliant inspiration. We read something about Prince Dadeshkeliani, and on learning that members of the family were at Zkhomari—3 hrs. distant—we promptly saddled the horses and sallied forth in search of an interview and new sensations. We found two charming princes (Otar and Tatarkhan), and two still more charming princesses, and also sensations—plenty.

Svanetian hospitality is sincere, joyful, heart-opening. But it has also its exigencies which good taste bids the guest observe, and consequently, after the lunch of welcome, I was unable, for the rest of the afternoon, to properly assimilate the beauties of the surrounding scenery. My only excuse is that the salmi of tur (ibex) was rather sour, and that I must have mistaken something or other for glacier water.

At supper, which was at the usual and appropriate Caucasian hour of midnight, Otar treated us in a roomy Svanetian hall. On all sides was a heavy masonry of rough stones, a ceiling with smoky rafters overhead. On the floor a big fire sent tongues of flame high into the air, while on the walls were iron baskets with burning fir-wood to light up the sombre recesses of the vast mansion. A host of servants was busy round the boiling pots, and on low benches sat a multitude of men, women, and children eating, talking, or awaiting the orders of their master. At a sign from our host a chorus of twenty deep-voiced men intoned the thundering war songs of their race; the lofty roof rang with the rhythm of the rush of horsemen and the shout of warriors. I shall ever cherish with a tender and melancholy memory a scene like this. How long will they remain, these heroic echoes of mediæval romance?

Hearty thanks and good luck to you, princes of Svanetia, your soil is holy to the mountaineer.

May your descendants—the rush will come—own the biggest *snob-sarais* with the biggest dividends; but oh, let us hope to see it not.

When the clear weather had returned and firmly established

itself, we again took possession of our top flat at Gulmoraine Mansions. The third attack (20th) landed us on the top of the snow col which lies S. of Ushba, and offers a pass between the W. glacier and the Gul glen. We had a delightful night climb in utter darkness, which added the proverbial 'peculiar charm.'

It is curious to feel the presence of companions only by the crunching of the snow, and the tugging on the bit of rope which is visible in the radius of your lantern.

Having started at 1 we arrived at 6 A.M., just in time for sunrise, which was grand. The view proved instructive, and a descent to the W. practicable.

Our main object was defeated by a hard, strong, and forbidding wall. In exchange we got an insight into the formidable and well-stocked armoury of that horribly rotten sierra, which is so conspicuous for its sustained and voluminous cannonades, and its array of spikes.

Our descent was an exhilarating glissade of several thousand feet.

The end of the month came nearer and nearer, and seemed to warn us with a familiar 'remember, remember.' Once more would we make an attempt before allowing winter to close the gateways of Svanetia behind us. Perhaps we might succeed where others did, and therefore this time we chose the N. peak, which has already felt nailed boots on its crest.

True, man steps but reluctantly into the raw night air musing whether mountaineering is a duty or a pleasure, till in obedience to the law of self-imposed discipline he arms himself with resolution and marches on. Again, as many times before, we see the illuminated tent sink back behind like a fat glowworm reposing in the grass, and we picture to ourselves the freezing Grigor who dons three pairs of stockings and returns to the warm bed from which his master's craving for coffee had roused him.

The awakening day saw us on Cockin's route, evading treacherous man-traps. Our spectators were the blue towers, whose thunder can drown the cry with which the soul is torn from life—whose impetus can wipe away the faint tracing on the virgin board.

Crouching in powdery snow, over icy vaults, hacking steps on steep inclines, we gradually advanced, simmering in the sun, shivering in the shade. The gap between Ushba's summits came nearer and nearer, but each step brought new difficulties.

A rocky island on the ice-slope invited us to rest. The

heat had begun to act, and the snow-cloak here and there glided from the polished armour-plate beneath. In the Ushba couloir we also discovered an array of tottering shapes, whose impending terrors were but too familiar to us.

We therefore held a solemn parley, and spent 2 hrs. in alternately convincing ourselves that we were cowards and ought to go on, and that we were wise men and had decided to turn back. Verily, man fights his toughest battles with himself! So-called superstitious people, whom I secretly suspect to be practical and shrewd, settle such matters in ten seconds by counting their waistcoat buttons. But as the final decision had probably long ago been settled beforehand by everybody—notwithstanding outward show—we knew we had plenty of time. Why hurry? The sun was warm, and the view was superb, surrounded as we were by an awe-inspiring glacier panorama of great wildness. Just below us we could see the knife-edge of Gulba, with a cairn balancing on the top. By this we knew that we were 13,500 ft. high, and curiously enough this represents the average height which we attained on all four occasions.

When on the point of starting for the return journey we got to hear our justification from the mountain itself. Near the gap, just where our route would have led us, something came away, spluttering down the gutter.

In order to leave the slope as quickly as possible—for it was now fairly alive—we let each other down by the length of the rope, one only moving at a time. When we entered a region of crevasses this expedient was not exciting enough for Hacker, and he devised a new scheme, which was to take us across in fine style.

He explained everything carefully to me, and started bidding me to send on Muratbi as soon as the intervening rope was paid out. This I did, and, firmly anchored in the snow, I waited for the signal. When, however, neither the first nor the second man betrayed any intention of slowing down, I had some doubts about my instructions. These doubts, however, were vigorously cut short, for the rope was now taut, and the next moment found me uprooted from my moorings and swimming in the seething wake of the others, head foremost.

At the somewhat shapeless rendezvous which united us I was severely reprimanded, though the thing had, on the whole, come off exactly as my long friend intended, only that my stubborn resistance had kept him in gasping suspense for a second or two on a rather concave ice-bridge.

I think the man in the middle has the most enviable and irresponsible position. He will be neither foundation- nor key-stone of the majestic pile erected at the finish—a happy medium, indeed!

Again the assault had failed; but a prudent retreat is better than death with victory in your teeth.

And if the mountain taunts you and defies you to go on, then remember that you must also go back, and that everyone who comes home well has already won an honourable day.

THE ASCENT OF THE GRAND TÈTON.

[We are indebted for the following narrative to Mr. W. O. Owen, of Cheyenne, Wyoming, U.S.A. Whilst we are glad to publish Mr. Owen's narrative we have thought it right to print (pp. 559, 560) a letter which we have received with reference to the ascent of Messrs. Langford and Stevenson. On the points at issue between the parties we must not be considered as expressing an opinion.—*EDITOR A. J.*]

TRAVELLERS and tourists generally agree that there is at least one section of country in the Rocky Mountains that possesses truly Alpine features, and that such section lies immediately S. of the Yellowstone National Park, in North-Western Wyoming, U.S.A.

Here are resplendent sheets of cold blue water extending for miles along the valley of Snake River, from which rises the eastern slope of the Teton Range, a wild and rugged spur of the Rocky Mountain system, covered to the timber line with magnificent forests of stately pines, whose upper border is gracefully trimmed with a garniture of eternal snow. Turbulent cascades and gentler waterfalls abound in the numerous cañons, whose walls rise from 2,000 ft. to 4,000 ft. above the frothy and impetuous streams at the bottom.

All the waters abound in trout, and the hunter in this locality finds his paradise. Deer, bear, elk, mountain sheep, and moose are still plentiful, and to be obtained with very little effort.

For the mountaineer there is also a fair field of sport, and if it is true that we cannot offer the Alpine glaciers, crevasses, bergschrunds, &c., it is also a fact that the rock-climber will find his cup of satisfaction overflowing when he visits the Teton Mountains.

The Teton Range is some eighty miles long, with an average elevation of 10,000 ft., many of the summits rising 2,000 ft. higher, and the loftiest of all, the subject of this

sketch, piercing the clouds at an altitude of 13,800 ft. above the level of the sea.

The Grand Teton is, beyond question, the noblest and most imposing peak in the United States. It rises from the valley on the E. side with an abruptness that is simply startling. One may approach to within four miles of the summit and still be 7,200 ft. below it. From this point the crest of the peak is viewed under an angle of 20° from the horizontal, and the sight is grand beyond description. The peak extends 4,000 ft. beyond the timber line and 3,300 ft. above the line of perpetual snow, its unusual isolation and lofty reach making it the great landmark for miles around.

With the exception of the renowned Alpine peaks there are few, if any, more widely known than the 'Three Tétons.' They are visible for scores of miles in every direction, and have been particularly noticed by the hosts of tourists who annually visit the Yellowstone Park. The Grand Teton is the northernmost one of the group, and from the Sawtooth Range, in Idaho, it can be seen two hundred miles away.

On the W. side the range rises much less abruptly, the foothills extending fully twelve miles from the peak. On the E. side there are no foothills whatever, the range rising from the valley in one unbroken, abrupt slope from 6,500 ft. to nearly 14,000 ft. above the sea.

Approaching from the W. one may reach a point on the glacier that is just a mile—horizontal measurement—from the summit and fully 5,000 ft. below it, giving a slope of about 45° from the observer to the peak's highest point; and every foot of this slope is visible from the place of observation.

Viewed from the mountaineer's standpoint the Grand Teton has no rival in the United States, and few, if any, superiors on the North American continent. There are higher peaks in California, Mexico, and Alaska, but for difficult and dangerous climbing the Teton is unsurpassed.

Numerous attempts have been made to scale this splendid mountain, the first, so far as records go, being that of Michaud in 1843. The height he reached is not known. In 1872 Stevenson and Langford tried it and failed, reaching a point about 400 or 500 ft. below the summit. In 1876 Professor A. D. Wilson, of the United States Geological Survey, reached the same point attained by Stevenson and Langford. Next came Thomas Cooper and party, in 1877, who reached the highest point previous to the actual ascent, stopping only 200 ft. below the top. In 1891 Dawson and Owen, accompanied by their wives, reached a point on the W. side

about 800 ft. below the summit, this being the highest notch yet reached by a woman. In 1897 Owen tried the peak again, but stopped at the point reached by Stevenson and Langford in 1872. On this occasion he attacked the mountain in five different places, but failed to reach the top, although repeatedly attaining elevations very close to 13,000 ft.

With this discomfoting record before us two members of the Rocky Mountain Club—F. S. Spalding and the writer—made an assault on the peak in August 1898, the essential features of which are embodied in the following narrative.

A three-days' journey by waggon landed us in Jackson's Hole, at the E. foot of the Teton Range, our outfitting point being Menor's Ranch, on Snake River, about 7 miles S.E. of the peak.

Taking packs from Menor's, our party of six set out over the valley of Jackson's Hole, a flat stretch of prairie, dotted here and there with cool, inviting pine groves, and cut by several mountain streams of cold, pure water, teeming with speckled trout.

The air was redolent with the breath of the pine; the wild hollyhocks and geraniums never looked prettier; and with God's own sunshine over all, and the mighty Teton smiling upon us, there was nothing to be desired.

Four miles from Menor's we left the valley, and immediately began the ascent of the range through dense pine timber and thickets of laurel. Our packers, Petersen and Shive, had done their work well, and we made wonderful progress up the steep slope, reaching a point just below timber line early in the afternoon.

Here, in a cool cluster of firs, with the Teton in plain view, we pitched our camp at an altitude of 9,500 ft. The party honoured me by naming our bivouac 'Camp Owen,' and at once began preparations for the ascent.

On the following morning the entire party, consisting of F. S. Spalding, Thomas Cooper, Hugh McDerment, John Shive, Frank Petersen, and the writer, headed for the peak, which lay $2\frac{1}{2}$ miles N.W. of our camp. Spalding and McDerment knew of the Teton by reputation only. The remainder of the party had an intimate acquaintance with the peak, each one of them having tried the ascent and failed—Cooper in 1877. Owen, Shive, and Petersen some twenty years later.

The boasting and predictions of success which had ever been a prominent feature of previous attempts were entirely

wanting on this occasion, for we had learned to respect this mountain, and I was pleased with the spirit of determination and quiet hopefulness which seemed to possess every member of the party.

A toilsome climb of half a mile brought us to the south wall of the great cañon extending E. and W. at the south base of the peak, and which has its origin at the middle Teton. Through two miles of crystal atmosphere we saw every foot of the south slope of the Grand Teton—a majestic sweep of granite 5,000 ft. long, with a slope of forty degrees!

Large patches of snow lay upon the naked granite where rifts or niches afforded a lodging, but they were by no means plentiful, the slopes being generally too steep to retain it. Not a spear of vegetation, not a handful of soil could be seen on the mountain above the cañon—nothing but cold granite and snow.

The wall of the cañon is rugged and steep, but we descended to the bottom without great difficulty, where a barometer reading gave us 9,000 ft. for the altitude. Among the rocks where not a vestige of soil could be seen we found numerous clusters of purple gentians, and also a variety of the phlox family, the latter having an odour so vile as to be unbearable. We named this odoriferous plant the skunk flower, and all agreed that the christening was most apt and appropriate. The flower is a bright blue, very small, and has five petals.

The last gentian was found at 11,500 ft., and we found no skunk flower above 12,500 ft. Flies and mosquitoes were plentiful at camp, but we observed none above 10,000 ft., these insects rarely rising above the timber line—in so far, at least, as the Rocky Mountains are concerned—and, while very little has been written on this subject, replies to numerous enquiries I have made point invariably to like conditions in other quarters of the globe.

The timber line in the Teton Mountains is about 9,800 ft., and I have never seen mosquitoes in that region at 10,500 ft. altitude or upwards.

The ascent of the cañon's north wall was toilsome in the extreme, our path lying over either immense boulders and blocks of granite or steep slopes of small loose gravel which would slide on the slightest provocation. Constant watching to avoid flying rocks was necessary all the way up this wall, and it was with a feeling of relief that we emerged from the cañon and stood upon the snout of the glacier which heads at the saddle connecting the Grand and Middle Tétons.

Although this glacier is quite diminutive it is well defined,

and has perfect moraines, and the characteristic progressive motion. The entire region has at some time been the scene of intense glacial action, the characteristic moraines and *roches moutonnées* being in evidence on every hand.

The slope of the glacier is not steep, generally speaking, but approaching the saddle it assumes an incline of thirty-five degrees from the horizontal, and makes a very neat climb.

At ten o'clock we reached the saddle (altitude 11,700 ft.) and stood between the Grand and Middle Tétons. Turning north-east we soon entered a couloir and proceeded along the west side of the peak. There was neither ice nor snow work, the climb being a rock one in its entirety, but none the less extremely difficult and fatiguing, the slope from the saddle for a distance of 1,500 ft. being all the way from forty degrees to vertical.

At an altitude of 13,000 ft. I discovered the cairn and can left by Dawson and myself in 1891. The enclosed record was perfectly preserved, and I carried it back as a memento.

From this point the climbing is such as to permit of no trifling, and, though we encountered neither ice nor snow, it is work that no mountaineer, however experienced, will despise. Reaching the head of the couloir we observed to our left a pinnacle somewhat lower than the main summit, and upon it found the artificial enclosure described by previous explorers. It is built of slabs of granite, which is the rock composing the pinnacles, and in the bottom of it we found a deposition of disintegrated rock from 1 in. to 6 in. deep. The enclosure is about 6 ft. in diameter, is very nearly circular, and is constructed of triangular stone slabs with the apices skyward, giving to the wall a picket effect.

Its great age may be inferred from the deposit of fine dust—decomposed granite—in the bottom, there being scarcely a doubt that several hundred years have elapsed since its placement there. That it is artificial is absolutely beyond question.

Looking eastward we beheld the W. face of the peak—an unbroken granite wall, 600 ft. high, almost vertical, and about 1,000 ft. distant.

Up this wall we must go, or suffer defeat.

I could distinctly see the niche through which I had tried the ascent in 1897, but no consolation came from that. It seemed cheerless and forbidding as ever.

Descending about 200 ft. we passed over to the foot of this wall, and, after a protracted search, discovered a narrow shelf cut into the smooth granite and running northward

about 40 ft. Just where this shelf ended or what it might lead to was not discoverable, but there was no other avenue open and we proceeded to explore.

The shelf is not above 18 in. wide, is nearly level, and throughout its length extends along the solid granite wall of a cañon fully 3,000 ft. deep and almost as vertical as a plumb line.

There was but one way to pass this point, and that was by lying at full length on the stomach and simply wriggling along like a snake, using one elbow and the abdominal muscles to propel oneself. I recall the fact that my eyes were not for a moment allowed to wander into the depths of that cañon until the shelf had been passed. For a greater portion of the 40 ft. the left arm actually overhung and dangled in empty space—a gulf of air 3,000 ft. deep.

Reaching the end of the shelf we found room to stand erect, and soon discovered a crevice leading upward, which we eagerly attacked.

McDerment, having become indisposed, remained at the enclosure, while Cooper had gone but a short distance above the saddle, reducing our party to four.

The shelf here described is 600 ft. below the summit, and the wall rises with a slope of only 20 deg. from the vertical in one sweep of glassy granite.

I don't know what the 'Badminton' people will say when I assure the world that this last 600 ft. of the Teton is probably as difficult as many of the celebrated rock climbs in the Alps; but I am constrained to say it, even at the risk of incurring their lasting displeasure. It is as neat a piece of rock work as one would wish to see, and is certainly not surpassed by anything in North America.

Having reached the head of the first crevice, we stood face to face with another, fully 160 ft. long and nearly vertical. Thanks to the ragged nature of this niche, we were able to pass it in safety, and soon had an opportunity of standing upright once more with a level granite slab under our feet.

Three hundred feet higher we left the W. face and passed round to the E. side, halting at the upper margin of the immense snow-field on the S. face of the peak. The sight was most impressive. A single step southward and one would be hurled into eternity—an unbroken leap of 3,000 ft. ! The slope of the snow-field is steep almost beyond belief, and it is a mystery to me still how it retains its position, seemingly in opposition to the law of gravitation.

We were now but 100 ft. below the summit, and could see

that victory was to be our portion. Passing squarely round to the E. side, we scaled the last 50 ft. without difficulty, and at 4 P.M. stood upon the topmost rock of the Grand Teton, where never before rested man's foot.

A picture of surpassing magnitude and grandeur spread itself around us.

Within the gigantic circle of our horizon lay 75,000 square miles of land and water. One hundred miles to the S.E. Temple Peak, in the Wind River Range, shimmered in the blue, while 200 miles to the N.W. we saw the giant peaks of Idaho—a matchless silhouette on the bluest of skies. To the N. we beheld the mountains marking the northern confines of the Yellowstone Park, and somewhat nearer could see the birthplace of three great rivers—the Missouri, the Green, and the Columbia—which take their respective ways to two oceans. To the E., and seemingly directly beneath our feet, lay the valley of Jackson's Hole—a level expanse, 10 by 70 miles, smooth as a cement floor, and cut its entire length by the majestic Snake River, every sinuosity of which could be seen for nearly a hundred miles.

We now made diligent search for possible signs of previous ascents, but found not a shadow of record. The summit of the peak is 14 ft. by 27 ft., and if the slightest attempt had ever been made to erect a monument, or to leave any other evidence of previous visits, we could not possibly have failed to discover them.

We were the first human beings on the summit of the Grand Teton beyond the shadow of a doubt. We chiselled our names in the granite, erected the metal flag of the Rocky Mountain Club in a mound of stone, photographed the party on the very highest point, and at 5 P.M. began the descent.

The crevices through which we had worked our way to the summit had surely not improved in our absence. They seemed doubly forbidding. The slope was constantly before us, and the certainty that a single false step would launch the unfortunate to the bottom of that cañon 3,000 ft. away was anything but reassuring.

By persistent and painstaking work, however, we reached the saddle at dusk, and the greatest difficulties were disposed of, the remainder of the trip being made in inky darkness.

The large cañon was crossed without difficulty worth mentioning, but in the smaller ravines near camp we were not so fortunate. The darkness was profound, and we groped our way like a flock of lost sheep, never knowing where the

next step would land us, and frequently resorting to the rope to lower ourselves into cañons whose bottoms were an unknown quantity, and whose sides occasionally helped themselves to such of our clothing and flesh as could be taken hold of.

A few bruises and scratches, however, would cover the list of casualties, and they were entirely forgotten in the excitement of our glorious success. At 11 P.M. we reached camp, and on the following day devoted a portion of our time to a celebration befitting our achievement.

Later in the day it was decided that on the morrow another ascent should be made, to secure photographs of the upper portion of the peak, and to erect a monument on the summit that should be visible to the settlers in Jackson's Hole, and thereby verify our ascent.

Petersen, McDerment, and the writer proceeded to the enclosure with the camera, while Shive and Spalding continued to the summit, pausing occasionally to give us a view, and finally reaching the highest point, where a stone monument 6 ft. high was erected, and the national colours waved therefrom.

Two days later the banner and monument were seen by Mr. T. M. Bannon, of the United States Geological Survey, who was engaged in Government surveys in the valley, and subsequently by numerous settlers in Jackson's Hole.

Our first ascent was made August 11, 1898, the second two days later.

One week after we crossed the range on the homeward trip, and looking back could see the giant Teton, against which our efforts had been directed for so many years. Although vanquished he looked as noble as ever; and as we rounded the Snake River range the whole group came into view, forming a picture whose beauty and grandeur may not be described.

Suddenly the mountains became flooded with sunshine, illuminating the Teton Range from end to end, and for the last time we beheld the great white peaks glistening in silent majesty—a perpetual reminder of the infiniteness of God's creative power and of the utter insignificance of man in the great economy of Nature.

THE LAC DE CHAMPEX.

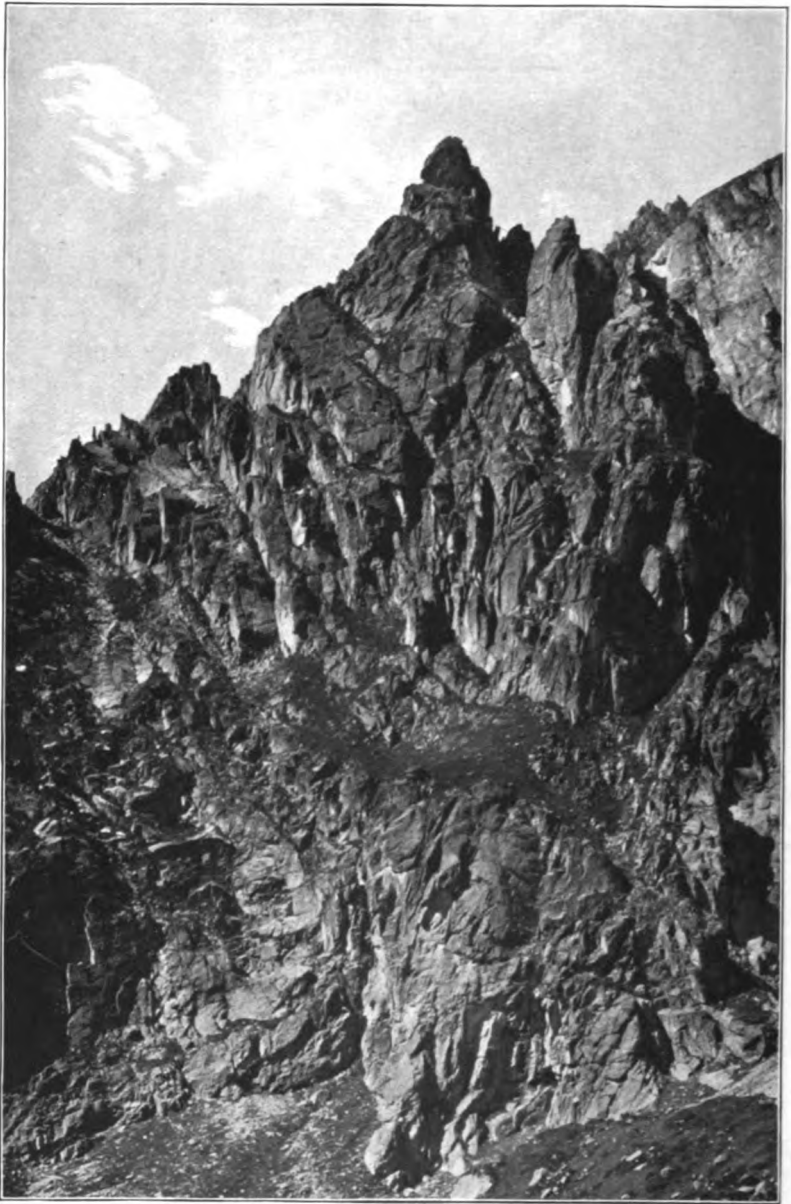
BY THE EDITOR.

THE new edition of Ball's 'Western Alps' (p. 385) rightly describes the Lac de Champex as 'one of the most exquisite spots in the Alps.' Little visited though it be by English travellers, and less by English climbers, it appeals very strongly to all lovers of mountain scenery.

The lake itself is charming, and its setting all that could be wished. The great hills gently uplift their pine-clad slopes from its very shores, and the lordly Combin in his softer moods almost seems to pose in its watery mirror with as much pleasure as Beauty in her looking-glass.

An hour from Orsières brings the traveller to the ridge which forms the western boundary of the Swiss Val Ferret. He then descends gently to the lake, and forgets the dulness of the St. Bernard Road in the loveliness of the scene before him. Hard by the lake are a number of inns and pensions, the best known being the Hôtel du Lac and the Hôtel de la Poste. In 1898, Dr. Tempest Anderson and I spent some days here with much satisfaction. Perhaps the sylvan scenery appealed to us the more strongly because we had just left the Gemmi and its desolate though impressive surroundings. The Miltonic grandeur of the huge promontories of rock, like couching lions, which we saw through ever-moving waves of mist as we looked back at the Gemmi from Leukerbad haunted me all the way to Orsières. Nor was the memory of them dispelled till we reached Champex in the full sunshine of an August noon. We had not come with the intention of doing any hard climbing, for Sylvain Pession only was with us, François having been obliged to leave us to fulfil an engagement at Grindelwald.

On August 31 we had a pleasant walk up the Arpette glen. The first part of our way lay through the woods, from an opening in which—apparently the work of an avalanche—we had a fine view down the Champex Valley, and across the deep hollow of the Rhone to the Lake of Geneva. After the forest we came to the meadows, at the upper end of which the Arpette chalets are found. From this spot the many-headed, much-furrowed, forest-clothed Mont Catogne displayed himself to us. As we continued our way through heather and over broken ground, where the effect of rain



Dr. T. Anderson, photo.

Swan Electric Engraving Co

LE CLOCHER DU LAC DES CUGNOZ.

storms was very evident, the trees gradually grew smaller and further apart, till they ceased altogether.

When we reached a spot at the south foot of the Écandies Group we stopped to lunch and examine our surroundings. The ridge running leftwards, as we looked up the glen, from the Col des Écandies, rose in a savage many-towered wall, seamed with stone-raked gullies, two at least of which were crowned with snow cornices. We heard and saw the stones busily at work in these gullies. The Lac des Cugnoz was all but dry. The Glacier des Écandies seemed reduced to a little snow.

While we were at lunch a sharp rock-needle in the ridge of the Écandies which we had already noticed began to offer irresistible attractions. So Sylvain and I, leaving Anderson to photograph, as soon as lunch was over started for it. At first we passed to the right of the needle's main ridge, over a short steep grass slope which I liked not, neither did Sylvain. We then took to the ridge, and shortly came to a deep cut in it. The face between us and the cut was, roughly speaking, perpendicular. I was let down by Sylvain, who then fixed the rope over the top, and I paid it out for him to descend, though he hardly needed it. We then had a smart scramble up the ridge, and did not turn off it till just under the summit, when we passed to our right and found in front of us at right angles to the main ridge a little corridor with a big stone jammed in it. When we had squeezed through this we reached the top from the Col des Écandies side, after an interesting climb of a little over an hour, or, to be exact, 70 minutes. After a good look at the prospect, in which the Aiguille du Tour took a chief place, we descended to Anderson in 40 minutes. We followed the ridge to the big gap, and then went down the face on the Écandies glacier side. I think Anderson's illustration will fully justify my enthusiasm for this little peak, which we christened the Clocher du Lac des Cugnoz.

From the top we had seen our companion dispensing hospitality to two shepherd-boys who had been collecting thistles. They had each a large sack full. Thus they fatten the montivagous porker. On our return Anderson was entertaining four French ladies with bread and jam. Sylvain and I declined the seductive mixture, but, having found a bottle of wine, surreptitiously disposed of most of the contents, and when Anderson inquired whether the ladies would not like a little Fendant, we shameless ones declared that it would be much nicer mixed with water, and that we were afraid the supply had run somewhat short.

We then started all together for the glen below. The others enjoyed tea which the French party had prepared, while I wandered away to the right. One of the ladies had found a little bunch of white heather, and I was desirous of doing the same. Suddenly, as I was muttering to myself, 'Why, if a lady can discover a bunch, cannot I do so too?' I spied a fine tuft. Though the blossoms were small, they were beautiful.

The next day we again went lazily up the Arpette glen to the Fenêtre d'Arpette. The last bit of the way is steep and rough, though of course not technically difficult in the least. When we had reached the Col we had a view over the lower part of the Trient glacier. After a frugal lunch, at which the remains of yesterday's ox-tongue were, like all Gaul, divided into three parts, Sylvain and I looked about for a rockscramble. The little peak to the E. of the Col seemed extremely formidable for one so small, though if François had been with us we should certainly have tackled him. As it was, we spent a few minutes on the rock on the Écandies side, about 300 ft. higher than the Col. It is too insignificant to want a name, and did not call for the use of the rope. The day was almost cloudless.

On our way back, at about 5 p.m., we were witnesses of an unusual sight—

A throbbing star,
Seen 'mid the sapphire heaven's deep repose

—to the right of the Clocher du Lac. Though the sun was shining, we were at the time wholly in the shade. The Clocher himself looked so truculent that I felt well pleased at having bearded him. On a small scale he resembled the Aiguille Noire de Pétéret, and some rocks to his right were a fair imitation of the Dames Anglaises.

'C'est dommage,' said Sylvain, 'qu'il y a des places vertes; je préférerais la neige.' 'Mais, Sylvain, les places vertes sont assez mauvaises.' 'Mais oui, monsieur.' We heard many marmots whistling, and there was a fairly continuous noise from the missiles that swept the gullies of the cirque opposite us, above a wild and savage wilderness of stones to which they were hourly making additions.

At 6.15 the flying fragments of cloud were very beautiful, as were also the sunlit Catogne and the shadowy valley. Below the Arpette chalets, as we gazed at the Rhone and the Lake of Geneva, the mountains to the left took on an indescribable purple tint, while the clouds and sky were sunset-flushed,

and in the hollows of the hills there gathered a deep blue gloom.

My favourite stroll was to the edge of the Val Ferret. I paid many visits there in early morning, at noon, in the evening, by moonlight. In the morning, from one of the places of nestling green in the forest, I looked down on the *sata læta boumque labores* of the Val Ferret. If the crops fail to reach the Vergilian standard, the green meadows at any rate and the stately forests attain to it.

One Monday early, the all-weather traveller scored once more. I went out in the cold misty air to the forest overlooking the Val Ferret. The clouds enfolded the upper slopes. Suddenly looking up, I beheld the Grand Combin, and immediately in front of him innumerable black rock-needles powdered with snow. It was a splendid sight. As I gazed at it a jay came, and, perching on a tall dead branch, railed at me in his harsh voice.

Sunset on August 30—a *journée ravissante*, as the waitress described it—was a sight to be long remembered. As I went to see it, cattle were winding slowly homewards round the lake, and the music of their bells floated across the water. To the right of the Combin a pale orange cloud hung majestic; on its crest were lawn-like mists of rosy fawn.

The great peak, in this Coan raiment, reminded one of

Those fair ladies who would conceal from us
Only their scorn of all concealment.

Changes came swiftly. First the afterglow, then ere long the clouds behind the Combin began to prepare for black vesper's pageants. Later, when the full moon was regent of the sky, and softened with her tender radiance the placid mere and the high snows, as you stood by the water's edge you could imagine the great mountain to tower up from the other side of the lake. The Val Ferret and the Val d'Entremont are so completely effaced that you forget them.

The scene was perhaps even more impressive when a great cloud, with the scowl of the storm on its darkening skirts, drifted with ragged edges over the huge peak.

But I must not forget to mention the beauties of the sunset from the road to the Arpette Glen. There from an opening in the woods you may mark its changes over the Lake of Geneva and the Rhone Valley, and watch the mountains with the approaching twilight take to themselves a more imposing personality. Their greatness will grow upon you with the growing darkness, and as you turn homewards the breathless

woods seem ready to listen all night to the sonorous flow of torrent and waterfall, already deeper-throated than by day.

On Sunday evening many swains came up from Orsières, and there was revelry and dancing in a little cantine on the road to the Col de Champex. After we had left I saw several advertisements of Champex, and could not help noticing what a strong hold convention still has on innkeepers. Convention requires them to keep *voitures à disposition*, and therefore at least one of the Champex inns offers this advantage to its guests. But where are the roads? Doubtless they go on the principle that where there's a will there's a way.

ALPINE NOTES.

MONT BLANC DISTRICT.—The Pavillon de Bellevue, above the Col de Voza, has been since March the property of the well known guides Frédéric and Alphonse Payot, and in their hands is likely to be greatly improved. Their father, Jean Payot, who knew Jacques Balmat, will be 92 in August, and is still in excellent health. A good mule path was constructed last summer round the north slopes of Mont Lachat to the summit of the Tête Rousse by some guides of St. Gervais, and materials have been taken up for the construction of a 'pavillon' within a stone's throw of the shelter constructed by Bourrit's guides in 1785, but this will hardly be available before the end of the present season. It was ascertained last summer that water had again accumulated in the little Glacier de Tête Rousse; and to prevent the recurrence of a disaster like that which destroyed the Baths of St. Gervais in 1892 a tunnel is being driven through the ridge of rock that separates the Glacier de Tête Rousse from the Glacier de Bionassay Français. The operation appears to be of an exceedingly dangerous and uncertain character and is being carried out by Italian workmen who live in a hut close by. This hut and another on the S.E. side of the ridge of Les Rognes, used by the workmen engaged in building the pavillon, are not likely to be of any use to climbers, as I am told that objections have been raised on the ground that they are not licensed lodgings. The old hut on the summit of the Aiguille du Goûter was put into thorough repair last summer, and is fairly comfortable for a small party, but there is ice on the floor, and no doubt there always will be. A hut is also being built on the Col de Miage, and should be ready for use by the end of July. These various operations are likely to attract climbers to that very interesting but now somewhat neglected district the west end of the Mont Blanc massif. I should like to add that the new route taken by Mr. A. Holmes's party in descending the Aiguille de Trélatête last August* is a great improvement on the old; by means of

* *Alpine Journal*, vol. xix. p. 143.

it we had no difficulty in reaching the summit in 5 hrs. 20 min. from the Chalets de l'Allée Blanche, excluding halts. J. S. M.

MONUMENT TO CHRISTIAN ALMER.—On June 24 last there was set up in the churchyard of Grindelwald, by some of his old English friends, a modest monument in memory of this great guide. It is composed of a plain white marble cross, with an inscription written by Pfarrer Strasser. On the cross arm of the cross are the following words:—

Hier ruht der besten Führer einer ;

CHRISTIAN ALMER,

geb. 29. März 1826, gest. 17. Mai 1898.

On the pedestal are the following lines, also by Pfarrer Strasser:—

Galt's Bergen zu bezwingen,
 Gab's keinen bessern Mann ;
 Wer mit dir stritt und siegte
 Dich nie vergessen kann.
 Jetzt darfst du auf den Zinnen
 Der ew'gen Bergen stehn,
 Wohin dich Christus führte ;
 Dort, Freund, auf Wiedersehn !
Deine alten treuen Fahrtgenossen.

The cross may be seen, a short way on the right hand, as one enters the churchyard by the main gate, near the 'Pfarrhaus.'

A very detailed account of Almer's Alpine career, from the pen of Mr. Coolidge, appears in this year's Swiss 'Jahrbuch.' It is accompanied by a portrait, taken from an excellent likeness which was painted a few years ago by Mr. Charles Flach.

MR. WHYMPER'S 'GUIDES.'—The 'Chamonix Guide' (4th edition) and the 'Zermatt Guide' (3rd edition) have been brought up to date. The former, amongst other new matter, contains some fresh information on the St. Gervais route up Mont Blanc, with a list of the St. Gervais guides, as well as an interesting account of Jean Payot, the father of the well known guides Frédéric, Michel, and Alphonse Payot. The 'Zermatt Guide' draws attention in a similar way to Johann zum Taugwald, 'the oldest man at Zermatt who has been a guide.' On p. 132 will be found an interesting note on the birds which can be seen in the neighbourhood of Zermatt, taken from an account in the 'Zoologist' for 1898 by Dr. P. L. Sclater, F.R.S.

M. GUYER-ZELLER.—We regret to have to announce the death of M. Guyer-Zeller, the engineer of the Jungfrau Railway.

THE GRAND CORNIER.—Rev. George Broke sends the following note:—'In the last number of the "Alpine Journal" Mr. W. C. Compton, in his interesting article on "Some Expeditions from Ferpècle," discusses the practicability of ascending the Grand Cornier from that place *via* the Col de la Pointe de Bricolla. If the time given in the "Pennine Guide" for the ascent to the pass may be taken as reasonably correct, this route would probably be the shortest way up the mountain, as another two and a half hours

should suffice to finish the ascent by the N. arête. The "Pennine Guide" describes this route as "by the N.W. face," but, strictly speaking, there is no N.W. face, the N.W. and N. arêtes running together at a point some considerable distance from the summit. This point of junction can be reached in about half an hour from the Col de la Pointe de Bricolla, or in two hrs. from the Col de l'Allée, in either case by a simple walk over easy snow slopes which steepen at the finish.

'From this point the ascent took us exactly 2 hrs. (July 1891), and we succeeded in following the arête in its entirety, with the exception of only two pinnacles. The first of these, unless my memory deceives me, is the one figured on p. 257 of the new edition of Whymper's "Scrambles," and we turned it on the Zinal (E.) side. The second, which was easier, we turned on the Bricolla side, but I do not think we were ever 20 ft. away from the crest of the ridge—certainly not a rope's length. A fairly strong party who had reached the summit by any other route might quite reasonably try the descent by the northern arête, as I see we only took an hour and a quarter to regain the head of the Moiry Glacier—at the foot of the short slope leading up to the junction of the N. and N.W. arêtes—but then we had, of course, just come up the arête, and knew all the hard places. On the other hand there was a good deal of snow on the rocks, and we had crossed the Triftjoch the day before, to one member of the party the first climb of the season, all of which would militate against fast times.'

A TRAVERSE OF THE ALETSCHHORN, WITH VARIATIONS.—On Tuesday, July 26, 1898, two parties, consisting of the Rev. Walter Weston and Mr. H. Somerset Bullock, with the porter C. Bertholz, of Eggishorn, and the Revs. H. J. Heard and W. C. Bullock, with Peter Brawand, of Grindelwald, left the Ober Aletsch hut at 3.15 A.M., and ascended the S. face or ridge of the Aletschhorn direct to the summit, instead of diverging along the ordinary route by the 'Sattel.' The last part of the climb lay over rotten rocks and steep slopes of very hard snow, which involved some step-cutting.

The summit was reached at 9 A.M., the day being cloudless and the wind strong and intensely cold.

The descent was begun at 9.30, and for 20 min. followed the sharp corniced N. arête, until it was possible to turn to the E. and go down over soft snow, which demanded some care, as it was somewhat loose. At 11 A.M., after breakfast, the descent was continued in a direct line towards the right bank of the Mittel Aletsch Glacier, between the E. arête of the mountain and the two patches of rock indicated on the map to the S. of the Aletsch-Joch. Slow progress was made down the extremely steep slopes above the ice fall, which here would have been almost impracticable but for a considerable amount of soft snow. These slopes at length gave access to a patch of steep rotten rocks, by which a descent was effected to the bergschrund, after the passage of which, at about 12.30, a straight line was made down to the Grosse Aletsch Glacier

and the Eggishorn. The hotel was gained at 4 P.M., after an expedition of unusual interest and variety, combining, it is believed, the most direct routes for traversing this fine mountain between the Ober Aletsch hut and the Eggishorn.

REVIEWS AND NOTICES.

Zeitschrift des Deutschen und Oesterreichischen Alpenvereins. xxix. 1898.

THIS volume, the fourth of the enlarged series, is fully equal, and in some respects superior, to its predecessors, and contains a vast amount of interesting matter. The illustrations are largely increased in number. There are no less than 23 full-page ones, and more than 100 smaller ones in the text. Many of these are from drawings by Mr. E. T. Compton. Some are appended to an article by him, describing some excursions in the neighbourhood of S. Caterina and the Bagni di Pejo, the principal one being the beautiful coloured frontispiece representing the Pizzo Tresero as seen from Val Furva. In this volume there is no separate list of new ascents. These appear in the fortnightly 'Mittheilungen.' But the various articles contain accounts of ascents made in recent years, which are of great and even sensational interest. Prof. Dr. F. Frich contributes an article on 'Muren,' the masses of rubbish brought down by the mountain streams in flood, which not only block up the bed of the stream, but even the valley to which it is a tributary. The extensive devastations occasioned in N. Germany in 1897 gave rise to fresh inquiries. He draws special attention to the harm done by the selection of wrong routes for railways, as in the case of the Brenner line. His general conclusion is that whatever protection woods afford in ordinary seasons, they are of no use in the case of violent rain-bursts: that the object to be sought after is the retention of the rubbish at fixed points, as by building cross dams, to produce a fall and a temporary stoppage of the flow. This we know has been adopted for many years in various countries, and he thinks in this lies the only safeguard.

Herr Ferdinand Löwl, having been employed by the D.Ö.A.V. to make a geological survey of the Glockner group, describes some of his experiences in the course of it, the chief being an ascent of the Gross Glockner, by the Hoffmannsweg, on August 11, 1897. On this occasion there was no snow in the Scharte, and the wire rope was out of reach, whilst on a previous ascent, in 1891, the snow-crest was so high that the wire was buried.

Herr Albrecht Penck, who in the last volume described the glaciers of Sonnblick, now describes a visit to the Illecillewaet Glacier, in the Selkirks. This was made on the occasion of the visit of the British Association to Canada, in September 1897, and was conducted by Mr. G. M. Dawson, the Director of the Geological Survey of Canada. The foot end of the glacier is close to the

Glacier House Station on the Pacific railway. The photographs show how the glacier has shrunk since 1888.

Herr F. Pax writes of the life of Alpine plants, and describes how the higher ones seek to defend themselves. The stems are short, the leaves thickened and gathered in rosettes, the hairs numerous and also finely divided, the plants pressed close together so as to form a continuous mass. These arrangements are rather to protect against loss of moisture than against cold. He points out that when the plants are removed to a lower situation these qualities begin to disappear. It is remarkable also that the upper Alpine flora is deficient in annuals, and that when annuals are transferred from lower to higher regions they tend to become perennials.

Herr Adolf v. Guttenberg discusses a familiar subject, the abuse of the woods in the Alps. This is, no doubt, in a large degree due to the needs of the small proprietors, and when the custom is of long standing it is difficult to cure; both the utility and beauty of the forests being destroyed by the cutting of the branches. Much has been done by instruction, and much also by enabling them to get material from other sources, as in Lungau (Upper Murthal), where the peasants are allowed to take turf free from Government property. The large proprietors are also blamed for keeping up large heads of game, which injure the young trees.

Herr F. Ramsauer writes on the calculation of the distance to which vision extends at different heights, and the extent to which it is affected by the refraction of the atmosphere, which increases the distance by upwards of one-twelfth of the length of the tangent.

Herr Hans Zwiedeneck-Südenhorst describes the campaign of 1805, with special reference to the Eastern Alps, illustrated by copies of three quaint old engravings, one representing the entrance of the French into Eisenerz (Styria), and another a dinner party, where the officers are all wearing broad cocked hats.

Herr Richard Strele, who told us so much in the last volume about the Palmesel, writes of another old custom which has not yet disappeared in Roman Catholic countries—the ringing of church bells and the firing of guns to stop storms. These were supposed to be the work of witches or evil spirits. When the edge of the bell, as happened sometimes, was broken by the violent ringing, it was said to be the witch's doing. Persons were supposed to be safe who were within sound of the bell. In course of time there were persons who pretended both to be able to produce storms and to stop them, and who made their living by it. The firing of guns at the clouds to break a storm was also common: breadcrumbs or old horseshoe nails were fired to kill the witches—the powder and shot must both be consecrated. When the practice was forbidden, about 1780, the peasants used to hide the powder and shot under portions of food, which they brought to be blessed. On one occasion, when Frederick the Great, encamped with his army at Neisse, expected a visit from the Emperor Joseph II., and

the weather looked bad, he ordered the whole army, 86,000 in number, small arms and artillery, to fire at once.

Dr. Aug. Kübler writes on the Thannheimerthal. This is a valley, or rather the upper portions of two valleys, the Vilsthal, which descends W., N., and then E. to Füssen, and the Weissenbach Thal, which descends E. and then S. to join the Lechthal above Reutte. The valley is traversed by the high road from Sonthofen to Reutte. He gives an interesting account of the scenery, the inhabitants, their history, customs, dialects, &c.

Herr Willy Rickmer-Rickmers describes three attempts to ascend the S. peak of Ushba, in the Caucasus. In one of these there were narrow escapes, first from the breaking of a snow-bridge, and then from an avalanche. At the third attempt they were not far from the col between the two peaks when forced to turn back. He believes the ascent to be hardly possible. Herr A. v. Rydzewsky describes the ascent of the Piz Badile by the W. ridge. On June 14, 1897, he started with Ch. Klucker and M. Barbaria at 8 A.M. from the Sassfora huts in the Val Bondasca. At 6.30 they passed the bergschrund. By incessant step-cutting, steps often to take both feet, up a slope varying from 51° to 56°, the spot where the great couloir divides was reached at 9. They followed the left branch, and after overcoming an icy cliff with great difficulty reached the ridge at 11.30, after more than 1,000 steps had been cut. Here they made their first halt. There were still many difficulties on the ridge, and the top was not reached till 3.50. Leaving at 4.50 they reached the Badile Club Hut at 8 P.M. Herr Fritz Benesch writes of the Rax Alp and the Wiener Schneeberg. These mountains, neither of which reaches 7,000 ft., are within 40 miles of Vienna, and the points of approach are easily reached by rail in an hour. Whilst the summit of each is an undulating plateau, their sides are in many parts surrounded by ranges of cliffs, furrowed by many ravines. Thus whilst there are some very easy routes of ascent, the ravines offer as many others, often of extreme difficulty. There are no less than fifteen marked routes up the Rax Alp, and these have become a favourite sporting ground for the young Alpinists of Vienna, caring nothing for the mountain ascent or the beautiful view, but only anxious to break a record or establish their climbing powers. There have been not a few accidents. On the Rax Alp are eight refuges, three of them being of large size and open all the winter. This has led to frequent winter ascents, and increased the number of accidents. On the Wiener Schneeberg are six refuges and one large hotel reached by a cogwheel railway 6½ miles in length, starting from Buchberg. The article is illustrated by numerous engravings from photographs taken by the author, one of them being from a relief of the Rax Alp made by himself. Herr Zeno Diener, the painter, writes of the 'Kaunser Grat.' This is the mountain range which divides the Kaunserthal from the Pitzthal, and extends from the Oelgruben Joch to the Piller Joch. The illustrations show us a series of peaks and ridges of most varied

forms, such as might attract any mountaineer, only neglected because of their mightier neighbours further S. Herr Diener has not made any ascents, but has studied, painted, and photographed the mountains from all sides and seeks to interest the tourist world in a too neglected district.

Herr Frido Kordon, in extracts from his note-book, gives us a series of pictures from various parts of the Hafner group (Malta-thal), including various ascents of the chief summit, one of them being the difficult ascent from the Rothgilden Scharte. The last excursion was on October 20, 1897, when, after climbing two summits, they were driven back by a snowstorm from the Silbereck (9,088 ft.). The Alp Pölla, from which this excursion was made, is so sheltered that the cattle were only leaving on the following day. On this occasion the Sennerin has to bake 'Almzagerlan,' a sort of Alp cake made in various forms, which must be offered on the departure of the cattle to all present to ensure good luck for the next season. Herr Kordon got a 'Gems' standing on a rock, and a hart, both of which he will keep as a memorial of his last excursion in the district.

Herr Georg Geyer describes the main range of the Carnic Alps, bounded on the N. by the valley of the Gail from Villach to Sillian in the Pusterthal, and on the S. by the head waters of the Tagliamento and Piave. He points out the best centres for tourists, describes the different mountain ascents, &c. The article is, in fact, a guide-book to the district. Herr Hans Seyffert has done the same for the southern portion of the Marmolata group. The opening of the Contrin Hut in the valley of the same name S.W. of the chief summit, in July 1897, has given a great impulse to tourists in this district. He describes a number of ascents made by himself and friends. They failed twice on the Vernel (10,500 ft.), which seems to be an exceptionally difficult mountain, which has only been ascended three or four times in the last twenty years. The most difficult ascent was that of the Marmolata (11,020 ft.) from the Scharte between it and the Klein Vernel by the ridge. He was accompanied by a friend, Dr. Dittmann, and the guide Luigi Rizzi, of Campitello. They had failed twice before, in 1895 and 1897. Leaving the Contrin Hut at 5.30 on July 21, 1898, they were in the Scharte at 7.30. All were provided with 'Kletterschuhen' and 'Steigeisen,' and the guide, in addition to the ordinary ice-axe, carried a short 'Handpick.' They had also several 'Stifte' (short iron pegs). After several very difficult passages, in which the 'Stifte' were used, they reached at 1.30 a point from which the ascent was easy, and the summit was reached at 2.35. After $\frac{1}{2}$ hr. they descended for some distance by the usual route, then turned and crossed the western glacier to the Marmolatascharte, which was reached at 5.35, and after $\frac{1}{4}$ hr. halt the Contrin Hut at 7 P.M. The mountain can easily be climbed by the line of their descent, and this will probably be a favourite excursion from the Contrin Hut. The concluding article on the group of the Rosengarten is a sequel to one in the preceding volume by the

late Mr. Norman Neruda. He was unable to complete it through ill-health, and the article has been compiled by Herr Hans Forcher-Mayr, assisted by Herr Hermann Delago. It was partly supervised by Mr. Norman Neruda, and after his lamented death in September 1898 that work was undertaken by Dr. Hans Lorenz. The group is divided into six parts, of which only three are treated of here—(1) the southern group, (2) the central group, and (3) the group of the Tschaminspitze and Valbuonkogel. The account of the central group is from the pen of Mr. Hermann Delago. The highest summit in the southern group is the Rothwand (9,215 ft.), which can be ascended without much difficulty, and commands a very fine view. The Karersee Hotel Company are going to construct a path to the summit. In the central group is the highest summit, the Rosengartenspitze (9,781 ft.). The ascent of this by the ordinary route is not difficult for trained mountaineers. More difficult is the ascent from the S., first made by Herren Santner and Merzbacher on July 31, 1887. The second ascent was made by Herr Delago alone on November 1, 1897. Still more difficult is the ascent by the E. face, effected by Messrs. Phillimore and Raynor, with Angelo Dimai and Luigi Rizzi, on August 27, 1896, an ascent which they considered harder than any other dolomite climb. Next follow the six Vajolet Thürme, three of them being named from their first conquerors and three from their position. Both Mr. Norman Neruda and Herr Delago objected (the former strongly) to naming the peaks after the climbers, but the editorial committee thought differently. The first of the three southern needles to be ascended was the Winklerthurm, climbed by Herr G. Winkler in 1887. This has the boldest form of all the Thürme, and the performance was the more remarkable as it was made when the Kleine Zinne had only just been conquered, and was regarded as the most difficult ascent known. The Stabeler Thurm was climbed on July 16, 1892, by Dr. H. Helversen, with the guide Hans Stabeler. The third needle, which long remained unnoticed, was climbed by Herr Delago on September 22, 1895. A week before, when crossing the Santner Pass, he was attracted by this bold pinnacle and forthwith made for it. He was badly provided, having no 'Kletterschuhe,' and only a bad old rope. After crossing a rock face he got into a chimney so smooth that he had to take off both shoes and stockings. To the left of this he got on to a slope of 'Geröll.' He found traces of footsteps here, and also a small stone man which he learned had been made by the guide Stabeler a few days before. The weather here turned bad; it was very cold, and his feet, besides, were already sore, and he thought it best to return. A week later he returned, and from the terrace he climbed up a crack, then over a steep rock face, and the summit was won. The Haupt Thurm (9,255 ft.) was first climbed by Herr G. Merzbacher, with G. Bernard, on August 28, 1892. This ascent, as well as that of the North and East Thürme, is difficult, but not so difficult as that of the three southern pinnacles. The highest summit of the third group is the Grosser

Valbuonkogel (9,250 ft.). The ascent of this and its neighbours is much facilitated by the Grasleiten Hut (7,100 ft.) in the head of the Grasleitenthal. This was erected by the section Leipsic in 1888 and enlarged in 1897. On the S. side the Vajolet Hut (7,400 ft.), immediately S. of the Vajolet Thürme, affords similar convenience. Attached to this article is a map of the Rosengarten group, including the Schlern, drawn by Herr S. Simon, of Interlaken. It is on the scale of $\frac{1}{25,000}$, with lines of equal altitude at intervals of 20 metres (65 ft.). It is undoubtedly the best map of this district. The names have been fixed after consultation with many climbers acquainted with the group, and also with the authorities of Fassa. Where different names were found to be in use on the two sides, both names have been inserted. J. S.

Landes- und Reisebeschreibungen: ein Beitrag zur Bibliographie der schweizerischen Reiselitteratur, 1479-1890. By A. Wäber. (Bern: K. J. Wyss. 1899. 440 pp. 3 frs.)

The 'Bibliographie der schweizerischen Landeskunde' is a very elaborate scheme for compiling special bibliographies of almost every matter that touches the Swiss people and their land. Each department is entrusted to some competent person, and, when completed, appears as a separate work. It will be many years before the whole scheme, which has been very carefully thought out, will be entirely carried out. But two of the volumes that most interest Alpine readers have already appeared. In 1896 Professor Graf, of Bern, put forth a thick volume (712 pp., including a Supplement) devoted entirely to the maps of Switzerland, general and special. Three years later Herr Wäber (formerly editor of the 'S.A.C. Jahrbuch,' and now one of the editors of the new edition of Studer's 'Ueber Eis und Schnee'), also of Bern, published the volume of which the full title stands at the head of this notice. He modestly calls it a 'Contribution' or 'Specimen,' but it is really a practically complete list of works of travel relating to Switzerland and the immediately adjoining regions. It starts with Albert von Bonstetten's description of Switzerland (1479), and comes down nominally to 1890, though there are a good number of entries of more recent date. After a list of previous Swiss bibliographies, and of periodicals relating to travel in Switzerland (this includes a very useful list of the publications of the various Alpine clubs)—these two lists fill $16\frac{1}{2}$ pp.—we come to the main portion of the work, 'Geographical and Topographical Descriptions of Switzerland and the Neighbouring Districts,' which occupies 367 pp.; 5 pp. of 'Addenda' and 'Corrigenda' follow, and the book is furnished with a most elaborate and careful index, which will be of the greatest service and will save searchers much time, though it must have cost Herr Wäber many painful hours. In the principal section of the book general works are first enumerated, and then special books, the latter being arranged according to cantons, though occasionally there is a special subdivision; e.g. the Bernese Oberland Alps fill 34 pp. to themselves. The order observed in each list is strictly chronological, the names of the authors (or the key-word of the titles of anonymous books) being printed in thick type, an excellent plan that might well have been

extended to the date of each, so that the eye could at once fall on the desired bit of information. But perhaps the most characteristic feature of this minute enumeration of works relating to Switzerland is that it includes not merely 'books' but 'articles' that have appeared, mainly in the publications of the several Alpine Clubs. This is a most practical idea, and will rejoice the hearts of many in search of the best written (in any form) on a special district; but Herr Wäber's labour in compiling this list must have been prodigious, for in his preface he tells us that he has included anything that fills two octavo pages or one quarto page. In fact Herr Wäber has cast his net far and wide, and has brought up a most curious and interesting collection of literary productions, some of which are, however, very far from having any but a bibliographical value. Save in rare cases MSS. are not mentioned, while the compiler has not gone outside Latin, English, French, Italian, and German works.

Any one who has ever tried to compile a bibliography, even of a very special subject, knows the trials that must be undergone, and the inevitable incompleteness of the list at the end, despite the most unremitting labour and care. Herr Wäber, as is clear from his preface, is well aware of both the joys and sorrows of bibliography. No doubt constant use will show that he has unintentionally omitted certain books or articles, or fallen into a certain amount of errors as to matters of fact, despite the long list of those who have helped him. But I am sure that every one interested in publications relating to Switzerland will ungrudgingly acknowledge that Herr Wäber's work is not merely an enormous advance on that of his predecessors, but that it will hold the field for many, many years. The best compliment that those who consult this most valuable and painstaking book can pay the devoted compiler is to point out to him any mistakes that they may light upon; in this way the list will more and more nearly approach perfection and exhaustive completeness.

W. A. B. COOLIDGE.

The Yorkshire Ramblers' Club Journal. (Leeds: The Yorkshire Ramblers' Club, 10 Park Street; and London: T. Fisher Unwin.) Vol. i., No. i., 1899. Price 2s.

We welcome this new proof of the energy of the Yorkshire Ramblers. It contains a varied and interesting series of articles, well illustrated and excellently printed. 'Mountaineering without Guides,' by C. Pilkington, 'The Northern Playground of Europe,' by W. Cecil Slingsby, and 'Dents des Bouquetins by the E. Face,' by L. S. Calvert, form the main part of the mountaineering bill of fare, whilst an account by Mr. E. Whymp of the new mountain aneroid barometer will doubtless awaken in the hearts of Yorkshire climbers a desire to test this excellent instrument on greater heights than can be found in the Pennine chain. Caves and pot-holes are not neglected, and the Lakeland centrist is appeased with a story of the west wall of Deep Ghyll. We congratulate the Yorkshire Ramblers on their successful enterprise, and on their happy fortune in finding so good an editor as Mr. T. Gray.

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P P

CORRESPONDENCE.

LEONARDO DA VINCI AND MOUNTAINS.

To the Editor of the ALPINE JOURNAL.

SIR,—In the volume of extracts entitled ‘The Early Mountain-eers,’ which has been brought together (to use the author’s own expression), with the ‘unconscious aid’ of Mr. Coolidge and others, by Mr. F. Gribble, some three pages are devoted to Leonardo da Vinci as a ‘painter mountaineer.’

I wish to point out, in the hope of giving further aid to Mr. Gribble in any future editions of his interesting Extracts, that his treatment of Leonardo is neither adequate nor altogether accurate. Mr. Gribble begins by declaring that the only passage dealing with mountains in the painter’s writings which ‘palpitates with any sort of actuality’ is the one he quotes about an ascent of ‘Monboso.’ I do not pretend to understand the New English, but I take Mr. Gribble to mean that this is the only passage in Leonardo’s writings in which he refers expressly to his own mountain travels. If this be so he is quite wrong.

In an article of mine printed in 1884, in the ‘Royal Geographical Society’s Proceedings,’ which Mr. Gribble has read, I pointed out that Leonardo makes many references to mountains. The crags of the Grigna above Lago di Como he describes ‘as the biggest rocks he knows;’ Val Sassina, behind Lecco, is rich in ‘cose fantastiche.’ In the Valle di Chiavenna there are ‘deer, bouquetin, and terrible bears,’ but one must climb on hands and feet to catch them. ‘From mile to mile there are good inns,’ and at the head of the valley—that is, on the ascent to the Splügen—‘waterfalls 700 ft. in height, which it is a pleasure to see’ (no doubt the Fall of the Madesimo), and ‘good living at four soldi the reckoning.’ Val Tellina makes much strong wine, and there too living is cheap. ‘At Bormio are the baths.’ To these baths Conrad Gesner, the great humanist and botanist, who was also in spirit a mountaineer, went to repair his health fifty years later.

Mr. Gribble, I may note in passing, while doing full justice to Gesner’s love of the mountains, seems to me hardly to appreciate fully his scientific eminence.

I might add other citations. In Leonardo’s ‘Notes’ there are various references to localities in the Apennines, there are a number of observations and suggestions with regard to the representation of mountains in art, and there is a most interesting series of letters, or draft of a romance, whichever it may be, relating to Armenia, illustrated with sketches of fantastic and apparently dolomitic peaks.

Other sketches of Leonardo’s, notably one of the entrance to a great Alpine valley, with moraine mounds in the foreground, reproduced by Dr. Richter and in the ‘Alpine Journal’ (xii. 346),

bear witness to the painter's powers of observation and illustrate his 'Notes.'

So much for the adequacy of Mr. Gribble's treatment of Leonardo; I have still to point out details in which he has fallen into some inaccuracy.

In citing the passage with regard to an ascent of Monboso, which Mr. Gribble regards as 'palpitating,' he has failed to note two important corrections—'estate' for 'età' and 'rarity' for 'retà'—suggested respectively by Dr. Richter and myself. The adoption of these does away with the need of imputing any 'rash statement' to the painter.

It was, I believe, Signor Farinetti, not Signor Uzielli, who first called attention to the modern Monte Bo.

I may add that further opportunities of local enquiry have led me to modify the opinion I expressed in 1892 on this subject. There seems to me no sufficient proof that 'Monte Boso' was ever used as a synonym for 'Monte Rosa,' except, possibly, by a map-maker's blunder. On reflection I find it difficult to believe that Leonardo, with his taste for '*cose fantastiche*,' would have failed to describe a glacier, had he seen one close. Monte Rosa and Monte Bo ('Boso,' the full name, is found on the last Government map, as well as the abbreviation) lie as far apart as Mt. Blanc and the Buet, and the position of the latter is very clearly defined by old writers through its juxtaposition to the hill of San Bernardo di Trivero.

I trust that, after this confession of my present uncertainty, Mr. Gribble will not think I owe him any grudge for exposing my previous inconsistency in fifteen years ago identifying 'Monboso' with Monte Viso, and seven years ago with Monte Rosa. I may, perhaps, be allowed to point out, however, that the sentence of Dr. Richter's more particularly criticised in a phrase of mine Mr. Gribble quotes contained not only Dr. Richter's guess as to the identity of 'Monboso,' but also etymological statements long since obsolete.

I am, Sir, yours obediently,

DOUGLAS W. FRESHFIELD.

P.S.—It may be worth while, I think, to add that Mr. Gribble's argument with regard to Paccard's missing account of his ascent of Mt. Blanc—that it may never have existed in a separate form, because we have 'no information as to its size, "format," &c.'—falls to the ground when confronted with the fact that in the first catalogue in which it is mentioned Leschevin expressly describes it as octavo.

THE ASCENT OF THE GRAND TÊTON.

To the Editor of the ALPINE JOURNAL.

SIR,—Attention has recently been drawn to the Grand Téton (13,800 ft.), in North-Western Wyoming, 30 miles S. of Yellowstone

National Park, by a successful ascent of the mountain in August 1898. The peak is noted for the unusual difficulties it presents to the mountaineer. Since the first ascent of this grand mountain, on July 29, 1872, by the Hon. Nathaniel P. Langford and Captain James Stevenson, the latter of whom was in charge of the Snake River Division of the U.S. Geological Survey then at work in that vicinity, under the direction of Dr. Hayden, the many attempts to scale it have all been unsuccessful until its summit was again reached in August 1898 by a Mr. Owen and party, of Wyoming. Mr. Owen had, it seems, made two previous attempts, both of which, on account of unfavourable conditions, had been unsuccessful. Due mention of the ascent of the peak by Mr. Langford and Captain Stevenson was made by Dr. Hayden and embodied in his official report of the expedition, while a full account of the ascent was furnished by Mr. Langford to the then 'Scribner's' (now 'Century') 'Magazine,' and published in the June number of 1873. The pride of Mr. Owen in his recent achievement has, it is to be regretted, led him into the folly of attempting to magnify it by the claim that his is the first ascent, which pretension he attempts to maintain by attacking the veracity of Captain Stevenson, who has been dead many years, and Mr. Langford, an honoured resident of St. Paul, Minn. It is an act of simple justice to the memory of Captain Stevenson, a man of the highest and most unquestionable veracity, and only fair to Mr. Langford, who is an author of distinction, one of the founders of Yellowstone National Park, and a citizen of the highest reputation, to state the fact of their first ascent of the peak.

I bring this matter to the attention of your readers, that any wrong impression created by the claims Mr. Owen is putting forth may be corrected, and that the ascent made by Mr. Langford and Captain Stevenson may neither be overlooked nor forgotten.

LUTHER B. YAPLE.

Chillicothe, Ohio : Nov. 17, 1898.

PROCEEDINGS OF THE ALPINE CLUB.

A GENERAL MEETING of the Club was held, by the kind permission of the authorities, in the Lecture Theatre of the University of London, on Tuesday, May 2, at 8.30 p.m., the Right Hon. James Bryce, *President*, in the chair.

Members and their friends, including ladies, to the number of about 700, were present.

The PRESIDENT introduced with a few words Sir Martin Conway, who read a paper entitled 'Climbs in the Andes in 1898,' which was illustrated by lantern slides.

Mr. E. A. FITZGERALD, in proposing a vote of thanks to Sir Martin Conway, said he had read recently that Sir Martin Conway intended to retire and no longer affront the heights. If Sir Martin

Conway really retired from the field, he left behind a record notable among the climbers of the world. Firstly there was the rapidity with which he had achieved his objects; he was at the top of a new peak before his friends realised that he had started from London. His explorations had added something beyond the mere barren records to the map of the country he had visited. Upon this ground, therefore, he ventured to add their special congratulations to Sir Martin, besides those which they all felt in that he had added two new peaks to the list of heights conquered by members of the Alpine Club. As to what Sir Martin Conway had said about Aconcagua, it was, said Mr. FitzGerald, a matter of great satisfaction to him that he had been able to smooth the way for what Sir Martin Conway had too modestly called his sporting excursion up its side. He attacked Aconcagua with the same deliberation and energy with which he attacked Illimani and Sorata, and reached the top without any great difficulty.

Mr. VINES, in seconding the vote of thanks, said that he much admired Sir Martin Conway for having been able to carry heavy loads at a high altitude, and for being so early a riser. He had himself never started till the sun was rising, fearing the great cold too much, and having the example before him of Zurbriggen's frost-bite. He thoroughly appreciated Sir Martin Conway's work, as he knew from experience of the Andes how to value it. Sir Martin ought, however, to have begun at Panama, and he might then have read a paper on 'The Andes from End to End.'

Señor ARAMAYO, the Bolivian Minister, wished to thank Sir Martin Conway for the polite manner in which he had referred to his country and to himself. He congratulated him on the marvellous success of his important work. He deserved the admiration of Englishmen and the thanks of his own (the speaker's) countrymen.

Professor BONNEY had been struck by the great difference between the region round Sorata, which was crystalline, and that round Aconcagua, which was volcanic. On the first there was much more snow than on the latter, though Aconcagua was both higher and further south. The mountains generally appeared to be in a 'shockingly bad state of repair.' From one end of the range to the other denudation was proceeding very rapidly, a point well brought out by the photographs.

The PRESIDENT said that he remembered Mr. Leslie Stephen once remarking to him that volcanoes ought not properly to be considered as mountains, for they were only huge slag heaps. When a boy he had been taught that the Andes were volcanic, an idea held till quite recently; but now the fact appeared that there, as in the Caucasus, huge volcanoes rose in the midst of other rocks. Crystalline rocks gave far greater variety to the scenery than volcanic. South America was not entirely unknown to members of the Club, as it had been visited by Hinchliff, Ball, W. E. Hall, and Whympster; but still few realised the great difficulties in the

way of travel which Sir Martin Conway had successfully surmounted, and of which he had made very little. The people seemed to have as superstitious a dread of the mountains as the peoples of Asia, and this made it difficult to get porters.

The vote of thanks was then carried by acclamation, and Sir Martin Conway showed some more slides illustrating his visit to Tierra del Fuego.

A GENERAL MEETING of the Club was held in the Hall on Tuesday evening, June 6, at 8.30, the Right Hon. James Bryce, *President*, in the chair.

Mr. L. C. F. Oppenheim was balloted for and elected a member of the Club.

The *PRESIDENT* announced that as only five members had intimated their desire to attend the Summer Dinner, it would not be held this year. He informed members that M. Charles Durier, a former *President* of the French Alpine Club and an honorary member of the Alpine Club, had recently died. M. Durier had always been very friendly to English climbers and glad to give them any assistance in his power. It was agreed that a letter be sent to the French Alpine Club expressing the regret with which the news had been received by the Meeting. The *PRESIDENT* also announced the death of Mr. J. H. Kitson, who had been elected in 1867. He had been a very good climber, though he had not contributed to the 'Journal' more than one article, 'The Weisshorn from the North Side.'

The *PRESIDENT* further informed the Club that three photographs, exhibited at the recent exhibition, had been presented, and that Mr. Compton had presented two of his sketches.

Mr. SPENDER read a paper entitled 'Mountaineering in the Pyrenees,' which was illustrated by lantern slides.

Mr. PUCKLE said that he had been in the Pyrenees many years ago. He had been much impressed by the beauty of the lakes and the waterfalls. The beauty of the vegetation made up for the less amount of snow and ice. There was throughout the Pyrenees generally great beauty of form and colour.

Mr. BUTLER had been among the Pyrenees twenty-seven years ago, though he had not done any walking, only riding on ponies with whose wonderful capacity either for level roads or for the steepest ground he had been much struck. He would like to know whether the rope-soled shoes were good for climbing.

Mr. HASKETT-SMITH said that though he had known the Pyrenees for less than twenty years it had been his privilege to see them under the auspices of the late Mr. Packe and Count Russell, and he had heard with great pleasure Mr. Spender's handsome tribute to those great pioneers.

It was somewhat surprising to hear the absence of 'scarpetti' lamented, seeing that the 'alpargata' or 'espadrille' was practically the same thing and almost universally worn. A few hunters wore the 'avarque,' a plain pad of leather under the foot. But on diffi-

cult rocks the natives preferred bare feet to either. Mr. Spender would have done well to ascend the Canigou, which in the days when the 'Edinburgh Review' referred to Mont Blanc as 'the highest mountain in the Old World' and long afterwards was regarded as the highest point of the Pyrenees. From its isolated position at the end of the chain it certainly commanded an astounding view, and could itself be recognised at vast distances, while loftier peaks, such as the Néthou, the Mont Perdu, and the Bâletous, could seldom be seen at all. Mr. Spender's charming book had brought back many delightful memories to the speaker, and he trusted that it would have the effect of drawing many members of the Club into a beautiful country which was still unspoilt.

Mr. MATHEWS wished to say that he did not know a more delightful book on mountaineering than Mr. Spender's on the Pyrenees, and he had never listened to a paper more modest, simple, and delightful.

Dr. WILLS said that he had experienced great difficulty in the Pyrenees in getting food. It was a mistake to regard the Spanish side as a place where lodging fit for man or beast could be obtained. It is probably wiser to take a complete camp outfit with one. As regards foot gear, he had found that their local guide, who wore rope-soled shoes, could beat them going up, but was far behind them in the descent over rough and broken ground, where he had to carefully choose his footsteps; but they, with nailed boots, could step where they liked.

The PRESIDENT had spent five or six weeks in the Pyrenees twenty-six years ago. Canigou was a very interesting mountain, being, unlike the rest, of granite. It stood isolated and with no snow on it. It was said to be visible from Marseilles. Mr. Spender had complained of the want of good guides, but when he was there there were several good men, and he could not help thinking that in the central Pyrenees there must be young men taking up the work. Their guide had used ropes in taking them up the Maladetta, an easy climb of two days from Luchon, the top of which afforded one of the finest views that he had ever seen. Vignemale also afforded a very good view, and it, too, was an easy climb. Count Russell had a genuine passion for the mountains, which was very infectious for any one who travelled with him. With regard to slippers, he had seen in the Tâtra a list slipper worn, which made climbing on rocks very easy, but was of no use on snow. He could quite support Mr. Spender's experience with regard to the suspiciousness of the Andorrans, for when he was there he was looked upon as a company promoter, as at the time the closing of the German gaming houses after the war of 1870 had made gamblers look out for a new abode—it was before the days of Monte Carlo—and Andorra had been fixed on as a good place. The Republic was a curious little place, claiming origin from the times of Charlemagne. The great charm of the Pyrenees was the richness of vegetation in the valleys and the contrasts between

the two sides of the mountain chain; the great drawback, the lack of high sleeping-places. There was practically no such place above 8,000 ft., except Gavarnie. Probably that was why English climbers went there so little.

A hearty vote of thanks was accorded to Mr. Spender, and the proceedings closed.

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THE ASCENT OF ACONCAGUA AND TUPUNGATO.

By STUART VINES.

(Read before the Alpine Club, May 5, 1897.)

THREE years ago I had no more intention of climbing high mountains in the Andes of Argentina than of making a trip to the moon. In June 1896 Mr. FitzGerald was debating in his mind the advisability of taking a third man with him on his forthcoming expedition to South America, when I met him at lunch, and he did me the honour of asking me to join him. So it came about that a few months later I found myself in the heart of the Andes, within twenty miles of the giant slopes of Aconcagua.

I propose to-night to tell you how I made the ascent of Aconcagua and Tupungato. But first let me try and give a sketch of their position and of the geography of the country.

The mountain of Aconcagua is situated roughly in $32\frac{1}{2}^{\circ}$ S. latitude and 70° W. longitude of Greenwich, over 2,000 miles south of the equator and of the scene of Whymper's triumphs in 1880. It is one hundred miles from the Pacific coast in the province of Mendoza, in Argentina, its highest peak being over seven miles east of the water-parting and of the boundary which divides that country from the republic of Chile. Therefore all the ice and snow that melts on this colossal peak, that rears its head 23,000 feet above the sea, eventually finds its way into the South Atlantic Ocean, seven hundred miles to the west. The great white peak of the mountain can be seen on a clear day from the harbour of Valparaiso, some thirty leagues distant, and the rugged features of this huge mass of crumbling stone and ice are familiar to all those who travel along the Pacific coast.

Our actual work commenced in December 1896, and continued till the end of June of the following year. A summary of the work of the expedition has been given in the form of a paper read by Mr. FitzGerald before the Royal Geographical Society; it therefore only remains for me to-night to dwell upon that part of the work which comes under the head 'Alpine.'

Mr. FitzGerald's party consisted of Mr. Arthur E. Lightbody, Mr. Alan de Trafford, Mr. Philip Gosse, and myself; Mattias Zurbriggen was our guide; Joseph and Louis Pollinger, Joseph Lochmatter, Nicola Lanti, and Fritz Weibel, our porters.

At Punta de las Vacas, the furthest point reached by the Transandine Railway, we were first compelled to confront the serious subject of transport, for we had with us several tons of luggage. We therefore hired and bought mules and horses, and engaged *arrieros*, or mule drivers. From this place FitzGerald made a reconnaissance up the Vacas valley, running northwards, and gained a first view of the great peak. He deemed it advisable, however, to move some ten miles up the great pass road westwards to the mouth of the Horcones valley. Our base camp was eventually fixed about two miles from the mouth of this valley, close to Puente del Inca (the Inca Bridge), near the main road which crosses to Chile by way of Cuevas and the Cumbre Pass. Our subsequent attacks on the mountain were all made by way of the Horcones valley.

I must not neglect to say a few words about other attempts to scale this monarch of the American continent. In 1883 Dr. Paul Güssfeldt, the celebrated German climber and explorer, arrived in Valparaiso with Alexander Burgener, with the intention of climbing Aconcagua. The guide suffered from 'Heimweh,' and, too ill to accompany him, returned to Europe. Güssfeldt pushed on with such native aid as he could procure, and made a gallant attempt to scale the mountain from the N. side, crossing over the Boquete Pass from Chile, and attacking it by the valley known as the Cañon del Volcan. He was obliged to turn back, overtaken by night, while yet some distance from the summit. His account of this, and also of his successful climbing of Maipu,* is, no doubt, well known to us all.

There have been of late years some attempts made upon the mountain by the German Turnverein of Santiago. In

* *Reise in den Andes.* 1889.

1897, the year we were out there, they sent a large party to climb the mountain. They followed the route taken by Güssfeldt, but bad weather forced them to retreat at a spot not far from where he had been compelled to turn in 1883. As they had no encampment at a high altitude, and their time was limited, they were obliged to return to Chile. This year they made another attempt on the mountain, with a more elaborate and better equipment sent out from Europe, but were again unsuccessful.

It was on December 23, 1896, that FitzGerald started for the mountain. He took with him Zurbriggen and four porters, together with horses, mules, and a large quantity of provisions. He ascended the Horcones valley and established a camp at 12,000 ft., this being the last place where pasturage was obtainable. The valley after this point becomes a vast wilderness of sand and rock, blocked in places by remains of great moraine heaps. He continued further to the head of the valley, and at 14,000 ft., the way being blocked by glacier, he sent his animals back and made a third camp. The party pushed forward to an altitude of 16,000 ft., where they spent the first night in the open, being too tired to put up a tent. The next day, December 24, was spent in moving camp and provisions 1,000 ft. higher. On Christmas Day, continuing the ascent, they found a sheltered spot under a hollow rock at the height of 18,700 ft., where they formed a final camp from which all subsequent attempts to reach the summit started. On this day Zurbriggen, ascending some 2,000 ft. above this camp, discovered a small stone-man, built of reddish rocks. He found at its base a tin box, in which were Dr. Güssfeldt's card and a small Andine flower. It was at this point that the well-known German explorer, night coming on and the cold being intense, was obliged to turn back, literally to save his life. Two more attempts were made on December 30 and January 2. In the first Zurbriggen got his feet severely frost-bitten, and was with difficulty carried back to the camp. In the second FitzGerald was obliged to turn back, owing to extreme weakness and mountain sickness. Therefore a retreat was made to the pasture camp, in order that all might have the benefit of rest and good food. They returned to the attack on January 5, and made a determined effort to reach the summit. On the 14th they attained a height of 21,500 ft., where Zurbriggen was sent on. FitzGerald struggled to 22,000 ft., when he found it was absolutely impossible for him to proceed further. Zurbriggen arrived at the camp in the evening, and reported that he had reached

the summit, but was unable to get any view, as a snowstorm raged over the peak during the afternoon.

Hitherto my time had been fully occupied at Puente del Inca in keeping up communications by heliograph and supplying those at the high camps with provisions. Zurbriggen, having injured his shoulder when crossing one of the fords in the Horcones valley, was suffering from rheumatism and from the hardships he had undergone in the ascent of the mountain. FitzGerald, therefore, sent him down to Mendoza to recuperate, and called upon me to make the attempt with him.

We started from the 14,000 ft. camp on January 21. After about 1,000 feet we reached the foot of a couloir which is partly filled with a peculiar formation of snow and ice, which we frequently came across in the Andes, called by the natives 'penitentes,' or 'nieve penitente.' The deep snows of winter, cut by the wind and dust, and melted, had formed a mass of ice pinnacles, varying from a height of 3 to 8 ft. A thousand ft. up this couloir and 2,000 ft. trudging over the exposed *débris*-covered side of the mountain brought us to the high-level camp at 4 in the afternoon. We had been 6½ hrs. doing the 5,000 ft. During the last 2,000 ft. our breathing was loud and laboured, not unlike that of a broken-winded horse. It was too cold and stormy to do anything that night, so we crawled into the tent at once. I tried vainly to sleep, but my night's rest was spoilt by intense headache. We woke on Saturday, January 23, to find the whole mountain covered with snow as far as the eye could see.

The following incident will perhaps give you some idea of my enfeebled state after my first night at this altitude. FitzGerald set to work to cook breakfast, which consisted in inducing the fire to heat a little water to make coffee. I undertook to fetch the water, so arming myself with a biscuit tin set off for suitable snow and ice 10 yards away on the other side of the tent. The tent being placed on a narrow ledge I had to cross its numerous guy ropes in order to reach the snow. I stepped over the first rope with one foot and waited to get my breath and gain strength. I then dragged the other foot after the first, and thus proceeded until I reached the snow. I was 10 min. on the first journey, and brought back only enough ice and snow to wet the bottom of the kettle.

It began to snow hard at 10 o'clock: it snowed all day. Louis Pollinger came up at midday with a little wood and

provisions, and went down again in the afternoon. We spent a wretched night. The snow came steadily down and the wind rose, causing it to drift. We got no sleep, as we were practically being buried in the snow. We spent the hours after sunset thumping the roof of the tent, in order to keep the snow from collecting and crushing it in. At 9 I burrowed my way out and brought in the ice axes and boots, to be ready for emergencies. It was a miserable and exciting night, and by morning we were quite worn out. It began to snow again at a quarter past nine, so we made a bolt for the valley.

It was useless attempting further climbing in such weather, so our next start from Inca was not made until February 7. On the 9th Lanti came down to the 14,000 ft. camp and reported that the route was getting more difficult every day. We were about to start on the 10th, when an *arriero*, or mule driver, arrived with a couple of dozen very fine onions, which had been sent up for our use by a gentleman in Mendoza as a sure remedy against the effects of high altitudes. In spite of being in possession of such luxuries the high camp seemed to lack an air of comfort; tent, wood, provisions, and instruments being covered with ice and snow.

The next morning a tremendous wind rendered all work impossible, the snow being blown about in all directions, and we were forced to remain in the shelter of the rock above our tent. In the afternoon, to make a trial of my powers, I went up and inspected Güssfeldt's stone-man. I must have ascended nearly 2,000 ft. It took me nearly four hours altogether. As I felt very tired and done up after this short trip, FitzGerald proposed that we should rest the next day.

Lanti came up about noon on the 12th, and we made every arrangement for the ascent on the morrow; for the weather at last looked promising, and we were conscious of the fact that we were losing strength daily.

Owing to the intense cold, and our vitality being so low at these altitudes, we found it impossible to do much work before the sun came on the tent in the morning; but Lanti undertook to wake us at an early hour, so that we might all have a good breakfast before starting. Unfortunately, being unable to sleep at night, we slept soundly in the morning, and Lanti only roused us at twenty minutes past seven, just as the sun struck the tent. It was a bright, clear day, with a cold wind. From the position of our 19,000 ft. camp it was impossible to see the actual summit of Aconcagua, but the couloir leading to the last thousand

feet, by which Zurbriggen had made the ascent, was straight in front of us, about 3,000 ft. above us. It looked absurdly near, but one would be too much exposed to the wind by this route, and the going consisted of the rottenest *débris* imaginable. Our intention was to follow the route which gave the least abrupt ascent, and avoid the loose surface as much as possible. To our left was a more or less broken line of cliffs, running north from the summit of Aconcagua. We determined to make for the base of these, in order to follow their line to the couloir to the W. of the summit.

After an hour up a gentle slope leading towards these cliffs FitzGerald turned back, being too ill to proceed.

We had a short rest, and I took the lead over some steep snow leading to the base of the cliffs. The condition of the mountain had much changed since the previous month. Zurbriggen had ascended Aconcagua almost without putting his foot on snow; now, owing to unprecedentedly bad weather for this time of year, the snow lay in large patches all over the north-western side of the mountain. At 10.40 we reached the base of the cliffs. I picked my way over the solid rock as much as possible, for we slipped back at every step where the ground was loose. Five hundred feet, with sometimes rock and sometimes *débris*, brought us on to the steep snow slope again, up which we zigzagged until at 11.30 we reached Güssfeldt's stone-man. We had now been going 8 hrs.

From this point I took the direction due E. I noticed that our pace was gradually decreasing; I feared this must eventually stop us from reaching the summit. However frequent halts were necessary. At midday we reached a flat desolate spot, about 30 yards across, closed in on two sides by sharp-pointed rocks, and on the third by a great wall of cliff descending from the summit. It was here that, on one of the earlier attempts on Aconcagua, the whole party attempted to prepare hot tea, to strengthen themselves for the last 2,000 ft. Either the tea was bad or their digestions were out of order; anyhow it made them all very sick. They had left two rucksacks, containing instruments, provisions, and wood. We prepared to take a long rest before the final effort. To all appearance it was an ideal place to make a fire; but there was just enough protection to make it the most draughty spot in the world. We worked hard for half an hour, striking about fifty matches, but were quite unable to ignite the wood; so our hopes of a hot lunch were frustrated. I had brought with me a flask containing port

wine and egg, a mixture we found both sustaining and palatable. We were obliged to content ourselves with a few sips of this and a kola biscuit, and started again at 1 o'clock. Now, in order to reach the mouth of the couloir leading up to the summit, we had to cross a portion of the steep slope of *débris* which forms the greater part of the north-western side of the mountain, and our patience and endurance were tried to the utmost over this rotten stuff. We stopped every 10 yards for rest; in fact, at this period we spent far more time in resting than advancing. We were in that condition when the slightest rebuff damped our spirits and made us wish to sit down and rest, and rebuffs were frequent. Every stone, however firm in appearance, crumbled beneath us. We could rely on nothing, so that instead of going straight across the *débris* we had to keep on ascending, in order to maintain the right level. Every minute either Lanti or myself slipped down as much as a couple of yards, all the rocks, sand, and stones coming down with us, and we were frequently thrown on to our hands and knees. At last we arrived at the mouth of the couloir, some 1,500 ft. from the summit. Our progress became appreciably slower, until at last twenty steps were all we could manage after each halt. Our rests lasted from 30 seconds to a minute, sometimes longer, and if a slip occurred it was sufficient excuse for an extra rest. As we entered the couloir we were to a great extent sheltered from the wind. This was more of a hindrance to us than anything, for when in that couloir—and, in fact, in all sheltered places up to the summit—we found the labour of breathing greatly increased. After about 300 ft. the couloir widened out into a huge amphitheatre filled with broken red rocks. In front was the rock arête between the western and eastern peaks. To the left a great mass of cliff ran out from the summit to where we stood, while to the right great cone-shaped masses of rock and aiguilles towered high above us. Scrambling over the chaos of broken rocks at 22,000 ft. was exhausting work, but after frequent halts we reached the arête at 4.30. I crawled to the edge of the arête and looked over; the side of the mountain ran down to the valley beneath in a great precipice of rock, snow, and magnificent icefall, a distance of 10,000 ft. But we had not time to stop. I at once turned eastwards along the arête, which at first we had no difficulty in negotiating. The surface was composed of loose stones, with a little fresh snow. It was difficult to tell how far we were from the summit, or whether it would take us an hour or

less. I perceived an easier route by turning more to the N., and leaving the arête, which becomes precipitous and very crumbly at this point. In half an hour we reached a cliff, 10 ft. high. I soon scrambled to the top of it, and to my astonishment saw FitzGerald's ice axe, planted in the stone-man by Zurbriggen in January, not 20 yards from me. A few steps more and we stood on the summit of Aconcagua. It was two minutes past 5 o'clock.

There was no time to be lost; night would be soon on us, and clouds were rolling up from the north-west. I crouched near the stone-man and wrote upon my card, 'Made the ascent with Nicola Lanti, miner, of Macugnaga, Italy. FitzGerald expedition, England.' Also I enclosed the following note: '8 hrs. 23 min. from 19,000 ft. camp. Saturday, February 13, 1897. I am leaving here my ice axe, and maximum and minimum thermometers in box.' On reaching the top I had read my aneroid. It had reached the limit of its markings, and stood at a pressure of 12 in. The temperature was 7° F. I set the maximum and minimum thermometers, placed them in their box, and wedged them between two stones at the base of the stone-man, and then cut my name in large bold letters down the shaft of my ice axe, and put it in place of FitzGerald's. With 25° of frost, and the wind blowing the snow from the western peak in great clouds over us, it was not possible to remain quiet very long.

The top of the mountain is a square plateau, which proved on measurement to be 75 paces each way, sloping down towards the south-east at an angle of 7°. Not the slightest vestige of the ancient crater of Aconcagua remains. Some 2,000 yards from me rose the snow-clad western peak of the mountain; the arête by which I had ascended led to it, growing narrower until where it sloped up towards the highest point its edge became knife-like.

The sky to the west was still cloudless, and the South Pacific Ocean, a brilliant blue line in the setting sun, stretched far away in the dim distance to the N. The base of Aconcagua, on its northern side sheltered from the north-west winds, and the head of the great Cañon del Volcan, stretching far away to the N., the valley by which Güssfeldt had approached the mountain, were filled with snow fields and glaciers. Forty miles beyond lay the mountain of Mercedario, dwarfing all the heights around, quite the largest mass of mountain in this part of the Andes. To the S. the clouds were lying in the Horcones valley, fortunately not high enough to cut off

the magnificent dome of Tupungato and the great range to the N. of it.

I had now been more than an hour on the summit, and poor Lanti was nearly frozen to death. Clouds were gathering more thickly round the western peak; it was too late to remain longer. As it was, we should have to rely on the moonlight for a great part of the way to the camp. At 6.20 I gave the word to Lanti to pack up, and in 5 min. we began the descent. During the time we had been on the summit I felt no ill effects from the height; it was only the intense cold that we seemed to suffer from. We retraced our steps to the couloir, and then made straight down the great slope of *débris* on to the snow, and here we tried to glissade. The snow was in bad condition, and I had not the energy or strength to support myself with my axe. The way seemed never-ending, and I was frequently forced to halt to regain breath and strength, but the moonlight helping us our direction was good, and at last we heard the voices of the two Pollingers, whom FitzGerald had sent from the camp to meet us and bring us in.

TUPUNGATO.

The mountain of Tupungato lies about 60 miles to the S.S.E. of Aconcagua, on the great chain which forms the water-parting and the frontier boundary between Chile and Argentina. I started on March 25 from Vacas up the Tupungato valley, with Zurbriggen, Lanti, and an *arriero* of the name of Fortunato. We took with us mules and horses, equipment, and provisions for a fortnight. In three days we reached the foot of the mountain. At a point a little above 10,000 ft. all vegetation ceased, so that we were forced to make our base camp at a very low altitude. We managed eventually, as our portage was scarce, to force a mule and two horses up to nearly 13,000 ft. It was impossible to take them higher.

We bivouacked in the open at 14,000 ft. on March 28. The next day, not really appreciating the immense distance that separated us from the summit, we made a rather late start, and at once began the ascent of the longest stretch of ice needles, or 'nieve penitente,' that we experienced in the whole of our work. These were higher and larger than we had seen hitherto, and careful attention had to be given to our steps, as their sharp points were not fashioned to break a fall. They ascended at a steep angle, and the steps were very high, hardly ever less than 2 ft. We had nearly 3 hrs. of this kind

of work, and ascended over 2,000 ft. At ten we reached the summit of the cliffs above. Before us stretched a wide field of ice and snow to the foot of the great spur which runs out from the dome of Tupungato several miles northwards at a height of 18,000 to 19,000 ft. We crossed the snow field, and, leaving Lanti, Zurbriggen and I ascended over rotten *débris* to the summit of the great spur, and then turned sharp to the south, and made our way along it towards the dome. As with the north-west side of Aconcagua, the surface on the top of this ridge was free from snow. We had hardly reached the foot of the dome at half-past three when the clouds which had been gathering in the north-west collected round the summit and burst in storm. We beat a hasty retreat, and the next day returned to Vacas for more porters, provisions, and equipment.

On April 3 the same party started from Vacas, with the addition of Joseph Pollinger and Lochmatter, and on the 6th made a second attempt from the 14,000 ft. bivouac. The cold was intense; otherwise the weather was everything that could be wished for. We reached the snow field at 8.45 (16,800 ft.). Here we halted for breakfast, to which I alone did justice; the guides were content with a sip or two of wine and a few raisins. Instead of crossing the snow to the foot of the great spur we turned to the south, and ascended by rocks, using the rope, a much better route than by the crumbling side of the ridge. The weather still continued bright, though the cold, in spite of the sun and the good pace we were making, was very bitter. A rest was taken on the top of the rocks, whence looking back we beheld for the first time the Pampas or great plains of Argentina lying at our feet to the east. At 11.30, after cutting steps for a short distance, we reached the top of the spur. There were a few fleecy clouds over the Pacific, but we felt confident we were in good time, and would reach the summit before the inevitable storm came on; so little idea had we of the long climb that lay before us.

It was now midday, and from this time on everything went badly with us. We met the full force of the wind, and, in spite of double helmets and gloves, it was impossible to face it. A halt was made at 19,000 ft., and we all huddled on the leeward side of a rock round which the wind whistled mercilessly. Zurbriggen began to feel very ill, suffering intense pain in his head and stomach. He struggled on somehow for another 30 min., when a halt was called, as we found that Lochmatter was lagging behind. Though the

slope was a gentle one, he was taking very short steps with his long legs. I called and asked him what was the matter. He replied, 'My legs will not work any more.' It was really ridiculous to see this great strong young fellow hobbling up the gentlest of slopes, and declaring his legs had struck work. But from my own experience of this aching in the legs I could quite understand that, intensified, it would entirely incapacitate a man. We sought shelter every 10 min., hoping that the weather would clear, and so for 2 hrs. struggled with storm and wind until it became madness to proceed or even delay our retreat. Exhausted and disheartened we reached the valley late in the evening. Fortunato, the *arriero*, gave his views of the situation—his very name seemed a mockery to us—declaring that no one had ever seen that storm cloud leave Tupungato; that it was now winter; snow would fall in a day or two and fill the valleys below us, stopping all chance of our ever reaching Vacas.

The great distance to be traversed, the effects of the altitude, and the shortness of the days made it impossible to ascend the mountain from so low a level as 14,000 ft. at this season of the year; so that after a few days' rest at the base camp a bivouac was made on April 8 at about 17,000 ft., at the foot of the great spur. I slept here with Zurbriggen and Pollinger. I will not enter into the details of the sufferings of that night spent on the ice. I will merely say that the wind rose to a hurricane, wrecked the tent, and left us exposed to the mercy of the storm, with the thermometer at zero, and that half frozen in the morning we retreated to the valley.

It was now so late in the season—April, corresponding to October in Switzerland—that the guides deemed it impossible to make the ascent. However after two days' rest they became more sanguine, and we slept again at the 17,000 ft. bivouac on April 11. On Monday, the 12th, I made a fourth attempt with Zurbriggen and Pollinger. The weather was perfect. A start was made at 6.30. We reserved our strength by avoiding as much as possible the broken, loose surface. The usual halt for breakfast was made at 9.30, at 19,000 ft. I ate well, while the guides took little or nothing. We bore round to the right, and scrambled for an hour and a half over the rocks overhanging the western side of the mountain. At 12.30 we began to ascend by a snow couloir the actual dome of Tupungato. At 20,500 ft. Joseph Pollinger, who had only suffered a little in the legs up to this point, threw himself down, complaining of pains in the

stomach. I divided his load with Zurbriggen, and, leaving what we could best spare behind, we continued the ascent. Pollinger turned to descend by the easy slope of the ridge to the high bivouac. We now imagined we had about half an hour's more climbing, and should reach the top at two, or a little later. We proceeded slowly, the sides of the couloir re-echoing with my heavy breathing. We were confident that the highest point was on this, the northern, side of the dome, and that our peak was now before our eyes. We directed our steps by an easy slope, which would lead us to it in 10 min. Suddenly Zurbriggen sat down, saying, 'Now it is impossible! I am finished! I go no further!' I looked for the cause of his depression, and saw looming up behind the imagined summit, far to the S., another point still higher. I did my best to persuade him, but to no purpose. He declared his legs would work no more, that the peak was more than an hour away. So there was nothing to do but leave him to rest, while I went on to the nearest peak to see how the land lay. Now, well free of the couloir, there was more life in the air, and I advanced more rapidly, so that in little over half an hour, shortly after 3 P.M., I reached the point observed, but only to be again disappointed. Further to the S., across a wide depression filled with snow, stood up a point still higher by some 100 ft. or more. There was nothing for it; I descended by a rock arête, ascended the steep broken sides of this peak, and found myself on the highest point of Tupungato at 3.45, where Zurbriggen soon after joined me.

My first thought was to construct a substantial stone-man. This was hard work with the light and rotten material that formed the summit. This completed, I made a record of the ascent, which Zurbriggen put in a bottle and placed securely at the foot of the stone-man on its southern side. The sky was cloudless, but a strong wind, with the thermometer at 13° F., rendered photography difficult. In fact, I got two of my fingers frost-bitten in the process.

On the summit of the dome of Tupungato is an undulating plateau, covering an immense area, from which rise three peaks, that to the far S. being the highest. The whole north-western side of the mountain, the great spur, and the plateau, open to the sun, and swept by the terrific N.W. gales, are almost entirely free from snow. I traversed the plateau from N. to S., but could discover no sign of a crater. In between two of the peaks lay a quantity of black volcanic scoriæ, of which I brought home specimens. The

summit rock has been declared by Professor Bonney to be a fine specimen of andesite, riddled with fulgurites, or tubes melted out by lightning.

The view was superb. About 20 miles to the N.E. the Cerro de la Plata stood up from a mass of high mountains. To the E., the Cordilleras became very low, and disappeared in the *cerillos* sloping down to the Pampas of Argentina, which start seemingly from the base of Tupungato, and stretch almost without interruption to the Atlantic Ocean. The rivers winding through this great plain, and the outlines of the villages, could be distinctly seen. To the S. the volcano San José, and Maipu, ascended by Dr. Güssfeldt, were the chief features. The great frontier boundary between Chile and Argentina, of which Tupungato and its northern spur form part, the water-parting of the rivers to the Pacific and Atlantic, was clearly marked far beyond San José to the S. and 50 miles to the N., formed by the beautiful ice peak of Pollera, nearly 19,000 ft., the Weisshorn of the Andes, the great pyramid of Navarro, at least 500 ft. higher, and beyond the great peaks and glaciers of Juncal, 1,000 ft. higher still. A hundred and fifty miles to the W. lay the great blue line of the Pacific. But more magnificent than all was the view to the N., where, 60 miles away, Aconcagua stood up in all its superb majesty, like some huge rock out of a sea of lower mountains; alone, there was nothing to interrupt the eye.

It was 5 o'clock, and an immediate descent was imperative. I had been an hour on the summit, and had been so busy that it seemed like five minutes.

We were fortunate in again beholding the glories of a sunset from a great height, even more wonderful than on Aconcagua. In the twilight the far horizon of the Pampas displayed to our eyes a wonderful rainbow of ever changing colour, a sight of such surpassing grandeur, though my words can ill describe it, as will never pass from my memory.

We reached the 17,000 ft. bivouac in the moonlight at eight, and could go no further, so went supperless to bed.

I regret that time does not allow me to-night to tell you, beyond the few remarks I have made in the course of my narrative, the opinion we have formed of the effect of high altitudes on the human frame, either from our own varied experiences of mountain sickness or from careful observation of cause and effect amongst our men.

I cannot but add how much I regret that one of so little previous experience in Alpine work as myself should have been destined to reach these summits, how much I regret that

the one who so carefully organised, equipped, and led the expedition, who had to bear all the anxiety, who endured greater hardships than us all in making those careful observations at high altitudes so necessary for accurate work, how very deeply I regret that he is not in my place this evening. Had it been possible for Mr. FitzGerald to achieve that which his former brilliant record seemed to guarantee, or for me to have borrowed his eyes and experience, had I been only endowed with a portion of the spirit of Mr. Whymper or Sir Martin Conway, then you would have heard to-night, in place of the bald statement of facts I have given you, a brilliant and able disquisition on high mountain climbing.

THE WRONG SIDE OF SOME DOLOMITES.

By J. S. PHILLIMORE.

(Read before the Alpine Club, April 4, 1899.)

IT is one of the pleasures of making plans before the summer that you climb in forecast peaks which you will never realise, while you often achieve in the event what your forecast never included. Raynor and I accomplished our usual training walk from the Brenner line to Cortina, and proceeded to meet our guides by appointment at Sexten, without dreaming that our first expedition would be the Einserkofel. It is a mountain there are few to see and very few to climb. You pass it on the way down from the Zinnen hut to Sexten, showing a very handsome and unpromising face, of remarkable length if you consider the insignificant stature of the whole. Overnight on August 5 we were still doubtful what to do next morning; but had settled to attempt the Dreischuster from Innerfeld (which is said to be a fine rock-climb), when we were staggered by the news, volunteered by a local guide, Schwanzhofer, that he had two Herren bound the same way, and that two more, nominally guideless, were by agreement to follow closely in their tracks. Dolomites are not suited for parties of nine, but our misgivings so far produced only a resolve to give them a long start. They left at 4, we at 5, in the morning; but so little did we like the prospect that we readily fell in with Michel Innerkofler's idea of trying the Dreischuster from the Schusterplatte side. But we had not walked $\frac{1}{2}$ hr. up the valley before discontent became open mutiny. Was there no climb involving less than a 4-hrs.' grind over

screes and other nefarious introductory matters? Then Toni Dimai suggested the Einserkofel. Now, the N. face of the Einserkofel had been tried by an Englishman whose name we failed to identify for certain, with a Swiss guide and Sepp Innerkofler, about a week before: they had turned back after 9 hrs.' very stiff work. Whether it was really an impromptu idea on Toni's part or not I cannot guess; but if with Sepp's brother (and a very loyal brother) as second he could succeed where Sepp had failed, there would at least be evidence towards deciding the disputed primacy among Dolomite guides. We consented. The pretty face of a rock mountain is irresistible, though the fascination may not take you at the moment of seeing. So the Einser had it, and, after wasting much time and investing a little in observation, we left our boots and axes at the foot and took the rocks at 7.35. The ledge where the former assailants had been stopped was plain to view, about halfway up—a line of attack so desperate that we could not imagine why Sepp had thought it even worth trying. We aimed further eastwards, and entered (not from the bottom, but by climbing over its shoulder) the W. branch of the great unmistakable Y-shaped gully. This accommodated us for 6 hrs.; at a loose estimate it may be 1,200 ft. to 1,500 ft. long: the memory and the imagination are, perhaps, at least as good witnesses as an aneroid and an American mission doctor in these cases. It proved as picturesque as it was difficult—very large in the lower part, so that you are almost always on one or other wall; very hard, because not only the elevation is steep, but the stone very smooth, and in places wet; and a dramatic and impressive setting to climb in. Neither in point of length nor of difficulty can the Schmitt Kamin or the Catinaccio chimney match it. It is more comparable to the upper part of the great gully which divides the Pala di S. Martino from the Cima Immink. You get your views well framed, and you cannot miss your way in a chimney. It contains four great obstacles—the first passed at 9 A.M., the last at 1.20; the third is the worst, being double. The unusual depth of the chimney forms caves under these obstacles, running back quite 30 ft. One might avoid the very exposed and difficult climb out and round the block by tunnelling up into the next step, if it were not for the risk of more coming away out of the roof than you bargained for. Toni confessed afterwards that he would not have faced No. 3 at all unless because of the great risk and labour of a descent over the others. By 1.30 we

were clear, at a point commanding a view of the ledge where Sepp's party turned back. We looked across the valley at the Dreischuster, just opposite, and almost regretted the 4 hrs.' screes; 6 hrs.' gymnastics in a chimney with an uncertain conclusion is stern measure for the first climb of a season. However we were past the point which had looked most doubtful as we hastily planned out a line from below. Our present halt may be recognised as a red spot marked with a deep black centre; it looks over practically clean precipices to the right (W.). We knew the direction of the peak pretty well, and made so lucky a line that we emerged off the face within 5 min. of the actual top at 4.48. The last 3 hrs. had been pretty work—not extremely difficult, but extremely steep; the place recalls one of the newly invented climbs in Val Canali at S. Martino, the Torre Giubileo. The climb thus is a true traverse; we never saw a finer performance on Dimai's part than his leading. The ordinary descent towards the Zwölfer is quite free from difficulty; it is described in Wolf von Glanvell and overrated in the 'Hochtourist.' However it was too late to dream of circumnavigating to our boots, and we convinced ourselves of what no one, perhaps, ever doubted—that there is nothing to be said in favour of klettershoes for walking over screes, rough paths, or steep grass. However we did reach Bad Moos at 9.15, where the first news we heard was that the two guideless climbers in the Dreischuster party had been killed. This is no place to dwell upon the painful detail of that accident, but it may be observed that it seems difficult to acquit the guide of the blame of having made himself at least in part responsible for four people on a first-rate climb where he did not (the result showed it) know the way.

Our guides were very anxious we should do the Dreischuster two days later, 'to show we were not afraid'; but, presumably because we were, we preferred a change of venue, and went back to Cortina.

We spent some days waiting for the fresh snow to melt before attempting the Antelao, meantime doing the Popena by the S. arête, which needs no further remark, and a climb on the Pomagagnon, which is pretty, as giving *en route* the best of all views of Cortina, and contains one passage of inordinate difficulty. On the 16th the Antelao seemed ripe, and we moved to S. Vito. (We were reinforced by the experience of Pompanin, who had taken part in some of Dr. Sinigaglia's explorations of the S. face.) Rain deterred us from a bivouac, and this gave us a heavy walk next

morning before getting to work. Francesco Verzi acted as porter; any one who wants a young guide with his name to make will not be disappointed in him: he promises great capacities. The Editor was so charitable of space for New Expeditions in the November number of the 'Journal' that I need not repeat details. The climb falls into two divisions—the Lower Wall, topped by the Pian del Lenzuolo, and the stage from there to the summit. The first is increasingly, but nowhere excessively, difficult. We were five on the rope for good part of it. It faces nearly due W. (we never saw the sun), and carries you to a height above 8,200 ft. As for the character of the rock, Michel, whose reflections are dry, was heard to observe to himself after some hours of it, '*Merkwürdig plattig*,' which expresses all. The whole of the second part we climbed in fairly thick cloud, which makes description now as difficult as orientation then. One cannot take in the enormous size of the Antelao till fairly involved in that wilderness on the S. side. As it was, our direction was right; only, on arriving at a top (12 hrs. from S. Vito), we were surprised to find our shouts re-echoed off an opposing wall of greater height. Had not the cloud obligingly lifted, on that false top we must have pernoctated. The cloud lifting revealed a stupendous prospect. We faced a semicircle of rock, dropping in black water-lined precipice to our right and left. Opposite there advanced from the wall a snow slope, which narrowing to a rock rib finally ran out into a small isthmus, not 6 ft. wide at the top, connecting the whole with our central point. It might be the bridge between two circles of the Inferno. From the abysses on the left came the sound of falling water and falling stones (this, I believe, was Sinigaglia's line); to the right it seemed equally inaccessible; apparently our false top was a necessary stage in the only way. The descent to the little isthmus is for rottenness unsurpassed even by the N. face of the Pelmo. Tons of stone went down before one could even attempt a careful crawl over the still crumbling residue. Usage does wonders for Dolomite climbs, and it is possible that a few more visits may reduce the passage to a merely normal degree of insecurity. So far it is the danger of the climb. I have no account of the experiences of the party which repeated the ascent in September. But we took $1\frac{1}{4}$ hr. to descend a short couple of hundred feet. Up the rib, over the snow field, along the narrow crest, guided by the summit now visible, we went in 1 hr. 40 min. The evening clearance of cloud on our peak revealed every point in the district looking

murky and tempestuous, and showed us we had been very lucky to escape a storm. We regained S. Vito at dark in just under $2\frac{1}{2}$ hrs. from the top. The local guide, Giuseppe Pordon, who had scoffed at the idea of the Antelao being feasible by the Cadore face, did not appear that evening; no doubt politeness kept him from giving expression to his unaltered disbelief.

I pass over the walks and climbs of the next ten days, to come to the Langkofel. The N. way up the Langkofel, to judge from the splendid look of the mountain towards St. Ulrich, ought to be a magnificent rock-climb. If ever an expedition promised great things, judged from below, it is that in which, thanks to an accident, we were forestalled by a day in 1896; and if ever a climb belied its promise it is Herr Wildt's climb of the Langkofel from the N. We left the hut at 5.10, coasted the grassy roots of the N.W. spur for $\frac{3}{4}$ hr., then struck up the first broad snow couloir. Following this for 20 min. you rope and take to the slabs on the right. Easy going for an hour along the W. rib of the couloir brings you to a point where it narrows, clear of snow (in August), to a big chimney, blocked and watery. Crossing it and climbing up the left edge of it you regain the snow above, considerably steeper. About an hour higher there was an awkward iced bit over a buried block. Some couple of hundred feet above this you leave the couloir and climb out to the left over easy broken stuff on to a big *Grat*, which forms the partition between the two great N.W. couloirs. Into the second of these we now descended; and a very ugly place. Two shoots of black ice, so hard that the frequent blocks which descend from the precipices at their heads hardly scar them, pitched at a desperate gradient, unite just above the point where we hastily crossed the line of fire on a dozen cut steps. Then follows the only first-class technical difficulty of the expedition, the east rib of the second couloir; our line was a wet, glazed, smooth crack, nearly vertical—an hour's stiff work. This is probably a slight variation on the first ascent route, but not apparently different in quality. Thence over a second *Grat*, still aiming about E.; a second descent (rather troublesome from rotten rock), including an awkward iced chimney, and you gain the third big couloir, the iced part of which could be avoided by following moderate rocks on the left edge; and from the steep snow at the head of it you emerge at a little *Scharte*. From here a short hour's work over easy rock, in a direction about S. or S.S.W., up slabs, and lastly along the crest: 8 hours from the hut to the

top; formal halts, 36 minutes. Descent to the Hut, 3 hours—expedited by rain.

I believe this was the second ascent by this route, and in any case no English account has yet appeared. One cannot wholly condemn a climb which from grandeur of scale alone is worth having done; but let no one imagine that the expedition is a big rock-climb, for the greater part is ice and snow couloir, with at most an hour's first-rate rock work. It is tempting to believe that there is a way from the head of the great rib between couloirs 1 and 2; but we could not see one. Meantime the expedition is a splendid fraud.

These are but the *disjecta membra* of the summer's campaign of 1898. The Antelao concluded a series of wrong-side climbs of some of the major peaks in the Dolomites; the Einserkofel was an accident, almost a mistake; and the Langkofel only a humble following after a luckier rival. There are good things left (it would be unwise to name them) which may just as well fall to English hands and feet. I think no member of this Club who spent a week or two, say, at S. Martino, or at a place more comfortable than any S. Martino inn, the Dresdener Hut in Val Canali, would regret his time.

IN MEMORIAM.

OWEN GLYNNE JONES.

ONCE again, after the lapse of seventeen years, the Dent Blanche has been the scene of a great disaster. The tragedy of August 28, the details of which are still fresh in all our minds, has deprived the Club of one who, in his own way, was amongst the most distinguished of the younger generation. O. G. Jones may not have been a great mountaineer—that honoured title is scarcely to be won at his early age, and he would, I am sure, have been the last to claim it for himself; but he stood, beyond a doubt, in the first rank of English rock-climbers. His knowledge of the Alps was wide and varied. For the last ten or twelve years he had spent the greater part of a schoolmaster's summer holidays among them. Once at least (in 1897) he was at Grindelwald in January, when he climbed the Schreckhorn,* and once he had a long experience on the Dent Blanche in spring.†

Thanks to his physique and unusual powers of endurance he was able to compress a great deal of work into each season. He had climbed most of the great peaks at Chamonix, Grindelwald, Zermatt, Saas Fee, and similar places. It was only quite recently that he had turned his thoughts to a more ambitious programme. Last

* *Alpine Journal*, vol. xviii. p. 409; also vol. xix. p. 91.

† *Ibid.* vol. xvi. p. 401.

June he told me that he hoped next year to be able to have a season in the Caucasus.

But in his knowledge of the Alps he was only one of a multitude ; his knowledge of the Lake mountains and of North Wales was unique. It was here that his special powers found most scope, and it is among our own hills that his name will be longest remembered.

The English rock-climbs, as we all know, present certain characteristics of their own. They have, so to say, been invented, and one of their most famous inventors was O. G. Jones. To a general knowledge of North Wales and Lakeland, as complete and thorough as that of a native, he superadded a minute, almost a microscopic acquaintance with the details of every rock-climb in these districts, which was nothing short of marvellous. Of a considerable number he made the first ascent, and his book, 'Rock-climbing in the English Lake District,' in itself a notable performance, raised hopes in those who knew the writer of work which, when time should have matured his powers, would give him a high place in the literature of mountaineering.

I have had many rock-climbs with him. He was always cheery and helpful to weaker climbers, and at the same time ever ready to give others full credit for their share in the work. On rocks which he knew he could go at a phenomenal speed. He was much slower on new climbs, but he never seemed at a loss. Strong, cool, and resolute, he was never greater than in places which taxed his powers to their extreme limit. Above all he was safe, and he thoroughly understood the use of the rope. He was no mere rock-gymnast—hateful word. He brought a trained scientific mind to bear on climbing difficulties, and, as he used to say himself, attacked a hard bit of rock-work as he would a problem in mathematics. This combination in his climbing of method with daring was one of the chief reasons for his many successes.

No one who knew him could fail to be his friend. He had a brusque and off-hand manner at times which strangers might mistake for self-assertion, but which was really the defensive armour of a strong character fighting its own way in the world as well as amongst the crags. Those who saw beneath the surface, and knew him more intimately, especially those who have climbed in his company, can bear witness to the generous modesty of his nature. Wastdale and Pen-y-gwryd will not soon forget him, and to some of us the gatherings there will never seem quite the same again, now that they lack his sound judgment and his infectious enthusiasm.

I have spoken only out of my knowledge of him as a climbing companion and a holiday friend. As to what he was in his working life at the City of London School, the Headmaster writes:—'Mr. O. G. Jones came to us in 1892, when we were starting a science side. He soon showed himself to be a man of vigour and energy, and took unwearied interest in getting the Physical Laboratory into shape. His training had not been in form work, and he was rather a lecturer than a form master of the usual type ; he came to us direct from South Kensington, where he had been a demonstrator.

His chief gift was that he got a hold on his pupils; it is easy to get masters who can keep a form in order and go through routine work, but it is not easy to find men who can secure real and genuine attention and develop interest and devotion to a subject. Mr. Jones could do this, and he could also convince the boys that he had their real good at heart, and make them feel that he was their friend. What I specially liked in him was that he had high ideals in education; he had no belief in masters teaching subjects which they did not know, or half knew—he was always for having the best man in everything, and for the best men doing their best. I can quite conscientiously say that, in so far as the phrase is true of anyone, it is true to say of him that his loss is irreparable to this school. He had great gifts, and though the "Alpine Journal" is not the place to say it in, many of us regret that he gave up to mountaineering so much of what was meant for mankind. You yourself know what Mr. Jones was as a friend; I have written of him as a schoolmaster.'

His life was lost in what seems, so far as we can tell, to have been a pure accident, which no skill of his could avert. For himself alone, it is probably the death he would have chosen, but for us who knew him it is sad to think how much energy and courage, how much hope and promise, lie buried with him in the little churchyard of Evolena.

H. C. B.

JOHN HAWTHORN KITSON.

MOUNTAINEERS, especially northern members of the Club, will have heard with much regret of the death, at the age of fifty-six, of Mr. J. H. Kitson. He was one of the best known men in the engineering world, his vigour and force of character having brought him prominently to the front in the late great strike of engineers. Mr. Kitson was educated at University College, London, and was a graduate of London University. His scientific knowledge, joined to his special ability in locomotive design, did very much towards gaining the renown which it at present enjoys for the firm of which he was one of the heads.

We are here, however, most concerned with his Alpine career. Mr. Kitson was elected a member of the Club in 1867. He was a very enthusiastic and capable mountaineer, and made many of the longer and more exacting expeditions which it was then, as it still is, the desire of climbers to accomplish. Amongst these may be mentioned the Jungfrau from the Faulberg (in $7\frac{1}{2}$ hrs.),* the Lyskamm (traversed from E. to W. with Christian Almer),† the Matterhorn (from Zermatt and back in a day), the Täschhorn by the arête from the Mischabeljoch. Perhaps his best known exploit was the first ascent of the Weisshorn from the N. with the guides Christian and Ulrich Almer. A very interesting account of this climb from Mr. Kitson's pen appeared in this 'Journal' at the time.‡

* *Alpine Journal*, vol. v. p. 377.

† *Ibid.* vol. vii. p. 414.

‡ *Ibid.* vol. v. pp. 305-9.

Mr. Kitson was fond of talking over his Alpine experiences with those friends whom he knew to be keen lovers of the mountains. He had devoted the same energy to his climbing as he had always shown in his engineering triumphs. His interest in the mountains never flagged, and whenever the Yorkshire Ramblers enjoyed a climbing paper from a conspicuous leader of the craft he was generally to be found amongst the audience. He was also an ardent botanist, and after he gave up climbing took to cultivating Alpine plants, of which he had a large collection.

We have lost in John Hawthorn Kitson one of the staunchest supporters of mountaineering.

JOSEPH JANTET.

WE have heard with much regret of the death of Joseph Jantet, of Epinel, one of the hamlets of Cogné. He was well known to visitors to the Eastern Graians, for he and his brother Louis have been for some years the only guides at Cogné. There are, of course, guides and guides. Joseph Jantet was an excellent fellow, and if he did not equal in mountaineering qualifications his contemporaries of Val Tournanche and Courmayeur he was always anxious to do his best for the travellers whom he accompanied, and would carry heavy weights with great equanimity. I employed him on many occasions, and was always pleased with his readiness to make himself useful. I have still vivid recollections of the un-failing good-nature with which he tramped up and down between Dégioz and the Victor Emmanuel hut when Coolidge and I were staying there in 1888. He was rewarded for his good work by being taken on over the Monciair to Ceresole. Jantet was always desirous of making good bargains for his messieurs, and I can fancy I hear his voice, gruff with indignation, as he condemned a native who had tried to impose upon us, as Jantet thought: 'C'est pour tromper les voyageurs.'

Even when, as sometimes happened, he was 'had on,' as school-boys say, by his comrades, his good nature was conspicuous. I remember once a black squirrel running across the path in the woods which we were following. 'A wolf! a wolf!' cried a mischievous voice. 'No, no,' said Joseph in expostulation, 'it is a squirrel.' Another excellent trait in his character was his appreciation of kindness. He once described himself as more than satisfied with the pay which he had received, and I can recall vividly the gratitude which showed itself in his account of a visit to Notre-Dame de la Guérison (above Courmayeur), when he was entertained at Courmayeur by Séraphin Henry, with whom he had several times travelled with me in the Graians.

Joseph could on occasion tell a good story of his military experiences. When we were making the ascent of the Punta Budden, and had just passed the dark and narrow corridor which is the chief feature of the climb from the N. to the S. point of the peak,

Joseph gave us a laughable account of a stout warrior under whom he had served, and who was generally known among his subordinates as 'the Cow.' 'Ah, ah,' cried Joseph, pointing to the corridor, 'that would be the place for the Cow!' Joseph Jantet may not have been—indeed, he was not—a great guide, but he was a willing, good-natured companion and genuinely anxious to do his best for his employers. Peace to his ashes. G. Y.

ALPINE ACCIDENTS IN 1899.

Ecquis erit modus? Is the Alpine death-roll to go on increasing year by year indefinitely? We would hope not; but the disasters of the past season afford little justification. An increase of 49 per cent. in accidents to tourists upon the Alps, high or low, is a terrible record, and even when we have examined the accidentable which is printed in this number of the 'Journal,' and learnt from it that though thirty-two lives were sacrificed in all, yet only twelve were lost at a height of over 3,000 m., there is small comfort for us. It is true that but one member of our Club has been lost, but with him perished three well-skilled and faithful guides. It is true, too, that their deaths were due to what may fairly be described as an accident in the true sense of that much-abused word. We deeply regret that so promising a mountaineering career was thus prematurely cut short, and that so many of his faithful companions fell with him. We do not think that it will be considered out of place here to call attention briefly to the extraordinary courage and endurance of his friend who eventually reached Zermatt after two nights of severe exposure. Mr. F. W. Hill's escape is one of the most wonderful in the annals of mountaineering. The accident on the Rothhorn which cost three valuable lives was of rather a different character. It illustrates once more the fact that it is the unseen dangers which are the most perilous in Alpine climbing. Oh for more prudence, more self-restraint, to guide climbers in those hours of joy and relaxed attention, when a notable summit won and the joyous descent eagerly begun prompt us to forget the precepts of that ever-needful care without which, sooner or later, even the ablest mountaineers may meet with irreparable misfortune!

The roll of deaths in our present issue is very saddening. What do we find as the explanation of accidents so many and so deplorable? 'Alone'—'no guide'—'unroped on snow bridge'—'abandoned by comrades'! Who can read such a list, let alone comment on it, with patience? We spoke last year of climbing alone. It is for most tourists little less than madness—though for the gifted climber it may win moments of unspeakable enjoyment. Yet how many climbers are really gifted? 'No guide.' We have nothing to say against climbing without guides when practised by experienced mountaineers in proper numbers: it is a counsel of perfection for the thoroughly trained climber, not for the tiro. 'Unroped on

snow bridge.' What greater folly than this could be perpetrated? Solomon's well-known remark here checks us. 'Abandoned by comrades.' The inexperienced man who climbs alone breaks one well-known law of mountaineering; he who without the experience of the seasoned mountaineer climbs without guides, transgresses a second equally well-known rule; he who attempts to traverse a snow-bridge unroped violates a third of those elementary laws which cannot be violated with impunity. But what are we to say of those who abandon their comrades? We can only repeat what we said this time last year on the deliberate cutting of the rope: 'On an act so absolutely contrary to the principles of mutual trust and confidence, on which all loyal comradeship depends, we do not think it necessary to comment.'

We heard this summer of an attempt on the Matterhorn by a man on crutches. We read in our table of an accident to a lady well stricken in years, who was climbing alone. What are we to expect next? We were constrained last year to beg all climbers, ourselves included, to use every effort that mountaineering should not suffer shame. Shame it has undoubtedly suffered. When a death-roll such as we have before us for this season is published, even *Thersites*, amongst those who throw mud at the Alps, finds his opportunity. He cannot really befoul the most noble of sports, but why do we afford him the occasion for launching his abuse at us? The most delightful of pastimes can be enjoyed—not without risks, it is true—but with comparative immunity from danger if proper caution and prudence are observed. No true sport—we are ashamed to reiterate the truism—can be enjoyed without some peril, but the peril in the case of mountaineering need not, if proper precautions are observed, be very great. Let us all endeavour by care and prudence to reduce it to a minimum.

FATAL ACCIDENTS IN THE HIGH ALPS IN 1899.

[All the accidents enumerated below, with the possible exception of that to Dr. Sander, took place above a height of 2,000 mètres (or 6,562 ft.). In the case of those which occurred above 3,000 mètres (or 9,843 ft.) the name of the spot is printed in small capitals. References are given to the fullest and most trustworthy accounts only.]

Place	Date	Name	Cause and Reference
Frête de Sailles (Grand Muveran)	Jan. 1	Alphonse Lenormand	Abandoned by his comrades in a storm close to the Club hut; no guide. (' <i>Echo des Alpes</i> ,' pp. 27-9, 286; ' <i>Alpina</i> ,' pp. 40, 86)
Susten Pass	Jan. 2	Gustav Münnichs and Reinhold Ehlert	Snow storm; alone (' <i>Mittheilungen d. D. u. Oe. A.V.</i> ' pp. 19, 162; ' <i>Oesterreichische Alpen-Zeitung</i> ,' pp. 208-9; ' <i>Alpina</i> ,' pp. 38-40)

FATAL ACCIDENTS IN THE HIGH ALPS IN 1899 (*continued*).

Place	Date	Name	Cause and Reference
PASSO DI SALARNO (Adamello)	Jan. 22	Giacomo Collini (guide)	Died of frost-bite after a winter expedition on December 22 ('Rivista Mensile del C.A.I.' p. 29)
Great St. Bernard Mirnock (Carinthia)	March 6	Two travellers . . .	Storm ('Alpina,' p. 51)
	May 25	Otto Baumgart . . .	Botanising; alone ('Mittheilungen,' p. 139)
Stockhorn . . .	June 10	— Reichmann . . .	Alone; slip, probably due to vertige ('Alpina,' p. 95)
Ackerlspitze (Kaisergebirge)	June 25	Freiherr von Bonnet and Freiherr von Godin	Slip in a snow couloir; no guide ('Mittheilungen,' pp. 161, 177)
Hoher Göll (Salzburg Alps)	c. July 14	Oscar Herchner . . .	Slip; alone (<i>ibid.</i> pp. 190-1, 202)
Near the Bovalhütte	July 15	Eugen Staub . . .	Slip on path ('Alpina,' p. 95)
Zugspitze . . .	July 28	Ferdinand Rockenstein	Slip on stones and fall down a snow gully; no guide ('Mittheilungen,' p. 190)
Below the Hannoverhütte (Ankogel group)	c. July 28	Dr. Sander . . .	Slip in the dark; alone; insufficiently equipped (<i>ibid.</i> pp. 224-5)
Gamchillücke . . .	Aug. 1	Herr Hubacher . . .	Slip on hard snow; alone with daughter ('Alpina,' p. 105)
ZINAL ROTHORN . . .	Aug. 4	A. Baumann, Joachim Tabin (guide), Antoine Antille (guide)	Carried away by snow slipping off ice during a glissade (<i>ibid.</i> p. 106)
Vernagtferner . . .	c. Aug. 7	Mathias Niedermeier (porter)	Giving way of a snow bridge; unroped ('Mittheilungen,' p. 201; 'Alpina,' p. 119)
Lirec Alp (Zinal) . . .	Aug. 10	Miss Bridge . . .	Slip on wet grass ('Revue Alpine,' p. 273; 'Alpina,' pp. 106, 118)
POINTE D'OTEMMA	Aug. 14	R. Hamilton Smith . . .	Slip; no guides ('Mittheilungen,' p. 218; 'Revue Alpine,' p. 270)
SEERKARLESCHNEIDE (Pitzthal)	Aug. 14	Friedrich Stolz . . .	Giving way of a great boulder under his feet; unroped ('Oe. A.Z.' p. 220; 'Mittheilungen,' p. 201)
Below the Rojacherhütte (Sonnblick)	Aug. 14	Georg Zembacher (hunter and landlord)	Slip on rocks; alone ('Mittheilungen,' p. 212)
ZAGENGRAT (Balmhorn)	Aug. 18	— Fürst	Slip on last snow slope; roped, but no guides ('Revue Alpine,' pp. 270-1; 'Mittheilungen,' p. 211; 'Alpina,' p. 106)

FATAL ACCIDENTS IN THE HIGH ALPS IN 1899 (*continued*)

Place	Date	Name	Cause and Reference
Ponica (Julic Alps)	Aug. 26	Fräulein Johanna Stein	Slip over rock wall; alone; elderly lady; insufficiently equipped ('Mittheilungen,' pp. 211, 236-7)
DENT BLANCHE	Aug. 28	O. G. Jones, Elias Furrer (guide), Clemenz Zurbriggen (guide), and Jean Vuignier (guide)	Slip of Furrer on the final rocks (see below)
Mont Corbeau (Montagne de la Côte)	Aug. 28	Dr. Cauro	Slip on wet grass ('Revue Alpine,' p. 294)
COL DE LA VUI-ONETTE (Arolla)	Aug. 28	Josef Reinstädler (guide, of Sulden)	Throttled by rope on falling into a crevasse ('Alpina,' p. 119; 'Mittheilungen,' pp. 247-8; 'Oe. A.Z.' p. 245)
Gamsberg (Alvier)	Oct. 10	G. B. Litscher	Alone; probably a slip (Swiss daily papers; 'Alpina,' p. 131)

Several other accidents are vaguely reported, e.g. one on the Mont Vêlan ('Revue Alpine,' p. 269), and another on an alp near Pinzolo ('Mittheilungen,' p. 177). On a glacier near the Piz d'Err a body has been discovered, which, from the watch and handkerchief found near it, is believed to be that of a Herr Adolf Hofmann, of Zürich, who disappeared in 1888 ('Revue Alpine,' p. 269; 'Alpina,' p. 106).

The Swiss newspapers announce that in the summer of 1899 there were seventy-two accidents to tourists in the Alps, high or low (in 1898 only thirty-nine), in which sixty-seven persons (in 1898 only forty-five) were killed and thirty-one wounded. Of these ninety-eight unfortunates sixty-one met their fate in the Swiss mountains and thirty-seven in the Tyrolese and Bavarian Alps.

We regret to learn that on August 25 the famous climber Herr L. Purtscheller, of Salzburg, broke his right arm badly in two places when descending (with a guide and another traveller) the steep snow slope below the last rocks and above the bergschrund at the foot of the Aiguille du Dru. The guide's axe broke, and he slipped, dragging the two travellers for a distance of about 20 ft. into the bergschrund ('Mittheilungen,' p. 224). At the end of October Herr Purtscheller was still confined to his bed in a private hospital in Berne, though making good progress. We venture to offer him our best wishes for a speedy and complete recovery.

THE ACCIDENT ON THE DENT BLANCHE.

We are indebted for the following narrative to Mr. F. W. Hill:—About the middle of August, after a fortnight spent in training

walks in the Binnenthal, I went to Arolla to meet O. G. Jones. For the first two or three days the weather, fine enough in the day, was bad in the early morning, and we did nothing; but after that we wasted no time, and, climbing every day except Sunday, we gradually became hard and fit.

On the way down from the Aiguilles Rouges Jones told me that he had often wished for an opportunity of climbing the Dent Blanche by its west arête. He had discussed the project with his guide, Elias Furrer, of Stalden, and they had agreed that the conditions were as favourable as they were ever likely to be, and he asked me to accompany him with my guide, Jean Vuignier, of Evolena. Both guides knew us very well. Furrer, especially, had climbed with Jones off and on for five years, and Vuignier, after taking me up many of the Zermatt peaks last year, had been with us as second guide on the Teufelsgrat; there is no doubt that they were skilful and experienced, and they not only offered no objections to the proposed expedition, but were very anxious to undertake it.

Although fully aware that such a chance might not present itself again, I felt unable to accept the invitation, as I had arranged to go to Zermatt over the Col d'Hérens with my wife, and a change of plan would condemn her to a lonely journey along the valleys. Consequently, a second guide being necessary, Jones engaged Clemenz Zurbriggen, who had been climbing in Arolla, and was about to return to Zermatt. Vuignier was greatly disappointed, and, thinking that perhaps I objected on the score of expense, offered to find a guide who would take Mrs. Hill over the Col alone. I did not accept his offer, but when Jones again asked me to go, and the invitation was cordially seconded by his guides, I consented, and thus it came about that we were a party of five.

We left Arolla on Sunday morning, August 27, intending to buy provisions at Ferpèche, and, with a porter to carry blankets, to proceed to a gîte which we had heard was situated somewhere at the foot of the ridge about four hours from Ferpèche. But when we arrived at the Bricolla chalets at four o'clock there was a general feeling that we had gone far enough, and, although the amateurs of the party thought that we ought to go on, the heat of the afternoon lent force to the arguments on the other side, so we sent the porter down again with our extra wraps and encamped there. After a much more comfortable night than would have been possible on the rocks, we started at three o'clock in two parties—Furrer, Zurbriggen, and Jones being roped in this order, and Vuignier and I following. We went quickly over the glacier and reached the ridge in good time. It was very soon evident that the climbing was going to be difficult, as the rocks were steep slabs, broken and easy occasionally, but on the whole far too smooth. There was often a choice of routes, as the ridge is a broad one, then again there would seem to be none at all, and Furrer had to prospect. At one such place, where the ridge projected a long way from the face, he unroped, and, traversing horizontally on to the face, found a chimney leading upwards, and called to us to follow. As soon as the real difficulties had com-

menced Vuignier had tied on to Jones, so that I was last. In two or three places the only possible way was over an overhanging rock up which the leader had to be pushed and the others helped from above and below. Climbing carefully, but in the highest spirits, we made good progress, for at ten o'clock it was agreed that we were within an hour of the summit. At half-past eight, and again about an hour later, we had seen a party of two on the south arête, and they probably reached the top at ten o'clock. It was just at this time that Furrer found his way blocked. The obvious route lay up a narrow gully or sloping chimney, but here the rocks were glazed and impossible. About 30 ft. to the left was a smooth-looking buttress some ten feet high; in between was a vertical rock face.

When I reached the level of the others, Furrer was attempting to climb the buttress, but, finding no holds, he called to Zurbriggen to hold an axe for him to stand on. Apparently he did not feel safe, for he turned his head and spoke to Jones, who then went to hold the axe steady. Thus we were all on the same level, Vuignier being some 25 or 30 ft. distant from them and also from me. Standing on the axe, which was now quite firm, Furrer could reach the top of the buttress, and attempted to pull himself up; but the finger-holds were insufficient, and before his foot had left the axe his hands slipped, and he fell backwards on to Zurbriggen and Jones, knocking them both off, and all three fell together. I turned to the wall to get a better hold, and did not see Vuignier pulled off, but heard him go, and knew that my turn would soon come. And when it did not I looked round, and saw my four companions sliding down the slope at a terrific rate, and 30 ft. of rope swinging slowly down below me.

It is difficult to analyse my sensations at that moment. My main feeling was one of astonishment that I was still there. I can only suppose that Vuignier had belayed my rope securely to protect himself and me during our long wait on the traverse.

It must be admitted that Furrer did not choose the best route; but his choice is easy enough to understand, for the only alternative did not look inviting. At all events, it is certain that he acted on his own initiative. I say this reluctantly, and solely for the purpose of contradicting a statement I have read in an account of the accident—that he was induced by Jones to climb straight over the gendarme instead of going round it. It is a pity that historians, who must of necessity be ignorant of the facts, should go out of their way to make such conjectures.

The problem before me was a difficult one. It was quite impossible to climb down alone, and I could not expect to succeed where guides had failed; the only course open was to attempt to turn the gendarme on the right. This I succeeded in doing with great difficulty, owing to the ice on the rocks and the necessity of cutting up an ice slope in order to reach the ridge. In about another hour I gained the summit, and was greeted with a faint cooey, probably from the party we had seen. I could not see

them, nor make them hear, so made my way down with all reasonable speed, hoping to overtake them. When I reached the lowest gendarme—the one with a deep narrow fissure—a sudden mist hid everything from view. It was impossible to see the way off, and while I was trying various routes a snowstorm and cold wind drove me to seek shelter on the lee side of the rocks. There, tied on with my rope, and still further secured by an ice-axe wedged firmly in front of me, I was forced to remain until midday on Tuesday. Then the mist cleared, and climbing very carefully down the snow-covered rocks I reached the snow arête, where most of the steps had to be recut. The next serious difficulty was the lower part of the Wandfluh; I could not remember the way off, and spent 2 or 3 hrs. in futile efforts before I found a series of chimneys on the extreme right leading down to the glacier. The sun set when I was on the high bank of moraine on the Zmutt Glacier, and in the growing darkness it was far from easy to keep the path. The light in the Staffel Alp inn was a guide as long as it lasted, but it went out early, and, keeping too low down, I passed the inn without seeing it, and, being forced to stop by the nature of the ground, spent the night by the side of the torrent. It was late in the morning when I awoke, and then a scramble of a few minutes brought me to the path, near the sign-post, and I reached Zermatt at half-past eleven.

Once again the guides showed how willingly they undertake the last necessary and arduous tasks, and a large search-party left Zermatt the same evening. Together with a similar party from Evolena, they, with the greatest difficulty, carried the bodies down to Haudères.

Jones and Vuignier were buried at Evolena on Saturday, September 2, in the presence of many sorrowing friends, and the other two poor fellows were taken to their own villages.

F. W. HILL.

We have received the following account of the finding of the bodies from Mr. W. R. Rickmers:—

'Mr. Seiler sent out thirty guides under Alois Supersaxo. Dr. R. Lenk, Mr. K. Mayr, and Mr. W. R. Rickmers joined them. We left the Staffelalp at 10 p.m. on August 30, reached the Col d'Hérens at 6 a.m. on the 31st, in fog and snow, which cleared away later on. Descended Ferpècle Glacier towards termination of W. ridge of Dent Blanche, and ascended the small glacier which comes down from point 3,912 on the S. arête. At the spot under the "g" in "Rocs rouges" this glacier forms an icefall (moderately difficult), and besides that a bit of the Glacier de la Dent Blanche hangs over the narrowest part of the W. ridge. We then came to the foot of a great gully. On the map it is the first one from W., and it is very clearly indicated. In the rocks to the right of the couloir (looking down), and about 300 ft. above the rim of the glacier, the bodies were found. It was about 10 a.m.,

and a party of Evolena guides, accompanied by Mr. Harold Spender, was already on the spot.

'The height above sea-level was *ca.* 3,600-3,700 m. Straight above, on the ridge, one saw a smooth cliff (*ca.* 400-500 ft. below summit), and if that was the fatal *mauvais pas* the fall must have been about 1,500-1,700 ft. in a series of clear drops of many hundred feet. The rope was intact between Furrer and Zurbriggen.

'The guides did their work well; the icefall of course caused a great deal of trouble.'

THE ACCIDENT ON THE SCHRECKHORN.

Sir Henry Bergne sends us the following account by his son, Mr. Francis à C. Bergne, of an accident which occurred last August on the Schreckhorn:—

[Though we do not generally publish detailed accounts of non-fatal accidents, yet we print this, as the occurrence was much exaggerated in the English press, especially in the 'Standard,' which contained circumstantial accounts of serious injury to all of the party, and the subsequent death of one of the guides. The same newspaper, moreover, paid no attention to the written protest which was forwarded to it.]

'Our party, consisting of Christian Jossi (*Sohn*), Rudolf Burgener, and myself, left Grindelwald on the afternoon of August 2, and went to Bäregg, where we were detained till nearly 6 o'clock by a thunderstorm accompanied by hail. A beautiful evening after the storm prompted us to make for the Schwarzegg hut, which we reached about 8 o'clock.

'The next morning was fine, and we therefore started from the hut at 3.30. We soon reached the couloir, where we were caught later in the day, kicking steps up it as we went. The mountain was in excellent condition going up, the snow being good and the rocks near the top having no suspicion of ice. Under these favourable circumstances we gained the summit at 9.45, and after a short halt began the descent. On reaching snow we found it was not in such good condition as earlier in the day, but was somewhat inclined to slide with us. Anyhow it gave us little trouble, so that by 2.30 we were in the couloir at the bottom of which the figures 2,788 m. appear on the Siegfried map. Down this we were going carefully, kicking steps in the snow. Jossi was leading, and Burgener was last on the rope, when suddenly I heard a shout from the latter, and on turning round saw a wave of snow bearing down upon me. This quickly carried me off my legs, while Jossi was also swept away a moment or two later. This avalanche bore us with it 400 or 500 ft., as far as I can estimate, carrying us right over the big bergschrund, and at one moment I saw one of the guides fly right over my head. The avalanche, I believe, was started from above by some stones, and after coming out of the couloir it spread out like a fan, decreasing in speed until at last it came to a dead stop, and we with it. Jossi and I were able to get

up, but Burgener, having hurt his leg, was unable to do so. We now found that we had lost ice-axes, sacks, hats, and other trifles, but our rope was still whole. With this we tied Burgener's legs together and slid him down the snow to within 50 yds. of the hut. Here Jossi and I left Burgener and went to the hut for help. Luckily we found three young Englishmen, with a guide named Baumann, who had arrived there after a tour on the glacier. They carried Burgener into the hut, and the guide then went to Grindelwald for assistance, reaching it in an incredibly short time. The Englishmen stayed with us in the hut, and rendered us every kind of help. A doctor was soon brought to the spot, accompanied by about twenty guides, who at 4 o'clock next morning carried all three of us to Grindelwald, which we reached at 9.

'Our injuries were slight. Burgener had his knee badly strained and a sore back, Jossi had a cut on his forehead and also a sore back, and my hurts were only in the back.

'This short account may, I hope, serve as a warning to other climbers who meditate the ascent of the Schreckhorn. It is quite easy to avoid the dangerous couloir, either by going on the rocks to the side, which reduces the danger to about two minutes, or even better by joining the Strahlegg route, which is longer but does away with all danger.'

NEW EXPEDITIONS IN 1899.

Dauphiné.

BRÈCHE CORDIER (8,420 m. = 11,221 ft.). *July 22.*—Messrs. E. H. F. Bradby and W. A. Wills, with Ulrich Almer, crossed this col from the Chalets de l'Alpe to Ailefroide. Leaving the Refuge de l'Alpe at 4.80 A.M., they reached the bergschrund at the top of the Arsine glacier and at the foot of the N. side of the Brèche at 6.30. They crossed this without difficulty to the rocks on the W. side of the couloir leading up to the Brèche. After breakfasting just above the bergschrund (7.30-8.5) they climbed by these rocks, which were somewhat difficult and very loose, the whole way to the col, with the exception of one short traverse into the couloir about two-thirds of the way up. By ascending the couloir itself for 20 ft. they were enabled to turn a difficult, if not impossible, portion of the W. rocks, which were again followed to within 200 ft. of the col itself. For this last 200 ft. the couloir, which was here safe and easy, was followed. On Brèche Cordier, 11-12. From here the easy snow slopes on the S. side were descended to the Glacier Blanc. A point on the glacier opposite the Tuckett hut was reached at 1, and Ailefroide at 8.5. This col had been previously reached by Monsieur P. Engelbach from the S. on July 24, 1887.* Monsieur J. Maitre, with Pierre Estienne and Joseph Rodier, on August 23, 1886,† when attempting to follow the ridge from the Pic du Glacier Blanc, which they had ascended

* *Alpine Journal*, vol. xiii. p. 404. † *Annuaire du C. A. F.*, 1886, p. 689.

from the S., to the Pic de Neige Cordier, were caught by bad weather, and determined to descend to the Arsine glacier. They therefore traversed from the N. side of the Pic du Glacier Blanc into the N. couloir of the Brèche, reaching it about 100 ft. below the col, and descended almost the whole distance to the glacier by the couloir itself. This they were enabled to do by the favourable condition of the snow, whereas the rocks were covered with fresh snow and ice, and looked very undesirable. But under ordinary circumstances there is no question that the best and only safe route is by the rocks on the W. side of the main couloir. It is an interesting and at the same time direct route from the Refuge de l'Alpe to Ailefroide.

POINTE DE BALME ROUSSE (10,578 ft.).—On July 9 Messrs. E. H. F. Bradby and C. Wilson, with Ulrich Almer, ascended this peak (previously climbed only from the S.E.) by way of the W. arête. Leaving La Bérarde at 4.15 A.M. the steep buttress forming the S. bank of the Vera Pervoz gorge was ascended, the shoulder of the W. arête being reached at 7.30, and the summit at 10.15. The upper part of the arête afforded some pleasant scrambling.

CRÊTE DE LA VERA PERVOZ (about 10,900 ft.).—This name is suggested for the jagged rock ridge which runs from the Pointe de Balme Rousse in a northerly direction (N.N.E.) towards the Flambeau des Ecrins, thus separating the Vera Pervoz glen from the Vallon de la Pilatte. The ridge is clearly marked on the Duhamel map, where the summits—some distance from each other—are indicated by red dots. In reality there are three summits, all quite near together (the two northern ones being so close as to suggest the name 'twins'), and all of about equal height. The central and southern summits were climbed, on July 9, by the above-named party after leaving the top of the Pointe de Balme Rousse. The col was reached in 15 min., and the sky line of the ridge was followed for about an hour, when a détour on to the S.E. face was made, and the arête regained above some difficulties which looked formidable. The southern summit was reached at one o'clock, and the central one (S. twin) at 1.30. It was thought too late in the day to attempt the traverse of the northern portion of the ridge, so the northern summit was left unclimbed, and a way found down the rocks towards the Flambeau bay of the Vallon de la Pilatte Glacier, the Carrelet hut being reached at 4 P.M. With plenty of time it might be found possible to adhere more closely to the S. arête, and to complete the traverse of this very fine ridge.

Eastern Graians.

TÊTE DE LA TRIBULATION (11,949 ft.).—On July 18 Messrs. Alfred Holmes and J. J. and W. A. Brigg, with a porter from Balme, ascended the Tête de la Tribulation by good but steep rocks from the depression between the Becca di Noaschetta and the Tête de la Tribulation in 1 hr. 35 min. actual climbing. From the summit they descended to the Col de la Lune by the sharp snowy S.W. ridge in 20 min. Both routes new.

Mont Blanc District.

AIGUILLE DES GRANDS CHARMOZ (11,293 ft.) FROM THE MER DE GLACE. *July 19.*—Mr. A. B. Thorold, with the guides Joseph Pollinger and Rudolf Lochmatter, of St. Nicholas, left the Montenvers hotel at 8 A.M., and, mounting the grass slopes under the Trélaporte, went straight up the Trélaporte Glacier to the bergschrund, which they crossed on the extreme right, and then traversed the glacier to the rocks on the extreme left. Bearing slightly to the left up these rocks to a corner, the party ascended, always to the left, to a second corner, and traversed some slabs into a rock chimney, up which they climbed. Traversing to the left into a snow couloir, they mounted by the rocks in the centre of this couloir, and, turning sharply to the right, came to a very difficult overhanging chimney. This chimney, though only some 20 ft. in height, took $\frac{3}{4}$ hr. to negotiate, and was the one doubtful point in the expedition, as it can be seen neither from the Mer de Glace nor from the summit. The remainder of the route up to the arête is comparatively easy, the highest peak being slightly on the left. Owing to falling stones the whole ascent is dangerous, the party having had a narrow escape when within 150 ft. of the arête. The descent was made by the ordinary route. Time from Montenvers to the summit, 10 $\frac{1}{2}$ hrs., including halts.

Central Pennines.

ASCENT OF THE GREAT GENDARME ON N. ARÊTE OF THE WEISSHORN.—On Saturday, August 26, a party consisting of Mr. A. G. Cooke, with the guides Benjamin Rouvinez and Louis Theytay, of Zinal, started at 4 A.M. from a bivouac on the Col de Tracuit to find a route to this prominent point. After ascending the steep snow slope to the arête an attempt was made to pass the four minor gendarmes on the E. face of the mountain. This face, however, proved exceedingly unpleasant, and even dangerous, owing to the looseness of the rocks, so that it was found advisable to re-ascend to the arête after passing the second gendarme. On reaching the Great Gendarme it became evident that this could be easily turned on the eastern face, all difficulty in the route to the summit by the N. arête having been passed. The gendarme itself then afforded a most interesting piece of rockwork, the ascent being made by a crack on the E. face. The highest point was reached at 10 A.M. (5 hrs.' actual walking). Thence it appeared that a most interesting descent could be made—had not baggage and ice-axes been left below—by the minor arête direct to the glacier and Arpitetta Alp. In returning the arête was adhered to closely over the four minor gendarmes, affording capital sport and far less danger than the face. The descent to the Col de Tracuit was effected in about 3 hrs. Herr H. Biehly traversed this gendarme September 21, 1898, when ascending N. ridge of Weisshorn, but does not seem to have climbed the very last tip of rock.*

* *Jahrbuch S.A.C.*, vol. xxiv. pp. 76-90.

Bernese Oberland.

DREIECKJOCH (*circa* 11,000 ft.). FROM THE GROSSER ALETSCHE GLACIER TO THE MITTEL ALETSCHE GLACIER. August 18.—Mr. G. Yeld, with Sylvain Pession, of Val Tournanche, effected this new expedition. They left the Eggishorn Hotel by the Märjelen See path at 3.5 A.M. in thick mist, and in about 2 hrs. 45 min. actual walking reached the other side of the Grosser Aletsch Glacier about 6.35. They then traversed the slopes of the Olmenhorn to the glacier whose northern arm runs up to point 3,648 m. of the Siegfried map, and eventually reached the ridge, considerably to the S. of peak 3,648 m., and afterwards a little peak to the N. of the place where the ridge was struck. No difficulties worth mention were met with on the way up, but the lower part of the route taken would be dangerous from falling stones late in the morning. The descent on the Mittel Aletsch side was, to begin with, quite easy, but less than two-thirds of the way down the promontory of rock by which the party were descending was found to be quite impracticable, and they had to reascend, so as to turn the head of the deep gully between them and the next promontory to the S. This bit proved rather difficult, but not impossible, and after a severe climb the party gained the Mittel Aletsch Glacier. They returned to the Eggishorn by the Märjelen See path.

FUSSHÖRNER. July 31.—Messrs. G. A. Solly and J. Maclay, starting from the Bel Alp Hotel, made the first ascent of the peak on the ridge of the Fusshörner group which lies immediately to the south of the point marked 3,628 m. on the Siegfried map. The party climbed first from the Ober Aletsch Glacier to the gap at the foot of the S. arête of peak 3,628 m., and then, having climbed to the next point south of the col, followed the crest of the ridge until it began to descend again sharply towards the next big gap. From the col the climb is very steep, but the hand-holds are good. On the summit ridge there are four small points of nearly equal height, and from the fourth of these a ridge descends westwards towards the snow field above the glacier. This ridge was followed in the descent as far as practicable, but in places it was very steep and difficult, and the party had to traverse more than once into and out of the gullies on either side. The last pitch of the ridge seemed impossible, and the snow was gained by the gully on the north. From the glacier to the gap took about 3 hrs., many steps having to be cut in hard snow. From the col to the fourth point on the ridge, 1 hr. 40 min., including time spent in erecting cairns; and from the fourth point to the snow, over 3 hrs. The four points are well shown on Dr. Tempest Anderson's photograph.* The point seen on the right of peak 3,628 in the photograph is not on the ridge of the Fusshörner at all, but further back, and on the right of that are the points climbed. The most northerly of the four points is the highest, and it is higher than any other point south

* *Alpine Journal*, vol. xix. p. 316.

of it. The cliffs on the east are¹ exceedingly steep, and it was easy to throw stones from the summit on to the Triest Glacier. Cliffs run along the side of the Ober Aletsch Glacier for a considerable distance, but a perfectly simple way of getting up is to be found about half a mile to the N. of a small waterfall over which the snow from the upper slopes is discharged on the side of the glacier, judging by the large patch of snow lying there. This point is shown on the left of Dr. Anderson's photograph.

HINTER SUSTENHORN (3,320 m. = 10,898 ft.). *August 21.*—Rev. W. C. Compton and Mr. A. V. Valentine-Richards, with Abraham Müller and Siegfried Burgener, made the first ascent of the Hinter Sustenhorn from Stein (it having been previously climbed only from the Voralpthal). Starting at 3.40, they traversed the lower part of the Bockberg, and crossed the Stein Glacier between the two icefalls, reaching the bergschrund at the foot of the smaller and more southerly of two snow couloirs in the W. face of the Hinter Sustenhorn in 1 hr. 55 min. They went up this, crossed into the larger couloir, and by the rocks on its S. side gained the lowest of three conspicuous snow bands at 7.15. They cut straight up this and the one above, and traversing to their left round the third made directly for the summit up ribs of excellent rock, till they came to a couloir which soon led to the S. arête, at a gap some 10 min. below the summit, which was reached at 9.10. Time (exclusive of halts), 5 hrs.

They left the top at 10.15, regained the gap, and then descended to turn the many great teeth on the S. arête by a traverse on the W. face over rotten and not easy rocks till they reached the lowest point on the arête at 11.55. Thence the easy ridge was followed over point 3,340 m. to the summit of the Sustenhorn in 1 hr. 20 min. The descent was made by the ordinary route to Stein.

STÜCKLISTOCK by **THE W. ARÊTE** (3,809 m. = 10,857 ft.). *August 23.*—The same party left Stein at 3, crossed the Susten Pass, and reached the Sustenjoch in 3 hrs. 40 min. They followed the easy ridge to the E., and crossed the snow field on the N.W. face of the Stücklistock in $\frac{1}{2}$ hr. to the foot of the icefall of the upper glacier. They passed this close under the rocks of the W. arête in $\frac{1}{2}$ hr., climbed these rocks in 55 min. to the foot of the final cone, and reached the summit by the W. arête and N.W. face at 10.10. Time (exclusive of halts), $6\frac{1}{2}$ hrs. The final rocks are steep, but not always sound. The descent was made by the ordinary route to the Voralpthal Club hut and Göschenen.

In the book at the hut was found a notice of a descent of the Stücklistock by the W. side to the Sustenjoch made by two Swiss gentlemen a month previously, but it is not certain how far their route coincides with that described above.

GROSSHORN (3,765 m. = 12,352 ft.).—On August 26 the Rev. P. Mordaunt Barnard and a friend, with Theodor Kalbermatten, of Ried, traversed the Grosshorn by a route of which part is believed to be new. Starting from a bivouac on the Heimischeggen at 4.30 A.M., the ordinary way to the Schmadrijoch over the

Jägifirn was followed for about 4 hrs. A turn was then made to the N.E., with the intention of reaching a prominent gendarme on a snow saddle to the W. of the rocks of the Grosshorn. A line somewhat too much to the left was taken, and a traverse had to be made across a steep ice couloir directly below the above-mentioned gendarme, and the rocks were reached about 200 ft. below the snow saddle. An obvious rock couloir proving impracticable, owing to the overhanging rocks, a way up was found between it and a snow couloir a little distance to the S.E. After passing up a steep ice slope and working up the arête the summit was reached at 3 P.M. On the descent the usual way along the S. arête was followed as far as the point where there is a distinct dip; thence the party descended over rocks and through a snow couloir on to the Anenfirn, and, passing round the Jägi-knubel, returned to Ried, reaching the hôtel at 10.30 P.M. The great length of time taken was due to the badly crevassed condition of the Jägifirn, and to the fact that the upper slopes of the mountain were mostly ice.

SCHRECKHORNSATTEL (BETWEEN THE SCHRECKHORN AND LAUTERAARHORN).—On September 20 Mr. Gerald Arbuthnot, with Christian Jossi, used the above as a pass from the Lauteraar Firn to the Obereismeer. Leaving the Gleckstein hut at 11.15 P.M. on September 19, they crossed the Lauteraar Joch, and after descending some 20 min. below the col worked their way across the Lauteraar Firn in a S.W. direction to the foot of a broad ice couloir which leads up to the Schreckhornsattel (10 hrs. 5 min.) After passing the bergschrund at a point somewhat to the north of the couloir they ascended an ice slope to the rib of rock which bounds the couloir on its northern side (2 hrs. 10 min.). They followed this, making occasional use of the couloir itself, until a point was reached above the strip of hanging glacier near the top of the couloir (3 hrs. 30 min.). An upward traverse was then made across the final slope of ice to the col (3 hrs. 30 min.). The party descended by the route to the sattel generally used in ascending the Schreckhorn, and reached the Schwarzegg hut at 9.45 P.M.

Dolomites.

COL ROSA (2,162 m.). *June 24.*—The first ascent by the S. face was made by Mr. R. Corry, accompanied by Antonio Dimai and Zaccaria Pompanin. A deep gully divides the S. face on the right-hand side. Just above the point where this gully narrows the party ascended easy rocks to the Einstieg (about 2¼ hrs. from Cortina). From this point they ascended, bearing slightly to the left, until a wide ledge was reached about 700 ft. above the Einstieg (3½ hrs.). The climbing was continuously difficult up to this point. The last two pitches below the ledge are both over 120 ft. high, and 280 ft. of rope is required for a party of three.

Traversing the ledge to the left, the party climbed to the top in 1 hr.

Pompanin, who had invented the above 'problem,' and made

two previous attempts by a line more to the left, led throughout the climb.

The descent can be made by the deep gully.

CRISTALLO (8,199 m. = 10,496 ft.) BY THE S. ARÊTE.—Mr. J. S. Phillimore, with Antonio Dimai and Agostino Verzi, made this expedition on August 19. Leaving Tre Croci at 6.30, you follow the ordinary path for $\frac{1}{2}$ hr., then diverge left across the grassy top of the lowest bastion of the arête; from here 1 hr. 20 min. unimportant scrambling (always on the S.W. flank of the ridge) to the Cut—a clean break, easily recognised from Cortina or the Tre Croci road. Here follows a stiff piece of vertical face; then successive ledges and faces lead to the *Cengia Prima* (9.45); then, after a slight bend (r.), a chimney of great merit, undercut, oblique, smooth, and tight (10.15). You touch the old route 10 min. below the top, at the *Bastone del Ploner* (10.45). Top, 11.15–11.40. Tre Croci was regained in 1 hr. 25 min., of which 25 min. rest. Total time out, 6 hrs. 35 min., going fairly fast. The climb resembles the corresponding way up the Piz Popena, but is a good deal more difficult.

POMAGAGNON (2,440 m.) BY THE S. FACE.—This climb was suggested by this year's pleasant invention on the Col Rosà. The same party as for the Cristallo left Cortina at 6.10 on August 21, and took the rocks at 7.35 right at the base, E. of the mouth of the big grava. The climb is distinctly mapped out in partitions by the great ledges: the first ledge was gained at 8, after difficult face work, a minor one passed at 8.15, and the second reached at 9.10. Here you are at the foot of what looks from the Tre Croci road like a large and promising chimney; it is not—you keep mostly outside it (r.), with some crack-work. The second ledge is thick with *Pinus Mugus*; it is troublesome forcing yourself along between the bushes and the bulging upper lip of rock. Third ledge, 10.10 (20 min. halt included); this they followed r. to the *spigolo*. After a few paces descent along the ledge still further r. the way turns straight up the face again. They agreed to describe the next bit as extremely hard; you begin by working up the overhanging upper lip, then force yourself up a yellow and malevolent crack—at one point a *Mugus* is a godsend. The three took 55 min. over 120 ft. Shortly after the difficulty moderates. Fourth ledge, 11.50; from here $\frac{3}{4}$ hr.'s pleasant work to the top, 12.35 (including 10 min. halt).

Descent in 1 hr. 10 min. to Ospitale. The expedition may be compared with the Col Rosà and the Catinaccio by the E. face; it gave 5 hrs.' face-climbing of almost continuously first-class interest. It should be taken fairly from the bottom; the variation made by Herr Wolf von Glanvell next day omits half the difficulty and interest.

CRODA DA LAGO (SOUTHERN POINTS). August 24.—The same party left Cortina at 5.5, reached Alp Federa at 6.35, and the upper alp at 7. The plan (formed on the Becco di Mezzodi the week before) was to follow the Croda's crest from S. to N. Leaving at

7.10, up the big scree in the middle of the face, and bearing southwards over easy rocks, grass bands, and a small snow couloir (halt 7.35-7.45), they got to a forcella at 8.15 which exactly frames the Pelmo between its walls. Kletter shoes were put on here, and they started roped at 8.25. From here in a general W.N.W. direction to a ledge (8.45), whence you look clean down on the left into a cleft which divides the last S.W. outlier of the range; 9.3-9.18 an agreeable chimney with a blockstone, and after a few more easy ones a 100-ft. stretch of remarkably exacting and awkward ascent. It strongly reminds you of the Winkler Turm. All up, 10.15. Next up the knife-edge, a traverse along of 30 paces above Federa, another chimney running W.N.W., and the top was touched at 10.20.

This point had been christened Punta Adi by its first (and hitherto only) climber. The S. way is new, and the hardest bit in the Croda group.

The top was left 11.20, the descent made in a N. direction. Gaining the saddle (between Punta Adi and the next pinnacle) 11.35, they made a traverse of $\frac{1}{2}$ hr. above Federa. At 12.23, on rounding the corner of Point Two, they saw Point Three was impossible—a clean leaf of rock below—though the two approach so near that an 8-ft. bridge would span the distance, and there are good ledges to support it at each end.

Top Two at 12.30. No cards were found, but the symbol $\mu\kappa$ painted in red on the rock: doubtless 'Michel Innerkofler, his mark,' made in 1884. It is suggested to distinguish this point as Campanile di Federa. As Point Three (next the Croda proper) bore a cairn, and was impossible to traverse, there was nothing for it but to go back and abandon the plan of a grand traverse of the whole Croda system. The face climb wanted great care to descend; they regained the level of the long traverse in 35 min., and, traversing again N., fell in with the Croda path at 2.15. Verzi fetched the boots, and the scree forcella was left at 3; Cortina reached, 4.20. Anyone who does not mind an inglorious day of excellent climbing may do worse than climb these two needles. The points can only be seen in profile from Federa or S. of Acquabuona on the road. Total time out, 11½ hrs.

Verzi led on these three occasions, and led admirably. The expeditions will be more fully described in the 'Rivista Mensile' of the C.A.I.

CAMPANILE DI CASTROZZA, CAMPANILE DI VAL DI RODA, AND CIMA DI VAL DI RODA. August 29.—Mr. Phillimore, with Michele Bettega, made the first traverse of the second of these points direct from the forcella which unites it with the first. This completes a very fine expedition if you take the Campanile di Castrozza by the enormous chimney from Val di Roda. Times: S. Martino, 4.30; on rope, 6.30; top of C. di C., 8.50-8.58; forcella, 9.15; top of Campanile di V. di R., 10-10.8; forcella, 10.28; top of Cima di V. di R., 10.43-11.45; S. Martino, 1.15. The new bit contains one serious place. The whole climb is about the best rock-work at S. Martino. Total time, 8¾ hrs.

NORWAY.

Erisfjord District.

SKJØDØLA (5,610 ft.).—This peak was reputed locally to have been climbed by one man only, a native of Meringdal, who built a cairn on each of the two summits.

Mr. Victor H. Gatty, accompanied by Ed. Haande, of Osen (who has a good knowledge of the district, gained chiefly in reindeer hunting), left Osen on July 14, at 5.52, and rowed across to the W. bank of the Eikisdalsvand, left the shore at 6.15, and followed the usual route across to Grövdal, past the Honne sæters as far as the head of the lake which lies at the N.W. foot of Nebba, at a height of 2,600 ft. This lake was still frozen over, and partly choked up by the remains of a big snow avalanche. From here the way lay S. up a snow couloir W. of Nebba, then E. by steep snow slopes up to the glacier at the head of which stands the Nyhetind.

This peak was first ascended by the left side of the glacier and easy rocks in 8 hrs. from the frozen lake. They left the top at 12.20, descended N.E., and followed the right side of the glacier down to where the upper slopes of Skjødøla become accessible by a short and steep pitch of rock and *débris* leading to snow and *débris* slopes above. Reached S.W. summit at 2 P.M., left at 2.45, and followed the ridge to the N.E. point in 20 min. This point proved to be the higher by 25 ft.

They left the summit at 3.20, and crossed the glacier to the left side (by which alone it is readily accessible). Here the upward route was rejoined, and the shore of the Eikisdalsvand regained at 6.15 P.M.

LILLE SKJORTA (5,000 ft.).—This is the finely shaped peak conspicuous from Nöste over the right-hand shoulder of Skjorta. The first ascent was made by the above party on July 17.

They left Nöste at 5.27 A.M., lost some time through mistaking the way in ascending the thickly wooded Kvidal, and reached the foot of the small snow field which lies between the Skjorta and Lille Skjorta at 9.20, at a height of 3,000 ft. From here the way lay E. up the snow field, and then S. up steep snow, to a col (4,650 ft.) in 2½ hrs. from the foot of the snow field (including 1 hour's halt). From the col spring two peaks—E. a nameless peak, W. Lille Skjorta. The top of the latter was reached by an easy but narrow rock ridge in 20 min. more, and an hour or more spent in erecting a 7-ft. cairn which is visible through a glass from Nöste.

They returned to the col at 1.12, and reached the top of the E. peak by steep *débris* and snow patches on the S. side at 1.40. This peak proved to be the higher by 200 ft., and a few stones heaped together indicated a previous ascent, perhaps by a reindeer hunter, as it is easier from the S. A thick mist necessitated a return by the upward route. They left the top at 3.25, and reached the foot of the snowfield at 4.30, and Nöste at 6.45 P.M.

FLØTATIND (5,425 ft.).—The first ascent was made by the same party on July 19. They left Osen at 5.48 A.M., rowed across to the E. side of the lake, left the shore at 6.10, and ascended the steep track

which leads to the Ljøsebotn sæters in 1 hr. 10 min., and followed up the stream eastwards for 1 hr. 20 min. more to near where it issues from the (then frozen) lake of the same name, which lies at a height of 3,200 ft., in a snow-filled valley E. of the northern outlier of the Fløtatind. From here the way lay S. for $\frac{1}{2}$ hr. round the snow slopes above the valley to the foot of the Storbær, which covers the whole of the E. face of the mountain, and terminates above a rock wall overhanging the valley. This wall was climbed in 20 min. by means of a moss-grown buttress, and the glacier reached at a height of 4,000 ft. at 10 A.M.

From this point the way lay up the right (S.) side of the glacier. previous observation (from Lille Skjorta) having shown the left side to be crevassed and broken into large schrunds below the summit. Snow slopes, steep at first and again near the top, lead without difficulty to the long ridge of rock pinnacles which fringes the upper edge of the glacier and forms the summit. They reached the highest point at 11.22, and built a large cairn. Left the summit at 1.50, and descended the S. side of the glacier to the E. spur of the mountain, which forms the southern watershed of the Ljøsebotn valley, and thence reached the valley at 2.55, the sæters at 4.30, and the lake, 1,600 ft. below them, in 37 min. more.

Horungtinder District.

STORE SKAGASTÖLSTIND. ASCENT BY S.W. FACE. *August 28.*—Mr. A. W. Andrews and Dr. O. K. Williamson, with Ola J. Berge, having left the Skagastølshütte at 8.45 A.M., commenced the ascent of the peak by the ordinary route. They left the ordinary route just below the foot of the great couloir on the S.W. face. This couloir divides the S.W. face of the mountain, and is conspicuous from all points of view of the peak taken from this side. They ascended this couloir, the rocks of which were firm with good hand- and foot-hold almost everywhere, but the slope was exceedingly steep, being on the average about 80°.

The first pitch, over 100 ft. in height, led up to a commodious ledge. From here an easy traverse to the left led to the foot of the second pitch. This is not so high as the first, but more difficult, about halfway up it being necessary to take a rather awkward step to the right. From the top of this pitch the slope became decidedly less steep, and without further difficulty the summit was reached at 12.28 P.M. The height of the couloir must be at least 300 ft.

Time, excluding halts, 3 hrs. 20 min., of which 1 hr. was spent in the couloir. The party spent no less than 3 hrs. on the summit ridge, and afterwards descended by Heftye's route.

PASS BETWEEN STORE RIINGSTIND AND SOLEITINDER FROM RIINGSBRÆ TO BERDALSBRÆ. *August 29.*—The same party succeeded in leaving Turtegrö at 9.45 A.M. They ascended the Riingsbræ, and approaching the Store Riingstind ascended the hard snow slopes on the N.E. of that peak to the upper level of a side glacier joining the Riingsbræ from the E. The upper part of these slopes was partly of ice. They halted below the bergschrund

at the foot of the snow slope leading to the pass. They started again at 1.35 p.m. They crossed the bergschrund to the rocks just N. of the snow slope, ascended these for about 50 ft., took to the edge of the snow slope, and so reached a horizontal ridge of snow with rock immediately above it. They walked along this until they reached the main snow slope (hard snow). They ascended by this and by a trough to the N. between it and the rocks, again took to the slope (here ice), which they traversed obliquely to the foot of a rib of loose rocks about 300 ft. above the bergschrund. The angle of the slope was at least 45°. They ascended these evil rocks, great care being necessary; again traversed a tongue of the ice slope to the S., ascended by large easy rocks obliquely to the N., and again bore more to the S. Until they reached the final wall of rock the success of the expedition hung in the balance. This, which was about 100 ft. high, was exceedingly steep, but not difficult, and at 5.15 p.m. the party stepped out on to the ridge just above the skar. Here a cairn was erected. Five min. more took them to the skar itself. Two of the party here discussed the provisions, whilst the third photographed, all enjoying the magnificent view. They then traversed the snow slope to the Ravn skar, descended the Berdalsbræ by glissades, and reached Turtegrö at 9.40 p.m.

This is certainly a first-rate glacier pass, affording great variety, and is the only practicable pass between the Riingsbræ and Berdalsbræ. Time of ascent to skar, 4 hrs. 40 min. (excluding halts) from Riingsbræ, or about 7 hrs. (excluding halts) from Turtegrö. Descent to Turtegrö from Ravn skar occupied 2 hrs. 50 min.

STORE AUSTABOTTIND. DESCENT OF S.W. RIDGE, TRAVERSE OF S.W. PEAK. *August 31.*—The same party left Turtegrö at 6.6 a.m. Leaving the foot of the Berdalsbræ at 9.15 they walked along the N.W. ridge of Austabottind to the N. peak. At the foot of the S. peak they traversed the W. face without great difficulty to a point on the S.W. ridge, just above (N.E. of) the gap at the foot of the S.W. peak (12.25 p.m.). From here they ascended the S.W. ridge directly to the summit ridge of Store Austabottind, the rocks being steep but firm, and affording splendid climbing. Summit reached at 1.5 p.m., in 8½ hrs., excluding halts, from Berdalsbræ. They descended to the point on the S.W. ridge which they had previously reached, by the N.W. ridge and W. face, rejoining the previous route before reaching that point (1.25 p.m.). Left this point at 1.50 p.m., descending by chimneys on S. side of ridge, and so reaching ridge once more at its lowest point. They then scrambled along the easy ridge to the summit of the S.W. peak, 2.28 p.m., where a cairn was erected. They left the summit at 2.50 p.m., in a short time reaching a point where the ridge was cut off by a slightly overhanging drop of about 50 feet in height. This difficulty was turned by a traverse over plaques on the S. side of the ridge. These plaques were not very steep, but for a short distance great care was necessary, as the holds were very small. A

conspicuous gendarme here barred the way. A point just on the further side of the top of this was reached by a long step across a gap just to the N. of it. Shortly after a point was reached where all difficulties ceased, 4.22 P.M. The descent of the ridge from here to the Muradnbrac was made by the most execrable loose stones, Turtegrö being reached at 9 P.M., in 5 hrs. 35 min. (excluding halts) from the top of the S.W. peak. The descent from the S.W. peak is undoubtedly a fine climb; the traverse of the plaques on the S. side of the ridge would be in any but perfect conditions of the rocks very difficult or impossible.

STÖLS-MARADALSTIND. ASCENT BY N. RIDGE. *September 4.*—The same party left Turtegrö at 10.18 A.M., reached the skar between Midtre and Store Riingstind at 1.20 P.M., and so reached Viking's skar at 1.40 P.M. Leaving this at 2.20 P.M. they proceeded along the ridge to the foot of the N. ridge of Stöls-maradalstind. They ascended the ridge itself by easy rocks with some snow on them for a short distance, then traversed on to the steep W. face, thence by a couloir followed by steep but easy rocks again reached the ridge. From a platform a steep slab, at the top of which the leader had to raise himself on to a block, formed the only real difficulty of the climb. From here broken rocks, then steep rocks with the holds filled with snow, followed again by easy broken rocks, led to the summit, 4.32 P.M. Left summit 4.42 P.M. Descended by ordinary route, Turtegrö being reached *via* the Riingskaret at 9 P.M., about 3½ hrs. (excluding halts) from the summit.

DESCENT FROM COL BETWEEN N. MIDTMARADALSTIND AND S. DYRHONGSTIND TO MIDTMARADALSBRÆ. *August 14.*—Messrs. A. W. Andrews and A. H. Fox-Strangways, with Ola J. Berge, ascended the N. Midtmaradalstind from the col to its S., and descended to the col mentioned above. From there the descent was made by a very steep couloir of ice and hard snow with an inclination of at least 60° in its upper part. At a point about a third from the top some loose and difficult rocks were followed in order to pass a great crevasse extending completely across the couloir. The couloir was then regained and descent made to an ice bridge over the bergschrund by 20 ft. of very steep and wet rock below the icefall. The couloir is about 300 ft. in height, and took 4 hrs. to descend, great care being necessary, owing to bad weather. On a subsequent occasion (August 24) Mr. A. W. Andrews with Dr. O. K. Williamson and Berge descended directly from the col to the Riingsbræ by rocks resembling those of the W. side of the Col des Maisons Blanches in Switzerland, thus completing the only pass leading directly from the Midtmaradalsbræ to the Riingsbræ.

Justedalsbræ District.

UDSIGTENSKAR (about 5,500 ft.) *August 14.*—Messrs. C. W. Patchell, A. B. S. Todd, O. Erik Todd, and Wm. Cecil Slingsby arrived at Sundal Farm very late on August 13 with the intention of trying to make a pass over the snowfield to Erdal on the

following day. The writer had been in Sundal in 1876, and was much struck with the wildness of this remote valley, though the weather then was bad. Up to a few years ago, when the new and excellent mountain road was made from Stryn to Grotlid, which caused a general diversion of the horse and cattle traffic between the W. and E., a large number of Nordfjord horses—occasionally as many as a thousand strong—were annually driven in the early summer through the Sundal and over the Kamphammer Pass, which skirts the left bank of the most northern arm of the Justedalsbræ, and by rough mountain paths to Skiaker, and from thence to Christiania. In case bad weather came on, the horses which grazed at the Sundal sæter at the head of the valley ate the pastures as bare as if they had been visited by a plague of locusts or an army of lemmings, so that their absence nowadays is not regretted. In the year 1868 a snow avalanche carried away one of the houses at Sundal gaard and killed eleven people. Strange though it may appear, another house was built exactly on the same place as the former one.

The obliging host, Absalon, and his wife got up and made the party most comfortable beds on the hay in the barn, called them early next morning, and did everything in their power to help them, Absalon accompanying them almost as far as the sæter. They left the farm at 6.40, reached the sæter at 7.45, and then left the Kamphammer route and followed the southern or longer branch of the valley. The intended route planned on the map was to climb one of the two tongues of glacier, or the rocks which bound them due S. of the sæter. However, a fleeting view of these tongues through the clouds which then enveloped the summits dispelled the illusion that they were suitable highways, so the party turned towards the head of the valley, passed three tarns to the foot of the Sognskarbræ, which they reached at 11.10, and for nearly an hour they climbed up bare ice before reaching the névé. Meanwhile every cloud had vanished, and when, at 12.45, the top of the Sognskar (an old pass) was reached, the view was superb. Far, far beyond the Styggevand and numerous ranges of the hog-back type so common in Norway, were the Horungtinder, and their crowning glory, Skagastöltind,* which, from this distance of sixty or seventy miles, seemed to stand, like a veritable King Saul, head and shoulders above his fellows. The whole range looked very grand indeed. Other peaks in Jotunheim also greeted the party.

They then turned S.W., and at 1.20 climbed up to some sun-warmed rocks, where for an hour and a half they sat and enjoyed the scenery, which was then much enhanced by the addition of a glorious view of the N.E. face of Lodalskaupet,† and the unknown range N.W. of this fine peak. A little over an hour's trudge in excellent snow brought them to the top of the Strynskaupet, where, as they anticipated, they found a cairn. They then turned down

* *Alpine Journal*, vol. xi. p. 114.

† *Ibid.* vol. xiv. p. 507.

the steep northern ridge—certainly a new route—crossed an interesting bergschrund, had a long glissade, and so gained a plateau above the icefall of the Lilledalsbræ, which for 40 min. afforded capital sport, and an intricate route until the valley was reached at 5.45.

At 7.5 a sæter was reached, and a *romme kolle*, or bowl of thick curds, was asked for. Alas! with the advance of science and the introduction of cream-separators, one of the chief luxuries of the sæters is now, in most cases, no longer to be had.

Greidung was reached at 8.30, and the night was spent there. Though many tourists sleep here, there is but little improvement in the accommodation obtainable since the writer first visited it in 1874.

FOSDALSKEAR. *August 15.*—The same party intended to ascend Lodalskaupe this day, and then to traverse the little-known glaciers between Erdal and Loen. The truth is that both their host and they themselves got up too late, and after breakfasting on a concoction of coffee and peas they set off to cross over the mountains to Loen by an exceedingly pretty glacier pass called the Fosdalskear, a pass which is fairly well known to the natives. However, as many another Alpine party has done before elsewhere, and as many another will again, they went wrong, turned up a lateral valley N. instead of one to the E., and came to a sort of no-man's-land up in the clouds. When they found out their mistake they had to make a most interesting traverse of about a mile along narrow rock ledges and across steep snow slopes to a point overlooking the Fosdalsbræ some 500 ft. below. After some hunting about, a steep chimney afforded a welcome route down to the glacier and the proper route.

The top of the pass, which was reached in 5 hrs. from Fosnæs, is plainly seen from the hotel at Hjelle, and is almost overshadowed by the fine mountain Skaala, affords lovely views both E. and W. There is no glacier on the W. side, but steep snow gives capital glissades. The walk down to Loen was very beautiful.

WM. CECIL SLINGSBY.

Söndmøre District.

BREKKEKINDSKAR AND S. BRUNSTADHORN.—Messrs. C. W. Patchell, A. B. S. Todd, O. Erik Todd, and Wm. Cecil Slingsby left Øie one cloudy morning at 10 by boat, and arrived at Urke at 11. They walked up the lovely Urkedal, and at 1.20 reached the foot of the Langesæterdalsbræ, where they lunched. This glacier, which is overshadowed by a bevy of fine rock peaks, is easy to ascend from the W., but is not quite so easy to reach from the E. The party followed a northern arm of the glacier, and at 2.15 reached the Vellesæterskar* and looked down upon an arctic little tarn on which was a flotilla of little icebergs. They then turned E., and at 2.40 reached the top of a glacier pass between the

* K. Rander's *Söndmøre*, p. 136; see foot note.

Brekkotind* and the Vellesæterhorn and overlooking the grim gorge of the Brunstadskar far below. As their main object was to ascend the Brunstadhorn, they went to a rock to 'wait till the clouds rolled by,' and had many fleeting views of a fine mountain across the gorge.

At 3.15 they started to descend the labyrinth of a steep icefall, which afforded not only the leader and the last man, but the middle men as well, ample scope for using their ice-axes to good purpose, at one time on a narrow ridge of ice with a crevasse on each side, at another by cutting down one side of a crevasse and up another, or in walking along a steep glacier watercourse. At 4 o'clock the icefall was cleared, all too soon, for it had been great fun, and then a long gliassade was taken almost to the top of a horrid wall which bounds the W. side of the Brunstadskar. The leader discovered a steep, wet, and comfortless chimney, which they bounded down helter-skelter for 25 min., and at 4.45 they gained the remarkable snow-paved gorge below.

'What about the peak; shall we try it or not?'

To this question the youngsters of the party readily answered 'Yes.'

After a pretty climb up grassy slopes and then easy rocks the party reached the top at 6.5. 'The top of what?' Apparently it was rather too far S. to be the Brunstadhorn, but a great cloud-filled gap immediately to the N. prevented them from going further in that direction. Clearly, then, it was the right peak.

They built a cairn, and gazed into the clouds for further information in vain for half an hour; then they turned back and went by way of Skylstadbækken, that most irritating mountain path, and at 9.25 arrived at Øie.

A few days later, from the summit of Raana, it was clearly seen that the peak climbed was the southern, but not the highest, Brunstadhorn. One of the party even designated it by the appellation, 'The Brunstad Hump.'

MIENDALSTIND (a little under 5,000 ft.). August 26.—Dr. Richards and Wm. Cecil Slingsby, with Sivert Urke as porter, made what is, so far as is known, the first human ascent of this pretty peak. The range of the Miendalstinder is well known by sight, if not by name, to all who are fortunate enough to stay at Øie in fine weather, and who often admire the deeply notched ridge and watch the clouds playing at hide-and-seek behind the two pretty little aiguilles on their eastern face; but, oddly enough, until this year they seem to have escaped the attention of mountaineers, probably because there are higher neighbouring mountains.

The party went by steamboat to Sæbö, which is directly under the mountain, and then followed an excellent cattle-track through lovely birchwoods, which brought them with great ease to a fine rocky amphitheatre, which is overlooked by grim needles such as every climber in Söndmöre is accustomed to see.

* *Alpine Journal*, vol. xiv. p. 509.

An ancient moraine led to a little snowfield, which in turn was followed by good rocks, which took the party to a pretty gap in the ridge above the two aiguilles and to the E. of the highest peak. Here they got on to the upper part of a wild glacier whose séracs fall over steep precipices and roll almost as far as the sea itself in a gorge between Sæbö and Standal. After climbing up steep névé for some 300 ft. they struck the rocks, which were steep and good, and led directly up to one of the two rival tops of the mountain. A narrow ridge, about 25 yds. in length, took the party to what may be considered to be the successful rival, and here, close to the top, they revelled in bright sunshine and one of the most glorious views in Söndmöre.

The actual top consisted of two narrow and pointed slabs of *gabbro*, standing on end about 6 ft. high and 18 inches apart. As one was nearly 2 ft. lower than the other, cairn building was a difficulty. Sivert's trade is that of a shoemaker and not of a stonemason. However, with timely help and encouragement, in due time a goodly cairn was erected. During the process the skeleton of a goat was discovered in a corner a few feet below the summit. Poor fellow! To him, no doubt, is due the honour of making the first ascent, but apparently he had not possessed the hardihood necessary to attempt the dangers generally supposed to be connected with the descent of a fine mountain, and when he had exhausted the scanty supply of moss and lichen he lay himself philosophically down to die. The way he had probably taken from ledge to ledge on the western side could easily be picked out. This mountain is one of the most enjoyable, and at the same time one of the easiest, which the writer has ever ascended. Three arêtes meet at the top, and the point of meeting is luckily the very highest on the mountain. The view of Kjölaas, or Gluggentind, is especially grand, and the ascent of the Miendalstind can be most strongly recommended to all who are good walkers, are more or less accustomed to mountaineering, and to whom the ascent of Slogen is somewhat too arduous an undertaking, and the view is superb. Only 8½ hrs. were occupied on the ascent from Sæbö, and there was not a dull yard during the whole time. Capital glissades increased the interest of the descent.

SLOGEN BY THE N.W. FACE AND EASTERN ARÊTE (= 5,280 ft.).
August 28.—This ascent was made by Messrs. Aldred B. S. Todd, O. Erik Todd, Geoffrey Hastings, and Wm. Cecil Slingsby. In the 'Alpine Journal,' vol. xii. p. 267, the present writer says:—'Slogen offers one route, and one only, up a steep snow slope, which affords a very long glissade on the descent; everywhere else are impracticable precipices.' This was in 1884. For at least a dozen years the same writer has recognised that a route might probably be made from the direction of Klokseggen, and he has suggested this course to not a few men, and to climbers of the fair sex too. Fortunately for him, the ascent was not made until he was able to form one of the party, though earlier this very summer two Englishmen led by Vigdal attempted it, had 6 hrs. of step-cutting

up a steep gully, and probably would have succeeded if they had had more time at their disposal. As the details of the climb will probably appear elsewhere, it is sufficient to say that it was in every respect a first-rate expedition of the Chanouni aiguille character, and that a charming uncertainty about the result existed until within half an hour of the summit.

WM. CECIL SLINGSBY.

Lyngen District. Tromsö Amt.

LILLE ISSKARTIND. *June 22.*—This peak lies at the S. end of the Jaegervand (Hunter's Lake), and is the most westerly of the Isskartinder (ice pass peaks). (†. Hastings and Elias Högrenning (porter from Stryn, Norfjord) started at 2 A.M. from the hut on the western shore of the Jaegervand. Owing to the exceptionally late spring the lake (height, 10 to 15 ft. above tide-level) was covered yet with thick ice. Close in to the shore it was not strong enough to walk upon. There were in places narrow lanes or cracks of open water, where a boat could be poled where the water was shallow. For some distance from the hut we tried to get to the upper end of the lake in our boat. We poled along the bottom, breaking a way through the ice with heavy birch stakes. Then we came to ice too thick to be broken, on to which we hauled the boat, and while we were dragging it to where the ice was thinner the stem was torn away from the planking, and we had to get ashore, leaving the boat where it was.

To reach the head of the lake we had to cross a river—a torrent—which was now swollen by the melting snows after four days and nights of sunshine. A considerable détour had to be made before we found a snow bridge over the ravine. It lay just above a waterfall. We had crossed it safely 36 hrs. before. We put on the rope. While the first man was on the middle of the bridge it began to crack. He made a rush, and just got across as the bridge collapsed. The second man was able to jump across, supported by the rope, landing on part of the collapsed bridge before it was swept away.

We followed the northern ridge up to a height of about 2,700 ft., and then took over to the left, working round into a gully which looks up the Stortindal. At the head of the gully we found ourselves on the ridge again, and now overlooked the Trollvatn (Trolls' lake); height, 3,800 ft. The snow was in very good condition (time, 8.5 A.M.). We went along the ridge to where it abutted on the mountain. A steep and narrow gully led up towards the top. We followed it up till it disappeared on a face of slabby rocks under the summit.

The top was reached at 9.30 (height, 4,500 to 4,600 ft.).

Two hours were spent on the top. The descent was made down the ridge on the E. to the col between Store and Lille Isskartinder. The further ridge was ascended for some distance, and photographs taken. The sun was then beginning to shine on the northern snow slopes; so at 1.30 we started down from the col. We crossed

obliquely the snow gully below, and into and over the first gully we had ascended in the morning.

We reached the lake at 3.40, and had to ford the river. The gap in the snow bridge had widened until it was too big to be jumped. The sæter was reached at 4.40.

PIPERTIND. *June 23.*—This is the most northerly fell in the Lyngen peninsula. It is a striking-looking mountain seen from the W. and E., and was noticed by Professor Forbes in 1851. We left the sæter at 5 P.M., and went down the lake to the hamlet of Jaegervand. Here we hired a light boat, and left at 7.5. We reached the Nord Lenangenfjord (distance, 19 miles) at 2.10 A.M. (23rd), with an interval of $1\frac{1}{2}$ hr. for rest and food. There fortunately was little wind, as that and a strong-running tide were against us.

In bright sunshine we lay down on the heather near the shore and slept till 8 o'clock. After breakfast we rowed a short way up the fjord to the narrows, where we crossed to the other side. A start was made at 10.25; the summit of a spur, 2,620 ft. high, was reached at 1.45 P.M. This was the outer ridge of two valleys which run down to the Lyngenfjord on the northern side of Pipertind. It, however, seemed quicker to ascend and descend over the intervening ridge opposite than to follow the main ridge up and down to where it joined the western spur of Pipertind.

A descent of a thousand feet brought us to a small frozen lake (1,630 ft.). Then an ascent of 1,750 ft. and a descent of 520 ft. landed us on the Pipertind glacier (5.10 P.M.). It took us a little over 25 min. to walk across. An easy snow gully led us on to the ridge (3,400 ft.). The ridge up to the summit afforded some interesting climbing; it was firm, rough rock, with a magnificent precipice on the left. Height, 4,390 ft. (the mean of two aneroids). A large cairn was built, and the top was left at 9.25 P.M. The boat and bivouac on the shore were reached at 1.50 A.M.

TVILLINGTINDER (OR THE TWIN PEAKS). *June 27.*—This two-headed mountain lies on the S.E. of the Stortind (Jaegervand), and is on the right-hand side of Upper Stortindal. The Stortindal Glacier half encircles it.

We left the sæter on Jaegervand at 6.50 A.M., and crossed the lake to the S. end. Very little ice was left on the lake.

We went up Stortindal and reached the foot of the glacier at 9.10 (height, 670 ft.). After a long halt for photography and lunch the left-hand moraine was followed to above the lower icefall. At 12.30 we crossed over the glacier below the upper icefall to the Tvillingtind side (height, 2,150 ft.).

We kept on the side of the glacier, and as soon as we were above the icefall and on the snow field we bore away to our left.

The snow was sufficiently hard at first to require steps to be kicked, but towards the top for a short distance, where we worked round to our right, the sun had begun to soften it.

The top was reached at 3.10, the second top at 5.25. We started back at 6.40, and went for some distance along the ridge

toward Stortind, to avoid the soft snow on the slopes we had ascended. Crossed the Forholt pass at 8.40, reached the Forholt Tarn at 10.25, and got back to the sæter at 11.55 P.M.

TROLLTIND AND STORTINDALSKAR. *June 29.*—This peak is very noticeable from Jaegervand; it lies between the two Forholt glaciers and between Stortind and Store Jaegervandtind.

We left the sæter at 6.25, crossed the lake, and reached the Forholt tarn at 7.47 (height, 880 ft.). We went up the Lille (or northern) Forholt Glacier (height of glacier foot, 1,940 ft.), then up the right side of the glacier, and crossed above the icefall to the left side; we then got on to the rocks immediately beneath the summit by means of a short snow gully. We at once worked off to the right, so as to avoid the gully, in which higher up there were some patches of snow, probably in an unstable condition. With one interval of 30 min. for lunch we were 4 hrs. 40 min. winning our way on to the ridge W. of the peak. The climbing was very good—a succession of ledges, which we reached up small chimneys and over slabs. It was 4.10 when we came to the ridge (height, 4,620 ft.). A fine edge ran up very steeply to the top (4,910 ft.), and occupied us for 1 hr. and 20 min. We were on the top from 6.10 to 9 P.M. The descent for 150 ft. was down the way we had come up; then we traversed along the northern face and crossed a very steep snow patch, and then along the ridge to the second summit at 10.10. A descent was made to the Stortindal Glacier, 12 P.M. (height, 3,750 ft.). We crossed over the snow col on to the Lenangen Glacier, making a new pass (height, 4,125 ft.), which we call the Stortindal Skar. Store Jaegervandtind was then skirted, and the Abraham's Skar crossed at 2.45 A.M. (height, 3,980 ft.). We took off the rope at 3.10; reached the lake at 5 and the sæter at 5.25.

DURMAALSTIND. *July 2-3.*—This is the second highest peak in the Tromsø Amt. It lies on the E. side of the Sørfjord, opposite Skjursnøes, S. of Gjøvik and the Kjosenfjord and W. of the upper Fornøes Glacier.

We started from Holmebugt in Andersdal at 10.35 P.M. on the 2nd, crossed the Fugledal River at 12.10, and followed up the ridge opposite to Skjursnøes; this led us right out on to the snow dome which forms the summit at 3.55 A.M. (height, 5,795 ft.).

We started down at 5.10 and followed the eastern ridge, a narrow snow arête, to the second summit, which overlooks the Fornøesdal Glacier. A descent was made down a snow gully to the Fugledal Glacier, where a halt of an hour and half was made.

CROSSING OF JAEKKEVARRE FROM EAST TO WEST, AND ASCENT OF CENTRALTIND JAEKKEVARRE. *July 3-4.*—We went up to the Lead of the Fugledal Glacier and passed the Fugledal Skar (pass) (3,990 ft.) at 8.15, then ascended the glacier which comes down the northern face of the eastern summit of Jækkevarre, where we arrived at 10.40 (5,850 ft.). Store Jækkevarre, or the highest point, was reached at 11.45. A descent of 1,100 ft. separated Centraltind from Store Jækkevarre. The col was reached at 12.45, and Centraltind at 2.50. It had been looking very hazy and

threatening since 9 o'clock; at 2 P.M. the clouds came down, and the rest of the time we had to steer by compass for nearly seven hours. We tried to keep along the ridge, so as to avoid the crevasses which eighteen days and nights of sunshine had developed in the wide-spreading snow cap of Jaekkevarre (Lappish Glacier Mountain).

Shortly after 3 rain and sleet began to fall, and our progress became very slow. At 5.15, through a rift in the mist, we found we were above the crags N. of the Holmebugt Glacier. The condition of the snow lying on the steep upper glacier was too soft for a descent to be attempted; we had, therefore, to retrace our way E. and S.E. to get round the Holmebugt Glacier crevasse basin. Then we turned S.S.W. to reach the southern or S.W. spur of Jaekkevarre. At 7.35 we reached a rocky promontory overlooking Andersdal. Through a rift in the clouds we found we were between two glaciers which fell over the crags on either side, and found a large remanié glacier below (Balgevarre Glacier). Another wide détour had to be made to get round the crevassed glacier basin. At 8.45 P.M. we reached the head of the gully we had descended the previous year. Great assistance in recognising our position was obtained from photos of this face of the mountain, taken last year from Anderstind, which lies across Andersdal to the W. The foot of the Balgevarre Glacier was reached at 10.15 P.M. What had been blue ice and thick crevassed glacier on August 8 last year was now snow-covered glacier with long talus slopes from the icefall débris. Holmebugt was reached at 12.15, after an expedition lasting 25 hrs. 40 min.

RENDALSTIND. *July 11.*—This peak lies north of the Strupen Glacier, immediately over the Strupen (ice-dammed) Lake. It is a fine-shaped mountain, well seen from the Lyngentjord. An attempt to climb it in August 1898 by the same party failed owing to bad weather.

We started from Lyngseide at 7 P.M. on the 10th, sailed and rowed, mostly the latter, to Strupen Bay, where we arrived at 11.20 P.M. We started after a rest and a meal at 1.25 A.M., and reached the glacier above the icefall at 2.10 (1,900 ft. up). The glacier (here clear ice) was crossed in 35 min. The glacier lake we found to be very much lower than it was last year, probably 100 to 150 ft. lower. There were fine cliffs of blue ice at the glacier end. From the lake we turned off up the snow field and gully south-east of the peak. We reached the rocks above the snow field at 5.15 (height, 2,850 ft.). After a halt of 25 min. we took up a lateral gully on our right, the main gully being broken by a curtain of rock, which we managed to turn at a height of 3,420 ft. Here we turned to our left, and so got into the main gully again. We kept on rock wherever possible, as the snow was very soft. The top was reached at 9 A.M. The weather was very dull, and had every appearance of thunder, which is very unusual in Arctic Norway. We heard some thunder as we started down at 10.20. and heavy rain came on before we reached the snow field at 12.55. We crossed the

glacier at 1.30, and got back to the fjord at 2.20. We started back at 4 o'clock, and, helped by a favouring breeze, had an easy run back to Lyngseide, where we arrived at 6.55 P.M. G. HASTINGS.

Sörfjord District.

KRISTIANSTIND. FIRST ASCENT.—On June 29 Mrs. Main, with the two Imbodens, set out from Holmebugt at 8.30 P.M. to attempt the ascent of the rock peak, which is the nearest mountain to Holmebugt. They proceeded up near the right bank of the torrent from the Holmebugt Glacier until in about an hour they were able to cross the water. They then steered straight for the W. ridge, which they followed with few deviations, over three distinct points, to the summit, arriving at 3 A.M. Excellent climbing was afforded from time to time by firm, slabby rocks. The last part of the ascent was the easiest. The mountain was in perfect condition, and the weather could not have been better. The ridge is extremely long, and in its lower portion is tedious by reason of loose stones. A direct and easy descent could be made by the N. face to the Andersdal. Holmebugt was regained at 10 A.M., after long rests while coming down. Exactly the same route was followed as in the ascent. A circular rainbow was visible for some hours.

HOLMEBUGTTIND. FIRST ASCENT.—The same party left Holmebugt on July 1, and, proceeding up towards the great Holmebugt Glacier, followed a broad couloir to their left, the top of which is filled with a tongue of glacier from the huge snowfields above. This glacier they followed to the sky-line, which is not a ridge, but a great, nearly level, snowfield. Turning to their right, they followed snow-slopes, and then a snow-arête to the snow-dome, which forms the highest point, the sharply-pointed rock peak seen from Holmebugt being considerably lower. The weather was perfect, and the view magnificent. Time, Holmebugt to the top, 5 hrs. 40 min.

DURMAALSTIND. SECOND ASCENT. FIRST BY THE N.W. FACE.—On the evening of July 3 the same party set out from Holmebugt for this peak. They followed the shore of the fjord for an hour or so, and then struck off to their right through birch woods, past two small tarns, and later over three ancient moraines, till they reached the river descending from the Fugledal. A shatter of boulders rendered the crossing possible, though even so it was not easy, and then the party steered straight up the face of the mountain, keeping near a torrent till they gained a snow-basin. From here snow couloirs enabled them to rise rapidly to a point where a secondary ridge, much pinnacled, merges in the face of the mountain. They then made a long traverse to their left, across rather steep snow-slopes, and gained another secondary, ill-defined ridge, which they followed to the great snow-cap which forms the summit. The party were at this time under the impression that their peak was the Loddevarre, and they knew Mr. Hastings was on the Durmaalstind. The surprise of both parties was therefore great when they met on the top, Mr. Hastings having arrived about half an hour previously.

The inaccuracy of the map makes it often very difficult to identify mountains in this part of the world.

The descent was made to Holmebugt by the same route. On this route hardly any loose stones were met with, though doubtless later in the season this would not be so.

JAGGISJOKKA. FIRST RECORDED ASCENT.—On July 8 the same party set out from Holmebugt at 2.30 P.M., and rowed to the shore of the fjord just opposite Laxelv. The mountain they intended to ascend is a sharp cone, conspicuous from Holmebugt, and situated just between the two terminating arms of the Sörfjord. Leaving the boat at 3.30, they gained the top at 7.15 P.M., and found a small and old stone-man. The ascent which was made on the side of the peak overlooking the Laxvand was up steep but sound and easy rocks. Holmebugt was regained at 11.30 P.M. The party are unable to learn anything relative to a previous ascent, except the fact shown by the existence of the cairn.

ÖSTLIGE LAXELVTIND. FIRST ASCENT.—On July 9 the same party, leaving Holmebugt at 3.30 P.M., rowed across the mouth of the Andersdalselv and proceeded up the (true) left side of the Andersdal for 4 hrs. (including several halts for photography), past a frozen lake, to a second frozen tarn beyond. Here they turned up sharply to their right, over steep and stony rocks, up a very steep snow-slope, and gained the red rocks above, where the arête merges into them. These rocks were then followed over an easy arête, giving grand views towards the Laxelvtinder and down the valley to Holmebugt, visible in the distance. When the first abrupt declivity on the ridge was met with, the party traversed to their left, on the broken E. face, and passed along till nearly below the summit. They then steered straight for it, arriving at 11.30 P.M. The descent was made over the firm rocks of the N. arête till the first drop was reached, and then the E. face was again taken to, and descended direct to the glacier. It offered no difficulty apart from its steepness. Passing along snow-slopes, the little saddle at the foot of the peak, where a knapsack had been deposited, was reached.

SFINX. FIRST ASCENT.—The same party, having had breakfast on picking up their knapsack, continued along the broad ridge towards an isolated and sharply pointed rocky peak which rises to the S. of the Andersdals pass. They gained the vertical W. face at 1.30 A.M. (July 10), and thought it just possible to get up a chimney giving access to easier ground above. It was better, however, to traverse to their right and gain the S. arête, which, after a short descent, they did. This arête, though nowhere really difficult, is for a short distance composed of such extremely loose and steep rocks that the utmost care is necessary. The top was gained at 3 A.M. The descent was made by the same route as far as the bottom of the arête. Here the party turned abruptly to their right, and crossing the head of a large glacier—with a curious ridge like a snow-covered moraine across its upper plateau—reached the

ANDERSDALSKAR (FIRST PASSAGE), which is at the head of

the Andersdal and leads from the Sörfjord at Holmebugt to the Lyngenfjord at Dalen. The peak just ascended, when seen from the slopes about 10 min. below the pass on the Holmebugt side, bears a remarkable likeness in profile to a sphinx. Snow-slopes made the descent good going for a considerable distance, but were succeeded by stones. Holmebugt was reached by the right side of the water. The left side of the valley, however, affords decidedly better walking, and should be adhered to throughout.

HUNDBJERG TIND. FIRST ASCENT.—The same party, on July 11, set out from Holmebugt at 6 P.M., and went up the left side of the Andersdal, keeping in an upward sloping direction, and eventually reaching the frozen tarn at the foot of the Hundbjergtind mentioned by Mr. Hastings in his account of the ascent of the Anderstind. The Hundbjergtind is the massive mountain which forms the most northerly summit ridge of the range of the Laxelvtinder. It immediately overlooks the Andersdal. The weather was cloudy and inclined to rain, and after mounting a snow couloir and making several traverses to avoid precipitous cliffs, the party found themselves at 11.30 P.M. on the top of the N. end of the ridge. From here the top would have undoubtedly been accessible with some little trouble along the ridge, but rain was now falling steadily and a high wind getting up, so the party descended.

Next evening, in lovely weather, they again started, and taking the same route to the upper end of the tarn, mounted by a couloir, and afterwards by chimneys and little ridges which occasionally afforded good climbing over firm rock, till almost immediately below the summit, which was gained at 2.40 A.M. on the 14th. This peak is accessible by the E. face up very stony slopes. The descent was made by the same route as the ascent.

TOMASTIND. SECOND HIGHEST POINT OF LAXELVTINDER. FIRST ASCENT.—On July 15 the same party left Holmebugt at 9.20 P.M., and, crossing the Andersdalselv, kept a diagonal upward course, till in about three hours, when just above the hamlet of Laxelv, they reached the foot of a great snow and ice couloir which separates the two highest peaks of the Laxelvtinder. Of these, the southern peak looked decidedly the highest, from the various points from which the party had seen it. The couloir is from 1,500 to 2,000 ft. high—nearer the latter than the former height, and is steep in places. By keeping close to the (true) right side shelter from falling stones is available. The gradient is occasionally steep. In under six hours from Holmebugt (halts included) the party gained the saddle, or Tomasskar, giving access to the Laxelv Glacier beyond. This glacier drains into the Laxelv. The summit of this fine peak was reached in an hour from the pass, over a firm and easy rock arête. From the top the N. peak looked the higher.

As the weather was lovely the party decided to try another ascent the same morning, and singled out a high and easily accessible peak on the opposite side of the Laxelv Glacier.

IMBODENTIND. FIRST ASCENT.—This peak was reached by snow slopes and steep but easy rocks in about 1½ hr. from the

pass, and turned out to be a magnificent mountain, conspicuous on its N. side from most of the peaks near Joekkevarre. Its summit is supported to the N. by a vertical and unbroken wall of rock, which is one of the grandest things of the kind the party thought they had ever seen. Holmebugt was regained by twelve midday, the party descending direct to Laxelv, and thence taking a good little path which follows the fjord at some distance above it to Hundbjerg, whence the Andersdalseiv has to be crossed to Holmebugt. The same afternoon a terrific thunderstorm burst over the locality, and is worth mention because for more than half an hour the thunder never ceased, roll immediately following roll, each roll commencing before the previous one had ceased. The lightning which accompanied it was very vivid. A heavy shower followed, and from the neighbouring mountains great boulders could be heard smashing down the couloirs.

BALKISVARENNEBBE. FIRST ASCENT.—The same party on July 17 left Holmebugt at 8.30 P.M. and proceeded up the (true) right side of the Andersdal, steering for the glacier which drains into the blue lake about an hour and a quarter from Holmebugt. The mountain they proposed ascending is in part visible from Holmebugt, though the actual top cannot be seen from there. It overhangs the Andersdal in a fine rocky precipice. The ice-fall was turned by mounting a snow couloir in the rocks to the (true) right of the glacier, and then crossing the rocks back to the glacier by a broad and easy ledge. After mounting the glacier nearly to its head, another snow couloir, followed by a stony slope, led to the ridge. Turning to their right, the party gained the snowy summit along a broad ridge at 4 A.M. It commanded a magnificent view of the Laxelvtinder.

BALKISVARRER. FIRST ASCENT.—The same party on the same day ascended the higher glacier-clad mountain between Balkisvarrenebbe and the head of a deep valley which either is, or runs into, the Lyngdal, in something over an hour from that peak. Its summit was a great field of ice. This mountain falls to a large ice-bound lake in the valley to the E., and is quite distinct from the Joekkevarre group, being separated from it by the deep valley mentioned above, and forming the boundary to the pass at the head of this valley between itself and Joekkevarre.

NJALAVARENNEBBE. FIRST ASCENT.—The same party on July 23 ascended this magnificent peak in nine hours, including halts from Holmebugt. They went first to the Andersdals Pass and from there struck up the S. arête which rises from the pass. This they followed, except where driven on to the E. face, the whole way to the top.

This mountain is a fine rock peak, sharply pointed when seen from the Andersdal (from which it is not visible till some way above the osprey's nest), but shows as the considerably highest peak of a long ridge when viewed from the side of Joekkevarre. It is isolated, and on the E. side rises from a large glacier which fills the head of one of the branches of the Lyngdal. It com-

mands a view of the Lyngenfjord near Dalen. Its height appears to be but little, if at all, inferior to that of the highest of the Laxelvtinder. The descent was made from the northernmost end of the summit ridge, straight down steep rocks and snow couloirs to the upper plateau of a great glacier, whence the Andersdal Pass was reached in a few minutes. Both the ascent and descent offered short passages which needed climbing, and the whole required the greatest care owing to the steepness of the gradient and the extreme looseness of the rocks.

FUGLEDALSTIND. FIRST ASCENT.—The same party went up this little peak on August 9 in $5\frac{1}{2}$ hrs. from Holmebugt. It is close to the entrance of the Fugledal on the (true) right side of the valley, and is separated from the Durmaalstind by a glacier, the snout of which hangs at a steep angle over the Fugledal. The weather since July 23 had been hopelessly bad, and abundant fresh snow lay to within 2,500 feet above sea. The ascent was made by steep but easy rocks up the S. face, the descent down steep stony gullies rather more to the E., direct to the Fugledal lake. Except for two hours after the start, it rained and snowed all day.

LERBUGTTIND. FIRST ASCENT.—The same party, on August 13, went up this peak, which is a sharply pointed high rock mountain near the N.W. end of a ridge which circles round the Lerbugt Glacier from a high flat-topped peak between it and the Durmaalstind. The Lerbugttind is not to be confounded with another sharp peak, a miniature aiguille, on the same ridge but nearer to the Sörfjord. Leaving Holmebugt at 12.30 P.M., the party rowed across the bay nearly to Holmebugt, and then crossed the low hill to the Fugledalselv, then a small shallow stream. Beyond it they gradually ascended through woods and over screes till about 6 P.M. they gained the slopes overlooking the (true) right bank of the Lerbugt Glacier. This small glacier possesses a gigantic moraine. The Lerbugttind was now immediately above them, and they progressed quickly up a couloir full of fresh snow. The last 150 ft. alone needed care, for the steep rocks were covered with fresh snow which was in a condition unknown in the Alps. The snow, falling through the comparatively warm and damp air, had formed a mass of short opaque icicles. These had become a nucleus for more fresh snow which hung in great cornices from every ledge, and was even plastered on vertical faces of rock. The higher rock mountains were, therefore, absolutely white, and reminded the party of the conventional common pictures often seen of winter scenery. Unluckily, a fog coming on when near the summit, photography was impossible. The snow was too sticky for avalanches, so ascending a very steep short couloir, the party gained the top at 8.15 P.M. The summit ridge is about 20 ft. long and very narrow. No stone man could be built, as everything was covered by three feet of fresh snow. The descent was made by the same route.

SOMMERBUGTTIND. SECOND ASCENT.—On August 19 the same

party ascended this peak, which had been first climbed three days earlier by Mr. Claud Rawlence with the two Imbodens. It offers a magnificent point of view, and was ascended for the purpose of obtaining a photographic panorama of the district. The summits were clear and the sky cloudless, but mists filled the valleys. A circular rainbow was again seen. The valleys on the W. side of the fjord are a pleasure to walk in, thanks to the abundance of turf under foot, in contrast to the stoniness of the valleys on the E. side.

JOEKKEVARRE. THIRD ASCENT.—The same party, on August 21, went up two of the peaks of Joekkevarre from the Fugledal. They ascended by the route for the Fornoedalskar as far as the plateau of the glacier, and thence went up a crevassed glacier slope to the higher snows. Bearing W., they soon overlooked the peaks between Gjøvik and Joekkevarre, and noticed a sharply pointed rock peak connected with the most westerly summit of Joekkevarre by a rock ridge. In shape it was very like Crast' Aguzza, when seen from the plateau above the labyrinth. Bearing E., they gained one of the highest of the several snow mounds composing Joekkevarre. It seemed to them that the peaks to the E. of the Holmebugttind is decidedly higher, but none of these snow peaks—Joekkevarre, the Holmebugttind, and the Durmaalstind—can vary much in height from each other. Returning in their tracks, the party quitted them on the W. summit and diverged towards the

JOEKKEVARRENEBBE (FIRST ASCENT), referred to in the paragraph above. This was easily approached over a broad stony ridge, which narrowed to a sharp arête for a few steps near the peak. The last bit of the short climb gave good scrambling for a couple of ropes' lengths. The top was small and supported on fine precipices of rock. These rose from a valley with several tarns in it, just N. of the valley enclosing the Fornoes Glacier. The height of the peak must be little inferior to that of Joekkevarre. Returning to the snowfields, they steered N.W. till they came to the last snow couloir before the Fornoedalskar. This was very easy, and was quickly descended. The pass was then visited for the sake of the view towards Gjøvik, and the rest of the way back to the Fugledal must have coincided with Mr. Slingsby's route of last year, when he crossed from Gjøvik. The weather until July 20 was beautiful, and after that there was not one really fine day. Thus, while twelve ascents were made during the first three weeks the party were climbing, only five were accomplished the last five weeks.

SWEDEN.

Sylmassivet—W. Jämtland.

STORSYLEN (1,730 m. = 5,680 ft.). FIRST ASCENT BY THE E. GLACIER. August 8.—Mr. H. L. Joseland, with Jakob Fjellberg, started from Sylhyddan at 10 A.M., and followed the route usually taken in ascending Storsylen till within sight of the E. glacier.

They passed to the S. of the little lake at its foot, and mounted the glacier by its S. side, considerable step-cutting being necessary. On reaching the rock arête running from Storsylen S. towards Storsola they found the lower part of the ridge impracticable, owing to the masses of ice on the rocks, and were compelled to attack the very steep rock face somewhat to the N. of the S. end of the arête. After a climb of two or three hundred feet, rendered very difficult by the amount of ice that had to be cleared from every rock, they gained the crest of the arête, and followed it to the summit of the peak. The last few feet of rock are very steep, though not difficult. The summit was gained at 4 P.M., after about 5 hrs. of actual going, of which more than 2 hrs. were spent on the iced rocks above the glacier. The descent to Sylhyddan was made by the ordinary route.

The expedition is recommended to any who may be in the neighbourhood, as, though under ordinary conditions it would involve no difficulty, it is interesting and affords splendid views of the fine precipices of Storsylen.

ALPINE NOTES.

PUNTA DI CIAN (10,896 ft. = 3,321 m.). *September 7.*—Mr. G. Yeld, with Sylvain Pession, of Val Tournanche, left Cignana (8 hrs. from Breuil), where they passed the night in a hay barn, at 5 A.M.; at 8.30 they reached the Colle di Cian, having spent at least 90 min. in halts. They left the Colle at 8.50 and reached the summit at 9.10—*i.e.* in 20 min. This seems to be the usual route to the peak. The view was quite first-rate. The great peaks of the Graians, Mont Blanc and his satellites, and nearly all the summits from the Grand Combin to Monte Rosa were well seen; while immediately to the S. of the peak a great basin of pastures and pine woods led the eye to the Aosta valley, in which, near Fort Bard, the Dora Baltea could be well seen. In the descent the party followed the E. ridge, and then traversed under the summit to their morning's route, this portion being apparently new. It was decidedly interesting. The party varied their route after descending from the Colle to the Bananselmo Glacier by going N.E. to the Bananselmo Lake. They reached Breuil at 6.5 P.M., walking leisurely and taking several halts. It would appear that no English party had previously made this charming expedition, though the mountain is deservedly a favourite with Italian climbers, to judge by the cards found on the summit. Amongst them was that of S. G. Bobba, whose party seem to have made several new routes on the mountain.

SCHWARZHORN (GRINDELWALD) (9,618 ft.) BY THE N.E. ARÊTE. —On August 4 the Rev. Walter Weston, Dr. Brushfield, and Dr. Owen made what is believed to be this new route from Rosenlauri, with young Abraham Müller, of Kandersteg. After a leisurely

walk of an hour up the Grosse Scheidegg path, the party turned to the right and climbed to the foot of the arête, over pasturages and scree partly covered with snow, for about 2 hrs. Turning up a few minutes westwards, they found themselves at the foot of a magnificent gully, which afforded most interesting work, including some difficult pitches at intervals for $1\frac{1}{2}$ hr. This ended at a point about one-third of the way up the arête, which was then climbed by the rather loose rocks a little on its left to the summit in another hour.

The expedition is a very good one for a short day from Rosenlaur, and the times given above would be readily reduced by going direct to the foot of the arête over the slopes of the Breitenboden at the back of the hotel. The great gully is well seen from the path about halfway between Rosenlaur and the Grosse Scheidegg.

THE PAVILION ON THE AIGUILLE DU GOÛTER ROUTE.—We have received the following from Mr. C. E. Mathews:—‘In the August number of the “Journal” your correspondent “J. S. M.,” referring to the “Pavillon” about to be constructed at the foot of the Aiguille du Goûter, stated that it would be “hardly available before the end of the present season.” I am glad to inform you that, having slept there on the night of August 25, I found it a most comfortable place. It is close to the *cabane* occupied by De Saussure in 1785, and is 700 ft. higher above sea-level than the Grands Mulets *hôtellerie*. The cuisine is very fair, and the beds excellent. The new path from the Belle Vue to the Glacier de la Griaz is first rate, but, unfortunately, is extremely dull, as it commands none of those fine views of the Aiguille de Bionnassay to which we were accustomed when climbing to the Tête Rousse by the old route. The hut on the Aiguille du Goûter is made watertight, but that is all. It is little, if any, better than when I tried to sleep there thirty-eight years ago.’

NEW HUT ON THE DOLDENHORN (KANDERSTEG).—This hut was opened on July 9, chiefly owing to the enterprise of Abraham Müller and other Kandersteg guides, to facilitate the ascents of the Doldenhörner. It consists of one well-furnished room, with two sleeping-shelves large enough for about sixteen persons, and stands on the rocky tree-clad promontory on the E. of the Biberg Alp. It is well seen from the Victoria Hotel, from which it is reached in about 2 hrs. by an interesting route chiefly through forest, the first mile or so being identical with the path to the Oeschinen See.

The first ascent from the hut was the ascent (first of the season) of the Great Doldenhorn by the Rev. Walter Weston and Mr. Somerset Bullock, of the Alpine Club, with young Abraham Müller.

WALTER WESTON.

NEW HUT ON THE DOSSENHORN ROUTE.—A fine new hut was opened on July 30 to replace the old one on the rocky saddle between the Gstellhorn and the Dossenhorn, about 4 hrs. above Rosenlaur. This structure, the third in the series, surpasses its predecessors in size, comfort, and position. It is well furnished in every detail, and contains ample accommodation, including a

special compartment for ladies. Part of the timber used in its construction was taken from the hut it replaced, at a distance of a few feet away. This comfortable place will, no doubt, make still more popular the ascents of the Wetterhörner from this side.

WALTER WESTON.

THE ALPINE CLUB OBITUARY, 1899.—F. C. Hulton (1874), S. F. Still (1872).

MOUNT KENYA.—We learn from the 'Times' of October 3 that, at the sitting of the Geographical Congress at Berlin on October 2, it was announced that Dr. Scott Keltie had received a telegram from Mr. H. J. Mackinder, the Reader in Geography at Oxford, who has just succeeded in reaching the summit of the hitherto unscaled Mount Kenya (over 17,000 ft.), in British East Africa. Mr. Mackinder left England in June last in command of an expedition subsidised by the Royal Geographical Society. The telegram, which was sent *via* Mombasa, states that some fifteen glaciers were found upon the mountain.

CLIMBING IN THE HIMALAYAS.—The following notes have been received from Mrs. Bullock Workman:—

'*Shigar Baltistan, August 19.*—We ascended the Biafo Glacier, crossed Snow Lake, and ascended the Hispar Pass. Zurbriggen found the lower part of the glacier much receded, and in every way more broken up and difficult to pass over than in 1891. It was most uphill work getting the coolies through the huge séracs met with on the first two days. We had much bad weather, but at the important points—namely, from Boggy Camp up, on Snow Lake and the Hispar Pass—were favoured with cloudless skies, and thus saw and photographed the many peaks that were hidden by clouds from the Conway party. Returning from Askole over the high Skoro La Pass, we encamped at 16,000 ft., resolved to try one or two peaks of a beautiful snowy range extending E. from the pass. On August 7 we ascended a peak adjoining and S.E. of the pass, on which we built a cairn and left a card, stating height (18,600 ft.) and name, which we gave, the "Siegfried Horn." The ascent of this peak took 5½ hrs. from camp. On August 11, having the day previous removed our camp to 17,400 ft. on the upper moraine, we ascended the sixth peak of the circle, S.E. of Skoro La Pass. The ascent, although steep in places, offered no unusual difficulties for those climbing with a good guide. We named the peak "Mount Bullock Workman," and left our names in a bottle in the snow, which will doubtless never be found. The height Zurbriggen affirms with decision to be not less than 19,450 ft. The height of both of these peaks was taken from the average registered by two late construction aneroids, and was judged to be approximately correct compared with the official height of the pass, 17,000 ft. Although, perhaps, no great height for India I have, I believe, up to date been higher than any other woman by 2,000 to 3,000 ft. Those making the ascents were, besides myself, Dr. W. H. Workman, Matthias Zurbriggen, and two porters.'

Since the above was printed we have learnt through the courtesy of Dr. Scott Keltie that, a little later than the ascents mentioned above, Mrs. Bullock Workman and Dr. Bullock Workman, with M. Zurbriggen, succeeded in ascending Mount Koser Junge, in the Shigar Valley, which is believed to be officially measured as 21,000 ft. in height. The party made two camps, one at 14,700 ft., and the other at 17,900 ft. Zurbriggen considered the peak to be of the first rank.

HEIGHTS OF MOUNTAINS IN EASTERN AFRICA.—We are beholden for the following to the 'Geographical Journal' of September, 1899 (p. 283):—Kenya, 17,180 ft.; Donyu Elgon, 14,200 ft.; Sattima, 13,390 ft.; Donyu Ronyu, 12,920 ft., measured by Capt. G. E. Smith, R.E.

MOUNT DAWSON (height *circa* 10,800 ft.).—We learn from the 'Canadian Gazette' of September 7, 1899, that Mount Dawson, in the Selkirks, was climbed on August 13 last by Messrs. Charles E. Fay and H. C. Parker, with the guides E. Feunz and Ch. Hässler, who were brought from Switzerland to Glacier House by the Canadian Pacific Railway Company for the purpose of assisting travellers in climbing in the district around. The climb is described as difficult. The height of the peak was computed to be 10,800 ft.; this makes Mount Dawson the highest of the Selkirks.

HARAMOSH (24,265 ft.), IN KASHMIR.—We learn from the 'Scotsman' of August 3, 1899, that this peak has been climbed by Messrs. E. T. Neve and W. G. Millais.

MOUNT MORRISON, IN FORMOSA.—'Nature' of July 20, 1899, says: 'Reports from Vancouver, British Columbia, announce the ascent for the first time of Mount Morrison, the highest mountain in Formosa, by Stoepel, the explorer of the Peak of Orizaba, in Mexico.'

HERR WÄBER'S 'BIBLIOGRAPHY.'—The price of this work was wrongly stated on p. 556 as 3 francs, instead of 4 francs.

W. A. B. COOLIDGE.

TWO TRAVERSES.—We have received the following notes from the Rev. James Outram:—

'1. *The Grandes Dents Ridge*.—On August 25 last, with my brother the Rev. William Outram and Jean Maître, of Evolena, I left the Kurhaus at Arolla at 3.15 A.M. In 4 hrs. 5 min. actual going the party struck the ridge of Les Dents just S. of the two prominent gendarmes to the S. of the Genevois ridge proper, by way of a snow patch, straight up from a finger-like moraine pointing to the ridge, and leading to a cleft on the climber's left at the head of the snow, then turning on to the rib. In 1 hr. more the summit of the Pointe des Genevois was reached at 9.10 A.M. Thence 1 hr. 5 min. were required to the top of the Grande Dent Perroc, and $\frac{1}{2}$ hr. more to that of the Petite Dent Perroc. All this has been done before. The party then descended the N.W. ridge (*ascended* previously, but apparently never before *descended*) towards the Grande Dent de Veisivi. All the gendarmes on this ridge were climbed, save one, which seems to be impossible. The

S. arête of the Grande Dent de Veisivi was then ascended (has this been done before?), the summit of that peak being reached in 2 hrs. 50 min. from the Petite Dent Perroc. The descent was made to Arolla by the ordinary route, *vid* the Col de Zarmine. The *entire* traverse of this ridge seems to be new, and afforded a hard but interesting rock-climb all day. The time from Arolla and back was 15½ hrs., including halts, but is not especially fast.

'2. *The Diablerets Ridge*.—On September 5 my brother and I alone started from the Hôtel des Diablerets as for the Col de la Croix, climbed up the W. arête of the Culant, thence ascended the Tête Ronde by traversing a little way to the S., and then striking up rocks, and attained the summit of the Diablerets by the S.W. rock face (not the ordinary route). The return to the hôtel was made over the top of the Sex Rouge and down to the Col de Pillon.'

REVIEWS.

Der Hochtourist in den Ostalpen. By L. Purtscheller and H. Hess. (*Meyer's Reisebücher*.) Second edition. 3 vols. (vol. i., 5 marks; the two others 4 marks each. (Leipzig and Vienna: 1899.)

It is not often that a work relating exclusively to the High Alps reaches its second edition, so that Herren Purtscheller and Hess deserve the heartiest congratulations on achieving this unusual feat. And this new edition is almost a new book, so much has it been enlarged and improved. The two slim volumes of the first edition (1894) numbered 465 pages of text. The new edition runs to three volumes, which comprise no fewer than 848 pages of text, or not far from double the number of the former issue. The preface informs us that in 1894 904 peaks and 209 passes were described, whereas in 1899 the numbers have risen respectively to 2,040 peaks and 460 passes. Seven new districts have been added, among them the Alps of Val Grosina and the group of the Cima d'Asta. Of course the text has been thoroughly revised, as well as enlarged, while a most admirable feature of the new edition is the 49 outline district maps, which are very useful as affording a general view of each group, though usually not detailed enough to climb by. Each volume has an index of its own, while each may be divided into four or two sections, which are sewn together, so that the pages will not come loose. The special bibliographies do not profess to be complete, while peaks and passes in each group are described in separate sections, and not in strict topographical order, the plan of the 'Climbers' Guides,' which still seems to me to be the most useful in practice. Much help has been given to the authors by various specialists, so that we may feel certain that the work presents an accurate account of the present state of exploration in the Eastern Alps. To the climber of any nationality visiting the Eastern Alps (and this term here includes the Piazzi, Ortler,

Adamello, and Brenta groups) the book will be simply indispensable.
W. A. B. COOLIDGE.

Dauphiné. Guides Joanne. 16mo. 483 pp. 7f. 50c. (Paris: 1899.)

At last a good guide to the mountainous regions of Dauphiné has appeared in M. Joanne's excellent series, of which this is one of the most excellent volumes. But we have had to wait long for it. The old two-volume 'Dauphiné' (1862-3) in this collection was naturally very imperfect, as the district was then just beginning to be explored, while in many places a strange freedom of fancy was displayed. Next came the 'Jura et Alpes Françaises' (1877, one volume), which was very useful in its time, but is now pretty well superseded. In 1890 vol. i. of a new edition of the larger work was issued under the title of 'Alpes Dauphinoises': this described the lower ranges around Grenoble (Grande Chartreuse, Belledonne, Sept Laux, Allevard, Vercors, Royannais), but the long-expected second volume has never yet made its appearance. Fortunately M. Joanne placed the preparation of an entirely new work on the Dauphiné Alps in the competent hands of M. Maurice Paillon, the founder of the 'Revue Alpine' of Lyons, and, as was naturally to be expected, M. Paillon has carried out his heavy task most admirably. The book is not designed exclusively for climbers, for it comprises the whole of the Dauphiné - *i.e.* the three Departments of the Hautes Alpes, the Isère, and the Drôme. It is divided into five sections or chapters, besides a preliminary notice of the railways to Grenoble from Paris, Marseilles, and Geneva. Section i. describes the Grande Chartreuse region; ii. the Valentinis, the Royannais, the Vercors, and the Diois; iii. Belledonne, Sept Laux, the Grandes Rousses, and the Aiguilles d'Arves; iv. the main Pelvoux group, with the Trièves, the Dévoluy, the Champsaur, and the Gapençais; while v. includes the environs of Briançon, the Queyras, and the valley of the Ubaye, with the environs of Barcelonnette. The information is given, of course, in a very concise form, but seems to me remarkably accurate, while for certain outlying regions of the Dauphiné the book will be a revelation to most travellers, though, unluckily, it will be hard for foreigners to visit them in the present suspicious humour of the French officials. Besides a general map, and a route map, there are seven useful district maps, six plans of towns, and a panorama taken from the Tête de la Maye. Many useful hints are given in the introduction, while the details as to Hôtels are given in the index. Finally the book is divided into three portions, which may be detached separately, and are arranged so as not to fall into pieces. In short, it is a most practical and useful volume.
W. A. B. COOLIDGE.

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