weather got worse and worse and no attempt was made to climb the mountain. To show how bad the weather was, from August 1 to September 10, that is to say forty-one days, on twenty-eight of these days it was either snowing or raining all day or wet during some part of the twenty-four hours. On three separate occasions snow was lying thick at the bottom of the valley. On August 16 a peak just opposite the end of the Robson glacier (about 10,700 ft.) was climbed by A. L. Mumm, J. N. Collie, and M. Inderbinen. On August 19, after sleeping out near the foot of a glacier lying west of the camp and north-west of Mt. Robson, the same party, together with F. Stephens, J. Yates, and G. Swain, climbed a snow mountain lying north of the White Horn Mt. (about 11,100 ft.). The White Horn mountain seemed to be about 600 or 700 ft. higher; and Mt. Robson over 2000 ft. higher. These three mountains are apparently the three highest of the Robson group. After three days heavy snow on August 25 an attempt was made to climb Mt. Resplendent, south-east of Mt. Robson, but as the snow at the head of the glacier was lying two feet deep it was found to be impossible. It is worth mentioning that this year the whole of the water draining from the Robson glacier went west to the Fraser River; in 1908 Prof. Coleman mentions that it partly went to the Smoky and partly to the Fraser; also in 1909 much the same state of affairs prevailed; as a result in 1910 the whole of the Robson glacier presumably was in British Columbia, perhaps in 1911 it may be entirely in Alberta.

On August 26 the return journey was begun by a new route via the Smoky river, the Stoney river, the Hay river and Solomon Creek to Brulé Lake on the Athabasca. On September 1 an expedition was made over into British Columbia and back again by means of a pass below tree limit. From a point some distance above and west of the pass, Mt. Robson, the White Horn and the snow peak ascended on August 19 were all visible. The watershed between the Smoky and the Stoney rivers was crossed on September 6, Rock Lake on the Hay river was reached on the 13th, Brulé lake and the Athabasca on the 16th, and Edson and the railway on September 21.

VARIOUS EXPEDITIONS.

Pennines.

Dom (4554 m. = 14,942 ft.), by the W. Arête.—The W. arête may be said to commence at the Grabenhorn, 3375 m. —11,073 ft., from which, except for a slight descent at first, it rises with varying but easy gradients to the point where it strikes the steep W. face of the Dom at a distance of some 4 hours. It then forms the S. edge of this steep W. face until some 1500 ft. higher it changes its direction from E. to N., and becoming the top edge of the face, resumes the form of an arête.

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On July 28, 1882, Dr. Paul Güssfeldt, with A. Burgener and B. Venetz, ascended the Dom from the Kien Glacier by the upper part of this arête. They reached it about an hour below the W. face described as being then a wall of ice, in which about 140 steps had to be cut ('A. J.' xi. 117).

On September 7, 1887, Herr Alexander Seiler and Mr. Eckenstein reached the W. Arête at the Gabel by the long and dangerous couloir in the S.W. face ('A. J.' xiii. 413).

On September 7, 1908, the whole W. arête from the Grabenhorn was followed, probably for the first time, by Herr A. Mazlâm with the guide Josef Knubel, two gendarmes on the lower portion of the arête being described as difficult (*cf.* 'Jahresbericht Sektion Uto S.A.C.' 1908, and 'A. J.' xxiv. 523).

Mr. G. L. Stewart, with Ferdinand Summermatter and J. M. Schanton, followed the W. arête in its entirety on July 27, 1910. They left the Täschhorn Hut at 1 A.M. and turned off the Domjoch route in a westerly direction where this route descends from the moraine to the Kien Glacier. Crossing rocks at the foot of the Grabenhorn they mounted to its rocky S. ridge (2.15 A.M.). Traversing here and there on its E. side to avoid troublesome places in a dim light, they followed this ridge to the summit (11,073 ft.), which was reached at 3.7 A.M.

After a few minutes halt they made their way along its rocky E. arête, descending slightly and taking shelter from a bitter N.W. wind by traversing where possible on the S. side just below the crest. They soon crossed a narrow cleft in the arête, involving an easy drop down a wall of about 9 ft. at the head of a couloir running down to the Kien Glacier. This cleft appeared to mark the end of the E. arête of the Grabenhorn and the beginning of the W. arête of the Dom. At 4.5 A.M. they encountered a tower rising some 20 ft. (? pt. 3635). Here they descended a steep gully on the S. side of the arête for 25 or 30 ft. to climb up the awkward corner of a buttress. This passed, they traversed below a wide gap in the arête on the E. side of the tower, and presently climbed along a crack formed by the splitting off of a leaf of rock, to its crest, which they followed *à cheval* for about 25 yards (4.30 A.M.) to an abrupt step down of about 10 ft. Having negotiated this they left the arête by a descent on the N. side of some 40 ft. of rock and an easy chimney of 25 ft. which brought them back to a short snow slope in the arête at 4.50. Short rises and falls, some snow, some rock, followed, and at 5.20, after coming up a big step composed mainly of broken and shaly rocks the party halted ½ hour for a meal. Somewhat slabby rocks brought them up another considerable step (6.25) from which the arête, here snow, interrupted by occasional outcrops of rock, continued, until at 7.45 it struck the steep W. face. This was of snow, broken here and there by cross walls of rock the strata of which slope downwards at a high angle. Their dip gives a 'platten' character to the rock at its S. edge which is mostly bare of snow.

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A zigzag course was made where the edge was too 'plattig' and steep to be followed. The snow was in good order and, except for a few yards at the commencement of the attack on the face, no ice was encountered.

About 10, the corner was reached where the arête changes its direction from E. to N., and the party made a stay of an hour in a sheltered position on its eastern side.

The rock arête running up to the lower summit afforded some interesting work of no great difficulty. Shortly before the lower summit was reached it became impracticable and a traverse was made on the W. side over sloping layers of rock mostly covered with snow.

Having crossed the lower summit and the 'Gabel' the party gained the highest point at 12.15 P.M.

The descent to Randa was made by the usual route.

MATTERHORN (4505 m. = 14,780 ft.).—On January 31, 1911, with Joseph Pollinger and Joseph Lochmatter, I ascended the Matterhorn from the Hörnli hut in 8¼ hours. The only halt during the day was made on the way up at the old hut. At other times we ate, without halting, food carried in our pockets. As far as the shoulder snow was far more plentiful than in summer, and was in powdery condition. The shoulder itself was all ice, and steps had occasionally to be cut where the cable was not available. Above the shoulder the mountain was in excellent condition, and all the ropes were exposed. On the top in the sun the temperature was tolerable, but as soon as the descent was begun a violent southerly gale sprang up and the cold became intense, so that no halt could be made till the Hörnli was reached. The descent occupied 5 hours. The thermometer down at Zermatt at 7 A.M. showed minus 15° Celsius (27° of frost Fahrenheit). Times: 3.45 A.M., leave Hörnli hut; 7.45 A.M., old hut (about ½ hour's halt); 10 A.M., shoulder; 12 NOON, top; 12.5 P.M., leave top; 3 P.M., old hut; 5.5 P.M., Hörnli hut. C. F. MEADE.

Rhaetian Alps—Ofen Pass Group (Engadine).

PIZ PISOC (3178 m. = 10,427 ft.), by the N. arête, reached from the N.W.—This expedition, which has no claim to be considered new—save to the Lower Engadine guides—affords a more interesting and quicker route than the usual one by the S. arête. It was accomplished by Major E. L. Strutt with Josef Pollinger, June 6, 1910.

Starting from the admirable Hôtel Waldhaus Vulpera, at 4 A.M., the party followed the usual rather intricate route past the little Lai Nair (Schwarz See), 1546 m., to the outlet of the sombre Val Zuort (¾ hour). They then mounted that glen till above the tree line, where turning due E. at a point rather to the N. of the letter 'Z' in the word Zuort on the S. map (1 hour), they steered towards

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the base of a conspicuous snowy couloir in Piz Pisoc's rugged W. face, the position of which couloir can roughly be described as the *first* one furrowing the peak's W. face, to the *N.* of the summit. They mounted the couloir, which affords no difficulty, as any steep bit can be turned by the easy though treacherous rocks of either bank, finally (2 hours) attaining the main watershed or N. arête just N. of three great towers which are very visible from below. It would be *quicker*, however, to strike the arête to the S. of these towers. Partly climbing or turning these towers—very rotten rocks—they followed the arête till it narrowed into a sort of secondary rocky top. This was turned by a broad ledge on its W. slope, and the arête regained at a gap between the aforesaid hump and the true summit; easy snow now quickly brought them to the top (40 minutes; or 5 hours 35 minutes from Vulpera including many halts).

The descent was made by the S. arête, from the lowest depression of which a glissade down a couloir brought them to the Zuort Glacier (45 minutes), just about the contour line 2640 m., S. map. Vulpera was attained in 1¼ hours more.

Weather and snow perfect. It should be borne in mind that from the summit ridges of both the Ofen Pass and Silvretta groups, the peaks, with trifling exceptions, such as those about the snout of the Silvretta Glacier, lose nearly all the Alpine characteristics which they appear to possess when viewed from the valleys.

TRAVERSE OF THE CRAST' AGÜZZA (3872 m.= 12,704 ft.). TRAVERSE OF THE W. PEAK (3877 m. = 12,720 ft.) and E. PEAK (3967 m. = 13,016 ft.) OF THE MONTE DI SCERSCEN. Piz Bernina (4055 m. = 13,304 ft.) from the Capanna Marinelli to Pontresina. August 15, 16, 17, 1910.

Bernina Group.

A note on these three days expeditions may be of interest, as no doubt the conditions encountered were quite abnormal, owing to the immense amount of snow on the glaciers and ice on the rocks due to the wintry Alpine summer of 1910.

Full information in regard to these peaks is to be found in the 'Climbers' Guide to the Bernina,' by Major E. L. Strutt (1910).

On August 15, 1910, Messrs. W. N. Ling and H. Raeburn left the Boval Hut at 1.55 A.M. for the Crast' Agüzza traverse.

The ascent was made by the E. ridge. The rocks near the summit are steep and one chimney could not be overcome before handholds had been cut, with a knife, in the ice overhanging the exit. The summit ridge was a thin snow cornice. Descent was made direct down the S. face into Italy, the latter part by standing glissades down a snow couloir (probably ice in ordinary seasons) leading on to the Vedretta di Scerscen Superiore. The Marinelli Hut was reached in ten hours going time.

Leaving the Marinelli next morning at 2.20 A.M. (called late by Hut guardian) Messrs. Ling and Raeburn ascended to the Upper

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Scerscen Glacier and from there attacked the West Peak of the Monte di Scerscen. Owing to the amount of snow and ice the description of this S.E. face in Major Strutt's Bernina guide was of little use. They climbed the sloping glacier and reached the 'belt of rocks' mentioned in the 'Guide.' No definite 'ribs' could be made out. A chimney in the lower cliffs proved to be full of blue ice. The only 'weak' point here was occupied by a cataract of ice, a frozen waterfall. After a good deal of cutting of foot- and hand-holds, this was overcome. Above this the angle eased off and the climbing for the rest of the way to the W. peak was not difficult: well broken up rock, interspersed with snow, something like the ordinary way up the Gabelhorn. The summit ridge was struck (9.10 A.M.) a little S.W. of the top, which was gained a few minutes later. Leaving the West peak at 9.15 the highest point was reached at 9.40, the going being very slow owing to the care required in dealing with the heavy cornices. The descent, commenced at 10 A.M. over the much gendarmed ridge towards the Fuorcla Scerscen-Bernina, proved exceedingly difficult and laborious. Everywhere ice and cornices, all the steep, high and narrow towers sheathed in ice, every rock spike having its cornice, in size depending upon the width of base.

When near the Fuorcla, a rather bad snowstorm came on, which compelled the party to abandon the ascent of Piz Bernina. Efforts were then made to descend to the Tschierva glacier, but the cold on this side was so severe and there was insufficient snow on the steep ice slopes to allow of rapid and safe progress, so that it was judged better to break through the cornice on the S. side and descend a narrow couloir, leading into the wide couloir of the Fuorcla Scerscen-Bernina, descending to the Upper Scerscen Glacier, and by it return to the Marinelli Hut.

This was after some difficulty effected. The best route, avoiding endless cutting, was found in the deep and narrow avalanche groove in the centre of the couloir. Owing to the cold this was quite safe, and had nearly always a sufficient layer of good snow in it. It was nevertheless treated with all precaution, only one of the party moving at a time. It was therefore not till 8.55 P.M. that the schrund was crossed and the lantern lit. The Marinelli Hut was gained at 10.30 P.M., the weather improved towards evening. Under normal conditions, this traverse, especially finishing with Piz Bernina (the avalanche groove is not a place to be in on a fine day!), must be a very fine and interesting climb, mostly on a narrow and many-towered rock ridge. The S.E. face of the West Scerscen should be quite safe from stones if attacked early enough in the morning.

On the 17th Messrs. Ling and Raeburn returned to Switzerland over Piz Bernina.

Leaving the Marinelli, a luxurious *bewirthschaftet* place, at 8.30 A.M. they retraced their steps of yesterday as far as the Fuorcla

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Crast' Agüzza, whence they ascended Piz Bernina. They descended by the usual route to the Boval Hut and Pontresina.

This ordinary route up Bernina does not seem free of avalanche risks. Where the great track, made by the numerous parties which had made the ascent the previous day, swings round the S.E. shoulder and cuts across to a rock ridge descending E. from the summit, it had been completely obliterated for some hundreds of yards by big avalanches of new snow fallen from the steep slopes of the frontier ridge above. No parties had been up on the 17th, the guides on the Swiss side fearing a storm, which however did not materialise, though the cloud and mist effects and Brocken spectres were very fine, the views E. to the Ortler, Königsspitze and Brenta Dolomites being especially grand. HAROLD RAEBURN.

ALPINE NOTES

'THE ALPINE GUIDE.'—Copies of Vol. I. of the new edition of this work, price 12*s.* net, and of 'Hints and Notes, Practical and Scientific, for Travellers in the Alps' (being a new edition of the General Introduction), price 3*s.*, can be obtained from all booksellers, or from Messrs. Stanford, 12 Long Acre, W.C.

'THE ALPINE GUIDE,' THE CENTRAL ALPS. PART I.—A new edition of this portion of the 'Alpine Guide,' by the late John Ball, F.R.S., President of the Alpine Club, reconstructed and revised on behalf of the Alpine Club under the general editorship of A. V. Valentine-Richards, Fellow of Christ's College, Cambridge, is now ready, and can be obtained from all booksellers, or from Messrs. Stanford, 12 Long Acre, W.C. It includes those portions of Switzerland to the north of the Rhone and Rhine valleys.

THE ALPINE CLUB OBITUARY.—H. B. George (1861), B. Wainewright (1879), T. S. Treanor (1906), Christopher James (1874), A. D. Puckle (1873), Baron A. de Rothschild (1871), and the Rt. Hon. R. Spence Watson (1862).

HUTS OF THE S.A.C.—The Central Committee of the S.A.C. has voted the following amounts for the construction of Huts :

			fres.
Gamchibalmhütte	.. ..	50 % of cost	.. 5000
Etzlital Hut	.. .. ..	50 % „	.. 5000
(to be opened in May)			
Aela Hut	.. .. ..	50 % „	.. 4500
Albignatal Hut	.. ..	50 % „	.. 5000
(opened on August 22)			
Silvretta House	.. ..	33 % „	.. 9000
(purchase of)			

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