we could work left and join the ridge below. Without stopping we raced down on to the Col and so to the Gran Neiron Glacier.

It is from a point above the right bank of this glacier that the photogravure of the west side of Mont Herbetet which accompanies this paper was taken. This picture (from the original negative kindly lent by Mr. G. P. Baker) shows our mountain on the left, whilst to the right are seen the Punta Budden, Becca di Montandeyné, and the Piccolo Paradiso. The Col Bonney and the first part of the southern ridge of Mont Herbetet are hidden by the buttress running up from the snowy eastern Col Gran Neiron. Projecting from behind this buttress, and nearly on a level with the Punta Budden, is the rock tower which overlooks the Col Bonney —the first tower on the ridge shown in Mr. Compton's drawing (cf. p. 88). The squarely built tower at the top of the Neiron buttress is the 'overhanging tower' of the narrative (hardly distinguishable in Mr. Compton's figure); it may be readily recognised, as from its base runs a snow gully right down to the Gran Neiron Glacier. The 'three obscure summits' (cf. p. 92) are masked by a second buttress; then follow the 'fantastic aiguilles' and the four great steps leading to the summit.

After a brief halt by the snout of this glacier we trod once more on springy turf; and as we descended into the Leviona glen Mont Herbetet, now illumined by the soft evening light, sank below the horizon and we saw it no more.

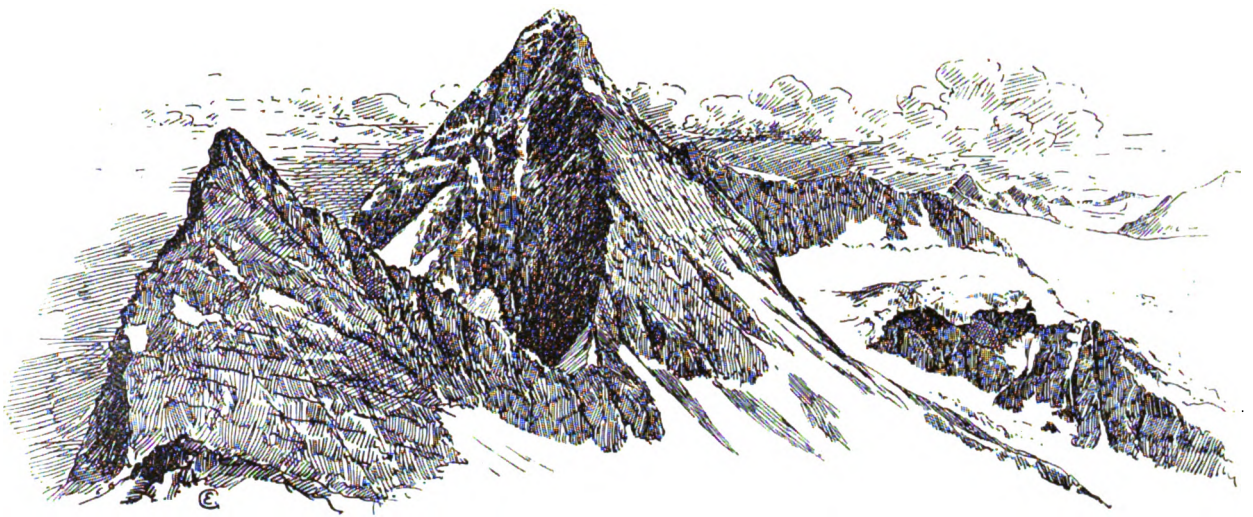
MOUNTAINEERING IN THE CANADIAN ROCKIES.

By S. E. S. ALLEN.

I.

This summary of four summers in the Canadian Rockies aims to indicate, to those interested in mountaineering, the almost inexhaustible material which these mountains afford. While the latter portions, dealing with expeditions of the past two seasons among hitherto partially or totally untrodden peaks and valleys, have to do with that main chain of the Rockies which is crossed by the Canadian Pacific Railway some 6 miles W. of Laggan station, the earlier part, somewhat introductory, deals also with a few climbs in that western parallel range of the Selkirks in the region explored by Rev. Mr. Green, and so delightfully described in his work 'Among Selkirk Glaciers.'

Banff, on the eastern Field, on the western slope of the main chain, and Lake Louise, near Laggan, at the crest, together with Glacier



MOUNT SIR DONALD FROM THE SUMMIT OF EAGLE PEAK.

House, in the Selkirks, are natural and comfortable centres for radiating climbs and explorations. With the exception of those regions adjacent to the railroad, the snowy Selkirks to N. and S. of Glacier House stretch for hundreds of miles, mostly unexplored and entirely unascended. At Field those subordinate Van Horne and Ottertail ranges are entirely untrodden by the climber. From Laggan northward the great rocky crest offers its countless peaks and hundreds of miles of snow field and névé. South of Lake Louise the superb Temple Lefroy group offers, with the exception of Mount Assiniboine, S.W. of Banff, the loftiest and most difficult summits; while from Banff not only the Assiniboine group but the whole eastern slope of the chain is more or less accessible by a great number of beautiful Indian hunting trails.

To Mr. Perley, manager of Glacier House, my thanks are due for his kind assistance in his Selkirk climbs of 1891 and 1893, as also to Mr. Astley, manager of the chalet at Lake Louise, for facilitating his explorations of the watershed fastnesses S. of the lake in 1894, and finally to Mr. T. E. Wilson, outfitter, of Banff, for his friendly aid and valuable information regarding routes through the mountains S. of Banff in the summer of 1895.

For my friends and companions of divers excursions, MM. Lewis F. Frissell, Yandel Henderson, Rev. Harry P. Nichols, Charles S. Thompson, Howard Franklin Smith, George Warrington, and W. D. Wilcox, I hope that portions of this account may recall some pleasant memories.

In August 1891, as I journeyed eastward from a month of climbing in the Sierras of California, attracted by the splendours of the Selkirks, I stopped at Glacier House on the Canadian Pacific Railway, and without loss of time climbed from Marion Lake to that long rocky ridge since called Mount Abbott, whose panorama, not unlike that from the Piz Languard, and so well summed up by Mr. Green in the words 'as fine as could be desired,' has now become deservedly familiar to many. And if anything further were necessary to seal an admiration for the Selkirks it was the scene from the south side of Mount Sir Donald, to which I had ascended by the east side of the Great Glacier, when for miles before me lay the shining plain of the Ille-cille-waet névé, guarded by the black and rugged Mount Macoun and the glistening Mount Fox, Mount Dawson, and Mount Donkin.

At Field I climbed to the fossil bed, and penetrated to the encircling walls of the snowy amphitheatre behind Mount Stephen. My friend Dr. S., who was with me here, ceased not to grieve for the Field of the '80's, a luxuriant garden, a bower of ferns and moss. The forest fire had claimed a fearful tribute and cast a blemish upon an unsurpassed scene.

But even so the place was most attractive, and as the young pines come up to heal the old scars will doubtless again resume its pristine loveliness.

The fire had not succeeded in crossing the Kicking Horse River, whose northern bank is still heavily timbered. Across the valley up

a steep ravine, through a labyrinth of willows, ascending with a friend, and then by steep ledges and slopes of broken slate, I soon found myself upon a pinnacle of Mount Burgess, barred from the highest point by a serrated ridge. Our surroundings were quite unique. The sun, vainly trying to penetrate the thin mist, which hovered everywhere and concealed the distant peaks, suffused it with a mellow glow, through which across the narrow valley loomed the yellow battlements of Mount Stephen, dotted with the snow of innumerable hollows, while far below us lay Emerald Lake, the bottom of a pit 3,000 ft. deep, whose sides were banks of lurid fog.

Emerald Lake was at that time unknown to the majority of travellers. Field itself was a busy rendezvous for prospectors, attracted by wild rumours of mineral wealth in the Ottertail range. One of these prospectors accompanied me next day on a trip to the lake by the way of the 'Natural Bridge.' Crossing at this wild cañon the Kicking Horse, we ascended the heavy timber of a west spur of Mount Burgess until meeting the trail, which further E. turned from the river bank. Throughout its entire length of some 10 miles it maintains nearly a constant level, crossing Emerald Creek and reaching the wooded bank of the lake, wherein lay mirrored the great rock peak upon whose ridge I had so lately stood. Upon the north-east bank Mount Field offered an easy and attractive climb. This entire region, being still unharmed by fires, possesses a charm which is not even exceeded by the more snowy Selkirks.

The 18 miles of increasing grandeur which I covered afoot from Field across the summit to Laggan culminated in the fitting climax of Lake Louise.

Cathedral Mount, a series of superb aiguilles E. of Mount Stephen, is only the first of that succession of peaks which all the way to Hector are seen to the S., their valleys leading off to alpine fastnesses. Some distance E. of Field there opens N. a valley, deep, heavily wooded, and leading to the rocky peaks and immense glaciers of the Waputtehk group, and all the icy crest upon the N., while from Hector runs S. the broad valley of which I shall speak again, to the south side of the Temple-Lefroy group. It was S.E. from Laggan station, whence its grandeur is so manifest, that I first saw Mount Temple, that splendid ice-crowned peak whose summit, nearly 7,000 ft. above Bow Valley, overtops all others on the C. P. R. The present road to Lake Louise, which follows the creek from the lake, was as yet unfinished, and the way led through the burnt timber, for even here the fire has done its hideous work. Most fortunate is it that this defect has not marred the immediate vicinity of Lake Louise, whose beauty, with the foreground of green forest and lower peaks framing the majestic ridge behind, is as exquisite now as when first described by Mr. Green, the calm that pervades the amphitheatre being broken only by the roar of the avalanches from the overhanging ice cliffs of the great white peak,* as with the crash of thunder they pour down its enormous walls.

* Mount Green.

I closed my climbing for the summer by an excursion to Lake Agnes, to which through the forest Mr. Astley had cut a trail. At the outlet of the lake the view northward over the broad Bow Valley is a pleasing contrast to the dark wall of Goat Mountain, across the valley of Lake Louise, or that of Mount Whyte, behind the lake. I noticed at the left extremity of the latter a towering aiguille, absolutely vertical from the lake. In the hope of turning it in flank or rear I ascended the ledge of that peculiar mountain locally known as the 'Beehive' to the top of the latter, whence I was able, by following the narrow ledges, to turn a corner and reach a wider gorge, choked by a vast boulder, upon which the remainder of its accompanying avalanche had come to rest. I could reach a portion of it, but, not knowing how securely it was wedged, hesitated to experiment with it. I finally passed the place and made the pinnacle. The view over the surrounding group was perfectly superb, embracing the summit névé of Mount Temple, the beautiful glacial face of Hazel Peak, and the wonderful hanging glacier that crowns the north side of the helmet-shaped Mount Lefroy, whose silvery folds and creases sparkling in the sunlight against the background of the sombre walls seem, instead of being sculptured in solid ice, to be of the froth of beaten egg or snowy sea foam, or some light and shining cumulus of cloud, just hovering there.

It was not until the summer of 1893 that I again found myself at Banff, on the east slope of the Rockies. The peaks at Banff, while not of great height, are somewhat deceptive, and no better preparation for the 'heavy' work of the crest or Selkirks can be imagined than they. Such, at any rate, I found the Rundle Ridge, that bare rock mass E. of the falls of the Bow whose north-west end is known as Twin Peak, while its south-east portion is called Razor Back. My ignorance of a path on the north side of the Spray greatly increased the toil. After a long struggle in the woods I climbed a rib of the Rundle range and halted, not on the highest point of the ridge, to be sure, but at a point about 8,000 ft. above the sea, whence to the N. and S. the main chain of the Rockies, rising tier on tier, was seen to culminate in the great peaks of the crest. To the S.E. a very conspicuous mountain, rising from a sea of peaks, attracted my attention, which I afterwards learned was Mount Assiniboine.

Being joined by a friend at Banff, who was indifferent as to destination, I decided to proceed at once to Lake Louise. Accordingly, procuring certain outfit from Mr. T. E. Wilson, we went down to Laggan by train. The chalet at Lake Louise had been destroyed by fire, and our quarters were in a tent at the water's edge. I was not long in procuring an Indian and pony to convey our tent and provisions up the valley to the base of the great white ridge,* upon which I wished to make the first attack. We camped on an eminence in the last grove of trees above the long glacier of the valley. At daybreak, ascending the stream on the west side of the long glacier to a point almost beneath the overhanging cliffs of ice upon the right, we

* Mount Green.

gained by a torrent's bed the névé plateau above, where we were stopped by an intricate maze of crevasses so subtly bridged and concealed that 'the golden hour' was lost and we were obliged to return.

As outlined from the lake my plan was to gain from the névé plateau on the right a notch or depression in a subordinate northern ridge. Thence the summit of the Dome, as I called it, the W. extremity of the main ridge, could doubtless be reached by the snowy slopes of the Dome itself. This notch, by the way, is a possible pass over to Hector, could one only make it. From the top of the Dome to the actual summit of the peak (further E.) the ridge was in a very serrated condition. I believe that by keeping close to the top of the north side it could be done, however, for the angle of the north face, as I soon saw, was much less than it appeared from Lake Louise.

The north face was vertically streaked and scarred with avalanche tracks, as could be seen from the lake; but the condition of the slopes upon the right, which could only be seen in profile, was uncertain.

It being unlikely that the rock peaks * above these slopes would furnish the quantity of material for snow-slips abounding on the broad north face of the white crest, and the plateau being manifestly impracticable, we tried these slopes to the right in our second attempt upon our peak, ascending diagonally toward the notch. Unfortunately for us the whole slope was scalloped and furrowed into ridges and hollows by snow avalanches from the gullies above, whose source was further seen in considerable areas of snow on the ledges and an overhanging cornice on the summit of the ridge. As the sun arose the slopes became somewhat animated, particularly the great white face of the main ridge, and the air was shaken with the noise of thousands of snow-slips from above, and ice avalanches from the great ice walls crowning the cliffs below us, most of which would be entirely unheard and unseen at Lake Louise. In order to avoid danger from above we kept close to a series of projecting cliffs to which I had directed our course. As there was a bergschrund of indefinite dimensions in this vicinity, and the snow-slope was continually becoming steeper and softer, I was not sorry to be able to work over to a ledge in the cliffs upon which we rested, taking photographs. We were not far from the Notch, nor many feet below it, and our height was considerably over 10,000 ft. Though a somewhat precarious, it was yet an inspiriting situation. The sun being now high the peaks were echoing an almost continuous roar of ice avalanches below, while the wind brought us in its capricious puffs the hiss of the snow-slips, as it often tosses the sleepy sound of distant waterfalls, now rising, now falling, now sustained, or varied by the occasional crack and crash of falling rocks. From the top of the long white ridge of the crest the superincumbent areas of snow or pieces of an overhanging cornice started on their downward course, darting over 'hot plates' on the way, and coming to rest in the crevasses of the hanging glaciers of the cliffs. Across the narrow valley was Mount Lefroy, its west arête

* Mounts Nichols and D'Espine.

seen almost in profile. I noticed a couloir reaching from the glacier below almost to the snow plateau above the west buttress, and thought then, as now, that early in the season the plateau could be reached, whence the arête is apparently not difficult. I was constrained, from the frequency with which avalanches fell into it from the crest, to call the narrow valley S. of Mount Lefroy, and the col connecting it with the crest, by the name of Death Trap. It is not impossible, however, that a safe ascent could be made to the top of the col by keeping close to Mount Lefroy. I subsequently had no trouble in reaching it from the S. in an expedition from Hector.

To the left or N. of Mount Lefroy was another narrow valley, at whose head was a truly remarkable aiguille*—a study for climbers. It would furnish work of the rarest sort. Over the top of this towered, in the distance, Mount Temple, showing the long S. arête, though at the time the state of my knowledge did not permit me to identify this peak. While still upon the ledge an interesting avalanche of snow descended close upon our right. I have never been nearer to an avalanche of this character, and while gratified that we had not started along the slope in that direction was glad to make its acquaintance. It was descending steadily and irresistibly, but I thought rather slowly, conformed by its weight and the shape of the gully to the appearance of an immense serpent, hissing as it went.

We had already been about as long upon these slopes as prudence could warrant, and so retraced our steps under the lee of the cliffs until the state of the snow forced us to descend. On leaving their protecting shelter we were exposed to avalanches from above, and as the slope was rather too steep to warrant a safe standing glissade (there being also an open crevasse below us near the plateau, necessitating a diagonal course to the bridge—the making of steps in the steep soft snow seeming also altogether too slow a process, exposed as we were to the snow-slips), we did about the only thing possible under the circumstances, and descended by the 'overlap,' the lower man anchoring firmly with feet and axe, digging the handle of the latter almost to the head in the snow, and bracing himself against it, while the upper man passed him, making the length of our rope below 30 ft., and anchoring while the other repeated the process, which required very little time to execute, and was absolutely safe, checking, indeed, several ugly slips.

The plateau below was torn and rent by the snow-slips from the slopes like the surface of a sea. We halted a moment for photographs, and then descended to the stream, whence the appearance of the blue overhanging séracs of the ice walls, with their immense transverse crevasses and crown of pure white snow, the blackness of the cliffs, and the green banks of the Alpine brook, running smoothly beside the long glacier of the valley, formed a scene of great beauty and grandeur. Our good Indian William was waiting for us with his pony at the small tent, and soon we were back at our large tent by the shore of lovely Lake Louise.

* The Mitre, as subsequently named by us.

My friend being now anxious to move on to the Selkirks, and not caring to renew the attack upon the white ridge,* we finally compromised by planning an exploration of Mount Temple. Our Indian William, being otherwise employed, thought his cousin Enoch Wildman would agree to go; and to see Enoch I visited their teepees, E. of Laggan, by the side of the swift Bow. After a host of savage dogs had been called off I was introduced to Enoch, a fine large Stoney, who looked twice his age, which was but nineteen years. He agreed to appear next day at the lake with a pony.†

Mount Temple, the highest mountain seen along the line—and, in my opinion, slightly higher than Mount Lefroy—towers, as I have said, in vertical walls S.E. of Laggan, an immense glacial plateau above sweeping down from the summit, a full 7,000 ft. above the shining Bow. The west and north sides, with the possible exception of a remarkable couloir, narrow and very steep, from 2,000 ft. to 3,000 ft. high, offered absolutely no possibilities of ascent.

To explore the eastern face we followed from Laggan the south bank of the winding Bow, gradually turning southward and upward as the great mass of Mount Temple drew nearer and nearer on the right. Much of the forest was still green, and, though it kept us busy to clear a path for the pony and blaze our route, it was delightfully cool, and the air was fresh and sweet.

A fierce thunderstorm delayed us on the open, above the timber line, which we weathered crouching beneath our tent, while the dark sky was lit with blinding flashes and the mountain-side seemed to shake with the deafening peals whose echoes played a chromatic scale in bass from cliff to cliff. But at length it was clear again, and we continued around the rough east slopes, searching for some brook whereby to camp, for it was growing late. As none appeared, and the way beyond led over slopes of broken rock, impassable for the pony, the others counselled camping by a bank of snow above, which would furnish water. As I have an aversion to melted snow, for no hygienic reasons, but because it generally tastes of smoke, I continued on some distance, and was delighted to discover, behind high piles of large blocks, unsuspected until actually seen, a circular basin at the very base of the vertical cliffs of Mount Temple, wherein was a small lake whose banks were very steep and lined with heather and scattered tamaracks. The others soon came up, and, fastening the pony in a grassy glade above, we set up the tent on the steep bank, at the water's edge. Fortunately the lake was shallow, and allowed us to build a foot-board or small

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* Mount Green.

† These Indians, Stoneys from the Morley Reservation, were on a summer's outing. They narrated to me stories of famous hunters among them who had rescued themselves from broken crevasses by cutting their way up the sides with their hunting knives. Considering also that it is to them we owe the beautiful trails that follow the rivers or cross the divides of the Rockies, we may well believe that if trained they would show a capability of truly Swiss development in the higher arts of climbing. It is, however, true that the Stoney is intensely domestic, and on his hunting trips generally takes, if possible, his entire family, without which he is liable to home-sickness.

wharf of stones and logs, which kept us from sliding into the water. It was a very cold spot, the playground of fierce gusts which scattered in spray a waterfall from the cliffs above, hurling the water in all directions, so that but little reached the lake, and sometimes even tossing it upward and supporting it for some little time. The surface of the lake, dotted with floating masses of congealed snow from a large bank at its head, was never still, and yet in the morning the margin was lined with ice. Enoch declared it was too cold, and he must return to Laggan for more blankets. He was allowed to depart with the promise to return in two days. Next morning encircling the E. base of the cliffs I came upon a gorge, the steep walls rising 4,000 ft. above, crowned by pinnacles between which sparkled the summit cornices. The view eastward was over the broad valley below, with its chain of tiny lakes and winding stream, the northern continuation of what in 1894 I named Wenkchemna, the valley of ten peaks. The first of these, Mount Heejee, grew continually grander as I advanced, forming as it does the turning-point for the crest at which it bends from its most northerly to an easterly direction. Further on a clear stream wound through a soft Alpine meadow at the base of a large amphitheatre before plunging to the valley below. Thence I climbed a steep ridge and had an uninterrupted view of the valley opening eastward, containing two beautiful lakes at the foot of the crest, whose stream flows into the Wenkchemna creek at the N. end of Mount Heejee. After deciding to try Mount Temple next day by a long arête beyond, I returned along the steep slopes to the lake.

Starting before daylight next morning, we had reached a height of about 10,000 ft. upon this ridge when we encountered a stratification of steep hard rocks, which, though not impossible, we preferred to turn in flank by some gully if we could contrive to do so. In the hope of finding some such means of ascent we started to the left, around the corner, following the ledge, which soon became narrow, sloping, and covered with unstable rock. On one side were the literally overhanging walls of Mount Temple, while on the other was a sheer descent of 2,000 ft. to a magnificent snowy valley, in which two lakes appeared, still filled with floating blocks of blue winter's ice. The region to the S., with mountains wonderfully sharp and of great height, and quite unlocated upon Dr. Dawson's Reconnaissance Map, and with which I have since become well acquainted, was still an unnamed, unmapped, untrodden fairy land, a bewildering and seemingly endless range of rocky peaks and shining glaciers. I can still recall the thrill from the splendours of this then ideal scene, for while a sense of the individual grandeur of these giants of the crest has grown and deepened with intimacy, yet this has been gained at the expense of that more subtle and naïve enchantment—a mingled bewilderment and delight. My photographs have since told me that our view embraced about 150° along the watershed from Mount Lefroy on the W. to Mount Heejee on the E. The overhanging cliffs at either extremity of our ledge formed a striking margin.

Although a steep gully was discovered, leading upward, yet the icy condition of its rocks, and the possibly fatal results of a slip, forbade

the undertaking. It was growing bitterly cold, and a storm of wind and snow, which had been hitherto confined to the higher portions of the mountain, began to fill the air with driving snow-flakes. Creeping back along the ledge to the arête, we hastened to lower and warmer regions.

Our last climb at Lake Louise was Goat Mountain, E. of the lake, which we made by ascending an avalanche-slide from the lake shore, skirting the cliffs, and making the summit from a rocky 'saddle' further E. Of the superb panorama from this peak I shall speak at another time.*

The first ascent which I made in the Selkirks, whither we now departed, was that of Eagle Peak. This rocky peak, upon the Selkirk watershed, is the second N. of Mount Sir Donald, than which it is about 1,000 ft. lower, or 9,600 ft. above the sea, and it rises immediately N. of Glacier House. I had always supposed that M. Huber had ascended it in his pioneering of Mount Sir Donald, but learned from Mr. Perley that his 'Eagle Peak' was to the right, or S., the first to the N. of Mount Sir Donald. Mr. Perley assured me that it was unascended, and, as the view from the summit promised to be fine, W. and I set out one morning to attempt it.

The easiest way of reaching the W. base of the peak was, of course, by following the trail to Mount Avalanche. I was not attracted by any part of the W. face for climbing purposes, nor, indeed, by the northern or the lower portions of the west arête, and so had planned to try the S.W. portions—that is, S. of the west arête—which were quite invisible from Glacier House.

To reach this we followed the path which leads to the great glacier, to the point where an avalanche has spread confusion in the valley, and, crossing the Ille-cille-waet on a long log, we ascended the S. side of that torrent, which descended the gorge above from the glacier basin S.W. of Eagle Peak. The timber was rough and the slope steep. Ascending, now, the broken rocks to the toe of a glacier above, we gained the steepening snow slopes on the S.W. side of our peak at the left margin of this glacier, and over a more or less mixed face climbed to the western arête, which we made at a point some 400 ft. below the summit. There was a steep snow gully further to our right, also leading up to the arête. The rest of the distance was a pleasant scramble, and soon we were upon the summit.

Eastward, like some phantom range, some fair creature of the imagination, soared through banks of cloud the distant Rockies, as from

* From this point we witnessed an interesting phenomenon. The N. side of Bow Valley was being swept by a forest fire, and the smoke, collecting, was ascending in a broad dark column to a height about twice that of Mount Temple, where the state of the atmosphere produced a condensation of moisture, and its top was covered with a vast cap of silvery white cloud—the whole a colossal toadstool, with snowy cap and jet black stem, 15,000 ft. tall! It retained its general form, with slight modifications, for nearly a whole day. The appearance of these fires at night was grand in the extreme, as the great bed of flame, licking the hill-sides across the valley, twisted from grove to grove to the very base of the cliffs. We were for a time quite disturbed lest it should cross the Bow and invade the Lake Louise region.

the summit of the Dom at Randa stretch the countless summits of the Oberland. Nor is the view northward, beyond Mount Avalanche, of the transverse Hermit range, along the gleaming crest and far beyond, less inspiring in its endless Alpine variety than the aspect from that same point in Switzerland of the sweeping glaciers of that snowy chain beyond the Täschhorn. But if there we see a distant Matterhorn below us, here the great pyramid of Mount Sir Donald almost casts its shadow upon us. Instead of a sharp Weisshorn we have a curving glacier-clad Mount Bonney, while beyond the vast Ille-cille-waet névé and Asulkan Pass the distant Dawson group, so graceful, so beautiful, add a magic finish to this incomparable view. I cannot better describe the valley of the Ille-cille-waet, between Mount Bonney and the bold Mount Cheops, than to liken it to the valley of the Visp, as from the summit of the Matterhorn I have seen it lying dark between the Weisshorn and the Dom. Surely the similarity of such scenes in beauty and genuine Alpine characteristics is independent of paltry height above the sea.

The sun was already low when we started down, for we had lingered too long in admiration of the superb panorama. After glissading down the snow slopes and reaching the basin the light had nearly failed, and, knowing that in the thick timber it would be already dark, we had the alternative of either descending the bed of the stream or staying where we were. The thought of anxious friends at Glacier House turned the scale, and we started down the gorge.

I should not care to repeat in daylight the descent of this stream. The approach of darkness kept pace with the increasing steepness and chaotic condition of the banks. For over three hours we rolled, slid, crawled, fell—anything but climbed—down that frightful place, soaked by constant falls into the stream below, bruised and cut with the sharp rocks, or making progress by clinging to alder boughs, suspended over uncertain depths of blackness. On one occasion hearing calls from W., I found him hanging head downward, with feet caught in an alder tangle, and doubly unable, from his heavy camera, which he was carrying over his back, to extricate himself. How our cameras escaped being entirely demolished I cannot understand. Later on W. returned the compliment when, having reached the logs piled high in the valley, I slipped from one upon which I was walking in blind faith, and should be still wedged in that deep dark hole but for his friendly assistance. Finally, we found a log by which we cautiously crossed the Ille-cille-waet, a vast white, roaring, surging abyss below, and reached Glacier House at about 11 P.M. Our excursion had taken 12 hours.

Our next peak was Cheops, the rocky pyramid at the W. end of the Hermit range, across the Ille-cille-waet valley from Mount Bonney. We went down to the Loop, crossed the river on the long trestle, and struck diagonally upward from the first snow shed through the heavy underbrush and fallen timber of Mount Cheops's lower S.W. slopes. This was the dry side of the mountain, and ere we reached a stream on the W. side we had reason to see

that a water-bottle should be taken on this climb. Upon reaching this stream we bore to the left, or W., continually, and meeting the W. arête of Cheops, where a remarkable snow cornice* curved over to the N., ascended the ridge to the summit.

The E. face of Cheops, as indeed the E. and S.E. faces of the entire Hermit range, carries snow and glaciers. The panorama is very fine, although, being a less elevated point, it is less extensive than that from Eagle Peak. Eastward lay Rogers Pass, with the great rock peaks the Hermit and Mount Macdonald on either side; from the latter southward the watershed peaks, Mount Avalanche and Eagle Peak, Uto Peak and Sir Donald, the Ille-cille-waet névé and Asulkan Pass; Mount Bonney across the valley to the S., with its beautiful glaciers and difficult N. face, upon which Mr. Green made his brilliant ascent; Ross Peak and the broad Ille-cille-waet valley to the westward, while the region W.N.W. and N.W. of Cheops was most attractive. Of its peaks and valleys none are named or mapped. They constitute, of course, a portion of the 'West Slope' of the Selkirks, the watershed being further E., and, though lower than Mount Bonney and Sir Donald or the Dawson group, they are rock peaks of strange fantastic shapes, whose snow-fields, very numerous and of all sizes, give a decidedly novel and unusual aspect to this group, which is worthy of the best efforts of a climber and explorer. The entire trip occupied 8½ hours from Glacier House.

I finished the season with an expedition to Mount Fox. My friends N. and T. turned up unexpectedly at Glacier House, and, as they were ready for anything, I suggested an excursion across the Asulkan Pass to the Dawson group.

Who can adequately praise the mingled beauties of a Selkirk woodland trail, as by foaming torrents or quiet waters it winds through the tall forest, whose arching boughs and tangles of vine and creeper sift the quivering sunbeams and fresco with swaying shadows the banks of cool deep moss, or the beds of fern, waist high, and cast a spell more subtle than moonlight over their moist and fragrant luxuriance? Surely even the memories of more exalted experiences, the rocky cliffs or snowy crests of a frozen upper world—an Alpine sea—would be at best but harsh and incomplete without these added charms. Not even the toil of our heavy packs could blind us to such delights, nor to those of the gay pastures, as amid widening vistas of peaks and waterfalls we climbed the pass upon its eastern side, crossed its crevassed névé, and camped in some prospector's demolished hut upon a shelf in that exceedingly steep slope above the Geikie Glacier, where Mr. Green had to excavate his bivouac with ice axes.

N. has so delightfully described our ascent of Mount Fox, which we made next morning, in a '94 No. of 'Appalachia,' that I should be rash to attempt to improve upon it. This superb Dawson group has been too often praised to require any further recommendations. The

* Showing a strange facial profile.

surprising part of it is that its amazing Alpine grandeur should attract so few mountaineers from year to year.

We made the peak, as suggested by Mr. Green, from the top of the Dawson Glacier, turning the sharp west end of the 'shoulder' by the snow slopes and gullies on the south side, and coming up upon the long west arête at a higher point. The view S. along the watershed, with its countless unexplored peaks and ridges, the long white face of Mount Purity, so like that of the Königspitze from the summit of the Ortler, and seen across the interesting Dawson Pass, crossed by M. Huber, to say nothing of the Ille-cille-waet névé and the huge form of Mount Sir Donald—all this wonderful panorama makes Mount Fox a point which must eventually be famous among climbers.

Not the least of the glories of this scene was the vertical, rugged, icy north face of Mount Dawson, highest of the group, across the narrow ice-filled valley which echoes the crash of its tons of falling rock.

The 2,000 ft. of steep slope from the Geikie Glacier to the cabin was made in a pouring rain, in twilight, and finally in total darkness. We determined the height of the peak as being 10,200 ft. above the sea. Ours was the second ascent, the first having been, as I understand, made from the Ille-cille-waet névé.

I hesitate to include a 'crevasse incident' which recurs, perhaps too vividly, to my memory. It occurred as we were returning next day over the Asulkan névé. The warm sun had obliterated our tracks, and save for occasional evidences of our route the latter had to be again evolved. I had crossed in safety a long, bridged, transverse crevasse, but on reaching the other side a larger one was seen a few feet beyond, as evidenced by a wide depression and by probing. It became necessary to make a right angle along the névé-capped ice-rib whereon I stood, carefully feeling for intercepting crevasses. The one in the rear widened in this direction, and as our party was but three in number, with conventional length of rope, the others had to come over to the 'rib' before I had gone far. In feeling for a bridge to cross the wide crevasse to my right, its edge, upon which I stood, though having felt safe to the probe, gave way. It did not yield vertically, however, but diagonally, towards the crevasse. I was fortunately able by a backward spring to sustain myself on back and elbows, my feet hanging in space. When I wriggled upon the rib again I could not help admiring the exquisite variety of colour of that small round aperture, from the dazzling whiteness of the snow through all the gradations of blues into subterranean darkness. Further on we succeeded in finding a bridge. The affair called up at the time the whole question of the relation, in such critical positions, of 'team work' to individual responsibility, and of the necessity on such occasions, particularly for the one who is leading on a crevassed plateau, of supplementing by a personal alertness that 'aid and comfort' from companions which from their own inopportune positions they may be totally unable to render. The same thing was first impressed upon my mind by a similar situation in a descent from the

Weisskugel by the Hintereis Glacier behind Josef Spectenhauser, when by a forward spring he arrested himself upon the further edge of a broken crevasse.*

In the summer of 1894, upon arriving at Laggan (Thursday, July 26), I was met with the account of what might have been a fatal accident to one of my friends who had preceded me. A party of three had made an attempt to ascend Mount Lefroy by the couloir upon its N.W. buttress. As I understand it, they had exchanged the couloir, which was growing uncomfortably steep, for the adjacent ledges. Here the centre man had in some way dislodged a large boulder, which bowled over the end man to a ledge some feet below, injuring a hip muscle and rendering him quite helpless. He was with difficulty lowered from ledge to ledge, and finally down the couloir to the glacier, whence at a later hour he was removed to the chalet, and was still upon crutches when I arrived.†

Our first ascent was a small peak W. of Lake Louise, a useful surveying point, which we named Mount Piran. A comfortable new chalet had been erected on the site of the old one, burned in 1893.

The day following (Saturday), the valley to the W. was explored, whose stream had been observed to flow from a little lake at the western foot of Mount Piran. We skirted the N. base of the 'Little Beehive,' where the forest struggles for supremacy with quartzite cliffs and ledges, clothed with moss and stunted pine. After 2 hrs. of slow progress, during which we were continually forced to descend, we emerged about noon upon a sloping meadow fringed with painters' brush. A snow-bank above furnished us with a drink, and, hurrying on through thick forest, we at length came upon our desired stream in a little hollow hung with moss and ferns, with two graceful waterfalls behind. We followed its eastern bank, clinging to roots and boughs and moss, for the stream was a succession of waterfalls, and we gave it the Indian name of Minewakun, or cascade.

In about an hour we stood upon the bank of Lake Minewakun,

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* I desire to call attention to an interesting account in the *Department of the Interior Annual Report for* 1892, p. 70, by W. S. Drewry, D.L.S., of certain explorations in the Selkirk Range S. and W. of the region surveyed by Mr. Green, which may be of assistance to climbers and explorers of the Southern Selkirks. The same volume also contains an article and sketch-map, by Messrs. Drewry and MacArthur, of portions of the Rocky Mountains, to which reference will be made elsewhere.

† As Mr. Wilcox barely mentions the accident in an article upon Lake Louise in the *Geographical Journal* for February, I desire, as historian of the mountaineering aspects of the affair, to state that the highest praise is due to all concerned—to himself and to Mr. Henderson for their skill, to Mr. Frissell for his pluck. The combined efforts of the two held F. when the tug came, and probably prevented the necessity of recording the first fatality in the annals of Canadian mountaineering. If it was W. who retraced the entire distance to the chalet for assistance, it was H. who spread his coat upon the Green glacier for F. to lie upon, and remained with him through the cold night until the assistance came. We note with pleasure a skilful emergence from such crises, which are fortunately rare, but occasionally unavoidable, and with admiration the exhibition of true sportsmanship to which they conduce.

about the size of Lake Agnes, and lying between Mount Piran and Mount Niblock, whose great columnar summit 2,000 ft. above was reflected in its surface of transparent green. It was just at timber-line, 6,900 ft. above the sea. Behind us lay the broad Bow Valley, with its winding river.

After a halt for bearings and photographs, we followed the soft, wet meadow to the base of the snow-slopes leading up to the pass, to the E., at right angles to the valley. This gave us no difficulty, though just below the summit of the col a little step cutting was helpful in the frozen crust. The height of the Minewakun Pass was 7,900 ft.

It was blowing quite a gale on the summit, so we were glad to hurry down the easy slopes of rock and scree to the valley of Lake Agnes, and thence by the trail to Lake Louise.

Spending Sunday as a day of rest, four of us started on Monday to explore the eastern tributary of the great glacier S. of Lake Louise. This latter glacier I have called upon my map by the name of the great peak from whose base it flows, and the naming of which I shall discuss at some length in another place.

The eastern tributary glacier which we planned to explore occupies a narrow valley between the enormous wall of Mount Lefroy on the S., from whose hanging glacier 3,000 ft. above drop frequent avalanches, and the steep cliffs of Hazel Peak on the N. From the ridge at the head of this valley connecting these two peaks rose a sharp aiguille, which we named the Mitre. To either shoulder led steep couloirs, the southern one inaccessible, filled with ice-falls and continuous schrunds, and the left or northern one broader, and forming the main névé of the Mitre Glacier. It contained several long but not continuous crevasses, and was less steep than the other. As it was still early in the day, we determined to ascend this pass.

There was a brief delay on the lower slopes caused by the third man breaking through the crust of a crevasse, which the soundings had failed to indicate. Proceeding upward, we crossed the first schrund, which was nicely bridged. The second necessitated a long détour, and, owing to the presence of smaller intermediate crevasses, it was necessary to hug the lower lip of the schrund, whose leaning wall we could at times touch with our hands. Here, with the steep crevassed slope to the left and the gaping schrund to the right, could be felt the exhilaration that comes from genuine climbing. Judging, however, from the running comments of my friend in the rear, lately pulled from the crevasse, it was not for him unalloyed bliss.

After the bridge was crossed the slope steepened, and frequent step-cutting was necessary. Our progress was slow, as every step was made large to ensure safety on our return. This continuous chopping was rather wearing on one not yet in training, and my back and arms seemed to lose all feeling and to work almost automatically. Never did any rest seem more delicious than our half-hour on a rock upon the left, to which we ascended diagonally, and partook of lunch; nor was ever avalanche grander or more impressive than the one which at this time we saw, dashing like a vast shining cataract from the summit glacier of Mount Lefroy, and spreading in spray as it darted from the

dazzling splendours of the upper peak into the shadows of the Mitre valley.

The remainder of the ascent to the col was less steep, and the snow was good. As we stepped upon the narrow ridge 9,000 ft. above the sea, the view beyond was indeed beautiful, which, by the Indian equivalent, Wastach, I entitled it. From our feet descended a steep snow couloir between the cliffs of Hazel Peak and the Mitre, which formed the frame for a picture of a broad valley two miles in width, coloured with the varying greens of forest and meadow, drained by a sinuous river, and bounded upon the opposite side by a range of sharp dolomitic peaks bearing snow and glacier in the depressions, and a fine snow pass beyond which other summits rose. The afternoon sun lit up the scene with brilliant light, and as we turned to survey the valley whence we had come, already darkened with lengthening shadows from the gloomy walls, its ice and rock and snow relieved by no contrast of vegetation, doubtless the æsthetic suggestions of the two prospects made us the more loth to incur the danger of a descent down the slopes of ice and névé, and more willing, even at the risk of being benighted, to descend into this attractive valley.

The snow in the gully was good, and we started to glissade. As two of the party were entirely unfamiliar with this method of descent, we again roped. I was the last man. I had used the rope glissade with great advantage on former occasions, but a moderate and uniform rate is absolutely necessary. The pace set by our friend in the van might have answered very well for an individual, but was a little too rapid for the party as a whole, the amusing consequence being that we all exchanged the standing for the recumbent position. Being furthest removed from the centre of force, I was fortunately enabled, on this occasion, to add to my experiences that of the nature of the diverse strains and tensions acting upon a particle at the end of a whip when it is whirled and snapped, and I regret that approaching dusk prevented more than a cursory study of my tracks in the snow.

Descending finally the rock ledges and slopes of scrubby spruce to the stream below, we discovered that this flowed from the west end of a magnificent semicircular glacier which I called the Half-moon Glacier. It lies at the base of the bounding range at the head of the Wastach Valley, and is the product of the avalanches which sweep the steep ice couloirs, or fall from the eastern side of Mount Lefroy. Lower down the stream united with another branch flowing from the eastern horn of this glacial crescent.

We followed the stream down a great natural staircase of quartzite blocks between walls of green and beneath a dome of blue. Behind us to the S. towered the great rock peak which I have named Hungabee or the Chieftain. At its feet, high above the forest trees, shone the great blue glacier.

After joining the other stream, the Wastach River left its stately, almost artificial, pleasure-ground to fight its way through débris and thick forests to the Bow River. When the going became rough, G., one of my friends, began to show signs of lameness. The others, who gained upon us, left a note attached to a stake, announcing their direc-

tion—an ascent of several hundred feet through forest to skirt the cliffs of Goat Mountain. Such an ascent was for my friend impossible, and we were benighted in a wretched place upon a steep bank strewn with fallen timber. Sleep was impossible, and a small fire only partially relieved the chill of the night wind that swept down the valley. My poor friend was soon unable to move his limbs, and I was obliged to turn him as upon a pivot, with his feet for a fulcrum, whenever he desired a change of posture. After an exhaustive review of our eventful day, and a lamentable failure to get up a philosophical discussion (for G. is above all things a philosopher), we awaited the dawn in silent misery.

Carefully extinguishing the fire at daybreak, we left the river and kept a straight line through the rough timber for six miles to Laggan. Though, as he afterwards confessed, it caused him great suffering, G. gave a superb exhibition of pluck, refusing all assistance, and maintaining a steady pace. Both of us were affected with sore eyes from sleeplessness and the smoke of the fire.

Thursday and Friday were rainy, but on Saturday, August 4, two of us left Lake Louise with camping outfit and provisions to establish a camp in Wastach Valley, as near as possible to the foot of Mount Temple, which forms the northern extremity of the range upon the eastern side of this valley. This peak, upon which I had been unsuccessful the preceding summer in an attempt upon its eastern face, was evidently impossible from the N. and W., and the only hope was from the S.E. or S.W., which I planned to reconnoitre. Leaving one Indian and pony to bring some provisions then being prepared, H. and I started eastward through the forest from the Louise stream.

Keeping as nearly as possible the elevation of 6,500 ft., we followed a line of muskeaghs or peat swamps, which lay at this level, and afforded much better going than the dense forest. We ate our lunch upon reaching the Wastach River, not far from the scene of my uncomfortable bivouac three days before. From this point the view up the valley was superb, yet gloomy. Ahead, to the S., stood the hazy, sharp peak, guarding the entrance, which we named Mount Sheol, with Hazel Peak and Goat Mountain to the right. To the E., Mount Temple shut in the valley, with its fearful cliffs and shining cap of ice. The pony grazing contentedly in the long grass, the river gliding quietly between low banks, as if resting from its recent conflict in the defile between Mounts Temple and Sheol before it should take its final plunge to the Bow Valley, and the Indian in his picturesque garb of skins, together with suitable additions of forest, cloud and sky, completed this characteristic scene.

Where the stream was crowded between Mounts Temple and Sheol the W. bank became almost impassable from fallen timber and dense underbrush. The logs were piled high above our heads in many places, and long détours were necessary. In a later trip we discovered the eastern bank to be much better.

Just below the junction of the streams we forded the river, and camped in a heather meadow. The other Indian joined us soon, and we set up the tent upon the ice-axes, with the roof low for additional

warmth. We were quite close to the western wall of Mount Temple, and could watch the fading colours pass over its glistening cap till night called us to rest and sleep.

Deserted next morning by the fickle Indians, we proceeded up the left or eastern branch of the Wastach River, each leading a horse. The packs gave us great trouble, and on one occasion a horse rolled 30 ft. down a bank, and narrowly escaped a plunge into the torrent.

In about 2 hrs. we established our permanent camp on the edge of a swampy meadow, just below the pass connecting Mount Temple with the next peak to the S., which we called the Sentinel, and the pass Sentinel Pass. Thus we had a full view of the whole S.W. side of Mount Temple, and it was far from attractive. Slopes of broken rock led up to the base of gigantic cliffs, serried with numerous unattractive gullies. To the N. of Sentinel Pass rose a perpendicular cliff or 'step,' and above this another, and, could the top of this second step by any means be reached, an easy slope of rock led to the summit.

South of the Sentinel was a sharp peak, which we called the Cathedral, and then came the broad snow pass we had seen from Mitre Col. This pass, which we crossed on the following day, we named from the valley—Wastach—since it was the main entrance to the next valley to the E. Then came the Hungabee circular range, bounding the valley to the S., with the Half-moon Glacier at its feet; then to the S.W. the walls of Mount Lefroy capped with ice, and the cliffs of the Mitre and Hazel Peak shutting in the valley on the W. The Mitre Pass was only partially visible. Such was the panorama as seen from the river bank, 100 yards from our tent; the altitude was 6,900 ft. above the sea.

Ascending the Sentinel Pass next morning, we were struck with the grand appearance of the Sentinel. A vast dome of rock, it bears upon its lower slopes great ice-fields, whence rise in solitary grandeur slender columns or pinnacles several hundred feet in height. We traversed the lower snow-slopes of the Sentinel Pass, which were succeeded by a short ice-slope, and this in turn by a most dangerous slope of unstable rock, every step upon which caused a prodigious slipping all around us, and threatened to dislodge great boulders above. There was no secure handhold, and the weight had to be carefully distributed upon all four members. From the top, which we finally reached, 8,950 ft. above the sea, two small green lakes* were visible just beneath us, fed by the snow-fields on this side of the pass. These I named Minnestimma, or sleeping water. The valley beyond was the one into which I had looked from Mount Temple in the summer of 1893. I afterwards saw that it was bounded on the E. by a superb range of ten sharp peaks, to which I applied the Indian numerals from one to ten. Upon descending the pass I saw at the base of No. 1 Mount Heejee a grand and gloomy lake, reflecting in its dark surface the walls and hanging glaciers of Mount Heejee. This lake, which I

* Those seen in 1893 from our highest point on Mount Temple, but now free from floating ice, because it was later in the season.

named Heejee, I had photographed the previous summer from near our camp at the base of Mount Temple. It is about three-quarters of a mile in length, and, like the other peaks and lakes of this region, hitherto unmapped.*

The summit glaciers of Mount Heejee are the most extensive of the kind I have seen in this region. The summit of the mountain consists of a long ridge rising from a great plateau of glacier and névé. This ridge runs about N. and S., and its appearance from the W. is not unlike that of the northern face of Mount Dawson in the Selkirks. Mount Heejee should be one of the chief attractions to future climbers on the watershed. Its height is about the same as Mount Temple—perhaps slightly less, though, indeed, a considerable number of these watershed giants have yet to be assigned their relative positions as to altitude. There should certainly not be a difference of many feet between Mounts Temple and Heejee, Lefroy, Neptuak, Hungabee, Ringrose, Green, Huber, Biddle, &c.

The above-mentioned range of ten peaks lying upon the actual watershed runs S. and W. from Mount Heejee. Between the peaks are slender precipitous couloirs of ice, the largest of which is upon No. 8, Saknowa, curving in its descent like a bended bow set on end, and having a vertical height of over 4,000 ft. None of the couloirs upon this western side are suitable to ascend.

Mount Neptuak, the ninth peak, as subsequently seen from the Wenkchemna Pass, from the E. side of which it rises, strongly suggests the Matterhorn, and is about 1,000 ft. higher than Mount Sir Donald in the Selkirks. At the base of the range runs a glacier, largely hidden by débris, with large lateral moraine.

I have described this Wenkchemna range (named, like the valley and river and pass at its head, after the tenth peak, Mount Wenkchemna) as a whole, though not all of it was visible from the foot of Sentinel Pass. Upon looking back at the latter from the Minnestimma lakes, I observed that it would be possible, by continuing along the right of the arête which ran N. from Sentinel Pass to the top of Mount Temple and below it, to avoid the two perpendicular cliffs or steps of hard stratification seen in profile from the camp. There was some doubt about surmounting the level of the second or higher of the two, but, could this be passed, I felt sure that the easy limestone slope on the western side could be reached and the summit gained. This, as it afterwards proved, it was possible to do.

Skirting the upper slopes on the western side of Wenkchemna Valley, with the Sentinel and Cathedral upon our right, we finally reached the level of the valley at its head, where two small lakes ap-

* J. J. MacArthur, D.L.S., mentions, in *Ann. Rep. Dept. Int.*, 1892, p. 75, having 'remained a week at Laggan, and occupied four camera stations, taking in the summit range of the Rockies S. of Lake Louise and Mount Temple.' Two of these were probably Mount Piran and Goat Mountain, upon which I found cairns. Mr. Green mentions, as early as 1889, that Mr. MacArthur was engaged in this vicinity. I am unaware how much of the range he covered, and it is to be regretted that the results have never been reduced.

peared. These, though small, become, from the wonderful beauty of their surroundings, the peers of any lakes in the Rocky Mountains. The whole Wenkchemna range is reflected in their black water, though, of course, only a section is seen at any one point, since they are so small.

A broad snow-pass led into a valley beyond to the S., between Mount Neptuak and Mount Wenkchemna, of which I have already spoken as the Wenkchemna Pass. As it was too late to think of ascending this, we began to climb the steep rock-slope which we believed led up to that snowy pass seen from Mitre Col, which I have already mentioned as Wastach Pass, but which was as yet uncrossed, and by which we hoped to regain the Wastach Valley and our tent.

The ascent proved difficult in places, as the rocks were loose and there was lack of handhold. The bed of the stream proved much better than the ledges. When we reached a broad, sloping plateau of broken rock, just below the summit, it began to hail, and from the summit, 8,700 ft. above the sea, we discerned through the driving sleet a very steep descent, unfit for glissading. We descended upon the right side of the snow-field, where the junction of snow and rock formed a miniature gully, less steep than the main slope and offering handhold. The slopes below were less steep, and we were soon traversing a series of quartzite plateaux to the right. Upon leaving the snow-slopes we unroped, and H., carrying the rope, walked in advance. Observing that the easiest way of descent to a plateau of lower level was by a short, easy slope of soft snow, we were only too glad to use it. The field was compressed between two buttresses of rock some distance ahead of us, and I asked H., who was a little in advance, to test it for us for ice; but he, understanding me to mean crevasses, and seeing none, stepped upon it without more ado. Instantly his feet shot from under him, and he disappeared over the curving slope, which became suddenly steep at this place. The melting of the field above had, of course, made this narrow portion icy. He stopped himself further down, where the snow became soft again, but, as he dramatically described it, with his feet dangling over a bergschrund, and just in the nick of time. I did not investigate the bergschrund, as it took me 15 min. to cut steps down the shining path of his descent. Not even in his pursuit of the Rocky Mountain goat, in which, being a fine shot, he was the most successful member of the party, did H. succeed in getting into a more exciting situation.

The others arrived that night from Lake Louise, but the weather continued stormy for three days, and it was not until Friday that we again crossed the Wastach Pass, and ascended the snow-fields of the Wenkchemna Pass, 8,800 ft. above the sea. The retrospect of the bleak Wenkchemna Valley behind us and of its rocky peaks increased in grandeur as we advanced, particularly Mount Neptuak, E. of the col, but it was not until the top was reached that its imposing appearance and resemblance to the Matterhorn was most distinctly seen. Here is indeed a puzzle for some climber to solve! I remained a

considerable time on the summit, taking photographs and bearings. The view down the Wenkchemna Valley was very fine, and the resemblance to the Matterhorn of Mount Neptuak, E. of the col, has already been noticed. From this pass also I obtained my only distant view of Mount Temple from the S., seen over the tops of the Cathedral and the Sentinel.

H. and F. returned after lunch to the camp, while W. descended to the level of the valley beyond to gain information concerning the pass at its head. He reported a glacier and névé at the head of the valley, but could give no definite information about it. As time was passing rapidly, and much remained to be done, I desired to explore this pass on the following day, but was unable to persuade any of the others to consider the project, except H., who, in the hope of seeing goats, promised to join me if sore feet would permit, but next morning he deemed it wisest not to go. The others were, quite naturally, weary of camp fare, and desired to spend Sunday at Lake Louise.

Thus, while not relishing the idea of exploring alone, I felt that this was perhaps the only opportunity which might offer of settling the open question about the valleys back of Mount Lefroy. And, indeed, this proved to be the case, for the information acquired on this expedition, combined with that obtained on my expeditions from Hector, furnished the directions and number of the ranges in this vicinity. Nor was there any other chance of making this trip, since our subsequent visit to the Wastach Valley was a short one, and occupied solely with the ascents of Mount Temple and Hazel Peak.

Crossing the Wastach and Wenkchemna Passes, I reached the level of the rocky, desolate, treeless valley beyond. This I have called Opabin, or rocky. It runs nearly E. and W., and the stream which flows from its glacier may be, as I shall suggest later, the head waters of the Vermilion River. The descent from the Wenkchemna Pass into the Opabin Valley was over broken rock and scree. Immediately below the pass stood a tall limestone pillar, serving as a good landmark where to turn upward on my return; for from this side the peaks of the watershed are merely a succession of tremendous walls, all looking about alike, so that it would not be difficult to confuse them.

As I advanced up the snow troughs by the side of the glacier's right lateral moraine, it was necessary to keep a continual look-out for 'shooting' gullies in the cliffs which covered the vicinity with débris.* At last I gained the glacier, and it proved quite free from crevasses.

It was only 9.30, and the sun's rays had not yet reached this part of the valley, so vast were the walls on either side. The névé was, therefore, coated with the morning crust, and as the slope was not steep, except near the top, I had no difficulty in reaching the summit of Opabin Col at 10 o'clock, 9,000 ft. above the sea.

Before me I saw a broad valley, destitute of vegetation, and walled on either side by lofty, precipitous cliffs, the glaciers at the feet of

* The largest rock-fall I saw in the whole region was upon the western side of Mount Neptuak, in the Wenkchemna Valley, near the bottom of the Wenkchemna Pass.

which resembled the dashing waves of a stormy sea. From my feet downward swept the névé, terminating in a fine glacier below, while two lakes appeared in the rocky valley, which, for the sake of uniformity, I have known as the Opabin lakes.

To the left of the col rose a gigantic peak, or, more properly, a 'peaked' wall, which bids fair to occupy a prominent place as regards altitude among the other mountains of the region, and when regarded from a climber's point of view is impassable from the N. side, unless it be possible to climb a wall. This peak, which I photographed from the top of Opabin Peak, a bit of stiff rock-work to the right of Opabin Col, and 9,400 ft. above the sea, I estimate to be about 11,700 ft., and I have called it Mount Biddle, after Mr. A. J. D. Biddle, of Philadelphia, an extensive and enthusiastic traveller.

I could obtain no definite information at this time concerning a possible pass into the Louise Valley, which I had hoped would be in evidence. The peak north of Opabin Peak I have named Mount Ringrose, after Mr. A. E. L. Ringrose, of London, an extensive traveller, and of great familiarity with the Rockies. It is the axis or pivot for two subordinate wings or ranges. To the west of the pass beyond the valley above mentioned was a range, topped by two handsome glacier-bearing peaks. Though at first I applied the names of Topham and Schaffer to these, yet, as being outside my immediate field of work, I have preferred to leave them unnamed, and have instead applied the names to high mountains near Mount Assiniboine in the summer of 1895. Through a depression in the ridge to the right were seen two great rock peaks of about equal height, one upon the watershed and the other connected therewith, being separated from the first by a notch or depression. The first of these I subsequently found to be Mount Green, the long white ridge at the head of Lake Louise, its precipitous walls on this, its southern side, containing practically no snow nor glacier, so abundant upon the northern face. The second or southern one I have named Mount Huber, after M. Emil Huber, of Zürich, who made the ascent of Mount Sir Donald, in the Selkirks.

And here I may as well say a word concerning the Temple-Lefroy question, which, no doubt, every visitor to Lake Louise has had occasion to discuss. Neither the railroad map nor Dr. Dawson's map places Mount Lefroy directly at the head of Lake Louise, but a little further to the E., and Mount Temple still further to the E. Those who read, in his delightful work, 'Among Selkirk Glaciers,' Mr. Green's account of his hurried visit to Lake Louise, and notice the cut of 'Lake Louise and Mount Lefroy,' are likely to regard the long white ridge which forms the background as being Mount Lefroy. As a matter of fact, one sees from the lake, slightly in the foreground, a fine, helmet-shaped peak, upon the left, whose western arête from the N. end of the lake is just seen outlined against the long ridge. This I had always known as Glacier Peak, the name given it by Mr. Astley, manager of the Louise Chalet, who always maintained that Mount Lefroy was the great helmet-shaped, ice-capped peak so well seen from Laggan to the S.E. The final solution of this question I

believe to be as follows:—A photograph in Dr. Dawson's 'Report' shows the general range of the Rockies from a ridge N.E. of Laggan. The peak in the centre of this, which he says he himself named 'Mount Temple,' is the ice-capped peak to the S.E. seen from Laggan, which I ascended from Wastach Valley. The 'conical' peak further to the right he says is Mount Lefroy. Now, by a close examination of the mountains in the foreground, I have identified Goat Mountain and the twin summits of Hazel Peak by their peculiar shapes. Immediately back of this rises the peak which he calls Lefroy. The appearance of this peak is exactly that of the peak south of Hazel Peak, and indeed, as the picture shows, it can be no other. This is the peak which Mr. Astley calls Glacier Peak. It is in reality Mount Lefroy. I have photographed it from the top of Hazel Peak and from the great névé plateau on the right and below the long white ridge seen from Lake Louise. There ought to be no further confusion between Mounts Temple and Lefroy.

The bearing of this upon the peak Mount Green is as follows:—The identification of these two mountains left the long white ridge* back of Lake Louise without a name. Several were suggested, but I

* My friend W. D. W., in a contour map of the Louise basin, has further complicated the affair by seemingly calling this ridge 'Mount Lefroy,' though adopting Dr. Dawson's 'Mount Temple.' The latter peak, others have informed me, was to them known, 'in the days before maps,' as 'Mount Lefroy.' Another still, one of the extensive travellers in the Rockies, believes that 'Mount Lefroy' is across the watershed, possibly identifying it with my 'Mount Biddle' or 'Mount Huber;' while, from certain passages in Mr. Green's work, which, on the authority of Mr. MacArthur, seem to indicate the *Vermilion Pass* as the way of approach to its easy eastern side, my 'Mount Heejee,' or 'Mount Fay,' or any one of the 'ten peaks' might be inferred to be Mount Lefroy—a total of fifteen possible 'Mount Lefroys.' Mr. Green himself evidently indicates the white ridge S. of the lake as 'Mount Lefroy,' although, indeed, when he says, 'The great precipice of Mount Lefroy stood up in noble grandeur; a glacier *sweeping round its foot* came right down to the head of the lake,' he could as easily be regarded as referring to the real 'Lefroy' round the corner—that is, to the left, in the foreground. While agreeing with Mr. Green that Mount Lefroy is at the 'head of the lake,' we must remember that the latter gentleman is speaking only in general terms, and was at the time of his brief and stormy visit unaware of the narrow Death Trap Valley and Col, which separate those two distinct peaks 'at the head of the lake,' of whose general mass he spoke as 'Mount Lefroy.' While not wishing to dogmatise when high authorities seem to differ, it seems to me that Dr. Dawson's map, being the first general one of the chain, and his nomenclature having been doubtless adopted in the light of *all* available information, should, as in all other cases, be regarded as decisive, particularly as one of the peaks in question was given its name by him. Since Mr. Green was the first to describe it, it is eminently fitting that that white ridge S. of the lake (and separated from Mount Lefroy by the narrow Death Trap Valley, and connected with it by the col of the same name) should bear his name, to say nothing of the obligations due to him as the 'pioneer' of the Selkirks. The chief reason for the continuance of the misunderstanding is the constancy with which Mr. Astley, manager of the chalet, in opposition to Dr. Dawson, applies the name of 'Lefroy' to 'Temple' and of 'Glacier Peak' to 'Lefroy.' A 'fixed' terminology is desirable principally to avoid confusion.

have known it as Mount Green, in honour of the one to whom we are indebted for introducing us to the Selkirks. And the twin peak to the S. I mentioned on the other side of the watershed, separated from Mount Green by a notch or depression, I have, as mentioned above, called Mount Huber after M. Emil Huber, of Zürich, who succeeded in climbing Mount Sir Donald at Glacier. The heights of Mounts Green and Huber I estimate at 11,700 ft.

I photographed the surroundings, descended the peak, névé, and glacier leisurely, and was travelling along one of the snow-gullies by the old moraine. On reaching the top of a rise of rock, I looked down upon a herd of eleven goats lying or standing upon the snow not 20 ft. away. They did not remain long, but the narrative made H. wish he had seen them.

I watched the goats as they climbed the snow-slopes, waiting their turn to get upon the cliffs, and making ample allowance for stones dislodged by their brethren, until the last had disappeared over the Wenkchemna Pass. Then I began to ascend slowly, as the sun was hot, and there was no water upon this side of the pass. I had completed about three-fourths of the ascent, and was resting among some large boulders, when, attracted by falling stones, I espied two yellow objects circling the ledges to my left. My glass revealed two silver-tip bears, who, scenting me, stopped to investigate. I did not move, and, finally, perhaps alarmed, they turned around and were soon out of sight around the corner.* I then lost no time in crossing the Wenkchemna and Wastach Passes to the tent, and next day (Sunday, August 12) returned to Lake Louise.

Monday we ascended Mount Piran, and on Tuesday F., W., and I made an expedition up the Bath Creek. This stream flows from the N.W. into the Bow River, from that large glacier with the fan-shaped ice-fall seen in the distance from Laggan. This glacier is upon one of the Waputtehk group of mountains, which are as yet unexplored in detail. My object was merely to investigate the group from one of the nearer peaks.

We were taken up as far as the Bath Creek on a hand-car, which was to meet us at six in the afternoon, and followed an old logging trail for a mile or so, and when it failed we took to the river flats and then to the thick timber. About 4 miles above the railway the stream forked, and following the right branch we then ascended for an hour through the thick forest. Emerging thence, we climbed slopes of sharp broken limestone, requiring the use of gloves. At a point 200 ft. below the summit, W. and I set up our cameras; but F., freed from such encumbrance, proceeded to the top.

The view to the E. was obstructed by our peak, but the whole Lefroy group was seen from top to bottom. Mount Temple was furthest to the E., while further to the W. the ice-capped summit of

* There is, however, a possibility that they were unusually large goats, whose resemblance at a distance to bears in appearance and movement is well known.

Mount Lefroy, and Mount Green with its great ridge here seen in profile, rose like a needle, while around them clustered the lesser peaks. This was my first, and indeed my only, view of this group from an outside point of any elevation. The whole scene was softened and mellowed by the blue haze.

Nearer to us, just across the Bath Creek Valley, was the long, flat peak with its fan-shaped ice-fall, seen from Laggan. This fall descends from a long, flat glacier above to a similar parallel one below. The latter was very long and disappeared through a depression to the N.W., where it formed the sky-line. Further to the N. the distant peaks of the Waputtehk group appeared, inviting exploration. The foreground of the group, an artistic contrast of valley and glacier and rock, relieved by nearer snowfields, was singularly attractive. The point on which we stood was 8,600 ft. above the sea.

We saved several miles of forest by descending to the S., and arrived ahead of time at the appointed place. A rapid ride on the hand-car to Laggan, during which I was in great fear of meeting a freight train, closed this pleasant day.

Devoting next day to rest, writing, and needed repairs, we left on Thursday, August 16, with horse and provisions for camp. We tried the E. bank of the Wastach River, but the pack was loosened at least a dozen times in the dense woods, while the horse, sinking through the moss into concealed holes, became almost unmanageable, and we barely reached the tent by nightfall.

I called W. and F. at 5 o'clock next morning (Friday), for we were to try the ascent of Hazel Peak, reserving Mount Temple for Saturday. Crossing the two streams on logs, we ascended the bed of a small stream between two great buttresses of quartzite. Above these, at an elevation of about 8,200 ft. above the sea, came slopes of broken limestone. Our reaching the top of Hazel Peak depended upon our ability to connect with a slope on the other side, extending to the top, but inaccessible from the Louise Valley. The existence of a 'step' or perpendicular cliff at the top and to the right of the long limestone slope above us rendered such connection a matter of conjecture.

Near the base of this slope W. found some scattered trilobites, and soon I picked up some more. No bed, however, could be discerned, though we searched for it at the time and upon our return. Upon reaching the top of the long slope, a steady pull of over 2,000 ft. from the valley, a superb view greeted us. To the W. lay the Louise Valley, beyond which Mounts Whyte,* Despine,† Nichols,‡ and Green loomed weirdly through the hazy atmosphere. The upper portion of Mount Lefroy with its glacier walls seemed very near,

* Named previously after Superintendent Whyte, of Winnipeg.

† Named after my friend and former companion on the Matterhorn, M. E. d'Espine, of Geneva.

‡ Mount Nichols, N. of the notch, which I named after my friend and companion on Mount Fox in the summer of 1893, Rev. H. P. Nichols, of Minneapolis.

across the narrow valley of the Mitre Glacier. The slope we desired was easily attained by continuing to the right on the W. side of the arête, and we easily reached the summit, 10,400 ft. above the sea.

Here we remained 1 hr. The haze rendered photography useless for the distant peaks, many of which were faintly visible. On a clear day this point would, in my judgment, be the finest scenic point in the whole group, not excepting Mount Temple, which is itself such a magnificent feature in the panorama. The northern slopes of Hazel Peak bear a large glacier, well seen from Goat Mountain, which descends from the two peaks forming the summit. We were upon the southern peak, the higher of the two, and the cairn which we built was well seen from the trail to Lake Agnes. We accomplished our descent to camp without difficulty, arriving at 4 o'clock, a total time of 9 hrs. The time could easily be shortened to six.

(To be continued.)

THE DESCENT OF GAPING GHYLL (YORKSHIRE).

A STORY OF MOUNTAINEERING REVERSED.

By E. A. MARTEL.

Though I have been acquainted with the glaciers of Chamonix ever since 1864 (when I was only five years old), though I have travelled more than twelve times through the Alps 'from end to end' between Vienna and Nice, and though I am passionately fond of this most magnificent 'playground of Europe,' yet it has been my misfortune to be able to make but a few important mountain ascents, none of which were more difficult than the Aiguille du Goûter and the Aiguille d'Argentière, both in the chain of Mont Blanc.* Further, when in 1887 I was able, as I had long desired, to climb high peaks, it happened that I had already been fascinated (since 1883) by a region in my own country which was full of mysteries and unknown beauties. The cañons of the Causses in Southern France led me to real discoveries, and I found such great enjoyment in their hidden and beautiful scenery, that I was led to believe that the Alps themselves had been too much explored. Moreover, after 1888, when I first began to look into the interior of the earth, through the dark mouths of tremendously deep chasms and abysses, or through the untrodden vaults of caves, as immense in point of size and as richly ornamented as those in Austria, such a wide field of scientific investigation opened out before my eyes that I could not resist the temptation of exploring it as thoroughly as possible. Thus for seven years (1888–1894) my time was fully

* See my articles in the *Annuaire* of the French Alpine Club for 1882, 1887, and 1894, and also *Le Massif de la Bernina*, by A. Lorria and E. A. Martel. Zürich: 1895.