the Furka Pass, turning suddenly southward near Andermatt. I myself in September have seen white wagtails at Hospenthal (just above Andermatt and at the foot of the St. Gotthard) turning southward and steering direct for Italy. The fact is that for some birds of strong flight which for mere sport ascend higher than the highest of Alpine passes it is a matter of no difficulty to pop over the Alps. Of all migrants perhaps the strongest on the wing is the Alpine swift, and when I hear his wild cries as he sweeps hither and thither overhead, he seems to me to be laughing at gravitation. But, probably, many birds, that in their day-to-day life are mere potterers, cross high passes, and to me it is a wonderful thing that such a bird as the redstart should, with no preliminary training, start on a voyage for Africa—for Central Africa—beginning with a mountain pass. The case of the hoopoe is much more astonishing, for it is extremely feeble of flight. And anyone who had always thought of moorhens as frequenting the same pond or the same stream from year's end to year's end and making but little use of their wings, would be surprised beyond measure to see one of them using the Andermatt valley as a resting-place on a long migratory journey. However much we may wonder at the fact, there is evidence that moorhens do, like the coots, make long voyages; those of them whose summer home is in lands which in winter are made uninhabitable for them by long and severe frost. In studying migration we must be prepared for surprises.

Here I bring to an end my account of the birds of the Alps: a very brief and incomplete account of their numbers; their beauty; their soaring; their mode of life in what might, on first thoughts, seem an inhospitable country; the migrations of those that cannot face an Alpine winter. I hope that they may come to take a humble second place in the thoughts of some keen mountaineers. And, possibly, some lovers of rocks and ice, when they find at length that high peaks are no longer for them, may discover that this by-product of the Alps can inspire as warm an affection as the mountains themselves.

Three New Ascents in the Selkirks.

By HOWARD PALMER, of the American Alpine Club.

WHEN one considers the varied attractions of the Selkirks—their accessibility, their topographical variety, and their virgin tracts of splendid alpine territory—it is surprising to find how little in the way of mountain exploration has been accomplished there. Climbing as such began half a decade

earlier than in the Rockies (indeed, the complexity of the system necessitated many ascents by the railroad surveyors), and the glacial and other features of scenic interest were widely known long before the pioneer had discovered their equals in the range across the Columbia; yet to-day the Rockies are mapped continuously for a distance of about one hundred and fifty miles, while the Selkirks as a range are practically a topographical blank.

That this is due in a considerable degree to the difficulty of travel there can be little doubt. No well-worn Indian trails traverse the Selkirk fastnesses such as are commonly found in the Rockies, making long marches feasible. On the contrary, deep, forest-choked valleys, filled with an unbelievable tangle of undergrowth, sever the mountain groups, so that horses are usually out of the question, and transportation otherwise, either above or below timber-line, becomes a serious problem. The climate also is moist and variable. Yet, notwithstanding, the conditions are no worse than others that elsewhere have proved insufficient to exclude the determined explorer from regions even less worthy of investigation. The truth is that the opportunities offered by the Selkirks to the 'wanderer . . . who loves to be where no human being has been before, who delights in gripping rocks that have previously never felt the touch of human fingers . . . who attempts new ascents' * have not been appreciated as widely as they deserve.† Nothing short of an ascent of one of the highest summits can give an adequate idea of the extent and grandeur of the range.

In referring generally to the ground that has been covered by mountaineering parties, it will be convenient to regard the system in two main divisions—one extending north from the Canadian Pacific Railroad to the Columbia river, and comprised within its 'Big Bend,' the other south to the international boundary.

The northerly section, embracing some 2,000 square miles, is the smaller of the two. It is unmapped in detail and almost entirely unexplored. Though from a distance many interesting massifs are visible, and three conspicuous summits indent the heavens at a height of over 10,500 ft., no ascents of importance have been made, and, with the exception of Mt. Sir Sandford, the peaks are even nameless. This fine mountain was triangulated by the Government Survey at 11,634 ft., making it the highest yet determined in the range.

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* *Climbs in the Alps and Caucasus.* A. F. Mummery.
† *Rockies of Canada.* J. Outram. (Note on Selkirks.)

The section to the S., on the contrary, is accurately known for some distance. Here a larger proportion of the area is above timber-line and consequently is more easily traversed. The main chain, for a distance of twenty miles, is not cut by a single timbered valley, so it is readily seen why the early explorers turned their steps in this direction. First of these came the Rev. W. S. Green in 1888; * then two years later Herr Huber and Herr Sulzer, S.A.C.,† who joined Messrs. Topham and Forster ‡ of the Alpine Club in an expedition still further to the S. In 1902 the Government Survey entered the region under the direction of Mr. Arthur O. Wheeler, an honorary member of the Alpine Club, and from data then obtained the present very excellent map § of this section was prepared.

In consequence of these expeditions and lesser ones inspired by them, most of the prominent summits within the limits of the territory covered, including the highest, had been ascended by 1908. Yet three of importance flung their lofty battlements skyward still untouched by human foot, adding this further attraction to a region already well supplied. The peaks referred to are Mt. Kilpatrick, Mt. Augustine, and Mt. Cyprian, lying about ten miles S. of Glacier station in the ranges just beyond the Dawson group. Glacier, situated right in the shadow of Sir Donald, nearly at the summit of the range, is the climbing centre for the Selkirks, and with its charming hotel furnishes exceedingly comfortable headquarters for excursions in the vicinity.

In 1908 Messrs. E. W. D. Holway and F. K. Butters, of Minneapolis, Minn., invited the writer to join them in a trip into this neighbourhood to reconnoitre the virgin stronghold and ascertain the chances for a successful assault. Failing in this, we hoped at least to make a few ascents in the Dawson Range. The plan involved transporting an outfit for a week by pack-harness over the two intervening ranges S. of the hotel *via* the Asulkan and Donkin Passes, and then establishing a base camp on the flanks of the Bishop's Range. This we decided to do ourselves rather than endure the delay and uncertainty of trying to obtain porters from Golden or Revelstoke.

Our outfit included a 5×8 ft. oiled silk 'A' tent with round

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* *Proceedings Royal Geographical Society*, March 1889, p. 153.
† *Schweizer Alpenclub Jahrbuch*, 1890–91, Vol. xxvi. pp. 258–302.
‡ *Alpine Journal*, May 1891, vol. xv. p. 418.
§ *Selkirk Range*, by A. O. Wheeler, vol. ii.

ends, weighing seven pounds; two Johnson sleeping-bags with blankets that laced up so as to form one bag large enough for three; an aluminium cooking outfit and dishes, axes, ropes, provisions, cameras, &c., averaging in all forty-five pounds per man.

We started from Glacier House at 9 A.M. on July 29 and followed the trail up the Asulkan Valley—a gem of mountain scenery. Giant firs and spruces rose majestically on either hand, spared the havoc of spring avalanches by some obstruction above. Further on we came to clearings where numberless streams dashed down over rocky walls in sparkling cascades. We were never out of hearing of their lively music unless indeed the powerful roar of the Asulkan torrent at our feet drowned all else.

In about two hours we reached the steep moraine below the Asulkan Pass, where real work commenced, and we realised that climbing with packs is not unalloyed pleasure. It took us an hour to reach the ice, and then, after a lunch, we set out towards the summit over its easier gradient. Numerous crevasses, thinly bridged, necessitated constant punching, so that two hours sped by before we arrived at the pass, 3,600 ft. above the Glacier House. But what a magnificent display of mountain scenery rewarded us from across the valley! The towering massifs of the Dawson Range, powdered with freshly fallen snow, and glistening in the light of the afternoon sun, formed a picture of almost unearthly loveliness.

At the left rose the majestic mass of Mt. Fox with its blunt peak piercing the heavens at 10,576 ft. Next came the principal peak of Mt. Dawson (11,113 ft.); then the wedge-shaped Feuz peak, and still further to the W., the lower Michel peak above Donkin Pass. Directly toward us flowed the Dawson glacier, one branch emerging from behind Mt. Fox, fed by the snows of Mt. Dawson; the other, the Donkin glacier, descending from the slopes of Donkin Pass and Mt. Donkin (9,694 ft.). It lacked but little of joining the Geikie glacier that we knew filled the gorge-like valley at our feet, as yet hidden from us by a projecting buttress.

After a short halt we resumed our way down the southern slopes of the pass. First we had welcome glissades over snow that ended only too soon in a profusion of alpine flowers. Then the angle steepened, and clumps of alders and outcrops of finely split shale that broke into cliffs a little lower replaced the verdant alps. In places we had to sit down and slide blindly through them, getting what hold we could from the branches, and trusting to luck that there were no drops below.

Howard Palmer, photo. *Swan Electric Engraving Co., Ltd.*

MT. PURITY, FROM AUGUSTINE, LOOKING S.W.
Purity Col below summit in centre of view.

In about two hours we reached the glacier, 2,800 ft. beneath the pass and, crossing the smooth ice, came upon a little rock-strewn flat between the Dawson and Geikie moraines, where we pitched our tent, at an altitude of 5,100 ft.

Here we spent the following week, ascending Mts. Donkin, Fox, and Selwyn, and prospecting the route over Donkin Pass (8,556 ft.). We found conditions favourable for crossing this with the packs, so after a flying trip to the Glacier House for additional supplies we set out towards it August 10. Our heavy loads gave us more trouble than the glacier, but by steady plodding we arrived at the bergschrund in four hours. This luckily had a large snow ball wedged between its jaws that made a convenient platform for attacking the steep snow wall of its upper lip. We cut steps and handholds as high as possible and then drove two ice-axes horizontally into the snow. These proved firm enough to support the lightest member of the party, who managed by dint of some acrobatic balancing to reach above the lip and plant the third axe vertically in the firm snow there. With this fairly secure upper hold, he worked himself on to the slope above, whence he aided the others in following him with the packs.

Above the bergschrund the slope steepened to perhaps 50°, running up several hundred feet at this angle to the col. Ice soon replaced the snow, forcing us to do some step-cutting. We were directly beneath a snow cornice, and its insecure appearance, I suspect, was chiefly responsible for the unusually slow progress we seemed to be making. About half-way to the pass we left the ice for some slaty outcrops of vertical strata, whose sharp and brittle edges furnished most unsatisfactory holds. Crevices that otherwise would have served us were now choked with scree, and this, cemented by frozen mud, gave footing like the side of a moraine. Notwithstanding, we gradually crept upwards, and in two hours stood on the pass. Packs were slipped off and a few moments of well-earned rest devoted to enjoying the inspiring prospect.

In the distance to the S.W. rose the graceful mass of Mt. Purity (10,457 ft.), one of the most beautiful snow peaks in the Selkirks and a fitting climax to its serrated glacier-laden chain, whose spotless snows, brilliantly lighted by the afternoon sun and outlined against a sky of purest blue, formed a veritable fairy land of alpine architecture.

In sombre contrast were the jagged, black buttresses of the Bishop's Range just across the valley to the S.E. Here Mt. Cyprian with its glacier-scarred precipices was most prominent, nearly concealing the loftier Mt. Augustine beyond.

At our feet in a straight white band stretched the Bishop's glacier, flowing in a westerly direction parallel to the range.

The descent to the ice was easy, and after crossing the boiling torrent below by a convenient snow bridge, we soon came upon a heathery meadow not far from a large rock slide. Here we pitched our tent near a bubbling brook and abundant firewood. The spot, though at an altitude of 6,350 ft., was not in every respect an ideal camp site, for a spur of the Bishop's Range interposed a 1,200-ft. barrier on the S. between us and the further valley where we expected to do most of our work. Still its advantages were so many that we reconciled ourselves to the task of doing these 1,200 ft. up and down as a 'warming-up' for each trip to the further valley, and to its repetition when returning at the end of the day. I believe in all we crossed the ridge five times.

Mt. Cyprian (10,712 ft.).

Next morning the weather looked threatening. A heavy layer of high stratus clouds obscured the sun and not a breath of air was stirring. The summits, however, were clear, so we resolved to explore the barrier in order to find the easiest way over it. A short half-hour's scramble on steep, rocky slopes brought us to the crest, only to be met by a threatening black cloud that was forming around Mt. Purity. Now and then thunder muttered. Though rather awkwardly placed for weathering a mountain storm, we were fairly caught, and must make the best of it, so we looked about to see what protection offered. Some distance beyond us, rising from the further valley, a spur joined our ridge, carrying up a few straggling outposts from the forest. These promised some, if rather scanty, shelter, so we hurried towards them along the arête. It was a rough and narrow pathway, sometimes rising into shattered pinnacles, where our ice-axes displayed an activity as alarming as it was unusual. The metal heads discharged streams of crackling sparks and sent a tingling sensation through the hands that grasped them. We experimented a little and found that the effect was most marked when the axe was planted on a rock with its end higher than our heads. Upon stepping up beside it, the sparking from the axe ceased, and the discharge passed through our bodies making our hair rise vigorously. Needless to say we did not linger in these places, but pushed on and soon reached the buttress. Descending it for several hundred feet, we entered the trees just as the first hailstones fell. Rain presently followed, but

Howard Palmer, photo. *Swan Electric Engraving Co., Ltd.*

PANORAMIC VIEW OF PURITY RANGE, FROM NEAR BASE CAMP.
Purity Col in notch at right.

protected by a couple of hardy pines we built a fire and lunched in comfort, perfectly dry and warm.

About two o'clock the clouds parted here and there, allowing shafts of sunlight to shoot through and illuminate crag and glacier. Evidently the worst was over for the present. Bidding farewell to our impromptu shelter, we started out to find a way down into the splendid gathering basin of the Black Glacier, whose glories the scattering mists were momentarily revealing to our eager gaze. From our coign of vantage its whole panorama lay extended before us. Walled in on the N. by the steep precipices of our ridge, which mounted rapidly to the peaks of the Bishop's Range, it swept around to the S., merging into the rugged, ice-gouged slopes of the Purity Range, whose four large glaciers met in the valley bottom forming the so-called Black Glacier. High, well-defined moraines freighted on its broad back made a most interesting glacial study. Over the lofty col at the valley's head to the E., Mt. Wheeler was just visible, the second highest peak S. of the railroad and 11,023 ft. in altitude. Nearer at hand and greatly dwarfing it, though about five hundred feet lower, Mt. Kilpatrick towered. Next came four nameless peaks, and then the range culminated fittingly in the majestic mass of Mt. Purity.

After enjoying the scene for some moments, we continued our way along the slope. A belt of cliffs beneath us made the search for a way down rather troublesome, but before long we came upon a curious gateway, whose rocky portals framed a striking view of the glacier. Just beneath, a wide gully descended, and as it apparently offered a favourable lead we started down. Though steep at first, the slope gradually became gentler, and in about half an hour we found ourselves on the floor of the basin beside the glacier. After following the moraine directly into the amphitheatre for about a mile, we took to the ice and pushed out toward its middle in order to get a better view of the peaks of Cyprian and Augustine, which soared so abruptly on our left that the lower cliffs nearly concealed them. When we had advanced sufficiently, the twin summits presented an impressive spectacle indeed. To the left towered the massive rocky dome of Cyprian, falling away towards us in sheer cliffs for fully two thousand feet. On the right the sharper and less symmetrical spire of Augustine frowned down in equally rugged majesty from its bulwark of cliffs and buttresses. We studied them for nearly an hour through the glasses without result. The arête of the dome above the col looked feasible enough, but how to reach it was

puzzling, since, lower down, a belt of cliffs rising perpendicularly above the ice for perhaps three hundred feet cut it off effectually. Nor was a solution offered by any of the gullies that scarred the cliff belt, for each of these at one point or another contained an impassable drop. The most eloquent tribute to the nature of the obstruction was the discouraging way in which the small streams fell straight to the glacier from the edge of this wall.

Baffled by these unfavourable indications we started back, pausing now and then to study the profiles of the buttresses changing as we advanced. Suddenly one of the party exclaimed 'Look at that,' and directed our eager gaze to a narrow ledge leading out from an accessible talus fan horizontally across the face of a buttress to its outer edge, well above the impassable wall. Viewed end-on from our recent standpoint it had been entirely invisible. Our glass was at once turned toward the spot and its formation studied carefully. The ledge seemed to be continuous, and the buttress where it ended was well broken, offering, apparently, an excellent lead when attained. This possibility was clearly worth trying, and we hastened down the glacier with strong hopes for the morrow.

But what a different aspect the magic of the morning sun gave the place! As we approached the beginning of the ascent we saw not a sign of our hoped-for way. Still it was preposterous for the mountain to have tricked three of us the previous afternoon, so we resolved to start up anyway. Leaving the glacier, we were soon scrambling over the seemingly interminable slopes of an enormous talus pile, strewn with great chunks of the mountain's towering cliffs. Some were 20 ft. square and 3 ft. thick, and we speculated on how they could roll so far and still remain whole. In the face of the cliff above us a gully opened, and near its mouth we finally made out the missing link of our path. Lying behind the buttress, the morning shadow had concealed it.

As we approached, however, the difficulty of reaching it became apparent, for the cross-ledge joined the gully some distance above its mouth, and was inaccessible from where we stood. Unless we could reach it through the gully defeat stared us in the face—for the steep ledges on either hand offered no foothold. The gully, or more properly chimney, sloped away from us, being divided into two sections by a kind of sharp, vertical rib—both full of loose stones. In fact, it was merely a fault between two harder strata. However, after careful negotiation, attended with clouds of dust and

Howard Palmer, photo. *Swan Electric Engraving Co., Ltd.*

MT. CYPRIAN, FROM BELOW DONKIN PASS.

numberless falling fragments, our leader worked himself up one section with the rope and anchored at the top. Then the others immediately followed, though not as easily as might be expected, for the holds were few and in the most awkward places. One of the party aptly remarked that he had to take it in the posture of a cat on the defensive, as they were mostly on the ceiling.

The narrow connecting ledge beyond proved all that we anticipated, and upon traversing it we clambered directly up the buttress and then over interesting but not difficult ledges to the col. From here, after a short halt to enjoy the impressive view of the Dawson Range, we continued over the broken slabs of the W. arête to the summit. This was reached at 3.30 P.M. There was no sign of previous human presence, so we built a cairn to contain our names and record.

The prospect was marvellously fine. Standing as we were at an altitude of 10,712 ft. (Dominion Survey) on the crest of the ridge separating the valleys of the Black and Bishop's glaciers, no more commanding outlook could be desired. On the N. the southerly precipices of Mt. Dawson faced us; to the E. and nearer soared the pyramid of Mt. Augustine, seemingly as sharp and steep as Cleopatra's Needle; further to the right came Mt. Wheeler, somewhat higher than ourselves, but built so deceptively that it did not appear so; next, but further off, the interesting Battle Range rising crag on crag, bristling with glaciers, and finally, to the S. Mt. Kilpatrick and the Purity Range glistening in their snowy mantles.

We stayed on top until about 4 P.M. and then returned by the same route. Notwithstanding, darkness fell before we reached camp, giving us a rough time among the boulders of the rock slide. But nothing mattered, now that we had subdued an unconquered giant of the range. That the tin of corned beef, devoured so eagerly, was no less than eighteen summers old, did not in the least disturb us. We had discovered it near by on the site of the Topham and Forster camp of 1890, undoubtedly abandoned by them at that time when the weather compelled their return to the Glacier House.* Besides this party and our own, the Government Survey of 1902, previously referred to, was the only other that had crossed the Donkin Pass. As they also found a similar tin, along with a package of Swiss edge nails, leaving nothing themselves, the evidence would seem to be complete. The

* *Alpine Journal*, May 1891, p. 421.

can was whole, and its contents in perfect condition, preserved by the great natural refrigerator in which it had lain.*

Shortly after our ascent of Mt. Cyprian we went back to the Glacier House over both the Donkin and Asulkan Passes in one day, taking about 9 hrs. to the trip. We felt well satisfied with the results of our summer's work, and separated with the hope of returning again to the delightful country beyond the Dawson Range.

The realisation of this hope was not long to be postponed. July 1909 found the same party again assembled in the old camp beyond Donkin Pass to test once more the defences of the Bishop's and Purity Ranges.

We had left Glacier House on July 13, and had spent the following four days in transporting our outfit over the passes to the camp. This extremely slow time was due to the desertion of a packer whom we had engaged to help us in the preliminary work. During the second day while we were on the pass he departed without notice, explaining his action in the following terse message scratched on a flat stone : ' Gone back ; the clim is to much for me.' To have returned to Glacier for another would have taken as long as to do his work ourselves, so we became reconciled with as good grace as possible to relaying his share over Donkin Pass. We visited this three times before everything was safely gathered in camp beyond.

To say ' safely ' is a trifle inaccurate, for a cache of a spare tent, rucksack, bacon, biscuits, and a focussing cloth, left for one night under a ledge at the top of the pass (8,556 ft.) carefully covered with large flat slabs of rock, was visited by a delegation of inquisitive mountain rats that played havoc with its contents. The tent was gnawed full of holes, the bacon and biscuits partly devoured, the rucksack rendered useless, and the focussing cloth pulled out and carried some distance down the mountain. These rodents are a great nuisance to the traveller when camping above timber-line in the Selkirks. Very active, numerous, and widespread, unless carefully guarded against they are likely in the course of a few nights to make away with not only food but also anything and everything else in one's outfit. At another place they pulled out a heavy metal tripod and moved it quite away from the rocky crevice where it had been left. We never departed from camp thereafter without hanging up everything in the tent well out of their reach.

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* *Selkirk Range*, by A. O. Wheeler, p. 101.

Howard Palmer, photo. *Swan Electric Engraving Co., Ltd*

MT. KILPATRICK, FROM SLOPES OF AUGUSTINE, LOOKING S.

Mt. Kilpatrick (10,624 ft.).

In the Purity Range, Mt. Kilpatrick bade fair to prove an interesting expedition, for next to Mt. Purity it is the most striking snow peak in the region. The trip would afford a good opportunity for studying the jagged cliffs of Mt. Augustine across the valley, against which we harboured the blackest designs, so we picked it out for our first excursion.

On July 18 the weather turned bad, and we had hail, rain, thunder and lightning, with intermittent snow flurries. The next morning, however, conditions looked better, so, after consuming a hearty breakfast of bacon, beans, and tea, we left camp at 6.30. The usual preliminary climb to the crest of the ridge occupied the next 45 mins. From here Kilpatrick showed up grandly, and we searched his glittering mantle for the best route through the crevasses. Clouds hovered about the summit, now parting and now thickening, but the sun was evidently not far behind them, so we pushed on without hesitation over the familiar route through the gateway, down the steep gully, and along the moraine by the glacier. An hour and a half later we were roping up beneath the lowest ice-fall of the Kilpatrick branch of the Black Glacier, at an altitude of 7,300 ft. The angle was so gentle that we found it easy to walk directly up the face without cutting a step. Just above the first slant we struck the neve, where some care was needed in sounding for crevasses. However, we kept to a generally straight course toward the curious little sharp rock peak that guarded the western arête of our goal, making good progress over the gently undulating snow. As we neared the pinnacle the glacier became more broken, and the crevasses correspondingly wider. In several places we had to cross bridges with extreme caution. The angle increased as well, and on one snow curtain we spent a breathless half-hour, breaking through the crust at each step and sinking to our knees in the loose snow beneath. At the small rock peak we kept to the left, as we had taken the other and apparently easier route the previous year, only to find ourselves stranded on the col to the W. of the peak with no chance of reaching the main arête, except directly over its needle-like summit. The writer ascended this at the time and was not at all impressed with the prospect of the traverse. An ice-slope descended from the peak's further side and formed the only connexion with the Kilpatrick arête. The arête, however, looked inviting, once the bergschrund was passed, so we were encouraged to try the other way of reaching it on the present trip.

Soon we approached the first of the two well-marked bergschrunds that guard Kilpatrick's westerly arête, and our precautions were accordingly doubled. The new snow fallen during the previous day's storm had drifted deeply below the col and was in a dangerously dry and powdery state. Our axes sank in easily to their heads, making it difficult to tell much from sounding. However, by mistrusting everything and stepping with the greatest care, we passed it safely at the point where the drift seemed thickest. Beyond this crevasse the snow improved, and we mounted rapidly, soon leaving the col below to the right. Gradually the slope of the glittering dome grew gentler, and presently the rocky spine of the arête appeared above it, cut off from us by the bergschrund. At this point also the new snow had piled up, and not until after some search was a narrow bridge of solid older snow discovered, over which the party finally crossed. It was not wide enough to allow both feet to be put together, but one had to be placed ahead of the other with a kind of shuffling motion. The arête was attained just beyond at 11.15—550 ft. below the top. From here to the summit we experienced no difficulty worth mentioning. In some places the ledges were steep and the holds full of snow, but as it was always possible to find a way around, they did not particularly delay us.

At 12.40 we stepped upon the topmost point (10,624 ft.)—the crest of a huge mound of snow on the side towards Mt. Wheeler. Earlier in the season it apparently had been a cornice, but now the projecting portion had fallen off. After a hasty glance about us to make sure that we really were on top, we returned to the rocks for shelter from the cutting wind which howled across the slopes at a temperature of 40°. After working down the southern face for a short distance to find something to sit on, it became so precipitous that we had to climb back and make the best of it near the top. We found no stoneman, so built a small one for an aluminium plate with our record.

The storm had cleared the air, giving us the finest possible outlook, and we enjoyed it to the full while eating our lunch. Particularly superb was the view of the valley of the Battle Glaciers at our feet, with the remarkable range of the same name towering beyond. To the W., the magnificent overhanging ice-cliffs of Mt. Purity showed to better advantage than we had ever seen them before.

After taking a number of photographs, at 3 o'clock we started down, following the same route all the way. The going was so much easier that we gained the foot of the ice-fall where

Howard Palmer, photo. *Swan Electric Engraving Co., Ltd.*

MT. AUGUSTINE, FROM SUMMIT OF CYPRIAN, LOOKING E.

Howard Palmer, photo *Swan Electric Engraving Co., Ltd.*

BASE CAMP ON BISHOP'S RANGE, LOOKING W.,
AND SHOWING DISTANT SELKIRK SUMMITS.

we first roped in the morning at about 5.30, saving 1½ hrs. over the ascent. The small rock peak, which might appropriately be called Mt. Kilpatrick, Jr., we found by levelling to be just 1,000 ft. lower than Kilpatrick itself. Camp was reached at 7.30 P.M., after an absence of 13 hrs., and we voted the expedition well worth the trouble it had cost.

Kilpatrick is undoubtedly the finest snow climb to be had anywhere in the neighbourhood of the Glacier House, surpassing even Mt. Purity, which we ascended later and found a very easy trip. It may be questioned whether a snow peak that is climbable without crossing a single crevasse or bergschrund should be classed as of the first order.* We found Mt. Kilpatrick in good condition, with just about the right amount of snow. Later in the year our route would present much greater and possibly insuperable obstacles owing to the size of the crevasses and bergschrunds, but doubtless others could be found.

Mt. Augustine (10,762 ft.).

During the next few days we explored Purity Col (8,600 ft.) and ascended Mt. Dawson from the S.—both new expeditions. The latter, as with that to Kilpatrick, was undertaken largely to study the architecture of Mt. Augustine, which we were particularly anxious to attempt. We had seen it from every side the year before, without being able to discover a promising way of attack, but since then we had come to hope that the fault was ours rather than that of the peak. Subsequent observations, however, did not bear this out, but only confirmed our earlier impression of the peak's inaccessibility.

In form, the mountain is a narrow, fin-shaped spire, with one arête running down steeply to the col below Cyprian Peak on the W., and another at a more gradual slope to a low peak on the E. Both these arêtes are difficult to reach, and moreover are broken in places by abrupt drops which appear insurmountable when seen from below. The faces offer scarcely any more encouragement. Those to the N. are smooth and extremely steep, partly rock and partly crevassed glacier. That to the S., though more broken and of a somewhat gentler average gradient, none the less rises in bold precipices near the top. Accordingly the simple process of exclusion left us to this face as the least of the three evils, and we chose it for our first attempt, not without misgiving.

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* Emil Huber in *Schweizer Alpenclub Jahrbuch*, vol. xxvi., 1890–91, p. 276.

To offset these unusual difficulties we armed ourselves with a 40-ft. rope in addition to our usual 50-ft. length of Swiss linen and a pair of Indian moccasins.

Starting from camp at 6.15 A.M. on July 23, an hour and a half later we halted below the eastern ice-fall of the Black Glacier before attempting the steep snow slope along its northern margin. Here we had tangible proof that the mountain was a stone-thrower, for a boulder about the size of a barrel came crashing down the face on our left, scattering fragments in every direction. None of them struck near us, but as there was nothing to prevent others from doing so, we lost no time in pushing on. The whole southern face of Augustine is rapidly disintegrating, and every ledge and cranny is filled with litter.

Ascending diagonally across the snow, we made for the inner end of a kind of shelf that jutted out from the main mass of the mountain and supported part of the glacier. If we could get on to this by working our way up the corner, a long detour over the ice would be saved. From there it looked feasible to make the face of the mountain that dropped off in cliffs everywhere else. Just below the shelf the snow ended, forcing us to take to the rocks. These rose smooth and slimy, affording wretched holds. One of the party humorously termed the slope a 'mud precipice.' But it was short and our nails were good, so we were soon on the shelf planning out our further advance.

The peak was built up of comparatively thin, rocky slabs arranged in roughly semicircular layers somewhat like the shingling of a roof. In many places the courses had broken off at the edges towards us, and our method of progression was to follow one course until an opening allowed us to pass through on to the back of the next. This was repeated many times for the next 2 hrs. The higher we got, the steeper the strata tilted. At some points they broke out into ribs like the flutings of a column, though with serrated edges that gave us interesting climbing to follow.

At a small snow patch near the easterly end of the summit arête we encountered a steep wall, scarred by a chimney for part of its height. As we believed that the arête mounted a short distance above, it seemed advisable to pass it. Mr. Butters put on the moccasins and surmounted the chimney in short order. Then he disappeared behind a ledge, leaving us only a gradually shortening rope and a steady stream of pebbles to show what progress he was making. Finally a shout from above told us all was well, and the others followed

on the rope. We found the chimney simple enough, but the succeeding rock seemed destitute of holds. To make it without the assistance of a rope was indeed a neat bit of climbing. No fastening could be found for the rope in descending, so we unanimously agreed to try another way down.

Our position proved to be further below the main arête than we had supposed, but still very favourable for an advance, since a broken ledge led upward to the left (W.) across the face, apparently ending in the summit ridge. If this promise were fulfilled no better way could be desired, so we at once proceeded to test it. After conducting us across several interesting couloirs and around some dizzy cliffs, the narrow shelf did bring us to the shattered summit arête. The previous climbing had led us to expect that this ridge would be sharp and none too secure, but we were hardly prepared for the splintered knife-edge that confronted us. Almost everything gave a little when touched. It seemed as if the slightest encouragement would send large portions of the scenery crashing to the glacier. In fact, a good deal did go down as a result of our efforts to find *terra firma*—perhaps even more than was strictly necessary, for every climber knows the fiendish pleasure in thus relieving his feelings at such places.

The arête was not entirely of rock. Here and there snow from the further face reached up and hung from it as a cornice. This aided us often in crossing deep gaps which otherwise we should have been forced to avoid by descending the face. At several points the arête rose in low towers that required the same tactics to overcome. In getting down one of them over a smooth slab we had to use our spare rope, leaving it in position until our return.

Soon we found ourselves at the place that we had picked out from below as the most dubious of all. It appeared as a sharp notch with a vertical edge just to the E. of the summit on the sky-line. This edge turned out to be nothing less than a practically sheer cliff rising 30 or 40 ft. above the place where the arête joined it. To the left a jagged rib jutted out precipitously from the main mass of the peak, entirely precluding the chance of a traverse on that side, while to the right the smoothness of the face formed an equally effective obstacle. A way must be found directly up the wall from the arête or we were beaten. On either side of the arête by the cliff, gullies descended, on the one hand almost straight down to the Black Glacier, 2,000 ft. below, on the other a like distance to the Bishop's Glacier. At the base of the wall, however, close inspection revealed a narrow shelf with a kind of smooth

lip projecting above it about waist-high, but somewhat beyond the edge of shelf. A little higher there were good holds until smooth reach was attained, but this we thought could be passed by way of a chimney.

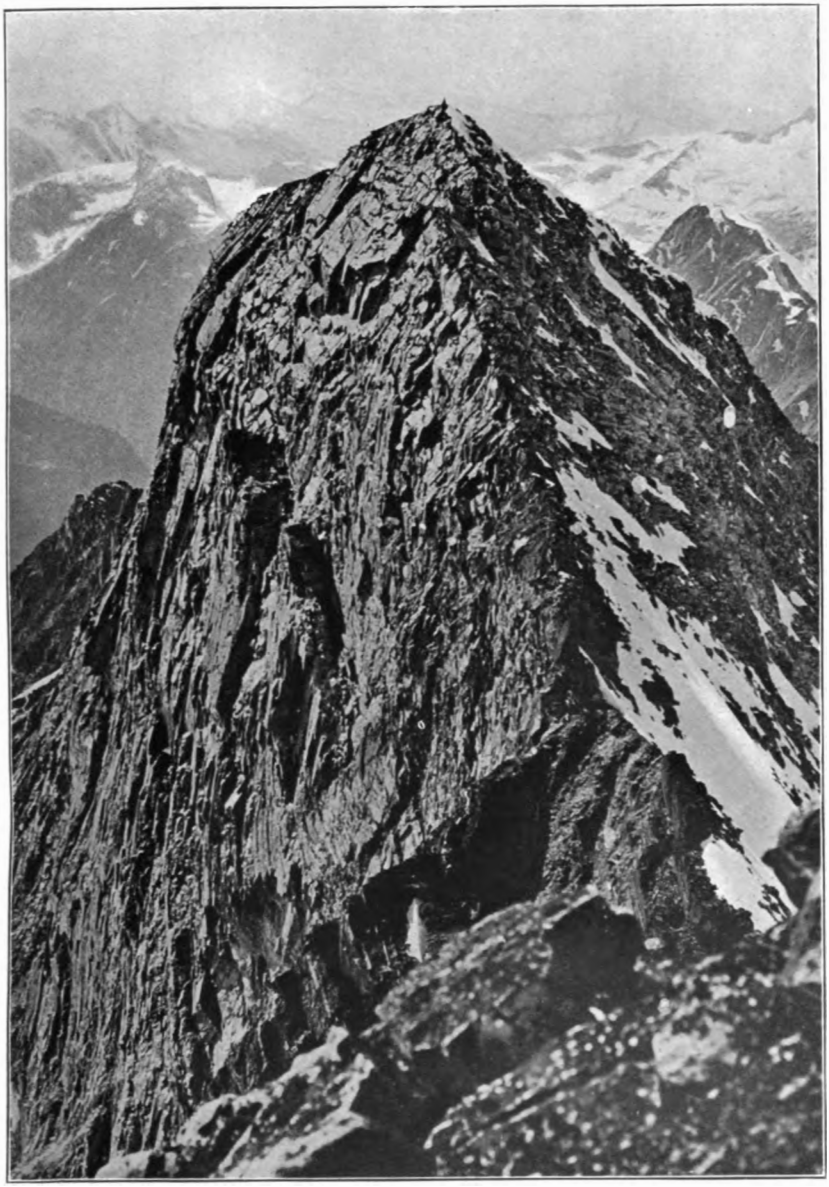
Our leader, securely roped, carefully climbed down the snow, crossed the notch, and got on to the shelf; then, with a long reach out and over the smooth lip, found holds above and pulled himself up into a sheltered corner. After anchoring there he assisted the others in joining him. Next the smooth slab was turned to the left and the chimney negotiated. It contained a ' nose ' which required some gymnastic contortions to pass, but otherwise seemed designed for our purpose. The intervening distance to the top proved to be nothing but a short walk over sharp-edged fragments, and at 1.40 P.M. we arrived on the highest rocks. The actual summit was the extreme edge of a low cornice that overhung the face toward Mt. Dawson, but several previous glimpses on that side had effectually dispelled all desire to look over. The day was perfect and our outlook correspondingly magnificent. The whole intricate system of the southern Selkirks lay extended before us, revealed to the finest detail. A particularly striking feature was Cyprian Peak, just beyond us to the W. Its rugged southern precipice seen nearly in profile looked particularly forbidding. We were interested to find that our cairn built a year ago still occupied its highest point.

We photographed, lunched and then built a similar cairn visible from Donkin Pass, in which we deposited a small circular aluminium plate with our names and the date.

At 2.40 P.M. we started down. The same route was followed except that we found an interesting couloir leading down to a steep snow slope by which we avoided the wall and chimney first mentioned. Then, instead of using ' the mud precipice ' below the glacial shelf, we struck out toward the middle of the glacier. Camp was reached at 9 o'clock after an absence of nearly 15 hrs.

Mt. Augustine, though perhaps lacking striking individuality when seen from a distance, none the less furnishes climbing of moderate difficulty continuously from the start. In addition, there is the especially interesting bit of arête work near the summit—undoubtedly the peak's most distinctive feature from a climber's point of view. It surpassed anything of the kind that we found on Mts. Dawson or Sir Donald, and would hardly have been possible without the ropes.

The following day was spent quietly in camp recuperating from the fatigue of the climb and preparing for a return to the



Howard Palmer, photo. *Swan Electric Engraving Co., Ltd.*

MT. CYPRIAN, FROM SUMMIT OF AUGUSTINE, LOOKING W.

hotel. Mr. Holway, however, unable to reconcile himself to wasting an entire day in inactivity, particularly such a fine one, made the ascent of Mt. Donkin alone during the latter part of the afternoon, directly from camp.

On July 25, starting at 6.30 A.M., we retraced our steps to the Glacier House, arriving at 3 o'clock in the afternoon, well pleased at successfully completing a trip that reduced the number of virgin Selkirk summits by two.

List of Named Selkirk Peaks Triangulated at 10,000 Feet and Over.

Arranged in order of height, and compiled from 'The Selkirk Range,' by A. O. Wheeler.

Name	Height in feet	Date First Ascent
Mt. Sir Sandford	11,634	Unclimbed.
Mt. Dawson	11,113	Profs. Fay and Parker, 1899.
Mt. Wheeler	11,023	Topographical Survey, 1902.
Mt. Selwyn	11,013	Topham and Forster, 1890.
Feuz Peak (Mt. Dawson)	10,982	Franzelin, 1908.
Grand Mt.	10,832	Unclimbed.
Mt. Sir Donald	10,808	Huber and Sulzer, 1890.
Mt. Augustine	10,762	Holway, Butters and Palmer, 1909.
Mt. Sugarloaf	10,732	Huber, Topham and Forster, 1890.
Mt. Cyprian	10,712	Holway, Butters and Palmer, 1908.
Beaver Mt.	10,644	Unclimbed.
Mt. Kilpatrick	10,624	Holway, Butters and Palmer, 1909.
Mt. Fox	10,572	Topham, 1890.
Mt. Duncan	10,548	Unclimbed.
Mt. Rogers	10,536	Abbott, Thompson and Little, 1896.
Swiss Peak	10,515	Sulzer, 1890.
Mt. Purity	10,457	Huber, Topham and Forster, 1890.
Fleming Peak (Mt. Rogers)	10,370	Miss Gertrude E. Benham, 1904.
Grant Peak (Mt. Rogers)	10,216	Miss Gertrude E. Benham, 1904.
Mt. Bonney	10,205	W. S. Green, 1888.
Mt. Hermit	10,194	Herdman, Grey and Gordon, 1904.
Michel Peak (Mt. Dawson)	10,034	E. Franzelin, 1908?.