P.S.—The most difficult place is at point 3, as you say. I had great difficulty in overcoming this bit; the knowledge that I could not retrace my steps helped me to win out. When up, I noticed that an easier solution could have been found more to the left (east). [This must be the deviation we tried, at point 3. It looks fine and goes well at first, but fails to connect at the very last.—V. A. F.] The other very difficult passage was to the right of the ridge, on the Hugi-Sattel side, where we also left a piece of rope.

We also struck a difficult place on the way down when we left the ridge to follow the flank of the couloir. We had to descend an overhanging rock. Just as my brother had cut a step in the ice, the rock to which Miss Bell was holding gave way and she jumped down on my brother; both rolled the length of the rope. I have to thank an accidental small hold for our safety.

We turned back at about four o'clock. Our bivouac is just under the difficult passage.

We left two reserve ropes behind, one a little to the left, the other a little to the right, of the ridge. We also left several rope rings. We reached your point 4, where your route line turns off to the left in the direction of the ridge.

After having read the published account of our expedition, Fuhrer wrote again on January 25, 1907, and stated that, in his opinion, our route over the lower part of the face was the better.

The Freshfield Group, 1922.
(Rocky Mountains of Canada.)

By J. MONROE THORINGTON, M.D., F.R.G.S.

'*Now the ice-world is like a new planet, full of conditions, appearances and associations alien to our common experience; and it is not wonderful that it should be only after a long training, after much fatigue, and dazzling of eyes, and weary steps, and many a hard bed, that the Alpine traveller acquires some of that nice perception of cause and effect—the instinct of the children of nature—which guides the Indian on his trail and teaches him, with unerring philosophy, to read the signs of change in earth or air.*'

PRINCIPAL FORBES.

THE Freshfield Group is situated on the Continental Divide, in latitude 51° 39′ 51″, between Howse (5010 ft.) and Bush (7860 feet) Passes, an air line of about ten miles, although, due to the southerly bowing of the Divide between the two passes, the actual crest of the group is much longer. On the western

side of the group, the Campbell ice-field forms a chief source of the south fork of Bush river, draining to the Columbia. The Freshfield ice-field, some twenty square miles in extent, fills the eastern cirque, and discharges by a single tongue three miles long and three quarters of a mile wide, the Freshfield stream joining with Forbes brook and flowing into Howse river. [Middle Fork of the North Saskatchewan river.][1]

Howse Pass was crossed by David Thompson as early as 1807 [2]—Joseph Howse, a clerk of the Hudson Bay Company, did not begin to use the pass until 1809—and the route was long in use as a means of communication between the Kootenay Plain and the Columbia valley. There is, however, no mention of the Freshfield group until 1860, when it was visited by Dr. Hector, of the Palliser Expedition, while searching for the northern approach to Howse Pass. He writes: [3]—'At daylight I started with Beads to see where the valley leads to, and after five miles through very thick woods, we suddenly emerged at the foot of a great glacier [Freshfield glacier] which completely fills the valley, and showed us that there was no hope of getting through with horses by this route. We ascended over the moraines, and had a slippery climb for a long way to reach the surface of the ice, and then found that it was a more narrow but longer glacier than the one I visited the previous summer [the Lyell glacier]. The upper part of the valley which it occupies expands considerably, and is bounded to the west by a row of high conical peaks that are completely snow-clad. We walked over the surface of the ice for four miles, and did not meet with many great fissures. Its surface was also remarkably pure and clear from detritus, but a row of large angular blocks followed nearly down its centre. Its length I estimated at seven miles, and its width at one and a half to two miles. By 3 P.M. we had returned to our halting-place of yesterday, and now proceed to try Beads' valley. For three miles we followed up

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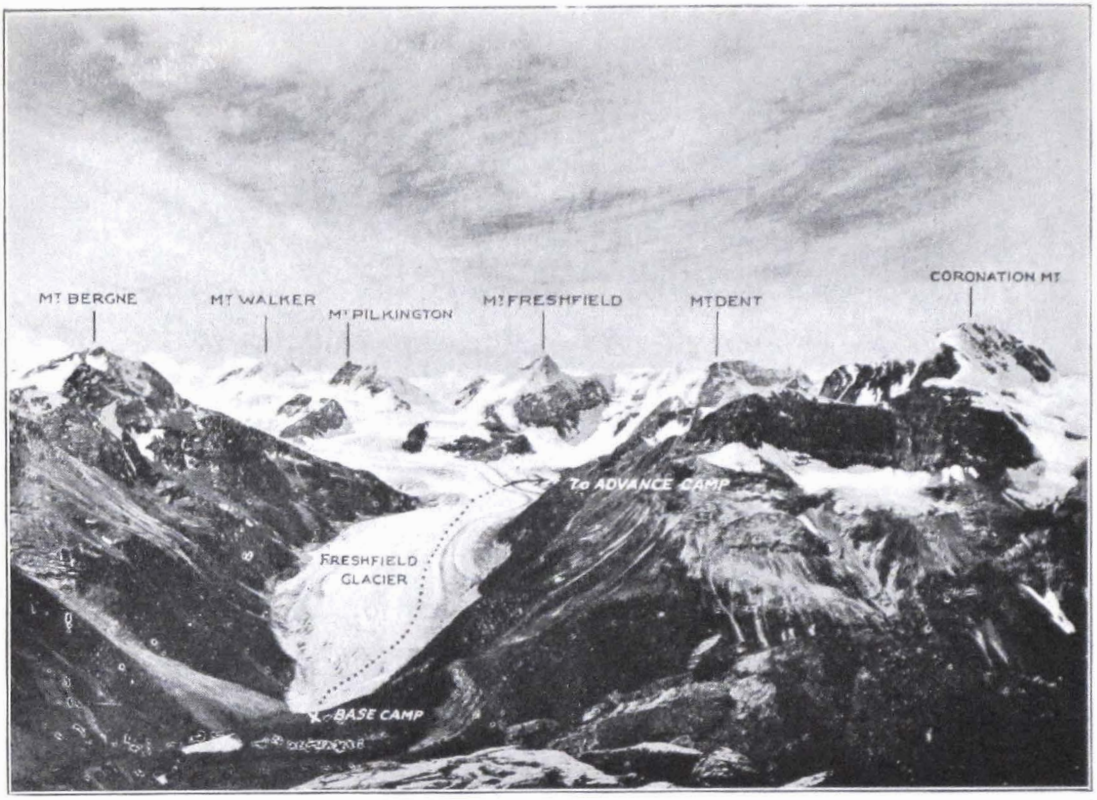
[1] Much of the nomenclature used in this paper is recent and anticipates the publication of Part II of the *Interprovincial Boundary Survey*. Old names are [bracketed], and altitudes are given because much of the old data is incorrect.—J. M. T.

[2] *David Thompson's Narrative*, p. lxxxvi. Champlain Society, Toronto. 1916.

[3] *Journals, Detailed Reports, and Observations relative to the Exploration of British North America*, p. 150. Captain Palliser. Folio. London, 1850. [Not in A.C. Library.]



Photo, Interprovincial Boundary Survey.

FRESHFIELD GROUP FROM THE NORTH.

Photo, V. A. Fynn.

MTS. PILKINGTON AND WALKER.

From Mt. Freshfield, looking S.E. Mummery Peaks in background.

Photo, V. A. Fynn.

PASS LEADING TO BUSH RIVER VALLEY BETWEEN PILKINGTON AND FRESHFIELD.

Seen from S.E. slopes of latter.

Photo, V. A. Fynn.

LOOKING E. OF S.E. FROM MT. FRESHFIELD.

the stream to the south, till we found that it suddenly rose from a glacier [the Conway glacier] in a high valley to our right. However, as the valley before us continued to look wide and spacious, with a flat level bottom covered with dense forest, we left the river and continued a southerly course, sometimes seeing little swampy streams, which showed us that the water was still flowing to the Saskatchewan. After about three miles we observed a small creek issuing from a number of springs, to flow in the direction in which we were travelling; but we could hardly believe it to be a branch of the Columbia, and that we were now on the west slope of the mountains, seeing that we had made no appreciable ascent since leaving the main Saskatchewan, and had encountered nothing like a height of land. We camped here beside a small lake and beautiful open woods, where the timber is of very fine quality.'

The chief peaks of the group lie on the Continental Divide, subsidiary ridges extending E. and S.-E. to enclose large glacier cirques, of which the Conway, Lambe, Cairnes, and Mummery are the largest. In the group there are approximately thirty peaks of importance, of which at least twenty-four are over 10,000 ft. in altitude. The summits on the Divide are chiefly snow-peaks, those on the subsidiary ridges of the eastern wall being scarcely of less altitude but generally more rocky.

Climbing parties have been infrequent, chiefly because of the distance involved, about sixty-five miles of travel from the railroad being necessary to reach the Freshfield tongue. In 1902,[4] a party consisting of Collie, Outram, Stutfield, Weed, Woolley, and the guides Hans and Christian Kaufmann, made the first ascent of Mt. Freshfield, 10,495 ft. In 1906,[5] Burr, Cabot, Peabody, and Walcott, with Gottfried Feuz and Christian Kaufmann, from the Blaeberry valley, made the first ascent of Mt. Mummery, 10,918 ft. In 1910,[6] Eaton and Marocco, with Heinrich Burgener, made an expedition, and,

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[4] *A.J.* xxi. p. 367; Collie and Stutfield: *Climbs and Exploration in the Canadian Rockies*, p. 251, 266; Outram, p. 320. The first climbing party in the Freshfield Group was that of Collie and Baker, with the guide, Sarbach, in 1897. The only climbing done in the group was a partial ascent of Mt. Freshfield, made for topographical observation. It was at this time that the group and its peaks were named. Collie and party returned to the group in 1902, at which time the first ascent of Mt. Freshfield was made.

[5] App. xi. p. 221.

[6] *C.A.J.* iii. p. 1.

from a camp at the Freshfield tongue, traversed Mt. Dent, 10,720 ft., and Mt. Freshfield with the intervening snow-dome. First ascents were also made of Mt. Pilkington, 10,830 ft., Mt. Walker, 10,825 ft., and a snow peak on the Divide, south of Mt. Pilkington, for which the name 'Mt. Burgener' was suggested, but which has since been named Mt. Bulyea, 10,900 ft., by the Interprovincial Boundary Survey. During 1917,[7] the Interprovincial Survey was in the group, occupying a number of high ridges and summits, their chief ascents being Mt. Bergne, 10,420 ft., and Mt. Lambe, 10,438 ft. In 1920,[8] Eddy, Fynn, and Mumm, with Rudolf Aemmer and Moritz Inderbinen, made the third ascent of Mt. Freshfield. Other climbers who have reached the group have accomplished little or nothing, chiefly because of bad weather.

In 1922, Howard Palmer and the writer, with Edward Feuz as guide, had the good fortune to visit the group and make a number of ascents. Leaving Field on July 6, with an outfit of seventeen horses, under the care of J. Simpson, who had been with Dr. Collie in 1902, we journeyed northward by way of Amiskwi [Baker] and Howse Passes. Our first camp was on the Amiskwi river, below Ranger Cabin, and on the following day we ascended to Amiskwi Pass, 6535 ft. Views of the Van Horne and the northern Yoho peaks are features of the route, Mt. McArthur (Signal 18) being a conspicuous landmark for miles along the trail.

Amiskwi Pass is not a mountaineering centre, as it is scarcely possible to penetrate the northern Waputiks from this side. We ascended the high ridge E. of the pass, Amiskwi Pass East,[9] 8545 ft., and obtained a magnificent view of the entire area. Across the deep valley of Trapper creek we saw the summits of Mt. Baker, 10,441 ft., Mt. Ayesha, 10,026 ft., with a little lake high up on its S.W. side, Mt. Collie, 10,315 ft., and Mt. des Poilus [Mt. Habel], 10,361 ft. It is possible that climbers might cross to the Collie-Habel col, but cliffs and timber would cause much delay if an attempt were made to take horses to the head of Trapper creek. To the W., we had a splendid view of Mt. Laussedat, 10,035 ft., and the peaks along the Blaeberry river, while further N. the southern walls of the Freshfield Group rose grandly, Mt. Mummery and

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[7] *Interprovincial Boundary Survey Sheet*, No. 18. Topographical Surveys Branch, Ottawa.

[8] *C.A.J.* xiii. p. 179.

[9] *Interprovincial Boundary Survey Sheet*, No. 17.

Mt. Cairnes, 10,120 ft., being especially prominent; the latter is the massive ice-crowned mountain seen to the N. from Amiskwi Pass summit.

Next day we descended the steep northern slopes of the pass, a drop of 3000 ft., to Blaeberry river, forded and camped in the meadows below the mouth of Cairnes creek, with a fine view of Howse Peak, 10,800 ft., in the distance. Our route thence to Howse Pass lay up the Blaeberry, crossing and recrossing as we approached the summit. We made camp below Mt. Conway, 10.170 ft., in a beautiful spot not far from the pass summit, and spent the afternoon investigating our surroundings. To the N. the western peak of Mt. Chephren [White Pyramid], 10,500 ft, and the twin summits of Mt. Kaufmann, 10,200 ft. and 10,150 ft., afford a fine panorama; southward, the snow ridge of Mt. Conway and the Conway glacier tongue bound the pass. From the pass summit we ascended the timber cutting, marking the Divide, through the forest for about a mile, and then spent a miserable hour in the bush, working over into the basin of Conway creek above the deep canyon into which the stream descends. The creek heads in a rock cirque over which curls the glacier tongue, The wall could be ascended, from a high camp in this basin, and the glacier explored, but the trip would be a long one; it would seem to be the best route for ascending Mt. Solitaire. 10,800 ft., the highest peak in the eastern portion of the group. There is possibly a Survey trail through the forests on the W. side of the creek, but we were unable to locate it. From Howse Pass, Mt. Conway could be ascended without much difficulty, and the Boundary Survey has placed cairns on the shoulder to a height of 8951 ft. North of the pass, Mt. Chephren and Howse Peak may be reached by routes which appear long but not difficult. Our camp on Howse Pass was one of the finest; a crystal-clear evening with a full moon; a roaring fire and mirth and song far into the night. Stories were told, some so fantastic that if the shade of David Thompson or of Dr. Hector had walked in to listen, it would hardly have surprised us.

The route now lay down the canyon of Howse river, with many little fords and fine vistas of the snowy Waputiks behind us. We soon reached the flats below the junction of Forbes and Freshfield brooks, a wide amphitheatre with the massive outlines of Coronation Mt., 10,420 ft., the saddle of Bush Pass, and the grim towering spire of Mt. Forbes, 11,902 ft., completing a wonderful scene. On a little gravel cliff we had the

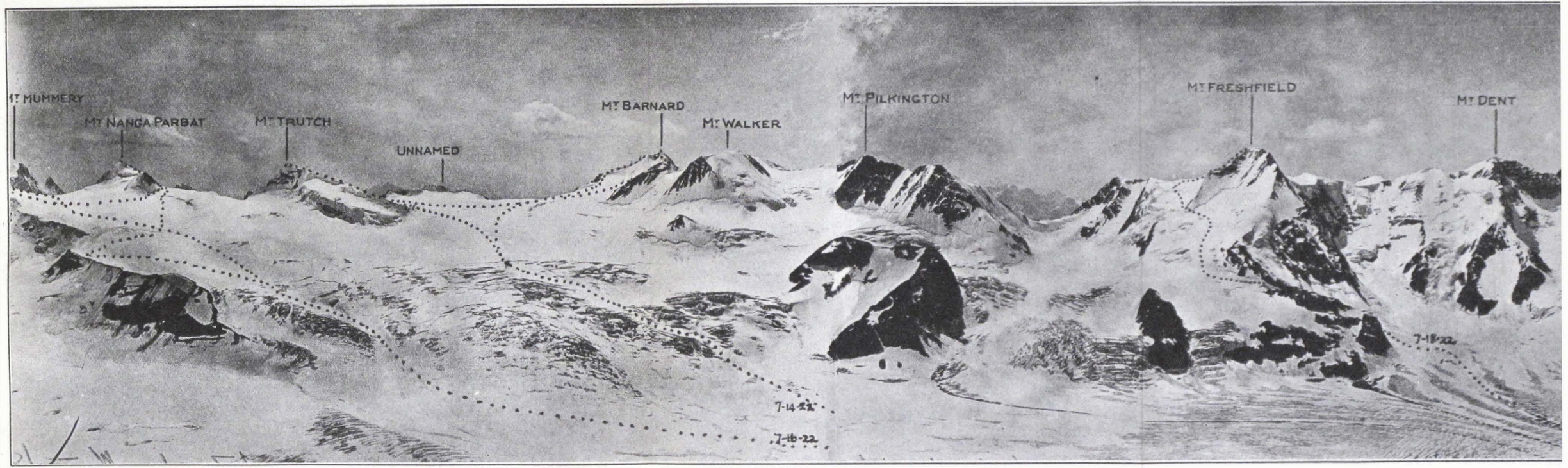
unusual experience of catching a baby goat, the little animal being headed off by a horse on each side and a small creek in front. When several of us approached, the goat gave a frightened leap, fell into the water and was rescued kicking and struggling in the arms of our Swiss guide. Photographs being taken, the goat was released, and proceeded with a damp and injured air down the Saskatchewan gravel bars. We followed a rising trail into the woods and shortly established our Main Camp, 5400 ft., below the Freshfield tongue.

It is an ideal situation : a timbered terrace of old moraine with the great ice tongue less than half a mile away and the pointed summit of Mt. Freshfield rising at the head of the basin. Close at hand, a forget-me-not covered slide affords sufficient horse feed for a moderately prolonged stay; strangely enough, good grass is exceedingly scarce between Field and Howse Pass, and there had been many long morning searches for wandering cayuses.

We had with us the new map of the Interprovincial Boundary Commission, Sheet 18 ; it names many new peaks, and for the first time gives an accurate representation of the topography. From our study of this sheet, we discovered that there was a peak on the Divide, Mt. Barnard, with an altitude of 10,955 ft., making it higher than Mt. Freshfield and therefore the loftiest of the entire group. The difference in altitude between it and Mt. Barnard is not great ; the former lies south of and hidden by the Pilkington-Bulyea ridge and is quite invisible from the glacier tongue. These facts explain in part why the mountain had for so long remained unattacked. We determined to make it our goal.

On July 11 we back-packed an Advance Camp three miles up the ice to the base of a promontory descending southeasterly from Mt. Niverville, 9720 ft. Ascending 300 ft. of scree and grass slopes, one comes to a 'Concordia-platz,' at 7200 ft., where there is a picturesque heather-covered meadow with firewood, water, and small trees. It proved a central point for our climbs and we maintained camp in this position until July 18.

The Freshfield ice-field may be roughly divided into three sections : an ice-fall basin, descending between Mt. Dent and Mt. Walker ; an upper snow-basin, rising high up on Mt. Walker, extending southward to Mt. Barnard and eastward to the snow dome of Mt. Gilgit, 10,300 ft., where it drops off in cornices and cliffs ; a lower head-basin descending from the slopes of Mt. Barlow, 10,320 ft., and adjoining peaks, and



Photo, Interprovincial Boundary Survey.

MT. FRESHFIELD GROUP FROM MT. BERGNE—*i.e.*, FROM EAST.

(Routes of Messrs. Howard Palmer, and Monroe Thorington).

connecting with the other divisions in a series of ice-falls and flat ice areas that eventually form the Freshfield tongue. From the minor peaks on the S. side of Bush Pass, the Niverville and Pangman glaciers descend into the Freshfield basin, but are at present only loosely connected with the ice-field. The Niverville stream runs under the Freshfield ice, while a subsidiary pressure tongue of the Freshfield basin actually faces up-stream toward the Niverville tongue. Much of the upper ice appears to be stagnant; surface drainage is incomplete, and in the afternoon the ice is covered with water to a depth of six or eight inches. Medial moraines are a striking feature and may often be traced back for several miles to promontories in which they originate.

Climbs from the high camp were made with intervals, during which we occupied ourselves with a photo-transit survey of the glacier tongue and a rough study of the ice movement. The tongue is retreating rapidly, and motion one mile above its terminus during a period of warm weather was about four inches per day;[10] in the week during which observations were made, there occurred a recession of the tongue margin of from four to six feet and a considerable subsidence of the surface. Distinctive dirt-bands were not observed. On the first medial moraine E. of the central axis there is a small area, near the base of Mt. Skene, 10,100 ft., where one may find clusters of iron pyrites, larger than a golf-ball, riding free on the ice surface; this deposit was observed in no other location except for a small bit picked up in the Coronation-Garth gully just below the hanging glaciers. The immense boulders in the medial moraines are remarkable for their average large size;[11] their occurrence appears to be related to the so-called 'Block Moraine' and supposedly due to ancient seismic disturbance.[12] While dirt-bands, the bands of Forbes, are not prominent, dirt zones[13] do occur and are

[10] This is in agreement with the July movement of other glaciers in the main chain.

[11] The largest on the ice tongue, E. of the central axis and opposite the Coronation-Garth gully, measures roughly $18 \times 18 \times 60 = 19{,}440$ cubic feet; it was ascended by Edward, who built a little cairn on top.

[12] *Glacial Studies in the Canadian Rockies and Selkirks*, p. 494. W. H. Scherzer, Ph.D., Smithsonian Institute, Bulletin 1567. Washington, 1905.

[13] *Loc. cit.*, p. 465. The dirt zones are conspicuous in views of the Freshfield tongue from the main camping place.

said to be brought about by short cycles of variable activity of the glacier-making agencies.

On July 14 we left camp at 3.30 A.M., descending to the ice-field, which we crossed for two miles to the base of Mt. Walker. Thence up hard snow over a much crevassed field,[14] requiring many deviations, we reached the upper snow basin. On rounding the eastern shoulder of Mt. Walker, we saw Mt. Barnard far ahead of us. As a mountain it will disappoint no one, and its appearance far exceeded our expectations. On its north-eastern side it is snowy, the main ridge running N.W. and S.E., and the face broken by large schrunds. It is a Lyskamm in miniature, while the summit, to the N.W., rises to as sharp a snow-spike as one is ever apt to see.

Crossing a mile of flat snow, gradually rising to 9500 ft., we reached the base of Mt. Barnard at its south-eastern end; here was the only visible point where the schrunds were sufficiently bridged to permit crossing, while above the snow was steep. We crossed and found the snow dangerously soft; a traverse to a rock outcrop only a few yards away was abandoned because of the danger of starting an avalanche; the rock itself looked insecure. There was no alternative but to ascend directly to the ridge, up several hundred feet of snow that might give way at any moment. Moving cautiously and anchoring as well as possible, we arrived safely, but could not have descended with any feeling of pleasure. Once on the crest, the outlook was more favourable and footing was at least secure; this we soon found not exactly true, as a high wind met us and on several occasions nearly lifted us off of our feet. On the southern and western sides the mountain falls in sheer cliffs to Waitabit glacier and the Campbell ice-field, the two basins separated by a tremendous serrated ridge with couloirs descending for nearly 2000 ft. without a break.

Our way lay along the snow ridge, with considerable cutting around the couloir heads; ice was encountered in several places, but never in amounts sufficient to delay us. Two hours more brought us to the base of the snow spire, a steep ascent placing us on a top scarcely big enough to hold three of us at once. (10.15: Camp to summit 6 hrs., 45 min.)

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[14] Some of the crevasses were very large, 100 ft. wide, 150 ft. deep, and over 500 ft. long. They were sharply cut and often snowed up flatly and solidly at the bottom; one could have roped in and walked around for some distance at the bottom.

The highest summit of the Freshfield Group was ours, and from snow conditions encountered it is quite evident that the mountain should only be attempted from a high camp; the distance from the glacier tongue is so great, nearly eight miles, that only from an advanced position can one hope to reach the upper snows at a favourable hour. Distant views were obscured by smoke, but the tremendous drop on the western side was always spectacular. A cairn was built on the highest rocks, and we proceeded back along the ridge for several hundred feet to a point where a traverse could be made to the sharp N. arête descending towards Mt. Bulyea. The snow was in better condition than that previously met with, and we rapidly made our way downward, finally glissading into the basin to the E. and regaining our old track.

The day was not yet far advanced (11.30), and being close to the base of Mt. Trutch, 10,690 ft., we decided to ascend it. This mountain is peculiarly wedge-shaped; a single N.W. arête rises like a ridge-pole to the summit, followed on the far side by a sheer drop to the ice as nearly perpendicular as is possible to imagine. On the N.E. face a steep hanging glacier and, on the S.W., a cliff descends to the snow basin. The arête itself is of shale and snow and presents no great difficulty, but the last 400 ft., invisible from below, turned out to be a knife-edge of rock, which had to be straddled, and took nearly an hour to negotiate. We reached the summit (2.0 P.M.) and built a small cairn; ten hours had elapsed since starting, and two first ascents were our reward. There was no alternative route but to retrace our steps, so we faced about, reached the snow-field, and tramped back to camp (6.15) feeling that our day had been a successful one.

To the E. of Mt. Trutch rises the symmetrical snow-peak of Mt. Nanga Parbat, 10,780 ft., and, further E., the dome of Mt. Gilgit, heavily corniced on the N.E., where it falls off to the lower head-basin of the ice-field. On July 16 we left our high camp (3.45), crossed the ice, and ascended the crevassed draw just W. of the conspicuous rock ridge and moraine descending from Mt. Gilgit. Reaching the upper basin, we crossed to the base of Mt. Nanga Parbat, worked across a little schrund and up the shaly buttress to the N.W., which from camp looked like an enormous gendarme. We piled up a few stones, and then followed a rising snow-ridge to the summit (9.35). Clouds were blowing in, and after a

short rest we descended along the south-eastern rocks to a point where snow slopes on the W. allowed us to cut down to the bergschrund; this was jumped—our form was execrable—and the base of the mountain skirted to its northern side. Keeping high on the slopes, we crossed to Mt. Gilgit and ascended it from the W. (12.15).

The weather, which had been smoky, cleared suddenly, and we enjoyed some splendid views; to the N. across the ice-field, the magnificent pyramid of Mt. Forbes dominates the panorama, with Mt. Columbia and the Lyell summits on one side and Mt. Brazeau with its snow-field on the other. We could pick out summits on the Divide from Howse Pass as far S. as the Lake Louise district. E. and W. of Mt. Gilgit, high passable cols[15] connect the Freshfield basin with the Blaeberry valley; the S.E. ridge of Mt. Nanga Parbat curves brokenly and ascends to the spires and pinnacles of Mt. Mummery, whose tremendous black precipices wall the head of Waitabit valley. To the S.W. the rugged peaks along the Blaeberry, and, further W., the Blackwater range, are separated by the Waitabit gorge, through which we had dim, fleeting glimpses of the Columbia valley and the Selkirks.

We descended to the Gilgit-Nanga Parbat col [the 'upper Blaeberry-Freshfield col'], ca. 10,000 ft., and regained our old route of ascent, which was retraced to camp (4.45). Two more first ascents had fallen to our share.

On July 18 we made the fourth ascent of Mt. Freshfield,[16] our time from the high camp being five hours (4.0–9.0). The route up a broad snow-filled gully, just E. of the Freshfield-Dent ice-fall, leads over to slopes opposite Mt. Pilkington; ascent was made obliquely to the S. and the summit gained by the easy southern rock ridge. The day was smoky, and we had no distant view;[17] descent to camp was made in

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[15] These cols might be practical for mountaineers, in crossing from the Blaeberry valley to Freshfield glacier, providing supplies were made available at each end of the route.

[16] See footnotes 4, 6, 8.

[17] Our barometer, set on Howse Pass and carried to the summits of both Mt. Freshfield and Mt. Barnard, showed 148 ft. in favour of the latter; weather was settled throughout our stay, and there was practically no barometric fluctuation during the climbing period. A level carried to the summit of Mt. Freshfield adds to the evidence in favour of Mt. Barnard being the highest summit in the group.

record time (9.50–12.20), and after lunch we packed our belongings down to the Freshfield tongue.

On July 20 Edward Feuz and the writer made the first ascent of Coronation Mt., 10,420 ft. This is the fine, massive peak named by Collie,[18] and is well seen from the mouth of Forbes brook as a huge, broad-based rock mountain with a steep glacier on its northern face. We left camp at 4.0 A.M., ascended the ice for a mile and a half, and took to the bush on the N. side of the Garth-Coronation gully. At timber line, steep grass slopes and loose rocks lead to morainal débris below two small hanging glaciers; the tongue to the N. was reached without difficulty and the snow above ascended, a sharp watch being necessary because of occasional stone-falls from near-by cliffs. The slopes were steep and hard, requiring considerable step-cutting before the arête was reached, E. of the pyramidal summit. Two rocky gendarmes were traversed below the top, the sheer drop to Forbes brook making it an exciting performance. Mt. Forbes was directly opposite, its superb ridges looming dimly through the smoke; but we had no distant view, and a chilling wind compelled us to beat a retreat after building a summit cairn (9.15). Glissades and steep slopes made the descent rapid, and we arrived in camp (12.30) in time for lunch.

There is a Survey cairn at 10,380 ft., on the W. arête of Coronation Mt., perhaps 500 ft. from the summit; the intervening arête looks difficult, and at times may possess a cornice; the Survey climb was doubtless made from the direction of Bush Pass. We feel justified, therefore, in claiming a first ascent, although this in no way detracts from the work of the Survey, whose interest in first ascents is not a primary one. We are eager to acknowledge the accuracy of the Survey maps, which we continually made use of, and can testify to the extraordinary labours of the Survey as evidenced by their high stations which we constantly observed.

Our programme was now completed; six 10,000 ft. peaks had been ascended, five of them first ascents; a survey of the glacier tongue was concluded, and rate of flow measured on a line one mile above the ice terminus.[19] Forest-fire smoke,

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[18] *C.* p. 276; *O.* p. 346.

[19] The ice is here about three-quarters of a mile in width. Fourteen stations, with 150 ft. intervals, were lined out across the ice; about 400 ft. of surface moraine intervened between the lateral

always a drawback to Canadian mountaineering, continued; on July 21 camp was broken.

We descended Howse river flats, and that night camped on the river bank below the stream from Glacier lake. Alpine flowers are in profusion throughout the valley, the gravel bars being covered with Painter's Brush and Fireweed—tomato red combined with magenta—giving the flats a gay and gaudy appearance. Next day, the only real rainy day, we rounded the base of Mt. Sarbach, 10,200 ft., ascending Mistaya River [Bear Creek] to the foot of Mt. Chephren [Pyramid Mt.], where camp was made. During the evening the weather cleared, giving us views of Mt. Kaufmann, Mt. Wilson, 11,000 ft., and Mt. Murchison, 11,300 ft., gleaming with new snow.

A trail entirely on the W. side of Mistaya River now obviates the old difficult fords. Next day we crossed Bow Pass, 6868 ft., to Bow Lake, clear weather affording us a view of giant peaks far to the N. in the vicinity of Wilcox Pass. S. of Mt. Chephren, Howse Peak and the Waputiks form a stupendous wall, through gaps in which we had glimpses of fine snow-peaks; Mt. Barbette, 10,080 ft., far across Peyto Lake; Mt. Patterson, 10,490 ft., with its slender interlocking ice-falls; Mt. Rhondda, 10,025 ft., seen across the Bow glacier. On the eastern side of Mistaya Valley the peaks are slightly lower and more separated; rocky pinnacles above the Wildfowl Lakes, pyramidal Silverhorn and the rounded summit of Observation Mt., 10,214 ft., the latter forming the N.E. buttress of Bow Pass.

Our camp on the lake was finely situated in a grove of old trees extending to the water's edge; deer came down to drink and frequently walked through the camping ground. Fine trout abound in the lake, but the larger ones were always too much for our primitive tackle. Through a gap at the end of

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stations and the ice margins. Measurements were made on July 19, the observations lasting one week:

Station.	Inches per week.	Inches per day.	Station.	Inches per week.	Inches per day.
1	24	3·42	8	27	3·85
2	18	2·57	9	26·5	3·78
3	25	3·55	10	24	3·55
4	26	3·71	11	28·5	4·07
5	18	2·57	12	28·5	4·07
6	26	3·71	13	29	4·14
7	22	3·1	14	23	3·28

the lake the snow-slopes of Mt. Hector, 11,135 ft., rise to a bifurcated peak at the southern end; opposite us the cliff wall beginning at Bow Peak, 9184 ft., supports the Crowfoot glacier, while further N. the Bow ice-fall breaks through between St. Nicholas Peak, 9616 ft., and Portal Peak, 9552 ft., the latter adjoining the rocky ridge of Mt. Thompson, 10,097 ft. In an hour one may round the lake to the Bow ice tongue and the gloomy water-cut canyon below it.

The distance from Bow lake to the railroad, twenty-six miles, was broken by a camp on Hector slide, N. of which is the jagged ridge of towers making up Dolomite Peak, 9818 ft., while down the valley one sees the peacock-blue water of Hector lake and the delta made by the entering stream from the glaciers of Mt. Balfour, 10,741 ft.; and finally, through a rift in the clouds, the groups above Lake Louise burst into view, Mt. Temple and the Victoria ridge rising above all the rest. Our expedition was at an end.

But let no one think that climbs in the Freshfield Group have been exhausted. More than half of the peaks, many of them well over 10,000 ft., remain unvisited; Mt. Freshfield is the only summit that has been climbed more than once. Several of the unclimbed peaks appear difficult; of these, Mt. Garth, 9970 ft., Pangman Peak, 10,420 ft., Mt. Helmer, 10,045 ft., and Mt. Solitaire, 10,800 ft.—to mention only a few—should keep strenuous climbers out of mischief for at least a week or two. Nowhere in the Rockies can one reach such a tremendous ice-field with greater ease; there are still problems for the student of glaciology, and, in this area, there are many unanswered riddles. For the alpinist, the possibility of establishing a high camp in a central position will ever be an advantage when distant peaks are to be gained. Much remains to be done; much that will make a journey to our high meadow a happy memory.

Note.—It is hoped to publish in the next JOURNAL the Boundary Commission's map.

HIGH-LEVEL SKI-ING IN SEPTEMBER.

BY L. C. M. S. AMERY.

WHEN at the beginning of September a week of incessant bad weather had put an end to any hope of serious climbing in the Oberland for some days, and possibly for the