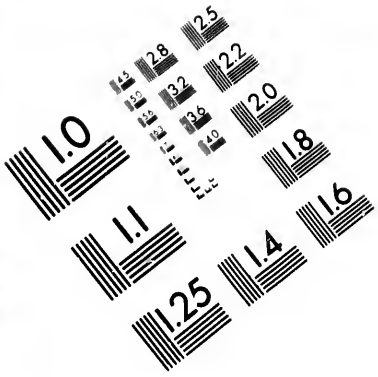

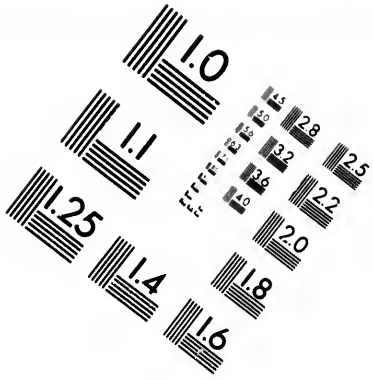

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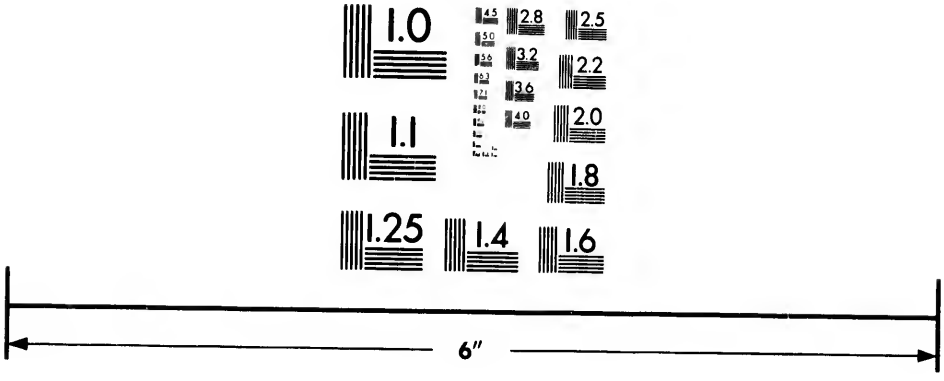

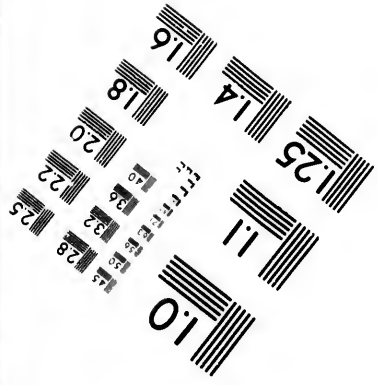

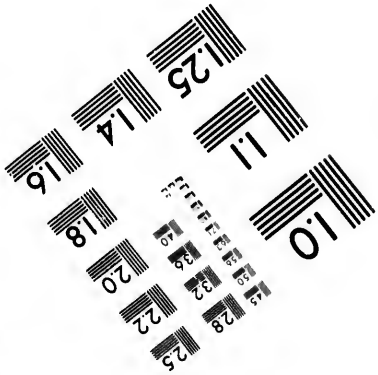

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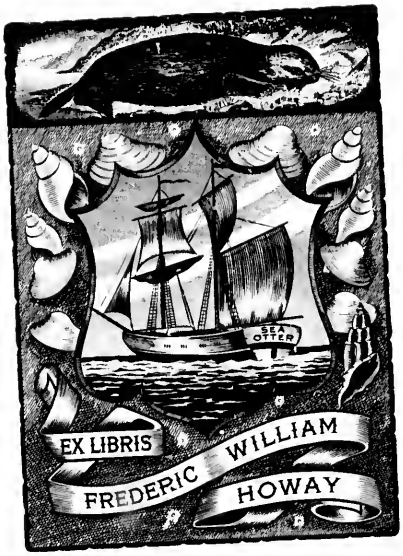

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Geographical Journal.

No. 4. APRIL, 1899. Vol. XIII.

EXPLORATION IN THE CANADIAN ROCKIES: A SEARCH FOR MOUNT HOOKER AND MOUNT BROWN.*

By Prof. NORMAN COLLIE, F.R.S.

The history of the exploration of the Rocky mountains of Canada is one full of interest. It deals with the early struggles of the fur traders of the North-West Territory, later with the search after gold, and finally with the story of how a railway was built, almost regardless of expense, through the wild canyons of the West—a railway that for hundreds of miles passes through thickly wooded valleys, over lofty mountain passes, across raging torrents hundreds of feet below, till finally it reaches the Pacific coast at Vancouver.

By far the fullest, most accurate, and interesting account of travel and observation amongst the Rocky mountains is that of Captain Palliser and his party, during the years 1857–60. This expedition was organized by the British Government in order that a route might be discovered between eastern and western Canada. Up till then only one pass over the Rocky mountains in Canadian territory was known with certainty, namely, the Athabasca; the Palliser expedition "was to ascertain whether one or more practicable passes existed over the Rocky mountains within British territory, and south of that known to exist between Mount Brown and Mount Hooker." During their explorations they discovered and laid down the following: the Kananaskis pass, the Vermilion pass, the British Kootanie pass, the Kicking Horse pass. All these passes traverse the watershed of the continent within British territory. Dr. Hector also traversed the Howse pass, between the headwaters of the Saskatchewan and the Columbia rivers.

* Read at the Royal Geographical Society, February 13, 1899. Map, p. ~~461~~ 353

Ten years later British Columbia entered the Dominion of Canada, and at once the Government survey for the Canadian Pacific railway was started. It was amongst the Rocky mountains that the difficulty of selecting a route was most evident. No less than eleven different ways across the mountains were surveyed, from the Peace river in the north to the Crow's Nest pass in the south. This survey alone is said to have cost between three and four million dollars; but finally the Canadian Pacific railway was opened in 1886, after nearly one hundred and fifty million dollars had been expended on its construction. The opening of the railroad of necessity largely stopped the use of the old passes, but at the same time enabled those who wished to travel in the mountains in search of game or amusement to do so with much greater facilities.

It is only, however, within the last few years that many sporting, exploring, or mountaineering expeditions have made use of these opportunities. Members of the Appalachian Club of Boston have spent several seasons amongst the peaks and glaciers near Glacier House, Laggan, and Field on the railway. Prof. Coleman undertook a journey from Morley to the sources of the Athabasca river, in order to search for the two peaks Brown and Hooker, of which little was known except that they had been discovered about sixty years previously, and were supposed to be 16,000 and 15,000 feet in height.

Mr. W. D. Wilcox,* in the mean time, had explored the mountainous country south of the Canadian Pacific railway, as far as Mount Assiniboine, and north to the Saskatchewan and Athabasca. His experiences have been published in a delightful book, 'Camping in the Canadian Rockies in 1896.' Most of our knowledge, therefore, at the present time, of that part of the mountains which lies 100 miles to the north or to the south of the railway at Laggan, is either knowledge gained in the early part of the century by traders in the employ of the fur-trading companies, or from Palliser's 'Journals,' or Wilcox's book on Mount Assiniboine and the surrounding country.

For the most part, these explorations have been restricted to the valleys and low passes; very few attempts have been made to locate or explore the great snow-fields and the surrounding peaks that form the great backbone of the country. To take the Alps as an example, it would be a parallel case if a few parties had started from Geneva, explored the St. Bernard pass, pushed up the Rhone valley over the Furka pass and the St. Gotthard, without much troubling themselves about either the snow-fields of the Oberland or the side valleys and great peaks on the main Pennine chain with their attendant glaciers. This paper deals with two journeys taken during 1897 and 1898 through that part of the Canadian Rockies that lie between the Kicking Horse pass on the south, and to the source of the Athabasca river on the north. At first,

* See p. 358.

in 1897, I did not intend to trouble myself with exploration—the expedition was merely to be a mountaineering one; but, soon finding that the maps, such as they were, covered only a very small portion of the ground I proposed to go through, and as no knowledge whatever of the snow-fields and peaks seemed to exist, it at once became obvious that exploration might very well be combined with the mountaineering.

At the beginning of August, in 1897, whilst on the summit of a snow-peak (Mount Gordon, 10,600 feet) that lay about 20 miles north of the railway at the continental divide, a high mountain was seen 30 miles away to the north-west. It seemed much higher than all its

FALLS OF THE BOW RIVER, BANFF.

neighbours, and we were of the opinion that it probably might be Mount Murchison. I had intended to go south and visit Mount Assiniboine and the country in the immediate vicinity, but the sight of this splendid mountain made me at once change my plans, and on returning to civilization at Banff a few days later, Mr. G. P. Baker and I determined to go north instead, in order to, if possible, get to the foot of this mountain, and afterwards, perhaps, should we be fortunate, to climb it as well.

We accordingly hired an "outfit" from T. Wilson, of Banff, who supplies men, horses, and provisions for such expeditions to the mountains. Although Wilson, years before, whilst working for the Canadian Pacific railway, had been in the country we wished to visit, yet he did not remember ever having seen a very high peak about the spot

where we thought we had seen one when on the summit of Mount Gordon. This, however, did not dishearten us much, for we knew from experience that it is only from the tops of mountains that any really accurate ideas could be obtained of the relative heights of surrounding peaks.

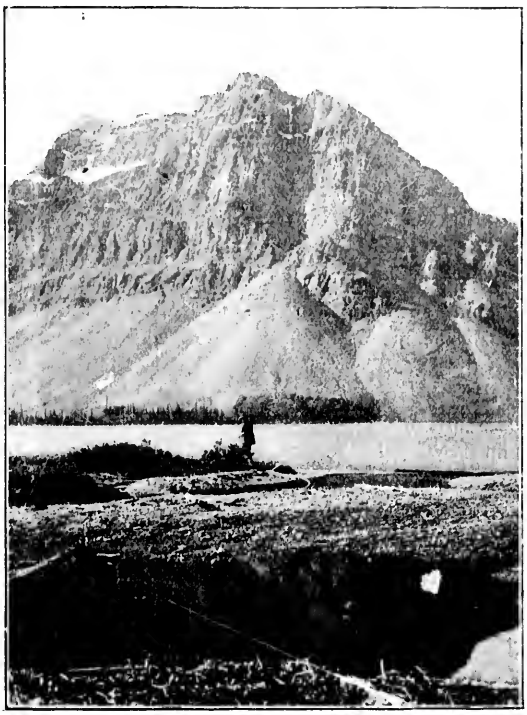
On August 17 we started from Laggan station up the Bow valley. The lower portion of the valley is rapidly becoming impassable owing to fallen trees; for the forest was burnt during the time that the Canadian Pacific railway was being built, and now after fifteen or more years the roots of the burnt firs have become thoroughly rotten; every fresh gale brings down large numbers of those still standing, adding

LAGGAN STATION AND MOUNT VICTORIA

to the almost inextricable tangle below. It is quite possible in this part to walk for more than a mile along the fallen stems, never being nearer than two feet, and sometimes finding one's self as much as ten or more feet, from the ground.

Our party consisted of G. P. Baker and myself, P. Sarbach (a Swiss guide), W. Peyto, L. Richardson, and C. Black, cook. The weather was excessively hot, and the mosquitoes swarmed in countless thousands, making life miserable. The horses, moreover, were heavily laden, so we travelled but slowly. It was not till the third day that we arrived at the head of the Bow valley, where a pass leads over into Bear creek or the Little fork of the Saskatchewan. This pass is similar to many in the Rocky mountains. The woods—that down in the valleys are

usually so thick that it is impossible to see far ahead, and, owing to fallen trees, make it most difficult to get the horses along—on the passes open out, and large open stretches of grass alternate with groves of pine trees that act as shelter for tents. Often small lakes are found as well, and the views of snow-clad peaks, glaciers, lakes, and forest make most beautiful pictures. The scenery at the head of the Bow valley surrounding the upper lake is grand, and will not disappoint any one who should make the journey there. The lake, also, is full of



THE UPPER BOW LAKE.

trout; some weighing as much as 30 lbs. have been caught. We stopped a day on the pass for two reasons: the horses needed a rest, and Baker wished to pick up his points in a plane-table survey that had been started by Mr. Herschel C. Parker, of Brooklyn, N.Y., during our trip a week before when we ascended Mount Gordon.

Mr. Parker took as his base-line the distance between two stations in the Bow valley that had been trigonometrically determined by the Canadian Government for their photographic survey. These two points were 6·365 miles apart. One south of Mount Hector, and marked on

the Government Survey sheet as station No. 1, 9830 feet; the other a peak lying on the opposite side of the valley, north of the Upper Bow lake, marked station No. 2, 9178 feet. When Mr. Parker returned to the States, he kindly handed over his map to Baker to continue it to the north. On August 20, Baker, Sarbach, and I ascended a rock and snow-peak south-west of the pass (9100 feet), from which a good view down both the Bow valley and Bear creek could be obtained, thus enabling Baker to add a large number of extra points to his map. A fine specimen of a trilobite was found on this summit.

The Bow pass is about 6700 feet. On the north-west side the trail descends steeply for 1000 feet to Bear creek, down which flows the Little Fork of the Saskatchewan river. This branch rises in a large glacier above Peyto lake.

Halfway down the valley two more lakes were passed, on which were seen several kinds of water-fowl, whilst on the eastern side of the valley the woods had only recently been burnt. The gaunt shining black stems of the trees formed a curious but fitting background for the mass of brilliant golden-yellow daisies that were in full bloom amongst the stones at their feet. And the ruined woodland, clothed in black velvet and gold, harmonized in its two dominant colours with the sapphire sky above; but at the same time the lifeless trees, without a vestige of green, gave a curious and weird aspect to the scene.

On August 25 we reached the main Saskatchewan, and on the next day with some difficulty got our horses over the Bear creek river, for it was in flood owing to the hot weather and the immense amount of melting snow. The following day we climbed Mount Sarbach, 11,100 feet, the most northerly peak of the Waputehk range. Unfortunately, the clouds were low on the mountains, so we were unable to distinguish with certainty where the high peak we were in search of might be; but to the westward a splendid glacier was seen, winding down from a snow-covered range beyond. Away to the north-west lay Glacier lake, fed by the waters from a large snow-field, at whose head two peaks, one snow-covered and one black rock, rose into the drifting clouds. These peaks, we afterwards discovered, were probably the Mount Lyell of Hector.

On August 27 we arrived at the foot of the valley leading to the glaciers we had seen two days before from Mount Sarbach, towards the westward. Directly to the north of us was the peak we were in search of. Later on, consulting Palliser's 'Journals,' we found that this peak was not Mount Murchison, as we had supposed, but Mount Forbes, discovered by Dr. Hector, and estimated by him to be about 13,400 feet. Mount Forbes is certainly one of the highest peaks in the Canadian Rockies, and must be close on 14,000 feet. I have seen it on every side except the north-west, and it always towers as a huge three-sided pyramid at least 3000 feet above the surrounding peaks, which are from 10,000 to 11,000 feet high. The precipice on its eastern face is more

sheer than the western face of the Matterhorn, and even after a heavy snowfall remains black and forbidding. On its northern side the peak must stand about 7000 feet above the glacier at its base.

Up till this date the weather had been perfect, but on the 27th a change for the worse began, which rendered climbing on the high peaks impossible. However, whilst waiting for the snow to melt off the precipices and *arête* of Forbes, the valley and large glacier to the westward were explored. Hector seems to be the only person who had ever visited this glacier (Palliser's 'Journals,' p. 150).

AT THE HEAD OF THE FRESHFIELD GLACIER.

At the head of the glacier a large ice-field (Freshfield glacier) was traversed, and an attempt was made to climb the highest of these—Mount Freshfield, about 12,000 feet—but, owing to want of time, the party was unsuccessful.

From the highest point reached, 10,000 feet, a very lofty mountain—probably 14,000 to 15,000 feet—was seen lying 30 miles away in a north-westerly direction. Only two peaks north of Lyell are marked on the map, and these are Mount Brown and Mount Hooker, which are supposed to be 16,000 and 15,000 feet high respectively; consequently we at once took it for granted that we had seen one of them. On September 1 we made our only attempt to climb Mount Forbes, but did not succeed; the rain, snow, and wind driving us back wet through, after a most unpleasant night spent in the woods at the foot of the mountain. It was now time to think of returning to civilization; moreover, we had heard tales of

how, at the beginning of September before the Indian summer sets in heavy snowfalls often occur in the mountains, necessitating a halt till most of the snow melts. As none of us were desirous of spending the best part of a week snowed up in camp, we concluded that we had better make all haste for the north branch of the Kicking Horse river, and follow it down to Field station on the railway.

Accordingly, we pushed over the Howse pass into the Blaeberry creek. Soon all signs of a trail were lost; the forest, being on the western slopes of the mountains, became thicker, and great difficulty was experienced in getting the horses backwards and forwards over fallen timber and the stream that increased in size every mile down the narrow valley. At last we found the valley opening a little, and came to a trapper's deserted log cabin. A single man seemed to have inhabited it, and we wondered who it might be, that, for the sake of a few martin-skins, had lived there alone through a whole winter. A more desolate spot could hardly be found, hemmed in on all sides by gloomy mountains that during the winter months shut out the sun's rays, exposed to the full force of the south-west gales that would sweep with increased force up this narrow slit through the main chain of the Rocky mountains. It was no wonder that we found it deserted.

Wilson had told us that some years previously he had attempted to take horses down the Blaeberry creek to the Columbia river, but he had to abandon them in the heavy timber about halfway down the valley; eventually it was only with the help of some men a week later that he was able, after several days' hard work, to cut them out of the fallen trees. We had now arrived at the beginning of this part of the creek. Peyto, who had gone forward to find the trail, returned with the information that at the next bend of the stream, just below Mount Mummery, the fallen pine trees were so numerous that it would take a week to clear half a mile for the horses. Moreover, a forest fire had been burning for at least a fortnight just below, the smoke of which we had first seen from the summit of Sarbach; however, in spite of all the rain that had fallen, it was still alight. Whilst Peyto was exploring down the valley, we had climbed a peak about 8000 feet high on the west side of the stream. From this point we were able to see a depression in the chain on the opposite side, which we thought probably would lead to the north branch of the Kicking Horse river. But we also saw that great difficulty would probably be experienced in finding a trail up which horses could be taken. Next day, whilst Peyto was again exploring down the valley, Sarbach and I prospected the ground that we thought would be the best route for the horses to follow towards the pass. It was excessively steep, but, as our horses now were in good condition and the loads light, when in the evening Peyto returned with the intelligence that it was hopeless to attempt to follow the Blaeberry creek further, we made up our minds to try on the morrow the new pass to the south.

Next day, after an ascent of about 3000 feet, we camped at the limit of the pine trees at 7500 feet, and on the following day, after a couple of hours' march, reached the pass, where we camped. During the night a heavy fall of snow occurred which had the effect of clearing away the clouds and bad weather that we had been experiencing since the 27th. This pass (6800 feet) I have named "Baker" pass, after my friend Mr. G. P. Baker. We were certainly the first to cross it with horses, and it seems to be the only route that can be used on the western side of the watershed for baggage animals that will connect with the upper waters of the Blaeberry creek. The next day, September 7, in brilliantly fine weather, we crossed the pass, and, following the north branch of the Kicking Horse river down a very beautiful valley, we arrived at Field on September 9. Baker and Sarbach on the 9th ascended Mount Field from the western side. It is worth while mentioning that the various streams in the north branch abound with trout. From Field we returned to Banff by rail, and thus ended the expedition of 1897.

During the winter of 1897–98 I had, of course, much time and opportunity to consult all the various works and papers on the Canadian Rockies. I obtained a copy of that rare Blue-book, Palliser's 'Journals,' and was surprised to find how much of the ground that we had travelled over had been carefully and accurately described by Dr. Hector. All local knowledge of the district dates from the Canadian Pacific railway survey; the older work has been entirely forgotten. By far the most interesting problem, however, that presented itself to me was, whether the mountain I had seen from the slopes of Mount Freshfield might be Mount Brown or Hooker. Certainly Prof. Coleman, in 1893, starting from Morley, had arrived at the true Athabasca pass, found the historic Committee's Punch-bowl, and his brother had climbed the highest peak on the north, presumably Mount Brown. This peak he found to be only 9000 feet. Could he have been mistaken, or was it possible that there existed two Athabasca passes? The first alternative was almost impossible; there was no doubt whatever that the Athabasca pass had been reached. The second alternative was more difficult to solve. On searching for information as to the individual who had named Brown and Hooker, all I could find were some few references to the botanist, D. Douglas, after whom the Douglas pine is named. Nowhere was there an account of the actual passage through the mountains; nowhere could I find any authentic description or measurement of these peaks except Prof. Coleman's. That the two highest peaks in the Rocky mountains, peaks that have appeared in every map of Canada for the last sixty years, peaks that every Canadian has been taught at school may be found amongst the western mountains beyond the prairies —that these mountains were only, after all, not so high as thousands of others in the main chain, seemed impossible to believe. However, the

best way to solve the difficulty was obviously to return next summer to the mountains, and find out about the high mountain I had seen from the slopes of Mount Freshfield, 20 miles or more to the north-west of Mount Forbes.

In July, 1898. H. Woolley, H. E. M. Stutfield, and myself crossed over to Canada for this purpose; we also wished to continue the map that Baker had been working at the year before; and again, as far as possible, the expedition was chiefly to be a mountaineering one.

On July 31 we started from Laggan, with W. Peyto as our headman: Nigel Vavasour, Roy Douglas, and M. Byers as cook also accompanied us. We started with thirteen riding and baggage ponies, but within an hour of starting reduced that unlucky number to twelve, for we had to shoot one of the worst of the pack after it had broken its shoulder amongst the dead timber. Instead of following up the Bow valley as we did in 1897, I determined to reach the Saskatchewan river by way of the Pipestone pass and the Siffleur valley, in order that we might investigate Mount Murchison. Dr. Hector mentions that it can be plainly seen from the summit of the Pipestone pass, and, in fact, gives a sketch of the mountain as seen from there; I therefore climbed a small peak (8800 feet) that rises out of the centre of the pass (8400 feet). From this point two peaks similar to those in Dr. Hector's illustration could be seen 10 to 15 miles away to the north-west, somewhere between the bottom of Bear creek and the Saskatchewan. This mountain I had noticed last year from Mount Sarbach, when I was at an elevation of 11,100 feet, and although Murchison is higher than Sarbach, yet it cannot be much over 12,000 feet high, if as much. On three separate occasions I have seen all the peaks that lie between the Pipestone, Siffleur valley, and the main range, and always the mountain on the east side of the foot of Bear creek seemed to be the highest. The Siffleur valley is easy to travel in; for the last 15 miles the trail is on the left bank.

We reached the Saskatchewan and the Kootenay plains on August 26, only to find the river in full flood, and in some places even over its banks. Next day we nearly lost half of our horses and baggage. In attempting to round an excessively awkward corner where the trail was partly under water, one after another of the horses fell in, and were rapidly swept away by the swiftly running river. Some of them drifted ashore a short distance below, but some landed on an island out in the middle of the stream, and for some time refused to return. Eventually they were all collected, and we had to camp at once in order that the baggage might be dried. On August 8, after a very long day, we arrived on the old spot at the bottom of Bear creek, having taken two days longer than if we had come by the Bow valley.

We had intended to make an attempt to climb Mount Forbes, but the rivers were in such a state of flood that we determined to at once push on up the north fork of the Saskatchewan, and it was most fortunate

that we did so, for in four days we did not make 10 miles up that valley.

August 9 was our first rest. We went carefully over our provisions, and as we were to return by this route, we "cached" a certain quantity here at Bear creek. Next day the nasty and somewhat dangerous crossing of Bear creek was accomplished safely, and later in the day we managed to find a ford across the Saskatchewan, about 2 miles west of where the north fork joins the western branch; we camped that night on the spit of ground at the junction (4600 feet). On August 11, from the summit of a peak (8650 feet) which I have named Survey peak, I

FORDING THE SASKATCHEWAN.

started the plane-table survey, taking Baker's points of the previous year. Unfortunately, it was useless to try to photograph, owing to the smoke haze that covered everything. This haze we first noticed, as we descended the Sifflenr valley, drifting southward .t continued till the bad weather set in four weeks later. The top pyramid of Mount Forbes was visible over a nearer range that descends to the shore of Glacier lake. Mount Murchison and Mount Sarbach were plainly visible, but Mount Lyell, much to my disappointment, was hidden. The day was sultry, and for the most part the sky was overcast; the mosquitoes even followed us for 1500 feet above the tree-line on to the snow-patches that covered part of the mountain.

The trail up the North Fork of the Saskatchewan is on the east or left bank of the river, but it was absolutely impossible for us to attempt

to cross the raging torrent that was sweeping down the valley; all we could do was to try our best along the west bank. No continuous trail could be found; occasionally we would find a track that enabled us to go ahead for a few hundred yards, only, however, in the end to leave us surrounded by "muskegs," fallen tree-trunks, and strong language. For four days we slowly pressed on up the valley, Peyto and Nigel continually cutting. One day was like another; horses had to be steered round the "muskegs" or got over timber lying in every conceivable position, or we had to wait for hours at a time whilst some particularly bad piece of trail was cleared. From early morning till late at night the sound of the axe was only varied by the earnest entreaties of the men to the horses to either proceed or stick to the trail.

At last the straw came that broke the camel's back, or, in other words, drove us across that muddy white torrent to the east side where the true trail existed. It was on August 15. Early in the morning Peyto and Nigel, as usual, had gone out to cut; for several hours we heard the sound of the axes getting fainter and fainter, till at last the noise faded into the distance. However, at midday they returned, with the tale that about a mile further up the river a large tributary came in from the west; also that the whole valley was flooded and full of "muskeg." As it had taken them half a day already to cut to the beginning of this valley, it would take them at least a week to make a trail up and down it again on the other side. Moreover, they were sick of cutting, and also were of the opinion that no sane people ought to want to go up such a valley. I at once suggested that they must be exceedingly thirsty, and that whisky and water was good. To this they agreed. I waited. In less than one hour Peyto was trying to ford the river on his mare, and in less than two hours we had all got across somehow. Some of the baggage was wet, but with the exception of Woolley's photographic apparatus being slightly damp, no damage was done.

We camped that night on the point of land between this western branch of the North Fork and the North Fork itself. Two days later, on August 17, we camped on the pass that leads across from the headwaters of the Saskatchewan to the Athabasca, at a height of about 7000 feet, on an old Indian camping-ground. During our last march we saw a splendid waterfall, just after we had passed a large glacier that feeds another stream of the North Fork.

On this pass we made up our minds to stop for some time, as we had calculated that the big peak we were in search of could not be very far away towards the north-west. As far as we could ascertain, Wilcox was the first person in modern times to explore this pass, but there is little doubt that earlier in the century, when Jasper House was one of the Hudson Bay Company's posts, all this country was much more frequented by those engaged in the fur trade. As Wilcox was the first to traverse this pass, it might be called the "Wilcox" pass. Our

provisions at this period we found were getting very low, and it was with consternation that we discovered that we had only meat left for about three days. Nigel assured us, though, that there were plenty of wild sheep in the neighbourhood, for he had been to this pass the previous autumn with the only shooting party that had ever wandered amongst these wild mountains. In order to replenish our larder, Stutfield said that he would on the morrow see whether he could find and shoot some of these sheep, for our mountaineering was yet before us, and no ascents of big peaks can be made on insufficient food. Woolley and I, not being considered desirable in Stutfield's party, started on our own account to climb a fine rock and snow-peak opposite our

IN THE NORTH FORK OF THE SASKATCHEWAN.

camp towards the south-west. With considerable trouble, and after a fine climb, we finally got to the top at 5.30 p.m. A magnificent view lay before us in the evening light. To the south at our feet lay the great glacier that feeds the North Fork of the Saskatchewan, and we could see an easy way up its true right bank to nearly where it joined a great snow-field. At this point, instead of being hemmed in by the side of a valley, lay a flat and marshy piece of land rather below the level of the glacier; the other end of this piece of land drained down to the Columbia river on the west—evidently it was an easy pass, but difficult or impossible for horses, for some distance would have to be traversed over the glacier. Further away to the south, a high peak lay between this glacier and the west branch of the North

Fork, flat-topped and covered with snow; on its eastern face a precipitous wall of rock. Mount Lyell and Mount Forbes could be seen far off in the haze. But it was towards the west and north that the chief interest lay. We were looking on country probably never before seen by human eye. A vast snow-field, feeding many glaciers, lay at our feet, rock-peaks and snow-covered mountains were ranged around it, whilst far away to the westward we could just see through the haze the valley of the Columbia river. This great snow-field, from which the Saskatchewan glacier takes its rise, also supplies the ice for another glacier at the headwaters of the Athabasca; whilst to the west we saw the level snows bending over to flow down more than one channel, feeding, when melted, the rivers that empty themselves into the Pacific ocean.

A magnificent peak, that is probably near to 14,000 feet high, stood alone keeping guard over these unknown western valleys. We have ventured to name it after the Right Hon. James Bryce, President of the Alpine Club. Some few miles to the north of this peak, and also on the opposite side of the snow-field in a north-westerly direction, the biggest peak of all was seen. Chisel-shaped at the head, covered with glaciers and ice, it also stood alone, and I at once recognized the great peak I was in search of; moreover, a short distance to the north-east of this peak another, almost as high, also flat-topped, but ringed round with sheer black precipices, reared its head above all its fellows into the sky. Here, then, we thought, were Brown and Hooker. Rapidly I drew lines in all directions to these new peaks on my plane-table, but hurry as fast as I could, it was 6.30 p.m. before we started down from the summit of this mountain, which we have named Athabasca peak. Its height by mercurial barometer is 11,900 feet. It was 10.45 when we got back into camp, to find that Stutfield had killed three if not four sheep. The provision question, therefore, was satisfactorily settled for some time to come.

The glacier that fed the headwaters of the Athabasca river we have called the Athabasca glacier. Two days later we all three camped with sleeping-bags as far up its right bank as possible, and in the dark at three o'clock next morning started up the glacier by lantern-light. This glacier descends from the snow-fields above in three successive icefalls, the last one very much crevassed. It was not till past seven o'clock that we finally emerged on to the snow-fields above. The day was warm and sultry, making us all feel tired. For several hours we walked across the snow towards the high chisel-shaped peak; to the westward Mount Bryce sent its three peaks high above us into the air. A double-headed peak on the north hid the high rock peak we thought might be Brown (afterwards named Mount Alberta), when we were on the top of the Athabasca peak. But the peak we were walking towards was farther off than we thought, and as it seemed very unlikely that we should get to the top of it that day, we turned, after having looked down into a

vast amphitheatre that lay between the chisel-shaped peak (afterwards named Mount Columbia) and the double-headed peak, or the Twins. This amphitheatre is the source of another branch of the Athabasca. To the south-east of where we were, and almost on our way home, rose a great dome of snow. After a hot and very tiring climb through soft snow that broke under our feet at every step, we finally got to the summit at 3.15 p.m. (11,650 feet). Although we did not know it at the time, we were standing on probably the only peak in North America the snows of which, when melted, find their way into the Pacific, the Arctic, and the Atlantic oceans; for its glaciers feed the Columbia, the Athabasca, and the Saskatchewan rivers.

But our expedition had mystified us more than ever about Mounts Brown and Hooker. There was no pass between the two highest peaks we had seen, and where was the Committee's Punch-bowl that should lie between them? It is true that we had only seen a small portion of that western branch of the Athabasca whose source lay at the feet of these peaks, but at the same time we had seen that this western branch at its head was hemmed in by the highest mountains in the Canadian Rockies.

Our next move was in search of the lost Punch-bowl. The weather, although it looked unsettled, still kept fine, and on August 24 we took part of our camp for a three or four days' expedition across the pass and down into the east branch of the Athabasca river, hoping to find a pass through to the westward, which would join the east with the west branch. We soon found that no such pass existed, and that to ascend this western branch to its source we should have to descend the eastern branch for at least 25 miles to the junction of the two streams. For this we neither had time nor provisions; so we had to content ourselves with camping out near a glacier (Diadem glacier), and ascending a peak, Diadem peak (11,500 feet). From the summit we looked over into the western branch of the Athabasca, and only a few miles away the flat-topped rock peak (Mount Alberta) rose above us more than 2000 feet. It was during the ascent of Diadem, on August 26, that the weather finally broke, thunderstorms and hail driving us back wet through to our camp.

We returned to our camp on the Wilcox pass the next day, without having solved the question of either Mounts Brown or Hooker, or the Committee's Punch-bowl. Our provisions were now again getting very short, so there was nothing to be done except turn homewards towards Bear creek; the weather also was getting worse and worse. On August 28 we started: Stutfield and Peyto made a *détour* round the Sheep hills and over on to the headwaters of the Brazeau, to try and find some more sheep, but were unsuccessful.

All day on August 30 we were kept in a camp some distance down the North Fork of Saskatchewan by deluges of rain. But on the following day, August 31, by getting up very early and pushing on till 5.30

in the evening, we managed to reach the camp at the foot of Bear creek, where our provisions were "cached." During this march, which was made on the east or left bank of the river, we passed no less than five camps we had made about a fortnight before on the opposite side.

From this camp at Bear creek, on September 2, we attempted to climb Mount Murchison, but, owing to the bad weather, only succeeded in reaching a point about 8800 feet on a ridge. On this ridge some most interesting fossil remains were found of what looked like a petrified pine forest, where the trees had been broken off about a foot from the ground. I have been told, however, that

FOSSIL REMAINS ON MOUNT MURCHISON

it may be the remains of some gigantic prehistoric seaweed. For the next two days the weather continued gloomy and damp till the afternoon of the 4th, when a heavy snowstorm came on, which forced us to camp in a cold and miserable spot just short of the Bow pass. But this was the last of the bad weather, and the week that followed was gloriously fine; the haze that had hidden all the distant views during the first four weeks of our trip was gone, and two days later, when we ascended a peak (Thompson peak) lying just on the north of the top of the great icefall of the upper Bow glacier, from its summit (10,700 feet) by far the most distant and clear view that we had during the whole of the expedition was obtained. Mounts Assiniboine, Forbes, Sir Donald, Freshfield, Lyell, and those over the Athabasca, were clearly visible. The peak was covered with fresh snow.

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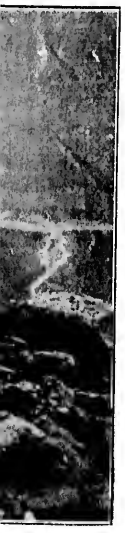

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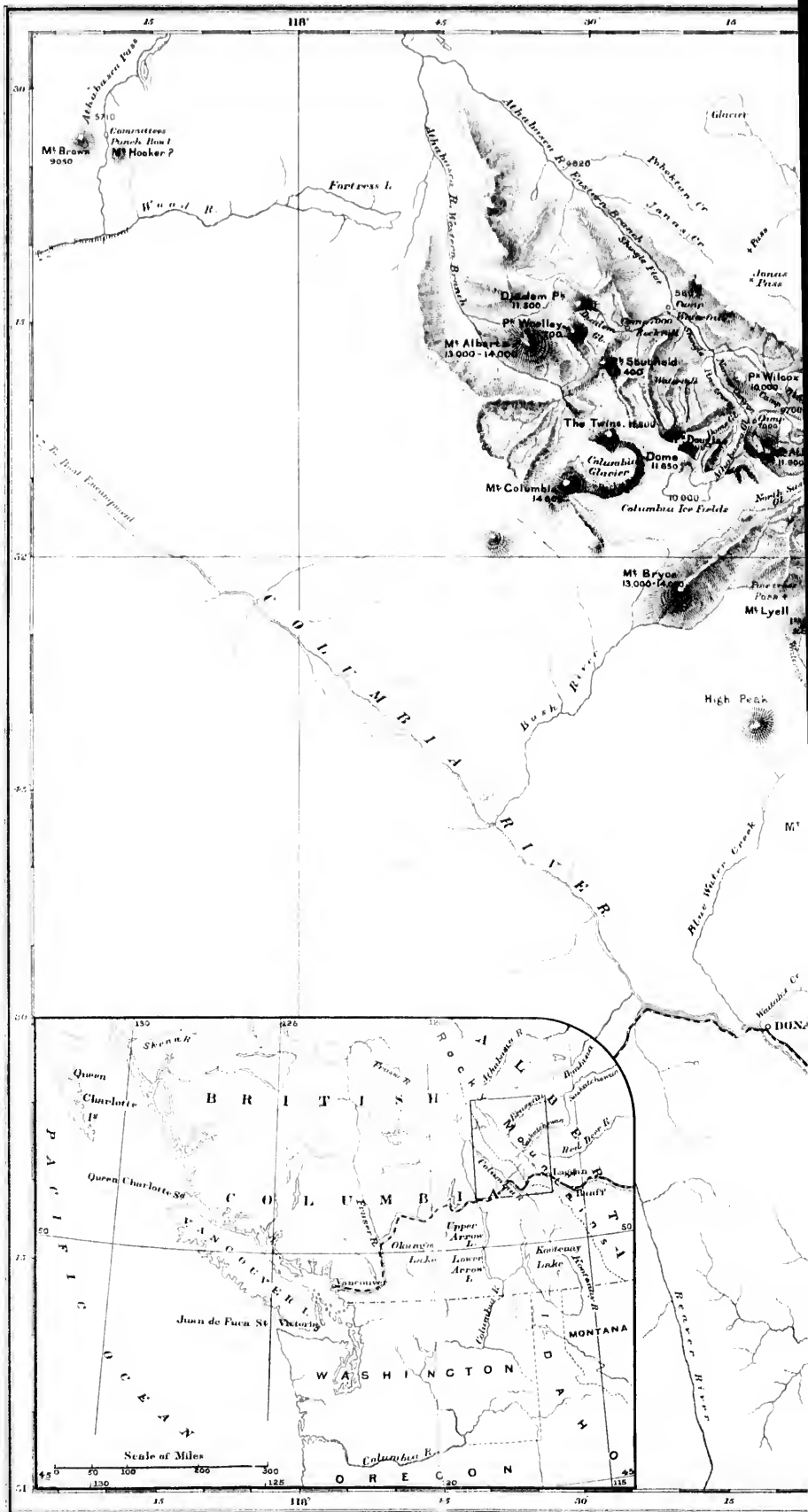

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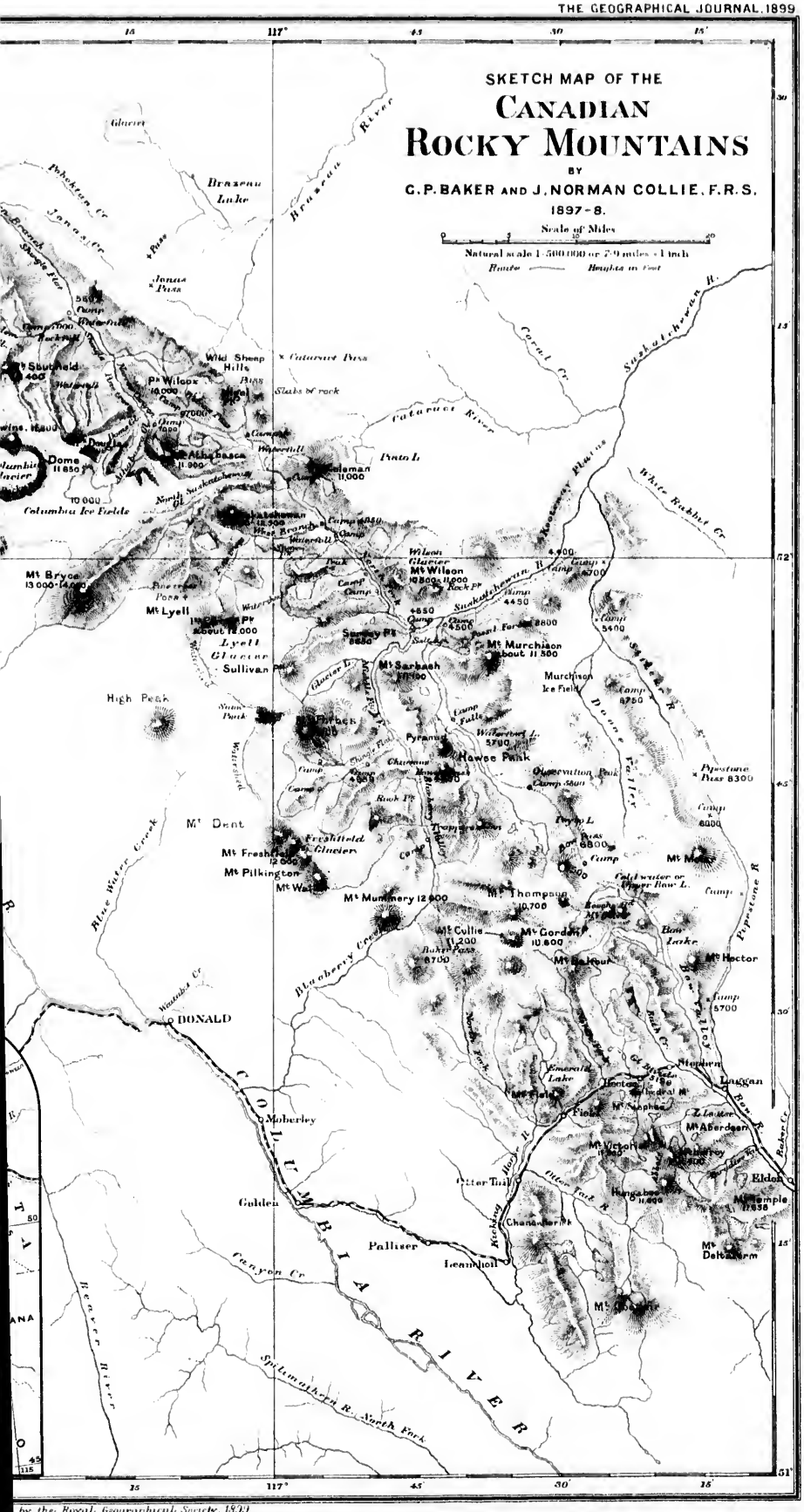
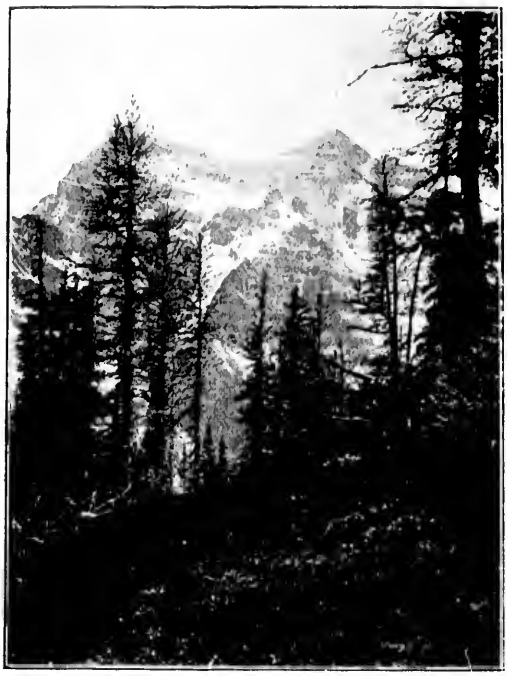


by the Royal Geographical Society, 1899

On September 8 we arrived at Laggan railway station, having been away from civilization for nearly six weeks. The link with the mountains and camp life was broken; it was hard to realize that we should no longer sleep under an Indian "teepee" in a sleeping-bag, and feel the fresh air play over our faces during the still nights, nor should we listen to the noises of the streams nor the wind in the pines much longer. Our small world was shattered, our conversation and all the small things that had interested us for the last six weeks, when placed



MOUNT ABERDEEN.

before the inhabitants of the civilized world, would either fail to interest or fall on the ears of those who would not understand. Still, civilization has its advantages, and gains much by contrast with the life that is experienced amongst the mountains and the wild and desolate places of the Earth.

It was not till I had returned to England that the question of the Committee's Punch-bowl and Mounts Brown and Hooker was finally solved. Again, with greater care, I looked up every reference I could find that dealt with the Rocky mountains of Canada and British Columbia. At last I discovered a reference in Bancroft's 'History of

British Columbia' to the journal of David Douglas the naturalist, which had been published together with a variety of other matter in the *Companion to the Botanical Magazine*, vol. ii. pp. 134–137, by Dr. W. T. Hooker.

This journal deals with Douglas's journey over the Athabasca pass. He started from Vancouver on March 20, 1827, and, travelling *viâ* the Kettle falls and the Columbia river, reached Boat Encampment on April 27, and the summit of the Athabasca pass on May 1 at ten o'clock in the morning. To quote his journal: "Being well rested by one o'clock, I set out with the view of ascending what seemed to be the highest peak on the north. Its height does not appear to be less than 16,000 or 17,000 feet above the level of the sea. After passing over the lower ridge, I came to about 1200 feet of by far the most difficult and fatiguing walking I have ever experienced, and the utmost care was required to tread safely over the crust of snow. A few mosses and lichens are observable, but at an elevation of 4800 feet * (*sic*) vegetation no longer exists. The view from the summit is of too awful a cast to afford pleasure. Nothing can be seen, in every direction far as the eye can reach, except mountains, towering above each other, rugged beyond description. . . . The majestic but terrible avalanches hurling themselves from the more exposed southerly rocks produced a crash, and groaned through the distant valleys with a sound only equalled by that of an earthquake. Such scenes give a sense of the stupendous and wonderful works of the Creator. This peak, the highest yet known in the northern continent of America, I feel a sincere pleasure in naming 'Mount Brown,' in honour of R. Brown, Esq., the illustrious botanist. . . . A little to the southward is one nearly the same height, rising into a sharper point; this I named 'Mount Hooker,' in honour of my early patron, the Professor of Botany in the University of Glasgow. This mountain, however, I was not able to climb.

"The Committee's Punch-bowl is a small circular lake 20 yards in diameter, with a small outlet on the west end, namely, the Columbia, and another at the east end, namely, one of the branches of the Athabasca."

This, then, was the authentic account of these two mountains, and to Prof. Coleman belongs the credit of having settled with accuracy the real height of these peaks. For nearly seventy years they have been masquerading in every map as the highest peaks in the Rocky mountains.

No doubt now remains as to where Brown and Hooker and the Punch-bowl are. That Douglas climbed a peak 17,000 feet high in an afternoon is, of course, impossible; the Mount Brown of Prof. Coleman, 9000 feet high, is much more likely. There is, therefore, only one

* 14,800 feet more probable.

Athabasca pass, and on each side of its summit may be found a peak; the higher of the two is on the north side—it is Mount Brown, 9000 feet; on the south side the mountains are still lower, and one of the points on the ridge is Mount Hooker. Between them lies a small tarn, 20 feet in diameter—the Committee's Punch-bowl, that may be found marked in almost every map of Canada.

Those peaks to the south, amongst which we wandered last August, are therefore new; and standing as they do, grouped round the glaciers that feed three of the largest rivers in Canada, the Athabasca, the Saskatchewan, and the Columbia, they probably constitute the highest point of the Canadian Rocky mountain system.

Before the reading of the paper, the PRESIDENT said: The paper to be read this evening will be a very interesting one by Prof. Norman Collie on "The Exploration in the Canadian Rocky Mountains, and the Search for Mounts Hooker and Brown."

After the reading of the paper, the following discussion took place:—

Mr. G. P. BAKER: You will have observed that the little geographical and map-making work which the two expeditions led by Dr. Collie have accomplished, is due more to our mountaineering instincts than to a search after geographical knowledge. Dr. Collie has told you that we were in a country beyond the limits of the map-maker, and that it was due to T. E. Wilson, of Banff, that we were able to obtain some information of the country we were to traverse. He was able to indicate on paper the number of lakes and washouts we were likely to pass, the glaciers we should see, and muskegs to avoid. I seized the opportunity offered me by Mr. Parker, of Columbia University, to obtain the reversion of his plane-table, and by accident we were able to pick up the survey of the Topographical Department of Canada, and, having got our base-line, Dr. Collie continued it last year right away up to the headwaters of the Athabasca. I must say we had, besides photographic apparatus, compasses, and so forth, and Dr. Collie carried with him his portable mercurial barometer, which he invented, and which was described by him in the Society's *Journal* (vol. x., 1897, p. 203).

About the exploits of Wilson I would like to say something. Wilson was originally employed by the Railway surveyors in 1881, and the story he tells is this; it is worthy of record in the journals of this Society. In 1881 four parties under Major A. B. Rogers were in the mountains. One, under C. Miles, was sent up the Kanaskis; another, under McMillan, up the Simpson pass; another, under C. Lett, up the Kicking Horse; another, under Sproat, which Wilson joined, was deputed to survey the Bow. Not much result came from that year's work, as the parties got away too late, and were ordered back early in October to return to Winnipeg. In the following spring, 1882, four parties were out again. Major Hurd, an assistant to Major Rogers, did excellent work, and it is the opinion of Wilson that had his route been followed, the company would not be having the "washouts" and delays the railway is now subject to. All the parties in 1882 were put to work on the Bow and Kicking Horse and the Columbia valleys, and in the autumn, one in the Selkirks. Major Rogers was satisfied with the reports of all the passes, with the exception of the Bow and the Howse pass, and ordered Wilson to go through alone on foot. He accordingly started on foot from where Laggan now is, making good time to the valley of the Little Fork, where, finding the torrents very much swollen, he was unable to cross and recross the river as occasion usually arises, when horses are taken with the party. Eventually he succeeded in reaching the Columbia river,

at the old Moberley cabins, on the eve of the eleventh day, and there met Major Rogers, who was very uneasy on Wilson's account. He told us that he had eaten his last bannock when in the Blaeberry, and had left pieces of his clothes all along the route, so treacherous is the timber. Wilson has made many excursions into the mountains, but never has carried so "big a load of doubt and so little grub and blankets as on that occasion."

The reports of Captain Palliser and Dr. Hector, both recipients of the Founders' medal, are most delightful reading. Their map is of course, in its details, inaccurate, but it goes to fill up a gap in that great lone land. The work now being carried on by the Topographical Survey of Canada is most excellent. They have a good staff of men; but, as they pointed out to us in Ottawa, the country is so large, that the survey of the mountains must be always the last thing they will take in hand. They have done good work to the south of the line, but in the north it only extends for a very few miles. The rough survey map that was made by the expedition under Prof. Coleman has been fitted to our own. There is one expedition into this country that Dr. Collie did not refer to—that of the Earl of Southesk in 1859. It is very difficult indeed to determine exactly where he was; but, roughly speaking, he must have been in the neighbourhood of the headwaters of the Athabasca, journeying south to the Bow valley in a second parallel valley to the main range. The peculiarity of these valleys is that, instead of being at right angles to the main watershed, they run parallel. We traversed the first valley, and I think the Earl of Southesk must have been in the second valley.

Taking Dr. Hector's reports, and comparing his rate of travel with our own, we compare very unfavourably indeed. It took him two days to do what we did in four, and Dr. Collie has told us that in the upper Saskatchewan he did not make 10 miles in four days. I can only conclude that the trails have fallen into a "bad state of repair," due to forest fires and to the want of Indian hunters and trappers, who no longer find the country as plentiful in game as in former years.

Mr. STUTFIELD: I very much regret Mr. Woolley is not here. I regret it all the more because, after the exhaustive paper by Dr. Collie and Mr. Baker's speech, there is little to say. As you will understand from the paper, we had a most delightful trip, and some very charming climbs. Dr. Collie did not tell you of the ascent of Athabasca peak, the very best climb of the expedition, which I unfortunately missed, having to go after meat for the expedition by myself, because, as you have heard, "the Collie would not go after the sheep." There is one thing I would like to say to you as to the sport, in case any members of the Geographical Society who are keen and ardent sportsmen might think we were living in a sportsmen's paradise. The contrary was the case. I was hunting several days, and kept a good look-out all the time, and except that one single day, which I look on as the luckiest in my life, I never saw any game. If people want sport they must go west. But if there is no game, there is something much better. Splendid mountains and magnificent scenery, new Alps, and a new Switzerland, larger than the old one, and scarcely inferior in beauty of the mountains and the varied charms of lake, forest, and river scenery. But, unfortunately, it is a Switzerland very little visited. At the bottom of Bear creek, where we made a cache of our provisions, is a spot where five large valleys converge, all leading to beautiful mountain scenery. There, I venture to think, in the days to come will be the Grindelwald or the Chamounix of the Canadian Alps, but now it is all "wasting its sweetness on the desert air." It gets no encouragement from the authorities in command. The Canadian Pacific railway people are sending two Swiss guides to Glacier House next year; but, though exceedingly keen business men, they have only just begun to tumble to the commercial value of glaciers. I was talking to a man at Glacier House, British

Columbia, and said to him, "I venture to say that in the course of ten years your glaciers and mountains will bring in a great deal more money than all your gold-mines put together." He looked at me, but said nothing. I think there is a great deal more to be done in opening up the beauties of this scenery than is being done now. I was talking to Sir William Van Horne about it, and he suggested that if one or two of us broke our necks it might be a good advertisement for the country; unfortunately, we did not comply with the suggestion. Out there they look on all climbers, as so many people do at home, as lunatics, but I would point out that the lunatics pay, and they ought to be encouraged. Now, though we are told it is foolish to prophesy, I venture to say that, just as Mr. Leslie Stephen, in that brilliant work which has become a classic, has made familiar to people on this side of the Atlantic the playground of Europe, so Dr. Collie and his predecessors, in their mountaineering in Canada, have opened out the new playground of America. No doubt America has playgrounds of her own—of a sort. Though she has mountains as high, possibly a little higher, than these, they are lacking in surroundings which to us climbers, at any rate, are indispensable—I mean the glories of the eternal snows, and the marvels and mysteries of the upper ice-world. In these things America cannot compete. Therefore I think that Dr. Collie, Mr. Baker, Prof. Dixon, and others, have done excellent service in opening up the country, and I shall always esteem it a privilege to have been allowed to take a small part in the work.

Sir MARTIN CONWAY: I have no special comment to make on this paper. But I should like to ask Dr. Collie one question—why it was necessary for him to go to these mountains last year, when I was otherwise employed; why could he not have waited and taken me with him? It seems to me that the scenery of these mountains, in which he has done so much good work, is amongst the most beautiful mountain scenery it has ever been my good fortune to see reflected on this sheet. The common but erroneous opinion seems to be that all mountain scenery is very much alike; as a matter of fact, there is the widest possible diversity in the character of mountain scenery in different parts of the world. The Alps always seem to me to be the typically beautiful range, where green slopes and forests and lakes, and snowy peaks of all sorts of varied forms, are most beautifully mixed and mingled together. If you wander further a-field, you will find in the Caucasus a range more grandiose, but likewise beautiful, in a somewhat similar style. If you go further to the Himalayas, you will find in them the newly broken edge of the Earth's crust, lifted aloft with its splintered edges. In different parts of Asia you find varieties of that type of mountain, relatively new mountains, the crinkled-up and cracked off edges of the Earth's newly broken crust. In the long range of mountains forming the backbone of North and South America, from the Klondike to Tierra del Fuego, there are many varieties of beautiful mountain scenery. There are in some parts ranges of mountains, elevated by the pressure of the world, and worn down by the action of long-continued ages of frosts, by air, and water. You will find ranges, or rather areas, where the volcanic forces of the interior of the Earth are, or have been, strongly active, and there mountains take a different form, extremely lofty volcanic cones rising out of deserts of absolute barrenness, surrounded by dried-up lakes which have left no trace of their previous wetness save in the flatness of the white saline deposits. Further south comes a region thatched with forest of the densest kind, that I was reminded of to-night by the photographs we have seen, where the trees rise out of ruins of tangled remnants of broken trunks deep in moss and sodden with water. Out of these forests rise mountains draped with icy glaciers going down into the sea, and the long mountain range itself finally founders into the Antarctic ocean. You have all this variety—you

have mountains in the Arctic, poking their noses out of the great flood of ice, and mountains in the tropics rising out of deserts. Mountains, wherever you find them, have qualities of their own; there is an immense variety of type and of charm, but in all this variety of beauty of mountain scenery, there are no mountains which combine grace and at the same time boldness of form with forest and with water more beautifully, as far as I can judge, than those mountains Mr. Collie so well described to-night, and I can only conclude by saying it is very hard lines that he did not postpone his trip, in order that he might have taken me with him.

The PRESIDENT: We have been reminded by Mr. Baker that Captain Palliser and Dr. James Hector, who may be considered the pioneers of the Canadian Rockies, were recipients of our Royal awards, and I think it must be with great satisfaction that the Fellows of this Society remember that it was due to our urgent and pressing representations that the expedition of Palliser for the discovery of passes over the Rocky mountains was organized and undertaken. Prof. Collie and his companions have very worthily trodden in the steps of these eminent explorers; they have gone over ground which was entirely unmapped; they have ascended mountains and done some magnificent mountaineering, under, as you have heard, very great difficulties; and I am sure you will all wish me to express your thanks to Prof. Collie and his companions for the most interesting paper which he has delivered so admirably to you this evening, illustrated with such beautiful slides.

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