

of expensive equipment busy nearly all the year. At Roger's Pass, close to the summit of the Selkirks, the company maintains large engine sheds, shops, snow-ploughs and outfits ready for service on both sides of the Selkirk range.

For many years the company has been gradually effecting a reduction of its gradients and improving its main line generally in preparation for the development of the grain traffic westward from the prairies. In connection with this policy the C.P.R. four years ago bored two spiral tunnels through Mount Cathedral and Mount Ogden in the Rocky Mountain range, eliminating what was known in railway circles as the "big hill" between Field and Hector.

As traffic conditions are at present, on the westbound trip through Roger's Pass trains start the ascent of the Selkirks at Beavermouth, 28 miles west of Golden, which is at an altitude of 2,435 feet and is the most northerly station on the route. The summit of the range is 4,351 feet above sea level. Before reaching Beavermouth, the railway crosses the Columbia River to the base of the Selkirks, which, in direct contrast to the slopes of the

locomotives used on the steep grades on each side of the summit.

The gorge of Bear Creek leads into a ravine between Mount Macdonald on the right and Mount Tupper on the left, entering Roger's Pass through a narrow defile.

The Pass derives its name from Major A. B. Rogers, explorer, who first penetrated the Selkirks in 1881, and discovered the narrow, rocky defile.

Passing between two serrated lines of peaks the railway proceeds to the actual summit, 4,351 feet above sea level, and thence starts the descent into the Illecillewaet Valley. The road to Glacier has a descent of 258 feet in the two miles of the summit.

The new location for the line under the Selkirks branches off from the present route near Cambie, three miles west of Glacier, and from Cambie the approaches of the tunnel run in almost a straight line to the base of Mount Macdonald, as shown in Fig. 2.

The western portal will be located about 1,700 feet below and a short distance west of Glacier House. The main passage will provide for double tracks and the approaches from both ends will also have parallel lines.

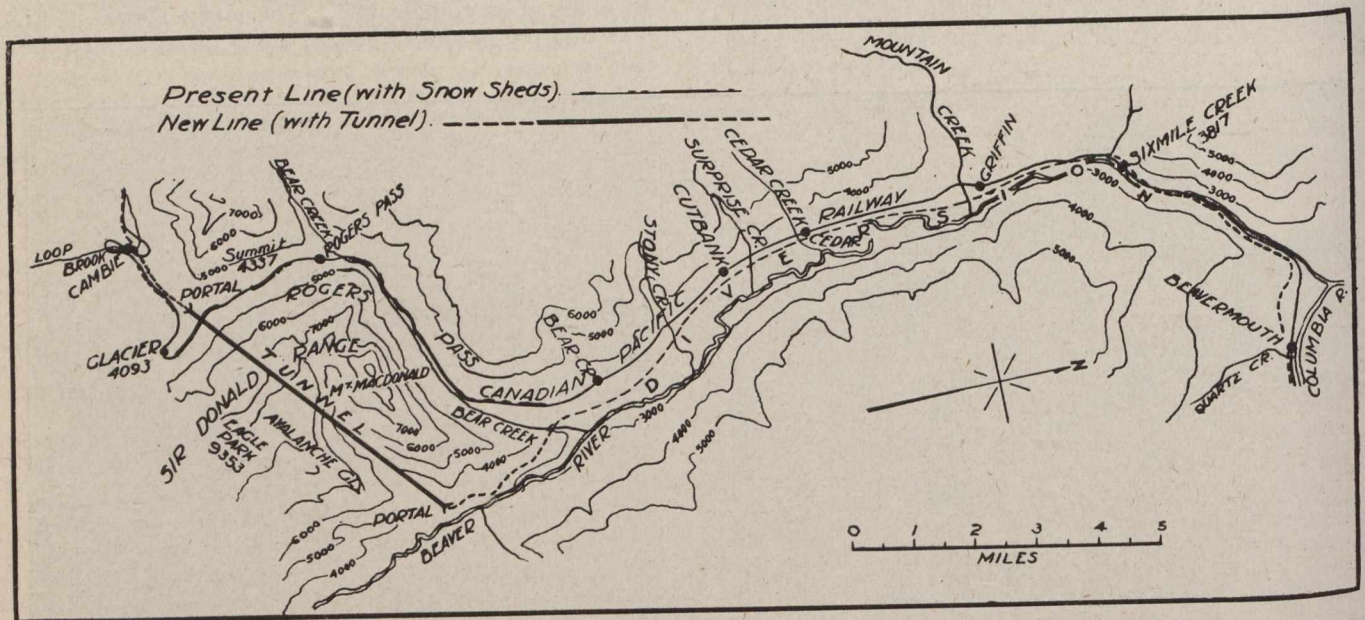


Fig. 2.—Map Showing Location of Roger's Pass Tunnel and Projected Railway Line.

Rockies, are always wooded. The line gradually climbs upward and enters the Selkirks through the gate of the Beaver River. Six Mile Creek, 5 miles west of Beavermouth, is the junction point for the new location which leaves the present route, rising at an average rate of 160 feet in the mile, and descends into the Beaver Valley, following the river to the eastern portal of the tunnel under Mount Macdonald. The scene of the operations is more than 1,000 feet below the present track level and is about 12 miles west of Six Mile Creek.

The railway parallels the course of Bear Creek after leaving the station bearing that name, following a continuous upward grade through nearly 5 miles of sheds, erected at tremendous cost to ensure the safety of trains from the slides which frequently occur. These sheds are built of stout framed timber, dovetailed and bolted together and set and reinforced with rock.

Between Bear Creek and the summit, and for a corresponding distance on the western slope of the Selkirks, men are kept constantly employed for eight months of the year keeping the lines open for traffic. Roger's Pass is the headquarters for the clearing outfits and the extra

The tunnel will follow a straight line under Mount Macdonald emerging in the Beaver Valley at a point about 1,000 feet below the present line which, as stated, reaches the summit by a gradual incline on a route notched out on the eastern slopes. The eastern entrance is situated almost immediately below Hermit, a flag station east of Roger's Pass and nearly 47 miles west of Golden.

By the route thus chosen the old line, with its long 2.2% grades, reaching a summit elevation of 4330.37 ft. in the pass, will be replaced by a new line whose summit is 540 ft. lower, effects a saving of $4\frac{1}{2}$ miles in distance, and has the special advantage of eliminating a stretch of line subject to frequent troubles from snow and requiring long stretches of snowsheds. The present line has nearly five miles of snowsheds in 13 miles, while the new line will have only about 4,800 ft. The maximum grades on the new line are 2.2%, but their total length is less than one-third of those on the old line. The total curvature is also reduced considerably and two loops are eliminated. Thus while the maximum train load will remain the same, the operating conditions will be very much more favorable in consequence of the lower elevation, the shortening of the