The Gornergrat railway (GGB)

THE GORNERGRAT RAILWAY. (GGB)

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The Gornergrat railway in Zermatt is a local extension of the line which runs from Brig to Visp and Zermatt, and has close links with it. It is a tourist railway which climbs to a height of over 3,000 metres and is constructed almost entirely above ground.It was opened in 1898 and was the first electric rack and pinion railway in Switzerland. However the visitor who expects to find the line as it was at the turn of the century will observe that it has made good use of the intervening years to keep pace with continuing development in the region. A continuous process of technical advance has made the Gornergrat railway one of the most modern in existence today; thanks to the magnificent landscapes which surround it, it is still one of the most attractive railway lines in Switzerland.

Double railcar Bhe4/8 of the GGB. *Photo: Courtesy GGB.*

The line starts in Zermatt (1,604 metres above sea level) and climbs up the side of the Rifflealp, at an average incline of 16%, to the observation point on the Gornergrat, 3,809 metres above sea level.The line is 9.3 Km long and travels over five bridges and five viaducts; one of these - the Findelenbach viaduct, 50 metres high and 90 metres long -is an attraction in its own right.There are five tunnels with an aggregate length of 320 metres.

From the beginning, three phase electrical current was used in the operation of the line. As a result, it has been possible to incorporate a highly unusual feature in the motive power system: the braking energy generated by the descending trains is transmitted directly into the overhead lines, with the result that two descending trains generate almost enough current for one ascending train.

The railway was originally designed exclusively for summer excursions; but since 1950 it has transported more visitors in winter than in summer. The first experiments with winter operations were made as early as 1927. However, before the excellent ski slopes between the Riffleboard and the Gornergrat could be developed, an avalanche gallery - 800 metres long - had to be driven to avoid danger from the famous Riffleboard.

The substantial construction works needed to finally open up the Gornergrat to skiers were completed during the war years 1939-41. Until then the railway had been able to operate with 5 Rowan units;but the rapidly growing winter traffic made the adoption of new systems necessary. Today there are 12 railcars, each with a capacity of 110 passengers, and six double railcars, each of which can carry 140 persons. The introduction of new trains, together with the doubling of operating speeds, gave rise to an eight fold increase in capacity over that of the immediate post-war period. Today trains run according to a regular schedule at 24 minute intervals. Each train consists of 1 to 4 units and comprises up to 6 carriages with a total capacity of 690 persons; thus the line can carry 1,725 persons per hour in each direction along its entire operational length.

Bhe4/8 crossing the famous Findelenbach bridge. *Photo: Courtesy of GGB.*

At the beginning of the 1960's the Riffleberg section of the line was equipped with double track up to within 400 metres from the Gornergrat.In 1971, to improve still further the facilities available to skiers on the Riffleberg, the GGB built the Riffleberg-Gifthüttli ski lift which is able to carry 1,100 persons per hour and is now the most frequented ski lift in Zermatt, carrying over 500,000 persons per year. This development was followed in 1978 by the building of an additional section of double track, 1 km long, between Rifflealp and Riffleboden; thus allowing trains to pass each other without stopping in this section.

In winter, there is a considerable volume of ski-lift train traffic; a train leaves Riffleberg every 12 minutes for Gornergrat. To enable traffic to run even more smoothly, between

1985-1986 the last 400 metres of track below Gornergrat - technically an extremely difficult section - was relaid with double track as a final stage of development. The cost of rebuilding this short section was the same as the original cost of building the whole railway, including power generating installations, all the electrical equipment, water rights, land purchases, rolling stock and all other moveable assets.

No description of the Gornergrat railway would be complete without at least a mention of the unique landscapes to which it gives access. A journey up the railway, against the background of an ever changing panorama comprising the mighty Matterhorn and the gigantic mountains surrounding it, is a very special experience, and offers many opportunities for taking magnificent photographs. When the traveller arrives at Gornergrat, he is confronted, in a radius of about 15 km, with 29 of the 34 peaks over 4,000 metres high in Switzerland. The view of both the railway, and from it is a truly impressive and rewarding one.

General Statistics.

Opened.	20 August 1898.
Power supply.	550 volts 3 phase 40 Hz. 1898 - 1930. 650 volts 3 phase 50 Hz. 1930 - 1947. 725 volts 3 phase 50 Hz. 1947 - Present.
Power feed system.	Twin wire overhead catenary.
Length and gauge of track.	9.339 Km. Metregauge with ABT rack.
Difference in height.	1,485 metres. Zermatt-Gornergrat.
Maximum gradient and smallest curve.	20% and 80 metres radius.

Stations.

Zermatt.	1604 m.a.s.l	Findelenbach.	1770
Riffleralp.	2209	Riffleboden.	2348
Riffleberg.	2582	Rotenboden.	2818
Gornergrat.	3089		

Rolling stock.

Type.	Nos.	Built by.	Date.	
He2/2	3001-3003	SLM/BBC	1898	
Bhe2/4.	3011-3022	SLM/BBC	1947-1961	
Bhe4/8.	3041-3044	SLM/BBC	1965-1975	
Bhe4/4.	3061-3062	SLM/BBC	1981	
Bt.	3071-3072	SLM/BBC	1981	Used with Bhe4/4's.
Xrote	3931	SLM/MFO	1944	Based Zermatt.
Xrote	3932	SLM/BBC/MFO	1970	Based Zermatt.
X	3901		1928	Based Findelenbach.
X	3902		1945	Based Zermatt.