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## DIG BERNHARDINBAHN

by Mike Polglaze

Planning for the Bernhardinbahn appears to have started in the early part of 1907, and a concession was granted in 1913 but before any work was undertaken the First World War intervened and a further concession was granted in February 1923. This resulted in a report being submitted in 1927 but due to a lack of Federal support as well as the aftermath of WW1, no action was taken and the scheme was shelved in the 1930s and never taken up again. The road built in the 1960s from Thusis to Bellinzona follows a very similar route to the one the railway would have taken and is well worth driving over.

Although planned to run from Thusis to Mesocco, the Bernhardinbahn would in fact have gone to Bellinzona by way of the Misoxbahn (Bellinzona-Mesocco) which had been opened in 1907. This would have brought this line into RhB ownership several years ahead of 1943 when it did become a detached part of the system. It was intended to convert the 1500 V dc overhead system to the RhB 11 Kv 16 2/3 Hz supply and the line was to be extended from its then terminus in Bellinzona to a new one at the SBB station.

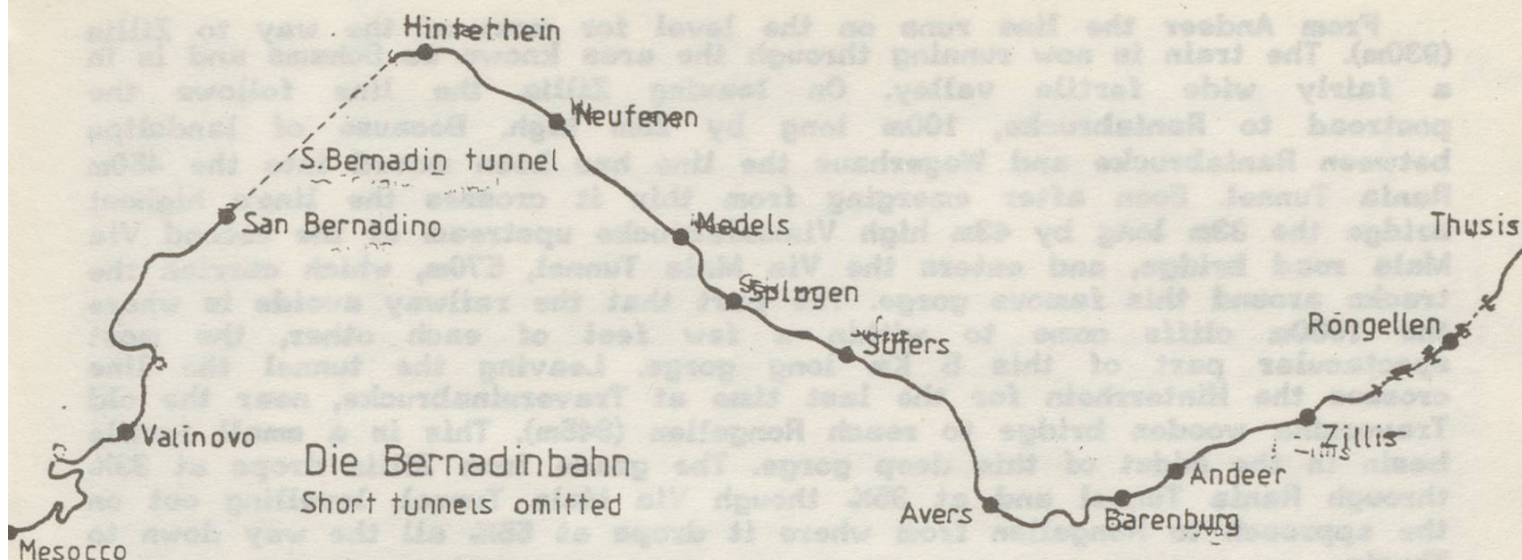
The complete Bernhardinbahn would have been some 92 Km long, of which 60 Km was to be new construction from Mesocco to Thusis. The line from Bellinzona (230 m above sea level) to Mesocco (769m) is just over 31 Km long and is on a fairly easy grade as far as Km 24, just beyond Cabbio (449m), where the gradient steepens to 60% and maintains this to Mesocco. All distances quoted are from Mesocco which is shown as Km 0 on the plans.

From Mesocco to the first station at San Giacomo the line had to climb 441 m in a horizontal distance of 3.2 Km. To achieve this a track distance of 8 Km on grades of 55% to 60% on open line and 50% to 55% in some of the longer tunnels. I have not been able to find the names of the tunnels on the southern ramp and so have numbered them.

Let us climb aboard an imaginary local train from Mesocco to Thusis for a run over the line. Leaving Mesocco station the line crosses the river Moesa by means of the Moesabrucke, 80m long by 20m high, then turns north for some 500 m before turning due south to enter Tunnel No.1, 635m, followed closely by Tunnel No.2, 435m. Both are looped, not quite spirals, and are located between Km 1.5 and Km 3 and carry the line above the village of Andergia. Leaving Tunnel No.2 the train is again heading north and does so for some 500m before swinging west across the valley, crossing the Moesa again by a 15m long by 16 m high bridge and almost immediately entering Tunnel No.3, 200m, soon followed by the 35m tunnel No.4. The line continues west for just over 1 Km to reach the far side of the valley where it turns north to enter Tunnel No.5, a 665m spiral. On leaving the tunnel the heading is east, passing through the short tunnel No.6, 50m, and turning north again for 1.5 Km before resuming an easterly direction, crossing the Moesa for the third time at Km 7.5 then heading north again to reach San Giacomo (1210m).

From San Giacomo to Pesciadalo, (although mentioned I can't find a station of that name but think it would have been around Km 11 or 12) the line continues north on a grade of 60% via Tunnel No.7, 290m, near Km 9.5, until reaching Tunnel No.8, 760m. This tunnel quickly followed by Tunnel No.9, 705m, are both spirals. Leaving Tunnel No.9 the heading is due south for some 500m then turning west passing through Tunnel No.10, 480m, after which it heads north once more to reach San Bernardino (1630 m), 17.5 Km from Mesocco. From Tunnel No. 8 to San Bernardino the gradient eased to 52%.

At the time the railway was being planned AG Motor-Columbus were also planning to build a reservoir, which it seems would have flooded the village of San Bernardino, but the railway planners allowed for this. As



## Plan of die Bernardinbahn

far as I can make out that particular reservoir wasn't built.

Up to now we have been in the Italian part of Switzerland and are about to enter the German part via the Bernardin Tunnel. Although San Bernadino is usually considered to be the summit of the southern ramp there is a sharp climb of 150 m to the southern entrance of the 5.58 Km Bernardin Tunnel (1669m). For the first half of the tunnel the line continues to climb at 39% to reach a maximum height above sea level of 1677m before starting to descend to the northern portal (1648m) on a grade of 10%. This tunnel would have been only 27m shorter than the Albula tunnel, but some 200 m lower.

Leaving the tunnel we enter a region known as Rheinwald, not far from the source of the Hinterrhein. The line now follows the river all the way to Thusis. From the summit tunnel to Hinterrhein village (1620m) is a distance of 2 Km on a falling grade of 40%, during which the line crosses the river for the first time by way of the 100m long by 10m high Hinterrheinbrücke. Leaving the village the line follows fairly easy gradients through the Rheinwald. At Nufenen (1560m) it is 15% and then at 19.7% to Medels (1490m), easing again to 15% as far as Splügen (1481m).

From here a road takes one over the Splügen pass, eventually ending up at Chiavenna, which we will visit later by train. From Splügen the line is level for about 2 Km before dropping again at 13% to reach Sufers (1481m). In this section the line's longest bridge is crossed, 150m long by 20m high. At Sufers the *Rhatischen Werke AG* built a reservoir which the line skirts and the station is 7m above the water level.

From Sufers to the next station at Avers (1165m) the grade suddenly steepens to 60% as far as Km 42 where it eases to 55%. This area is known as La Roffa and the section includes four short tunnels which carry the track through the Rofflaschlucht. From Avers the line continues to fall at 55% through Barenburg (1060m) and to Andeer (982m). Between these two stations is what is described as a *Haltstelle* for loading stone from Andeer Granit.

At this point I shall digress for a moment. I was telling John Jesson about this and said I wondered if the firm was still in existence. John said he didn't know but knew a man who might. In a short time a reply came back from Switzerland that *Granitwerk Andeer* is still working and moves stone via the RhB at Thusis. Included in the reply was a sheet of the firm's headed notepaper which I used to match up paint and style of lettering to produce a *Granitwerk Andeer* Fad hopper wagon for working on *Via Mala*.

From Andeer the line runs on the level for most of the way to Zillis (930m). The train is now running through the area known as Schams and is in a fairly wide fertile valley. On leaving Zillis the line follows the postroad to Raniabrucke, 100m long by 28m high. Because of landlips between Raniabrucke and Wegerhaus the line has been moved into the 450m Rania Tunnel. Soon after emerging from this it crosses the line's highest bridge the 33m long by 43m high Viamalabrucke upstream of the second Via Mala road bridge, and enters the Via Mala Tunnel, 570m, which carries the tracks around this famous gorge. The part that the railway avoids is where the 1600m cliffs come to within a few feet of each other, the most spectacular part of this 5 Km long gorge. Leaving the tunnel the line crosses the Hinterrhein for the last time at Traversinabrucke, near the old Traversina wooden bridge to reach Rongellen (845m). This is a small fertile basin in the midst of this deep gorge. The grade from Zillis drops at 33% through Rania Tunnel and at 35% through Via Mala Tunnel, levelling out on the approach to Rongellen from where it drops at 55% all the way down to Thusis.

The high cliffs close in again, forcing trains from Rongellen to do so through Verloren Loch Tunnel, 680m. Whilst in this tunnel the trains pass 17m under the power duct to Thusis Power Station. After a 700m stretch of open line the train passes through the last tunnel, the 250m bore through Felsrukken Crapteig, again passing, by 24m, under the power duct. The final stretch sees the line emerge from the Via Mala Gorge, cross the river Nolla on an 80m long by 22m high bridge to enter Thusis (700.5m) and the junction with the Albula line.

During the journey from Mesocco the train would have passed through 27 tunnels with an overall length of 12 Km or 19.4% of the line's total length. Discounting the Bernhardin Tunnel, the remaining 26 tunnels total 7.1 Km, of which 9 are over 400m long. The average grade on the southern ramp would have been 48%, whilst the longer northern ramp would have been 25%. Neither ramp would have had any compensating grades. The grades on the RhB lines that were built are 60% on the Arosa line, 70% on the Bernina and 35% on the Albula. The minimum curve on the Bernhardinbahn was to be 100m. It was estimated in 1927 that the construction would take 3 years and cost SFr.32 million.

Whilst no details are available of the proposed train services, it is interesting to look at the Postauto service between Thusis and Bellinzona. When I produced the sequence timetable for Via Mala I based it on the 83/84 timetable. This shows 8 through services per day in each direction, two of which start and terminate in Chur, one being named the San Bernadino Express. In addition to the through services there are local services from Thusis to Andeer, Splugen and San Bernadino, also from Bellinzona to Mesocco and San Bernadino. In all it shows 16 services per day leaving Thusis and 17 per day from Bellinzona.

Next time we will have a trip from Scoul to Landeck, so bring your passports ☐

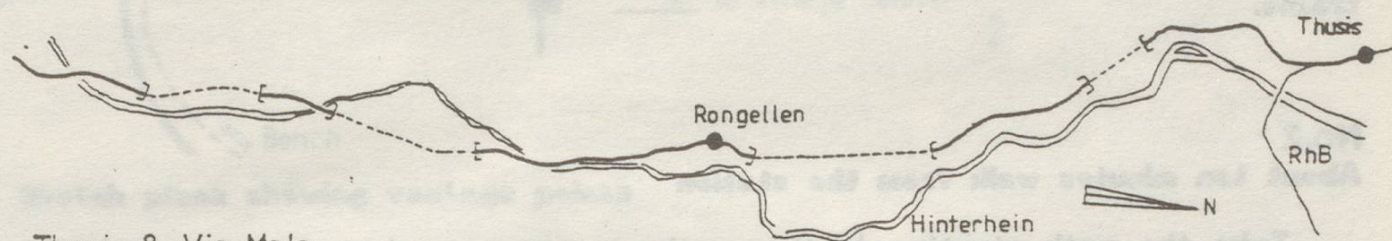
#### Bernhardinbahn Stations

Km 0	Station Mesocco	Km 38.3	Station Sufers
Km 8.7	Haltstelle Valinovo*	Km 44.6	Station Avers
Km 15.45	Station San Bernadino	Km 46.6	Haltstelle Barenburg
Km 25.2	Station Hinterhein	Km 48.28	Bahnhof Andeer
Km 29.0	Station Neufenen	Km 51.71	Station Zillis
Km 32.7	Haltstelle Medels	Km 56.85	Station Rongellen
Km 34.75	Station Splugen	Km 60.0	Bahnhof Thusis

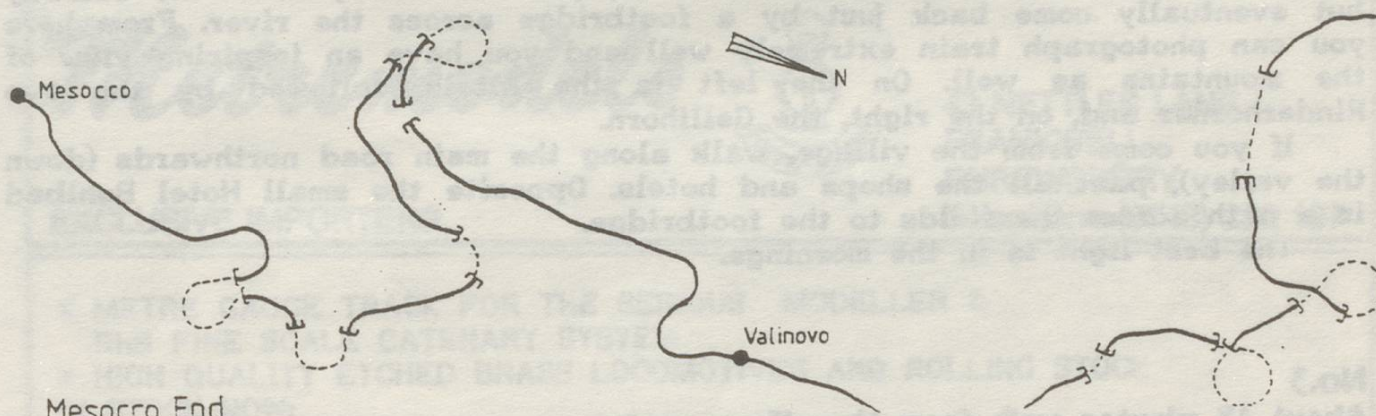
\*Some plans show as San Giacomo at Km 8.

The above were the planned stations but no doubt more would have been built today.

Does anyone know the difference between "Station" and "Bahnhof"?



Thuisis & Via Mala



Mesocco End

#### Gradient Conversions

60%	1 in 16.67	35%	1 in 28.57
55%	1 in 18.2	20%	1 in 50
50%	1 in 20	15%	1 in 66.67
40%	1 in 25	5%	1 in 200