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Die Bergeller Bahn

by David Broomfield

The Bergeller Bahn would have run south-westwards from St.Moritz to the top of the Upper Engadine, through the Maloja Pass, down the Val Bregalia and across the international frontier to link up with the Italian State railway system (FS) at Chiavenna. Those of you who read *Continental Modeller* will perhaps know of my H0m model, *Maloja*, a fairly freely adapted concept of what might have been. It was not surprising therefore that Mike Polglaze, who has been writing this series, should suggest that I take over the description of this one. He has kindly passed over some papers he has collected, including extracts from *Eisenbahn Amateur*, and there are various references in John Marshall's *Metre Gauge Railways in South and East Switzerland*, the English 'Bible' on this area. Principal credit

however, belongs to our President who, besides touching on the line in his article *Proposals in the Grisons* (*Swiss Express* Vol.2/12 December 1990), responded so fully to my enquiries that there is really little more to do than relay the information he provided. Any errors are mine.

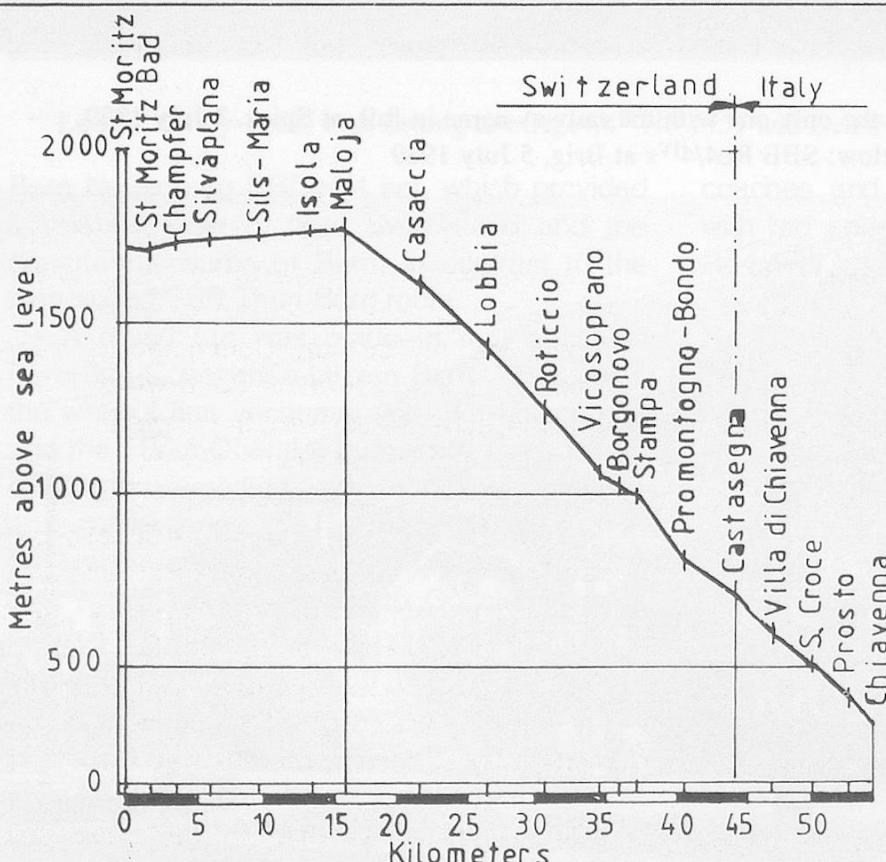
History

The early history of the railway proposals affecting the Bergell is complex and confused, largely because of the number of promoters involved and the subsequent loss of plans and papers.

The spark came from a treaty signed by Switzerland with Germany and Italy permitting the construction of a transit route across the country through the Gotthard. Until then Graubünden had, since Roman times, been a favourite route between north and south and the local population had no wish to lose the benefits this brought them. Unfortunately, by the time they woke up to the threat, the Gotthard route, which was shorter, was going ahead. Notwithstanding this, it took 25 years to resolve the in-fighting between the interested parties, principally over whether to build a standard gauge line with international potential or to limit themselves to a narrow gauge railway serving local needs.

The delay was fatal to schemes with international potential and to the Bergell line in particular.

Many early proposals for railways in



Gradient profile of earlier scheme (Holsboer project), part of Scaletta-bahn Landquart-Davis-Scaletta-St.Moritz-Chiavenna. Note alternative stations to the RhB project and steeper gradients - maximum 4.5%. The Borgovono is the one shown on the Lansdeskarte.

Graubünden, including those by the engineers Bavier (1874) and Lutz (1876) and by Dutchman, W.J.Holsboer, who was largely responsible for recognising the value of tourism as a means of opening up and developing the economy, envisaged a through route to Italy via the Maloja Pass, reached after crossing the centre of the Canton by way of the Sertig, Scaletta or Albula passes.

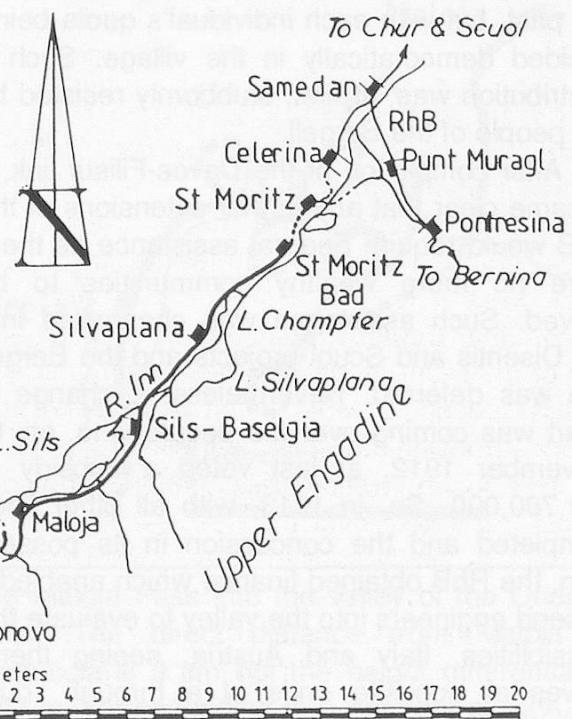
However it was to the construction firm Zschokke & Cie. of Aarau that the Federal Bundesrat gave a concession for a narrow



gauge route Chur-Thusis-Tiefencastel-Oberhalbstein-Julier or Septimer Pass-Maloja-Chiavenna. About the same time a Herr Hunder, of Thusis proposed linking Chur with his town by standard gauge, thence transferring to narrow gauge towards Filisur and over the Albula route. At this time, difficult though it is to believe today, the Swiss economy was in crisis and calls for financial support for these schemes went unheeded.

The Cantonal Parliament, tired of the disagreements between the various promoters, called for an independent report from the prominent engineer Robert Moser, who later built the north ramp of the Gotthard and who subsequently had a decisive hand in the development of the Albula route. He exposed many weaknesses in the Zschokke proposals, including serious underestimates of cost. Zschokke was forced to abandon the project, but managed to hold on to the concession for the Maloja-Chiavenna section. The Hunger

Proposed route of the Bergeller Bahn



scheme also fell, but the Albula route was favoured by the enquiry. Meanwhile, Holsboer was able to advance his scheme, of which the Landquart-Davos Bahn (opened 1889) was the first section and to take on the concession for the Albula line. By 1897 the Zschokke concession remained unexploited and it was given to the Albula Committee as an extension of the Albula line. In 1898 the Committee transferred it to the Landquart-Davos Bahn which became the Rhätische Bahn (RhB) in that year.

The method by which Holsboer financed the Landquart-Davos had vital consequences for the Bergell line, since it depended on convincing the various communities along the route of the wisdom of providing a substantial subsidy in exchange for shares. Cost was kept down by opting for metre gauge with a maximum gradient of 4.5%, capable of being worked by adhesion, but this has the effect of emphasising the local nature of the line. It is interesting to note that, in the days before World War I, the people of the small local communities in the more remote parts of Switzerland met their communal responsibilities in kind. Thus contributions towards the construction of the railway would have taken the

form of local stone, sand, timber and compulsory labour, much as it had done in Britain in the past, but with each individual's quota being decided democratically in the village. Such a contribution was, at first, stubbornly resisted by the people of the Bergell.

After completion of the Davos-Filisur link, it became clear that any further extensions of the RhB would require Federal assistance as there were no more wealthy communities to be served. Such assistance was channelled into the Disentis and Scuol projects and the Bergell line was deferred. Nevertheless, a change in heart was coming over the people who, on 10 November 1912, at last voted a subsidy of SFr.700,000. So, in 1913, with all other lines completed and the concession in its possession, the RhB obtained finance which enabled it to send engineers into the valley to evaluate the possibilities. Italy and Austria, seeing themselves at opposite ends of a through route Chiavenna-Maloja-St.Moritz-Scuol-Landdeck, showed remarkable interest, ostensibly for commercial reasons, but more probably because of the opportunity it would have provided to support an attack on each other in the event of war. For this reason the Swiss military authorities were not so enthusiastic.

This was the situation when war broke out. Although Switzerland remained neutral, it was surrounded by the warring parties, suffering severe economic privation and the cessation of all tourism. all thoughts of work on the Bergeller Bahn had to be shelved.

Paradoxically, with the war ended the situation was reversed. Italy and Austria, the latter dismembered, were exhausted and lost all further interest. The local communities, on the other hand, now fully alive to the advantages of a railway and the tourists it would bring, would

Table 1 Vital Statistics

Overall length	67 km
Lowest altitude asl - Chiavenna	333 m
Highest altitude asl - Maloja	1819 m
Steepest gradient:	
St.Moritz-Maloja	1.5%
Maloja-Chiavenna	3.0%
Minimum radius	106 m
Shortest length of passing loop	200 m
Shortest overall station length	350 m

gladly have made their contribution. But it was too late; despite several attempts to revive the project, the RhB shared in the world's financial crises and the coming of the motor car did the rest. In 1936 the Company no longer sought to prolong the concession.

The Route as Planned

Although the route was not finalised and, unlike other proposed lines, does not appear with maps and gradient profiles in Marshall's book, some details of the RhB project are available, although there are contradictions.

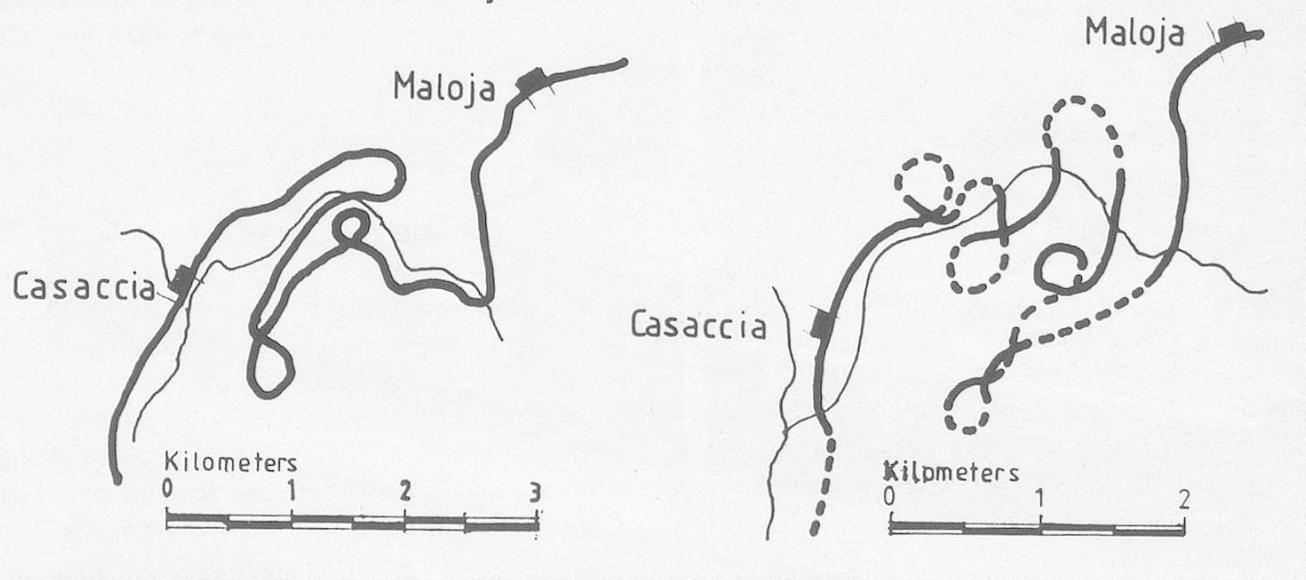
Pre-World War I estimates of costs were in the region of Sfr.60-70 million, which would have doubled or trebled post-war. Much of the expense arose in coping with the difference of 1486 m between the maximum and minimum heights of the line whilst keeping to a ruling grade of 3%, although 3.5% was considered for the steepest section between Maloja and Casaccia, thus equalling the Albula line and still permitting adhesion working, though necessarily reducing train loadings.

The vital statistics are given in Table 1, whilst the proposed stations are set out in table 2. Other halts may have been added, there is reference to one at Champfer and I can envisage one at Isola on the southern shore of Lake Sils, as this hamlet is not road connected. Confusingly, two stations have the same name. The precise length of the line cannot be determined as controversy remained over entry into Chiavenna station, but by comparison, the

Table 2 Proposed Stations

km	Name	Altitude (m)
0	St.Moritz	1778
2	St.Moritz Bad	1798
6	Silvaplana	1810
10	Sils-Baselgia	1809
16	Maloja	1819
28	Casaccia	1462
35	Borgonovo	1261
42	Vicosoprano	1261
50	Promontogno-Bondo	835
53	Castasegna §	732
60	Santa Croce ‡	527
63	Borgonovo ‡	422
67	Chiavenna ‡	333
	§ Border station	

Alternative Plans for the Maloja Pass



distance from St.Moritz to Chiavenna, as the crow flies, is barely 42 km, less than two thirds of the planned length of the railway. This would have included at least 33 tunnels, totalling 16 km, or 25% of the line, some 60 bridges and avalanche galleries and many other engineering works necessary to retain the mountain sides. About 70% of the line would have been curved, with up to eight spiral tunnels.

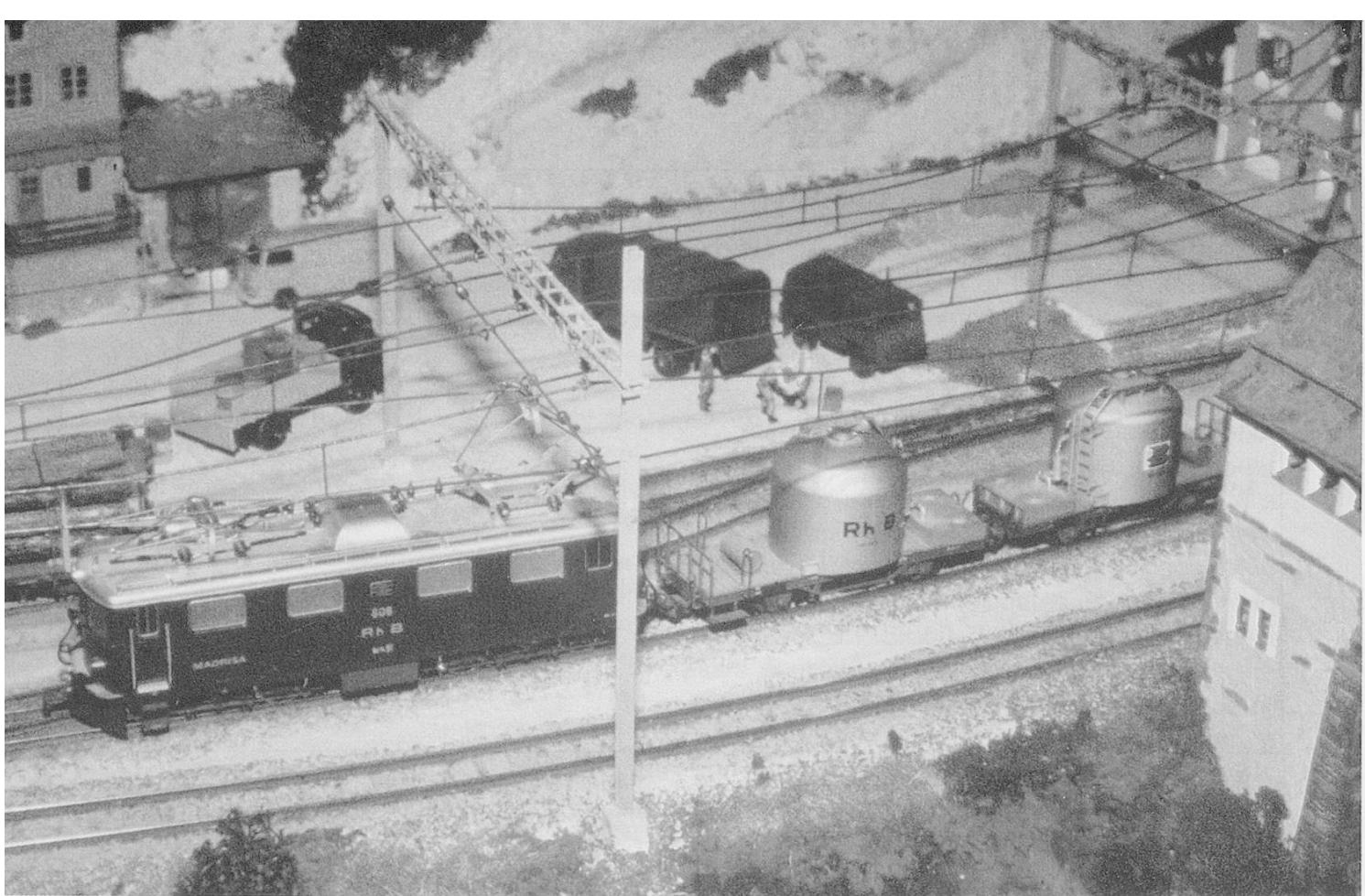
The Route Described

As at Scuol, at the other end of the Engadine, the exit track from St.Moritz was actually laid and crosses Via Serlas by a bridge before ending on a short embankment and acting as a headshunt. The line would then have entered a tunnel 1.6 km long to arrive at St.Moritz Bad. Keeping to the valley floor, with beautiful views of the Upper Engadine, it would have skirted the north side of Lake Champfer before reaching Silvaplana. It would have continued along the north shore of the lake of that name but would then have swung southward across the valley between the lakes, leaving the main road and crossing the Inn by a substantial iron bridge to arrive at Sils-Baselgia station, serving the two villages. It would then have run at the foot of the mountain slope along the southern shore of Lake Sils (passing Isola) to reach Maloja. (Rather gratifyingly, I had identified this southern route in connection with my H0m layout long before I had the present information to hand.)

Until now the route is fairly gentle, but things change suddenly as the line drops down

the Maloja Pass into the valley of the Orlegna river. The direct distance from Maloja to Casaccia is 3 km but the height differential is 357 m, corresponding to a gradient of 12%. To keep this to 3% would have meant lengthening the line to 12 km. The project description of this section is confused, talking of both two and four spiral tunnels, the latter figure seeming the more likely. With the desire to keep the costs down, increasing the gradient to 3.5% was certainly discussed., this would have reduced the length of line by 2 km. Indeed, had this steeped grade been adopted over the whole line it would have saved 9 km, but at the expense of reducing the permissible drawbar tonnages for the locomotives. The engineering works of all types on this section would have been massive at the line swung from one side of the valley to the other to loose height, crossing the Orlegna several times.

After Casaccia the river, which has become the Maira, is crossed by a large bridge to allow the line to keep to the valley floor although many tunnels and bridges were still needed nearer Vicosoprano. An alternative route map shows the line clinging to the western slopes of the valley. This Borgovono (confusingly, not the one shown on the Landeskarten between Vicosoprano and Promontogno) was introduced as a crossing station to shorten the length of the section, presumably like Muot on the Albula line. After Vicosoprano, the Maira is crossed four times and another spiral tunnel is encountered before reaching Promontogno-Bondo - the



David Broomfield's Maloja, a RhB 'might have been' to 1:87 scale. Photo C.J. Freezer

RhB proposal shows two spirals but speaks of one. A tunnel then leads under Bondo village and the Maira is crossed once more before arriving at Castasegna, which was to have had a four-berth locomotive shed with a 15 m turntable. The line would then have crossed the border after another 300 m and continued through a further pair of spiral tunnels to reach Santa Croce. A further spiral tunnel to avoid the rockfall area around Puiro would have brought the line to the Italian Borgonovo. After several more tunnels and another river crossing the line would have reached Chiavenna where it was undecided whether it would run straight in alongside the Italian standard gauge or tunnel under it to reach the other side.

Operation

Today the Bergell is served by postbuses with a daily international service to Lugano via Chiavenna and Menaggio - at one time suggested as a possible goal for the Bergeller Bahn. Up to eight daily buses run St.Moritz - Castasegna and local workings from St.Moritz to Maloja or Sils, some starting from Pontresina. Had the railway been built, provision of the depot at Castasegna suggests a similar pattern with most trains terminating there, although the

Italians laid out Chiavenna as a Customs station to cope with freight interchange. Without the change of traction at Pontresina, the Bergeller Bahn would have been an attractive alternative to the Bernina.

It appears that operation was to have been firmly in the hands of the RhB and one can assume that existing types of locomotives and rolling stock would have been ordered in greater numbers to cope. Exports of the famous local granite would have produced an unique cargo for the line and the building of the Albigna hydro-electric dam post World War II would also have brought much additional traffic.

Station layout similar to those in the lower Engadin seem probable but the architecture was likely to have reflected the two local cultures; Italian in the Val Bregaglia, more robust above Vicosoprano, changing to the heavy Romansch style from Maloja to St.Moritz.

Conclusion

The line would undoubtedly have been very spectacular and a benefit to the entire Canton. Prospects appeared to end in 1936, but with the building of the Vereina tunnel to the lower Engadin and murmurings of Scuol-Landeck, dare one wonder?

Interlaken West

