A railway to Arosa

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Bryan Stone

The difficult landscape and the famous Langwies viaduct. *Photo:* Tony Bagwell

Arriving from the north in Chur, where the metre-gauge Rhätische Bahn awaits the SBB's passengers, many change to the hourly trains to St. Moritz and Disentis, long, well filled and comfortable, often with restaurants cars. Some locals go into the town, but despite being Switzerland's oldest city foundation, and a Bishop's seat; Chur is not really a tourist destination.

Outside the station however is another pair of platforms, in the station forecourt. Once, they were almost on the street, but remodelling the station has brought them nearer to the main building, with a pedestrian subway. That keeps the long red train, rolling in from the south, away from pedestrians and, mercifully, the local traffic. The old situation was charming, but increasingly hair-raising.

This is the Arosa train. It is an unusual line. Its hourly departure connects comfortably with the great expresses from Basel and Zürich, and leaves the Chur station forecourt, set ting off up the street, like a tram, for 1.5km. It negotiates a busy road junction, and continues out along the bank of the Plessur river, still on a street, with occasional traffic lights, and stopping if requested by the city gate at Chur Stadt, 0.75km out. Passing buses and delivery trucks on the next section is precarious, but there is plenty of time. Then at 1.4km comes the former depot at Sand, now an engineers' yard. Up to here the worst gradient in 45°/°°, but suddenly the sedate tram leaves the town, to become a real mountain railway. The next 24km are, with modest exceptions, all at 60°/°° (around 1 in 16) with the line climbing 1,150m purely by adhesion. Some 48% of the total length is on curves of only 60m radii, more like corners than curves. There are some 19 tunnels, the longest being 384m. Arosa lies at 1,742m altitude, just on the tree line. The innumerable bridges and viaducts include one, the Langwieser Viaduct, classified as a Swiss heritage site of national significance, which is world-famous.

Travel on the right hand side going up, and as the train climbs to Langwies you will realise that this is a remarkable line. It is built on ledges high above the Plessur River, in a remote valley called the Schanfigg, through an unstable zone of slate and glacial moraines. And this is the bit you see, as the train winds uphill, at 40kph on the good bits, hammering rail joints in the sharp curves, with the wild water far below. There was little solid rock for foundations. Even before the opening, several sections slipped downhill, and had to be rebuilt. Most extreme was in the Spundetscha slope, a length of some 300m above the 5km point, where a first plan to build in the open was replaced by a 150 m tunnel, used by construction trains for some months. It then became distorted and was replaced again by a new 283 m tunnel, which became the main line.

A snowy day in times past at Langwies. *Photo:* Bryan Stone

The valley was truly remote. In 1845 the first postman brought mail, weather permitting, twice a week on the footpath up to Langwies. Post for Arosa, which had some 8 households and 45 residents, was taken on by the Langwies vicar on his visits. In 1865, another postman was recruited, for Arosa, and a mule was made available. It was 1890 before the first road to Arosa was built, with a regular Post Coach from Chur, which took just under 6 hours. With this a stream of wealthy guests started to arrive to what was developing into a high altitude health resort.

Building a railway had been thought of in 1890, but dismissed as impossible. In 1911 a company was formed to which the Gemeinde of Chur and Arosa each assured CHF1m, plus a further CHF200,000 coming from the valley communities. This enabled the Cantonal law furthering railway building to then support the project. It quickly became clear that an alignment with a continuous 60°/°° grade on the west bank of the Schanfigg, despite its insecurity, was poor, but better than the other side; but it demanded crossing the Schanfigg valley at Langwies. The spectacular viaduct that this required is one of Graubünden's great treasures. It comes into view from the right side of the climbing train, stark white against the dark ravine. Designed by Hermann Schürch, and built by the Zürich-based Züblin construction company (who are still a world-leading civil engineering organisation), it is 283m long, with a central arch having a 100m clear span. It was one of the world's first reinforced concrete railway bridges, an adventure demanded by the absence of stone for building, and by the practical difficulty of bringing materials up from Chur. On the Langwies side the pier is on a concrete raft, bedded in a moraine; the Arosa side is on a rock foundation. The rails are laid on a level bridge deck 62m above the river. It is approached by a sharp curve (what else?) from Langwies station, and a further curve on the far side to climb the slope to Litzirüti. It is best seen from above Langwies, which means getting off and then taking the next train, but it's worth the hour spent. The Langwieser Viaduct has been renovated, but is unaltered; it is, despite all the problematical surrounding slopes, still stable.

The pitiless climb continues now in the forest, on a reasonably stable hillside in tight zigzags to Arosa, where as a last surprise the line runs past an attractive small lake and into a steeply climbing tunnel to reach the station. This is because, today, the real aim is to reach the snow, for which Arosa is well prepared with the key 3.2km long 2-section Weisshorn cable car leaving from immediately behind the recently rebuilt station. The original, wooden, chalet-style stations are an attractive and much-photographed feature of the Chur-Arosa line. The designs reflect the traditional building style of the area and were the result of a competition held at the time of the line's construction. They are excellently maintained, normally covered in red geraniums in the summer, and each one features an old saying in the local Alemannic Swiss German dialect carved into the timbers. At Lüen-Castiel, for example, it is "*Where there is a will there is a way.*"

From the start, trains were electric, at an unusual 2,000V

Bryan Stone in the cab of an Arosa-bound RhB Allegra unit.
Photo: Bryan Stone collection

dc, later 2,200V. Power came from a generating station at Lüen (km 8.7) still at work today. It was built on the valley side while the line was under construction, and involved hauling all the heavy equipment from Chur on temporary tracks. These gave way in several places, but somehow it all came together for an opening on 12th December 1914 just four months after the start of WW1, an inauspicious time for a tourist railway. The railway was, however, financially sound and also later surmounted the great slump of 1929. In 1941, during the Swiss National Emergency - our WW2, merger with the RhB was approved, as was the merger of the Bellinzona-Mesocco Railway into the RhB, permitting some rationalisation. However the Chur-Arosa remained apart, sharing more standards, and later rolling stock, with the Bernina line, than with the mother company the RhB. Finally, in 1997, CHF58m was invested in converting the power supply to the RhB standard of 11,000V ac 16.7Hz, and today the service is operated by the new, powerful, Allegra units of the 3500 Series. Successive landslides, rock falls, and storms have repeatedly led to temporary closure and rebuilding, and even new tunnels; often leaving redundant bridges and old curved alignments in-place and adjacent to the new structures.

But despite many alarms, the trains still leave from the forecourt in Chur and set off up the street, heading into the mountains. There is still a heavy traffic of timber and stone coming down, and general cargo and fuel going up, that turns your modern railcar into a mixed train. Readers will find it an exciting day out. Your author first saw it in winter sunshine and deep snow in February 1968, and the memories haunt me yet.

St. Peter-Molinis with a Latin text, "*Do not be afraid of the world, attack bravely*", overlooking the platform.
Photo: Bryan Stone Collection