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# Swiss Steam Adventure - To the Clouds by Steam: Part 2

Paul Russenberger

Watering at Planalp as a Swiss mist descends!

All Photos: Paul Russenberger

Being a narrow gauge tank locomotive there is just room for Michael Ellis and myself, as well as the driver, in the cab that somehow does not quite seem to have the aura of a steam engine! The boiler is well insulated so that the back of the round topped firebox is more akin to what I would expect to find with the heating unit in our church's cellar. Most of the controls are grouped on the right hand side where the driver stands, although he has a padded stool; there is the smallest of fire hole doors, which is only used for lighting up, with a glass window to show that the oil is burning; a small wheel controls the cut-off, whose position

is indicated by a pointer on an almost miniature quadrant. In place of a coal hopper at the back of the cab is the oil tank. While the boiler cladding is just too hot to touch continuously in comfort, the lack of an open fire-hole door and the large openings in the side of the cab keep the temperature at a comfortable level, though no doubt the low cloud and rain

Driver's forward view on the climb.

help! The boiler pressure is at 15 bar, but I cannot see where the water level is as the gauge glasses are positioned half way along the boiler on the driver's side. Because the train is standing on a gradient, the locomotive is started by opening the regulator against the brake and then releasing the brake. Immediately, the locomotive sets up an extreme vibration, making it the most difficult locomotive I have ever experienced on which to take notes. This arises from the rapid movement of the 2-cylinder driving mechanism. Although it is balanced, it sets up a 'fore and aft' motion exactly as can be felt when being hauled by a 2-cylinder locomotive as it starts away – it is just a lot faster! For the same reason, the exhaust beat is nearly a continuous roar, rather like a Bulleid Pacific at 90 mph.

The start away from the station past the shed is made on a half open regulator, but the gradient here is 'shallow'

The cut off control - certainly the smallest I have ever seen.







Looking back at Brienzer station from the footplate.

enough to enable the train to reach the running speed of 8 kph. The boiler pressure holds at 15 bar with the steam chest pressure immediately showing 13 bar, though as is normal the reading vibrates across a range of 11 to 15 bar as the valves open and close. We have only just passed the shed when the driver brings the train to a stand, grabs a hammer and jumps down on the right hand side. There is the clanging of metal on metal and the driver reappears. The problem was a clack sticking open - a few blows in the right place are clearly the international treatment for this type of problem! We now proceed with a fully open regulator and the cut off at 40%, which is sufficient to maintain a steady speed of 8kph. on the climb. Boiler pressure is held against the injector throughout the journey. A pyrometer shows the temperature of steam in the valve chests to be 350°C. This can rise to 400°C if a longer cut off is used.

At Geldried, the first passing loop, we cross a descending train. This is expected as the railway operates without signals on a train order system. In the first tunnel the cab becomes noticeably warmer, and this may be accentuated by the driver moving the chimney cowl to direct the exhaust backwards towards the cab. This is

necessary because the tunnels are unlined and if the blast were to be directed onto the tunnel roof it would erode the surface and loosen material.

As usual there is a timetabled stop for water at Planalp. In capacity terms, this is not strictly necessary but the BRB is following good practice in ensuring that locomotives will not run short nor will they cause delays by requiring a lengthy water stop. A return journey requires 2000 litres, about 1650 being needed for the upward journey. Water is taken from a local reservoir, which is naturally fed, the local geography making the water soft and free of dissolved solids. As well as monitoring the water column while the driver checks the bearings for overheating, the guard records the number of passengers who have joined or left the train. The BRB has a responsibility for ensuring that it can get everyone off the mountain who has travelled up by train and so has to know, and be able to provide, the required maximum return capacity.

Departing from Planalp we leave behind both the trees and the visibility to enter the clouds. A horn sounds unexpectedly and Michael explains that a "deadman's handle" vigilance system has operated. Two pedals are provided in the cab floor and these cannot be left for more than 20 seconds without one being pressed to avoid a warning being sounded followed by a brake application. However, the driver is still very much alive as he slows the train to pass over a small embankment, which has replaced a bridge that was vulnerable to being washed away. The reduced exhaust blast requires the use of the blower, though

this is more to maintain good combustion than to prevent a blowback.

The passing loop at Oberstafel has been re-laid recently and the new points are fitted with rollers to ensure that they move easily. They replaced points that were 120 years old and have the same guaranteed life.

Given the chill of clouds, the warmth of the tunnels on the final section is welcome as No.16 blasts its way onwards and The descending brake controls. The driver's hand is on the controller while the gauges show the temperature and counter pressure developed.





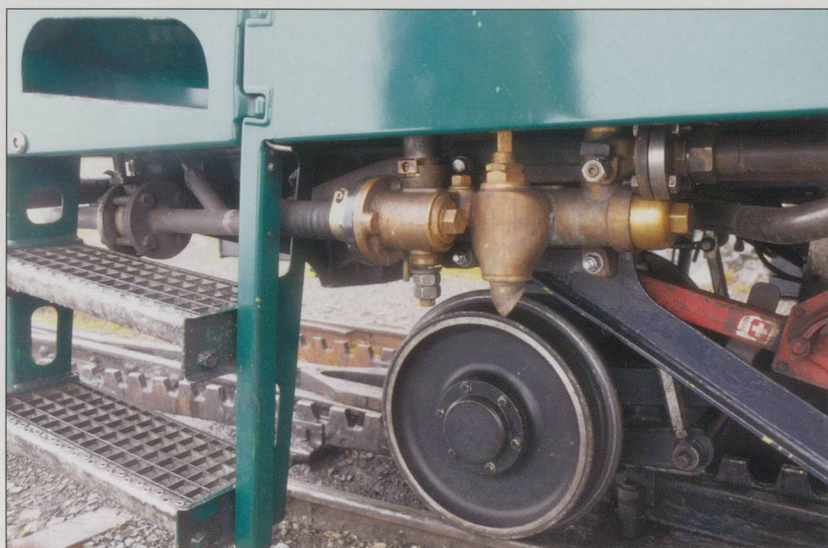
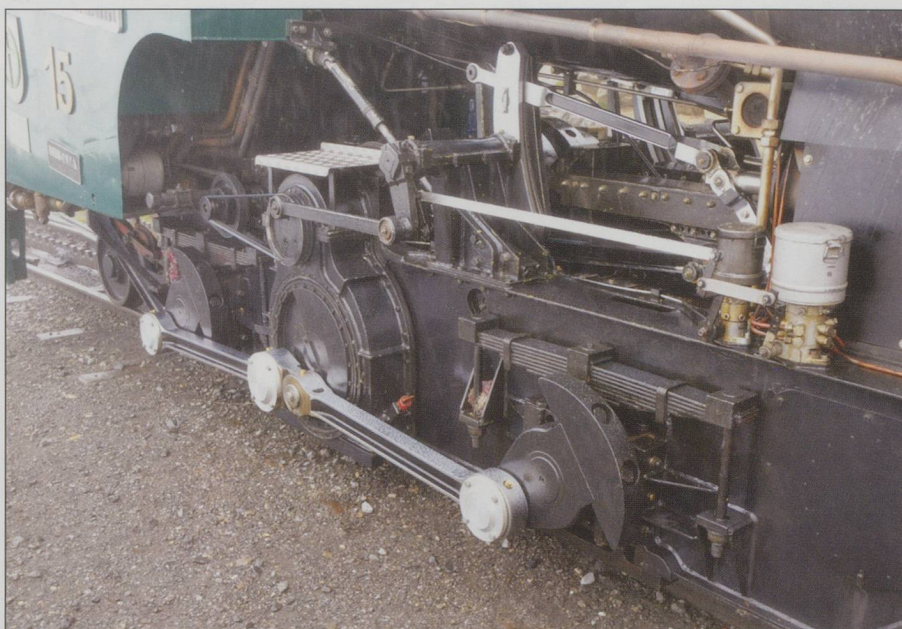
upwards, leaving its own cloud of steam to engulf the following train. With little more action than closing the regulator, the driver brings the train to a stand just inside the points at the summit station, where it is secured by the air and hand brakes

Rösti and coffee are an adequate reward for the walk through the windy rain to the restaurant for an hour's break before the journey down. Today's total lack of a view means there is no temptation to linger!

Returning to the station we are to descend on oil-fired No.15 whose fire is now out, so I anticipate seeing it relit. I am to be disappointed. Braking on the descent is entirely by a counter pressure brake. The driver stands in the same position, but faces downhill and now has a separate set of controls. He releases the handbrake and the train immediately moves off. He now uses the cylinders to draw in air and compress it in an exactly reverse process to that using steam to drive the train uphill, the air being released to the atmosphere after it has been compressed, the valve chest pressure gauge showing 7bar. Just as the expanding steam cools, so the compressed air gets warm; this heat is the energy that the train gives up as it descends. Although the air is released the cylinders have to be kept cool so they are surrounded by a water jacket. The fire is not needed, but about 350 litres of water will be boiled during the descent and a plume of steam rises over the descending train above us. Herein lies one of the advantages of oil-fired steam. Because it consumes no fuel on the descent, an oil-fired steam locomotive has a smaller carbon footprint than its equivalent diesel!

Perhaps one advantage of electricity over steam is its silence. You simply cannot sit on the top of the Brienzer Rothorn and enjoy the silence of the Alps. This is clear while we stand at Oberstafel waiting to cross a climbing train. We listen to it for several minutes before it emerges from the mist to steam on past us up the mountain.

Being an oil-fired locomotive, there is no need to stop outside the station at Brienz to



**TOP:** The mechanism of No. 15. Note that the final drive to the rack axles is geared down from the layshaft driven by the connecting rod (which is just visible). This layshaft drives the electric generator, the eccentric rod to rock the expansion link and the lubricating pumps.

**MIDDLE:** No. 15 – injector.

**BOTTOM:** Displaced track following a winter avalanche





Mind those cows!


take coal, so we have an uninterrupted arrival, creeping down the length of the platform to stop just short of the buffer.

Once the passengers have alighted No.15 propels its coach up the line to leave it on a siding before moving to the only level section of line on the whole railway – the engine shed. Disposal does not take long and it soon moves via the traverser to a stabling track. Opening the smokebox door reveals a totally clean interior for oil produces no cinders and no ash! Yet throughout the journeys the boiler pressure had been close to the red line



Michael Ellis looks on while No. 12 is watered at Planalp.

maximum of 16 bar; I had experienced the fascination and vicarious satisfaction of watching a small locomotive that is clearly the master of its work.

I am sincerely grateful to Michael Ellis, who was most patient answering my questions, both drivers, and the management of the BRB for granting me such a wonderful day. There remained another, rather different, steam adventure which the Editor has agreed can form the subject of another article. 

## Over-The-Mountain' after 2016 Ernst Leutwiler

On Friday July 4th SBB arranged a demonstration trip from Bellinzona to Erstfeld over the Gotthard line to unveil its operating strategy for the historic route, apparently to be referred-to as the Mountain Line, once the Gotthard Base Tunnel opens in 2016. Some 70 people representing tourism interests, regional and local government, and public transport operators were invited along to be informed about the new services, planned marketing action for the route, as well as the future role of SBB Historic.

SBB clearly intend to maintain an attractive and sustainable service on the old route after 2016. The Director of SBB Regional Services, made it clear that the Mountain Line and the Base Tunnel services cannot be regarded independently, and on June 30th the Federal Transport Office (BAV) published its decision that SBB would operate services 'over-the-mountain' as well as on the new high-speed base line. The concession foresees an hourly service on the Mountain Line. In 2017 the BAV will decide if this service should be regarded as a regional service that would attract subsidy from both the Cantons it served and the Confederation.

The SBB currently plans a Regio-Express(RE) between Erstfeld and Lugano, that will be integrated into the TiLo S-Bahn services that operate in the Ticino (Ti), with some links into the Lombardy Region (Lo) of Italy. Since most passengers will obviously use the trains through the new tunnel, the Mountain Line must be specifically and specially marketed. Some packages are already being offered by the RailAway organisation, whilst SBB Historic also has a role. From the 'opening' of the Mountain Line they will offer trips with historic rolling stock; footplate trips on historic power units; plus activities around its depot in Erstfeld. From Easter 2017, the Bahnerlebniswelt Gotthard (the Railway Experience Gotthard) will help to re-invigorate the mountain section with historic trains, and organize exhibitions in Erstfeld. 