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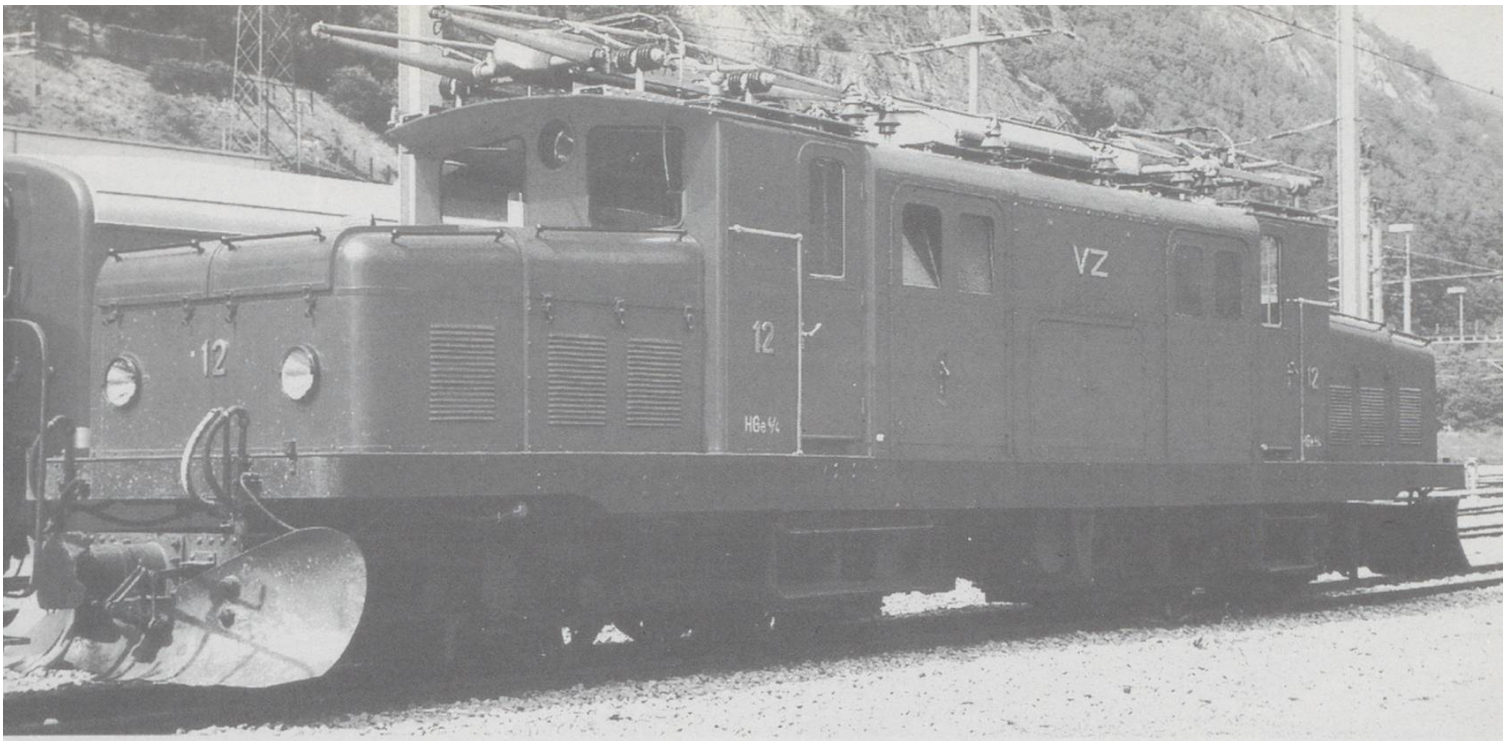
Private Railways of Switzerland - 6 by Brian Hemming

In this issue we cover another seven private railways. One is standard gauge, five are metre gauge and the remaining one is the only 750mm gauge railway in Switzerland, the Waldenburgerbahn.There are three private railways in the Italian speaking south of Switzerland. The MG (Ferrovia Monte Generoso) was dealt with in the second of this series. In this issue the remaining two, the FLP (Ferrovia Lugano-Ponte Tresa) and the FART (Ferrovie Autolinee Regionali Ticinese) together with its sister company the Italian SSIF (Società Subalpina di Imprese Ferroviarie) are covered. The line operated by these last two companies runs from Locarno where the branch from the Gotthard line terminates to Domodossola in Italy where connections can be made to the Simplon line.A further connection between the Simplon and Gotthard lines can be made by the FO (Furka-Oberalp-Bahn) between Brig where the FO and BVZ (Brig-Visp-Zermatt-Bahn) meet and Göschenen. Of more note however is the contribution of the BVZ and FO, together with the RhB (Rhätische Bahn) to the Glacier Express which is undoubtedly one of the best known trains in the world. The origins of this train go back to 1930 when it consisted of through coaches in the summer season only between Zermatt and St. Moritz. Through electric haulage was possible following the completion of electrification of the FO in 1942, but this only lasted for that summer season due to lack of tourist traffic as a result of the Second World War. The service started again in the summer of 1947 and continued to operate from June to October until the opening of the Furka Basis Tunnel in June 1982. Thereafter daily running was possible throughout the year. Traffic levels have increased dramatically since the opening of the Furka Basis Tunnel and the service now consists of three through trains in each direction in the peak summer season.The two lines based on Martigny, the MO (Chemin de fer Martigny-Orsières) and the MC (Chemin de fer Martigny-Châtelard) operate from opposite ends of the mainline station. Of particular note is the MC. Like the FART in the south it runs to an international border which in this case is that with France. From the border the line continues under the ownership of the SNCF to St.Gervais/Le Fayet where connection can be made to trains on the main SNCF system. New stock is being built for both railways and joint through running is planned in the coming months.Finally, and in complete contrast to some of the lines in the south there is coverage of the WB (Waldenburgerbahn). This delightful little railway runs parallel to the road between Altmarkt and Waldenburg and is a wonderful example of how a railway service can serve what is largely a rural area as well as provide a commuter service on weekday mornings and evenings.



BVZ Brig-Visp-Zermatt Bahn

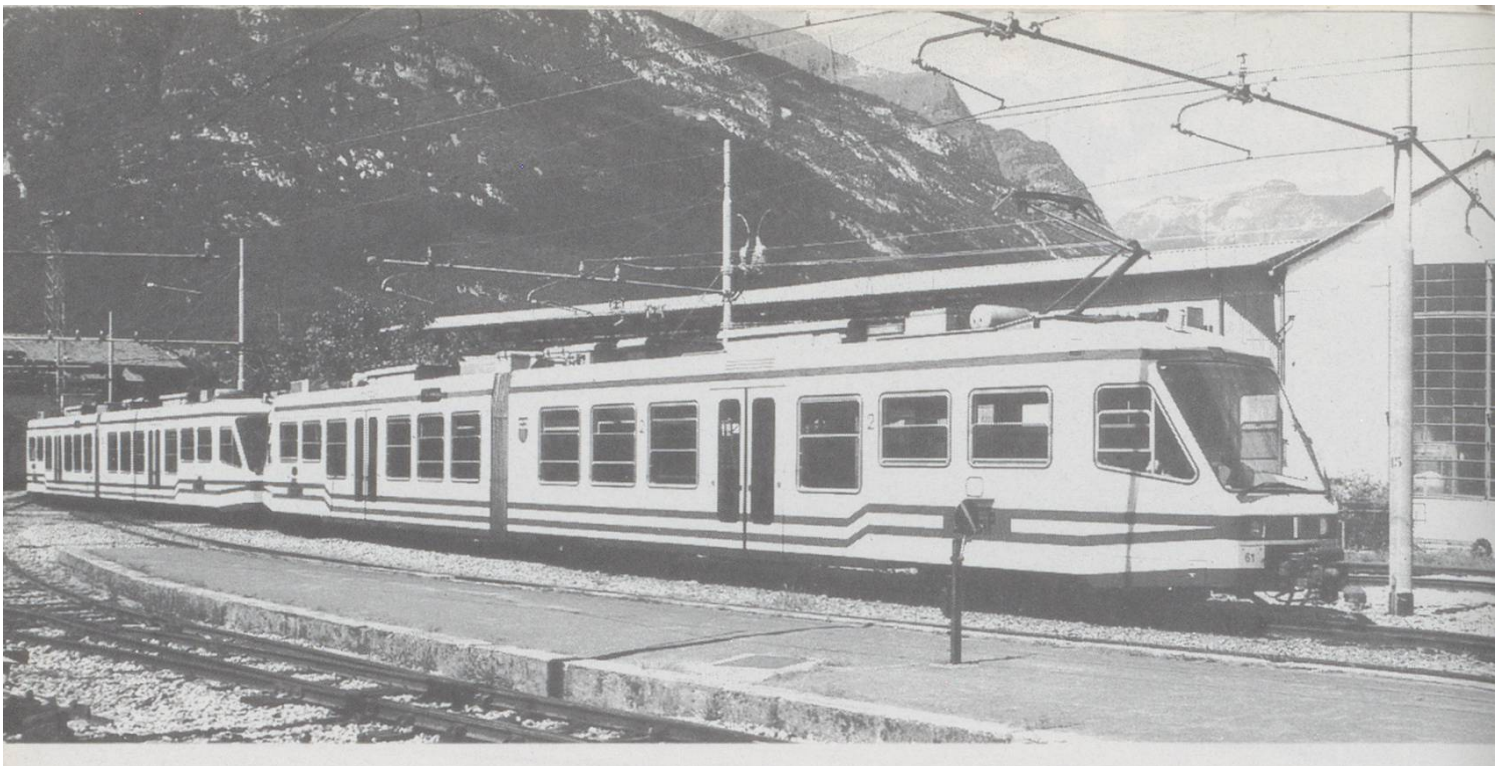
The original purpose of the BVZ was to open up the already established tourist area around Zermatt and reduce the ten hour coach journey from Visp. The line, a mixture of rack and adhesion sections, was opened from Visp to Zermatt in 1891 using steam traction. Initially the line, known as the "Compagnie du Chemin de Fer de Viège à Zermatt SA" (VZ), was managed by the Jura-Simplon-Bahn. It passed to the SBB/CFF in 1903 and finally in 1927 coming under its own management. Electrification took place in 1929 and was followed in 1930 by the completion of a new section from Visp to Brig where a connection was made with the Furka-Oberalp-Bahn. Despite the extension to Brig it was not until 1962 that the name of the company changed. Following the completion of avalanche protection galleries and associated works in 1933 a winter service was operated, but avalanches and landslides continue to be a problem. As recently as 1991, following a massive landslide between Herbriggen and Randa and the instability of the mountainside, it was considered necessary to build a permanent diversion of the BVZ between these two stations.

The BVZ was the first private railway in Switzerland to adopt the automatic block system throughout. The whole line is controlled from Brig and radio communication equipment is fitted to all motive power and driving trailers.

The majority of the passenger trains on the BVZ are handled by either the double railcars or push-pull trains using the powered baggage cars and driving trailers. The older locomotives are used for freight and occasional passenger duties, whilst the newer locomotives haul the heavier passenger trains such as the Glacier Express. Because of the ban on automobile traffic in Zermatt a large car park is provided at Täsch from where a push-pull train service covers the 12 minute journey to Zermatt.

Length: 44 km
Gauge: 1000 mm
Rack system: Abt
Voltage: 11kv 16.2/3 Hz AC
Maximum gradient: 25‰ (adhesion)
125‰ (rack)
Depot: Brig (Glisergrund), Visp, Zermatt
Works: Brig (Glisergrund), Visp
Nearest SBB stations: Brig. Visp (adjacent)
Kursbuch tables: 140, 141
Powered Stock (brown or red livery; steam locomotives green & black; tractors and shunters orange or brown; service tractors yellow)

Class	Numbers	Built
HGe4/4II	1 - 5	1990
HGe4/4	11 - 14	1929-30
HGe4/4	16	1939
Deh4/4	21 - 24	1975-76
Gm3/3	71 - 72	1975
Tm2/2	73	1972
ABDeh6/6	2031, 2032	1960
ABDeh8/8	2041 - 2043	1964-65
Tm2/2	2921	1957
Tm2/2	2922	1959
Xrotm	2931	1987
Xm1/2	2962	1982



FART/SSIF

Ferrovie Autolinee Regionali Ticinese / Società Subalpina di Imprese Ferroviarie

Centovalli - one hundred valleys - describes exactly the area through which the line from Locarno to Domodossola passes. The line is operated by two companies, the FART in Switzerland and the SSIF in Italy which for the purposes of this article will be dealt with together. Both carry identical liveries on their rolling stock with only the name logo and a national emblem indicating the ownership.

The history of metre gauge railways in Locarno commences with the opening in 1907 of the "Maggiatalbahn" line from Locarno S.Antonio to Bignasco (LPB) which had the distinction of being the first railway in Switzerland, other than the experimental Seebach-Wettingen line, to be electrified with single phase AC (5000v 26 Hz). The overhead line was set to one side and trolley pole collection was used. A tramway (STL) from Locarno S.Antonio to the Gotthardbahn station at Locarno was opened in 1908 again using single phase AC power supply, but for safety reasons the line voltage was only 800v and the overhead line was set centrally over the track. This line was then used by the "Maggiatalbahn" trains which were fitted with a centre bow collector and a second trolley pole.

In 1906 following the opening of the first bore of the Simplon Tunnel, a committee was formed in Locarno to promote a line to connect the Gotthardbahn with the Simplon line. Proposals for an extension of the standard gauge from Locarno to Fortadoce in Italy were put forward, but ultimately plans for a narrow gauge line from Ponte Brolla on the LPB to Domodossola were accepted. Construction was delayed due to the First World War and so it was not until 1923 that through trains were able to run from Locarno to Domodossola. Two companies were involved; the Swiss Company being the Ferrovia Regionali Ticinesi (FRT) whilst the Italian company was and still is the SSIF.

The line was electrified from the beginning at 1200v DC using centrally located overhead line, and to coincide with the opening in 1923 both the LPB and STL were converted to the same line voltage. Conversion of the LPB and STL rolling stock to DC took three years to complete, during which period a pair of RhB steam locomotives (Nos. 7 & 8) were acquired to operate the LPB trains and remained with the Company until 1943.

Congestion problems created by trains and trams in Locarno resulted in a line being built for the FRT and LPB in 1927 to avoid the city centre. In recent years a tunnel has been built from Solduno to a new underground station and depot adjacent to the Federal Railways station.

In 1949 the LPB merged with the FRT, whilst the Locarno tramway system was closed in 1960 and replaced by buses. The integration of the bus services into the FRT and the separation into a new company of the Lake Maggiore shipping

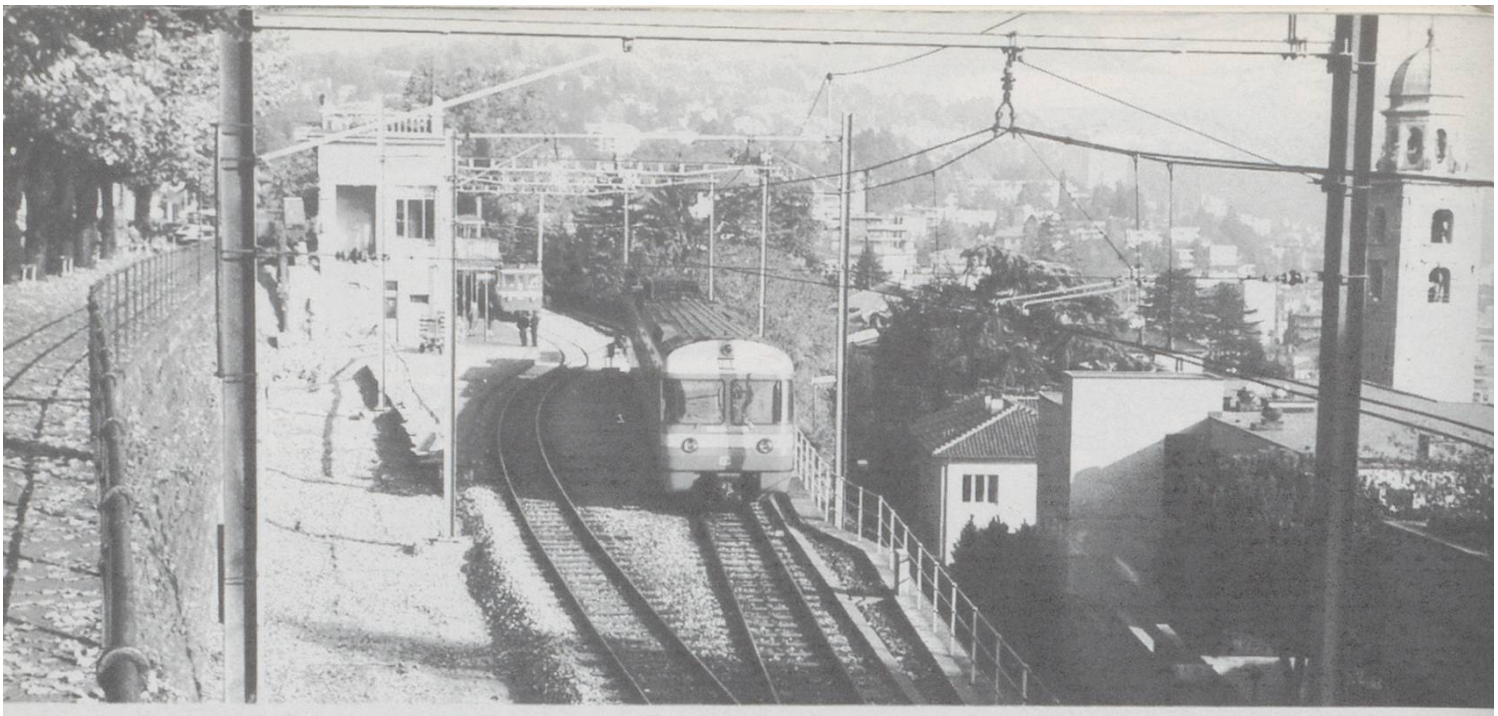
services resulted in the new name for the company which is that in current use. The "Maggiatalbahn" line from Ponte Brolla to Bignasco was closed in 1965 following a decision not to proceed with modernisation. Part of the trackbed of this line remains at Ponte Brolla where it is straddled by a new depot and continues as a siding beyond the depot through a short tunnel to a buffer stop just before the first river crossing of the LPB.

A critical period for the FART/SSIF line occurred in August 1978 when heavy storms washed out whole sections of track as well as many bridges and viaducts mainly on the Italian section. It took nearly eight months to restore through services, albeit with a bus connection from Ribellasca to Malesco, but it was not until September 1980 that through trains could be restored following realignment and reformation of the track between Re and Olgia.

The scenic nature of the line is exploited by the provision of through trains, in many cases using the new ABe4/6 railcars in pairs, whilst local services are provided between Locarno and Camedo (FART) and Domodossola and Re (SSIF). From Locarno after leaving the city limits the line follows the a winding path high above the valley of the Melezza and makes a number of spectacular viaduct crossings before reaching the last station in Switzerland at Camedo. The first Italian station is Ribellasca where the name of the river changes to the Melezzo Orientale and the valley to the Valle Vegezzo. From here the nature of the valley changes to a more open aspect until S. Maria Maggiore is reached and the westward flowing Melezzo Occidentale. A sharp winding descent to the Toce Valley is followed by a flat run to the underground station at Domodossola where connections can be made to the Swiss Federal and Italian State railways.

Length: 52.2 km
Gauge: 1000 mm
Voltage: 1200v DC
Maximum gradient: 61‰
Depots: Locarno, Ponte Brolla, Camedo (all FART), Domodossola, Re (both SSIF)
Works: Locarno (FART), Domodossola (SSIF)
Nearest SBB stations: Locarno, Domodossola (both adjacent)
Kursbuch table: 620
Powered Stock (blue and ivory or blue livery)

FART / Class	Numbers	Date
ABDe4/4	1	1907 (1964)
Xe2/2	6	1908 (1975)
Xe2/2	7	1908
ABDe4/4	17	1923
ABe8/8	22	1959
ABe8/8	31, 32	1963
ABDe4/6	51 - 58	1994
SSIF / Class	Numbers	Date
Xe2/4	4 - 5	1911
ABDe4/4	12, 13, 18	1923
ABDe4/4	16	1923 (1975)
ABDe8/8	21, 22, 24	1959
ABe6/6	33 - 35	1968
ABDe4/6	61 - 64	1994



FLP Ferrovia Lugano-Ponte Tresa

Of the four narrow gauge railways that were built in the Lugano area only the FLP remains. The company was founded in 1910 as the Ferrovia Luganesi following the granting of a concession in 1908 which indicated plans for lines extending over the Italian border. The line from Lugano to Ponte Tresa was opened in 1912. The concession permitted extension to Sessa which was extended in 1914 to Novaggio, but the outbreak of the First World War put paid to these plans and the line therefore terminated at Ponte Tresa. Over the years the railway has enjoyed a steady growth of traffic which was encouraged after the Second World War not only due to increased tourist traffic, but also to increased industrial activity particularly around Agno. Purchase of new rolling stock in 1952 and again in 1968 enabled the introduction of a 30 minute interval service which was improved to 20 minutes by 1979.

After leaving the FLP station which is situated opposite the Federal Railway station in Lugano the line enters a tunnel and emerges before Sorengo. It then proceeds inland up the Val d'Agno and skirts Lugano Airport before heading back to Lake Lugano at Agno. Here is located the main depot and works of the Company. Beyond Agno it heads inland again before reaching the Lake at Ponte Tresa which is close to the Italian border.

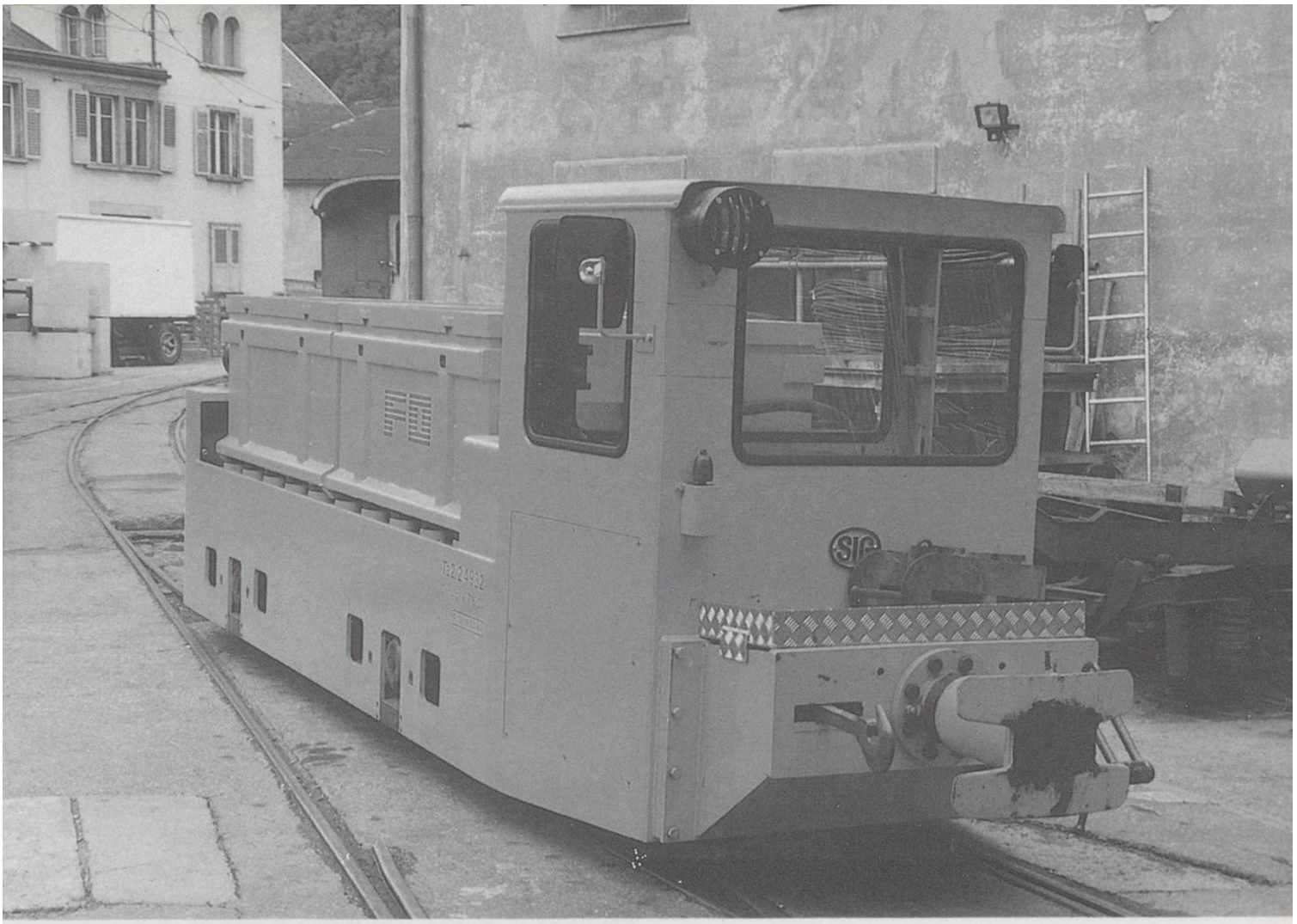
The passenger service is wholly operated by railcars which comprise five single units purchased together with driving trailers in 1978 and a pair of double units acquired from the FART in 1994. There is a close relationship between the FLP and the FART/SSIF and over the years there have been a number of stock movements in both directions. With the arrival on the FLP of the new Be4/4 railcars in 1978-79, three ABe4/6 units from the 1967 batch were converted by the FART in Locarno to ABe6/6 and sold to the SSIF to become that Company's numbers 33 - 35. Freight traffic on the line is virtually non existent, but the company does have and operate a postal railcar which was converted in 1981 from one of the 1952 batch of Be4/4 railcars. The only other railcar is the ABe4/4 No. 3 which it is reported will operate special services in the summer of 1996 on the RhB Misoxer line.

Length: 12.2 km
Gauge: 1000 mm
Voltage: 1000v DC
Maximum gradient: 30‰
Depots: Agno, Ponte Tresa
Works: Agno
Nearest SBB station: Lugano (adjacent)
Kursbuch table: 635

Powered Stock (orange and ivory livery)

Class	Numbers	Date (rebuilt)
Tm2/2	1	1993
ABe4/4	3	1912 (1954)
Ze4/4	4	1952 (1981)
Be4/4	21 - 25	1978-79
Be4/8*	41 - 42	1979

* ex FART (Nos. 41, 42) in 1994



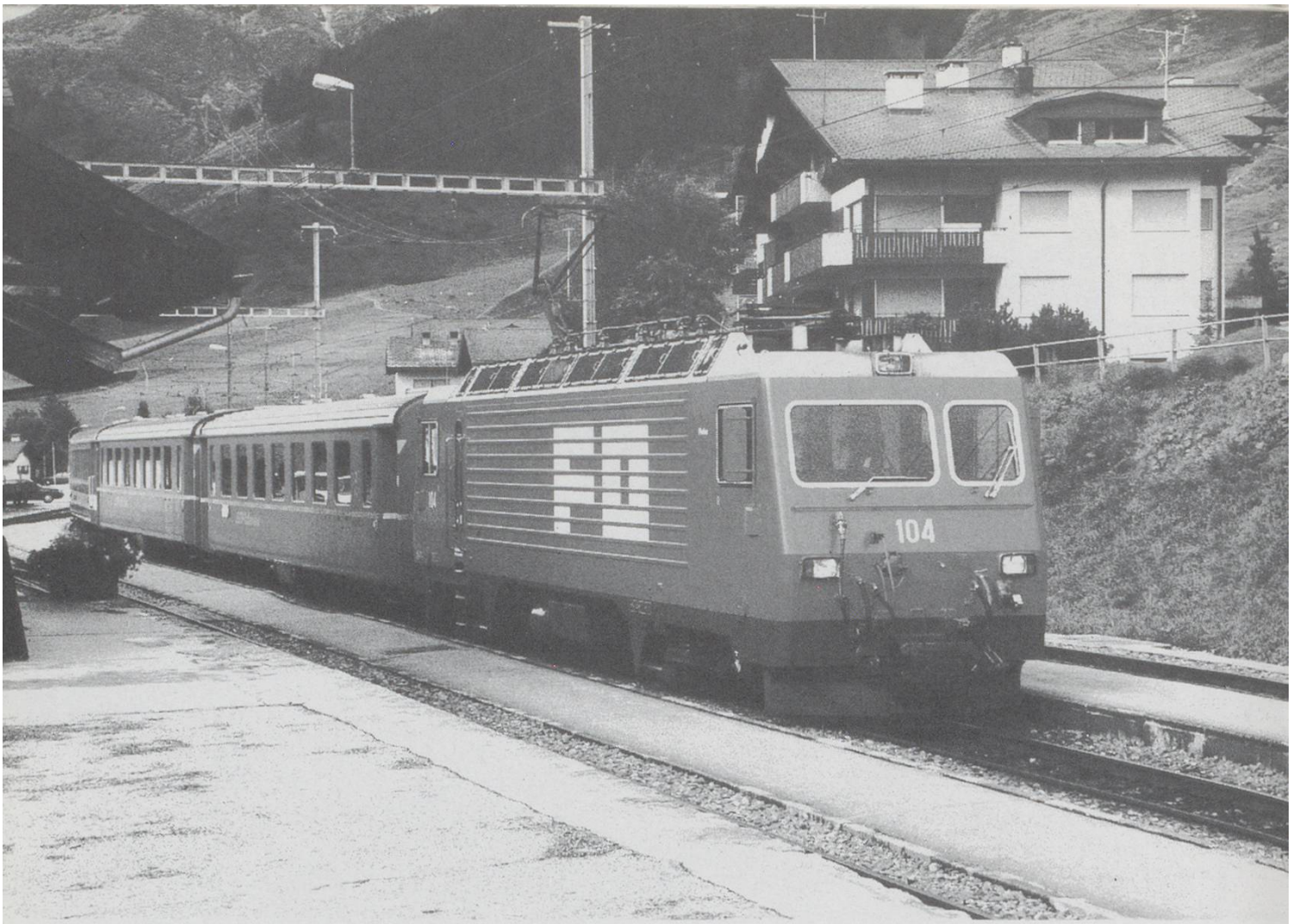
FO Furka-Oberalp-Bahn

The "Compagnie Suisse du Chemin de Fer de la Furka" was set up in 1910 in Lausanne with the object of building a narrow gauge rack and adhesion line from Brig over the Furka and Oberalp passes to connect with the Rhätische Bahn at Disentis/Mustér. Construction started immediately on the sections from Brig to Gletsch and Gletsch to Oberalp with the former being opened in 1914. The economic difficulties brought about by the First World War and the need to complete all the works on the already opened section resulted in a scaling down of work on the remaining sections which were not completed until the summer of 1926. In the meantime the company had suffered considerable financial difficulties, going bankrupt in 1923. The developments were saved by the formation of a holding company and the investment of public funds. The present Furka-Oberalp-Bahn was formed in April 1926.

The Second World War resulted in major plans for defence in the Alps, and as part of these the FO was electrified between 1940 and 1942 at the same voltage as the BVZ and RhB. This enabled the FO to borrow BVZ traction units to cope with the extra traffic created during the war and provided the foundation for the reintroduction of the *Glacier Express* after hostilities had ceased.

In 1961 the FO acquired the Schöllenenbahn (SchB), an electric railway which ran from Andermatt to Göschenen. The line had been opened in 1917 using 1200v DC and was converted to the standard FO 11kV 16Hz AC in 1941.

A major problem which the FO experienced from the beginning was its inability to operate a through service all the year due to winter conditions particularly on the Furka section. Plans to build a tunnel between Realp and Oberwald came to fruition in 1982 when the Furka Basis Tunnel (15407m) was opened. It was then possible for year round through operation on the FO as well as providing a very successful car carrying service between Realp and Oberalp. The original section from Realp to Oberalp was closed, but is now the subject of a preservation scheme under the auspices of the Dampfbahn Furka-Bergstrecke (DFB).

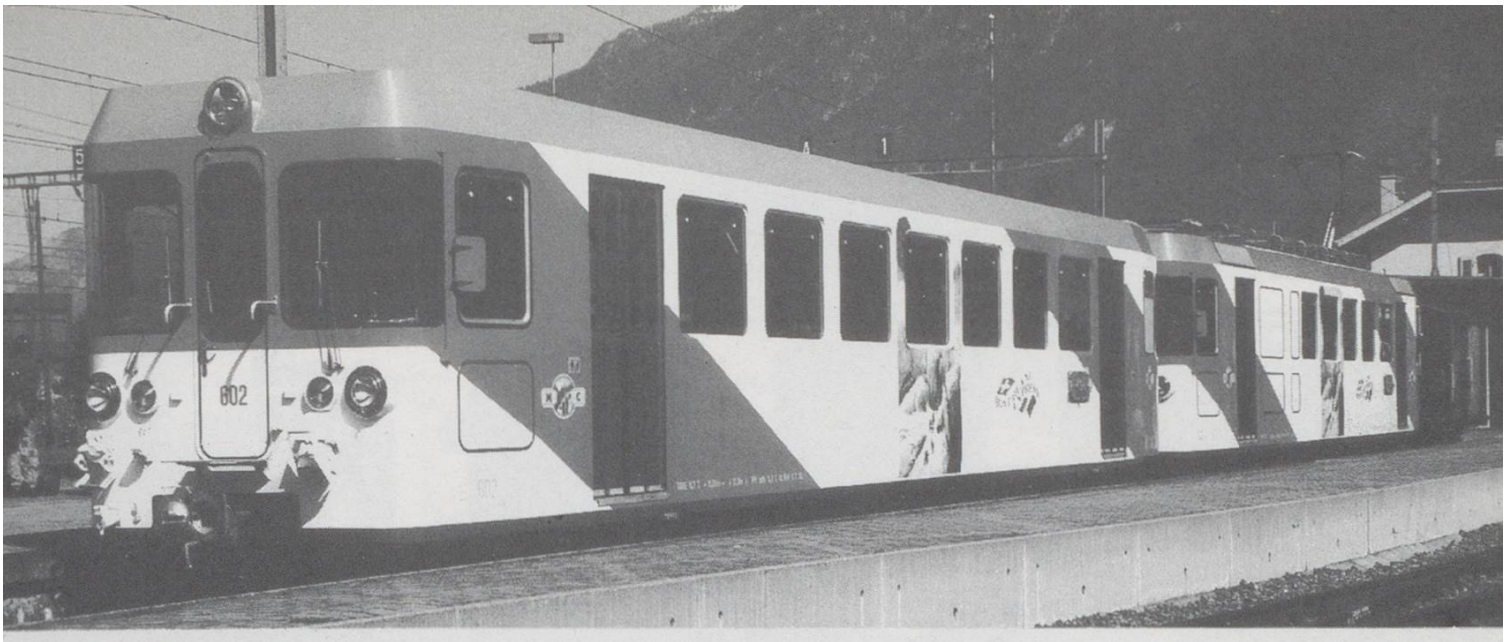


With certain exceptions all trains are operated by rack fitted motive power. The basic service on the FO is normally operated by push-pull trains powered by railcars. The newer locomotives are used on heavier through trains such as the *Glacier Express*, whilst the original locomotives are now near the end of their lives and only used occasionally. There are two non rack locomotives for the Furka Basis Tunnel car carrying services, and a number of tractors which cover shunting duties. The company has five snow clearing units which gives an indication of the problems which still have to be overcome in the winter.

Length: 99.9km
Gauge: 1000 mm
Rack system: Abt
Voltage: 11kV 16Hz AC
Maximum gradient: 67‰ (adhesion)
179‰ (rack)
Depots: Brig, Andermatt, Disentis/Mustér
Works: Brig, Andermatt
Nearest SBB stations: Brig, Göschenen (adjacent)
Kursbuch tables: 610, 612

Powered Stock (red livery; service tractors - maroon)

Class	Numbers	Built
HGe4/4	31-34	1941
HGe4/4	36, 37	1949, 1956
BDeh2/4	41-45	1941-42
Deh4/4	51-55	1972
HGm4/4	61-61	1968
Gm4/4	71	1966
Ge4/4II	81-82	1980
Deh4/4II	91-96	1979-80, 1984
HGe4/4II	101-108	1986, 1989
Te2/2	4926	1946
Xrote	4931, 4932	1941, 1943
Xrote	4933	1945
Xrotm	4934	1980
Xrotm	4935	1986
Xmh1/2	4963	1982
Tm2/2	4971, 4972	1960
Tm2/2	4973	1958
Tm2/2	4982	1994



MC Chemin de fer Martigny-Châtelard

After more than ten years of proposals, the Federation finally granted a concession for a line to be built through the Vallée de Trient from Martigny to Le Châtelard on the French border. Here an end on connection was to be made with the PLM (later SNCF) metre gauge line from St.Gervais/Le Fayet and Chamonix. The line was opened for summer service only in 1906 with a mixture of overhead and side third rail pick up. The company originally owned the tramway system in Martigny, and it was on these tracks that the railway service reached the main line station. In 1931 a direct line was built from Vernayaz to Martigny CFF to avoid the detour of the town in Martigny.

From the CFF station at Martigny the line has overhead current collection until Vernayaz where the main works is situated. From here the steep climb begins using the rack and side third rail current collection. In a distance of 3.5 km a vertical rise of 467 metres is achieved. The final section to Le Châtelard is adhesion operated and is largely built on ledges on the steep hillsides with extensive use of galleries and tunnels. Although originally all third rail from Vernayaz to Le Châtelard the adhesion section and part of the rack section now has overhead collection. The MC trains operate as far as Le Châtelard-Frontière or Vallorcine where a change to the SNCF is required for onward travel to St.Gervais/Le Fayet. A connection is made at Le Châtelard with a funicular to Château-d'Eau which enables access to another private railway, S.A. des Transports Emosson Barberine (SATEB), which operates a summer only service to La Gueulaz.

The service now operates throughout the year and is currently in the hands of railcars with driving trailers which have a livery similar to those on the neighbouring Martigny-Orsières line but carry the inscription *Mont-Blanc Express.* Orders have been placed jointly by the MC and the SNCF for five new two car railcar units which will permit through working from Switzerland to France from 1997 onwards. Although not a major source of revenue some freight traffic is carried which particularly in winter provides a valuable means of support for an otherwise inaccessible area.

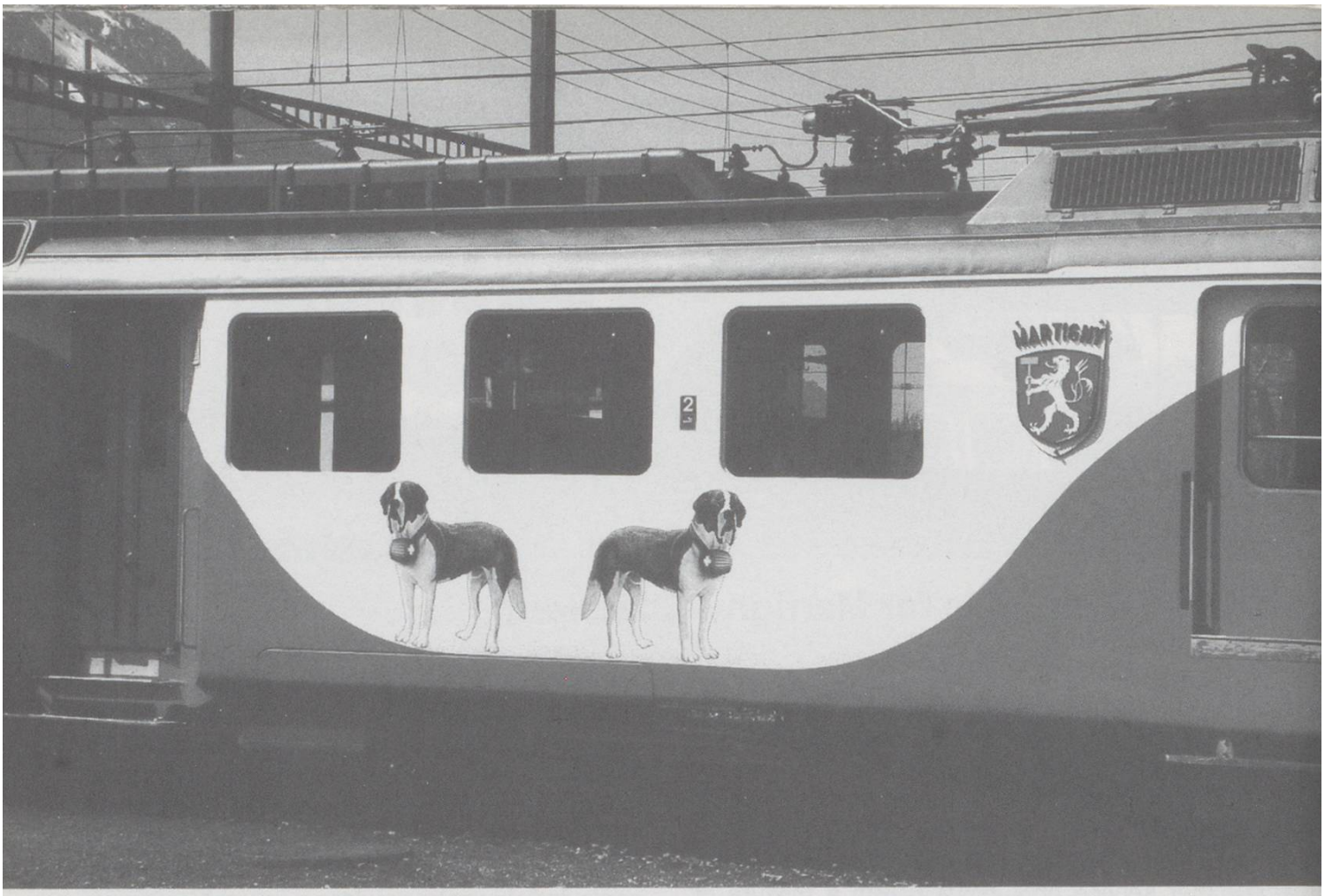
Length: 18.4 km
Gauge: 1000 mm
Rack system: Strub
Voltage: 830v DC (side & overhead)
Maximum gradient: 30‰ (adhesion)
200‰ (rack)
Depots: Le Châtelard, Finhaut, Vernayaz
Works: Vernayaz
Nearest SBB station: Martigny (adjacent)
Kursbuch table: 132

Powered stock (red and white or maroon livery)

Class	Numbers	Date
BDeh4/4	4 - 6	1957
BDeh4/4	7 - 8	1964
BDeh4/4	14 - 15	1908, 1909
BDeh4/4	31 - 32	1921
Te2/2	91 - 92	1962
Tm2/2*	204	1982
BDeh4/4	501	1979
Beh4/8	821+822	1996
Beh4/8	823+824	1996

* becomes Xtm2/2 when fitted with rotary snowplough

(The new SNCF railcars for the St.Gervais/Le Fayet - Martigny service will be Z801+Z802, Z803+Z804, Z805+Z806)



MO Chemin de fer Martigny-Orsières

In the middle of the 19th century plans were put forward for a railway crossing of the Alps via the Grand St.Bernard route and work actually started in 1856/57 to bore a tunnel from the Swiss side of the pass. This proceeded no more than a few metres and despite many efforts to re-open the workings the project was completely abandoned following the opening of the Simplon Tunnel in 1906. Meanwhile in 1904 a proposal was put forward to build a metre gauge line from Martigny to Orsières, but lack of finance became a problem. The British Aluminium Co. Ltd., had plans to build an aluminium works at Orsières, and with its help a standard gauge electric railway from Martigny was built and opened in 1910 using 8kV 15Hz AC. British Aluminium did not proceed with its plans for a factory and the railway passed into public ownership.

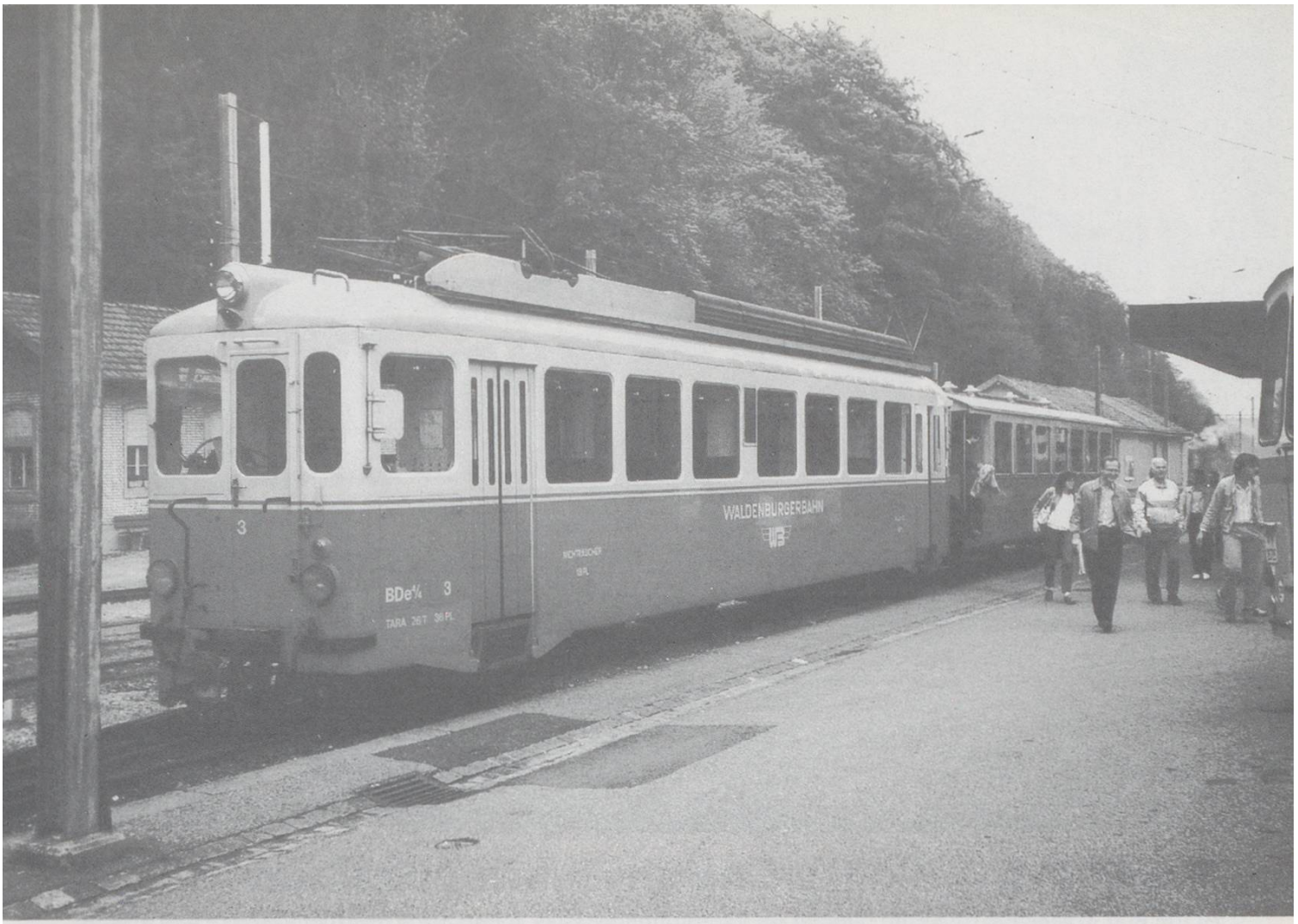
In 1949 the line voltage was changed to the Federal Railways standard of 15kV 16Hz AC which permitted running on the CFF lines in Martigny. The MO trains now terminate at the east end of the station. A branch line which now carries a passenger service was built from Sembrancher to Le Châble in 1952/3 to carry materials required for the construction of a dam at Mauvoisin

A regular interval railcar service is operated from Martigny to Orsières with connections at Sembrancher for the branch to Le Châble. The tourist attractions of the line and its proximity to the Grand St.Bernard Pass are emphasised by a special livery being applied to the passenger rolling stock on which the legend *Saint-Bernard Express* is carried. The company also carries freight traffic based on fruit growing in the locality and operates a number of bus services.

Length: 25.7 km
Gauge: 1435 mm
Voltage: 15 kV 16Hz AC
Maximum gradient: 37‰
Depots: Martigny-Croix, Orsières
Works: Orsières
Nearest SBB station: Martigny (shared)
Kursbuch table: 133

Powered stock (red and white or maroon livery)

Class	Numbers	Date
ABDe4/4	5 - 9	1965
Tm2/2	512	1960



WB Waldenburgerbahn

Following the opening in 1858 of the Centralbahn from Basel to Olten, the Waldenburgertal suffered economically from a loss of traditional business. To overcome this a railway company was formed to build a railway line from Liestal on the Centralbahn to Waldenburg. Because of limited funds a gauge of 750mm was chosen, which to this day remains unique in Switzerland. The line originally ran between the Centralbahn tracks from Liestal to Altmarkt with street running thence to Waldenburg. In 1923 the WB gained its own track between Liestal and Altmarkt, whilst much of the street running has been eliminated over the years by moving the trackbed to the roadside.

Until 1953, when electrification took place, the line was steam operated and had the distinction in 1937 of being the last public railway (excluding mountain railways) to buy a new steam locomotive. The regular interval service on the line caters for commuters to Basel and local traffic on weekdays. A weekends it provides a popular means of access for walkers to the Waldenburgertal. Two steam locomotives and some vintage stock are retained for use on special trains. Some freight traffic is carried for which the railcars provide motive power.

Length: 13.1 km
Gauge: 750 mm
Voltage: 1500v DC
Maximum gradient: 38‰
Depot: Waldenburg
Works: Waldenburg
Nearest SBB station: Liestal (shared)
Kursbuch table: 502

Powered Stock (Orange and ivory livery)

Class	Numbers	Built
BDe4/4	11 - 14	1985-86
BDe4/4	15 - 17	1993