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## Freight Train Make-up

by A.E.Hauser-Gubser

The Rhätische Bahn is probably the most popular prototype amongst our modelling members. Many of us have travelled on its trains, but few of us have any detailed knowledge of the line's extensive freight traffic. Our President has kindly provided a detailed account which should be of interest to all member, whether modellers or not.

*All photographs by the author*

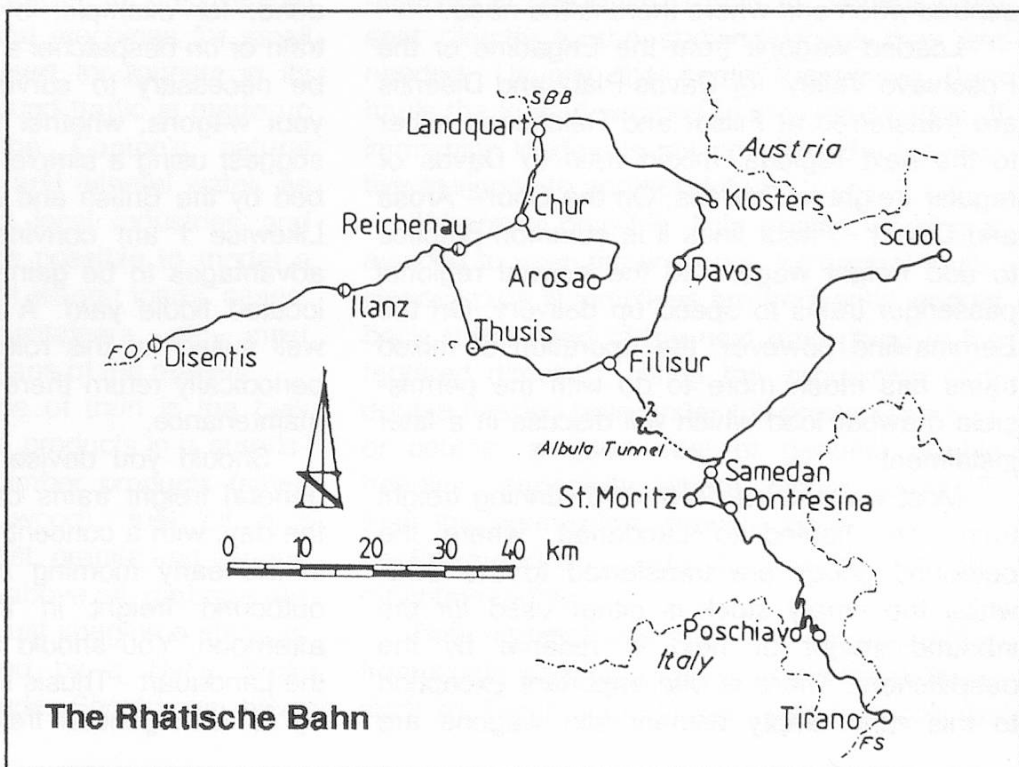
**Among** Switzerland's Railway Companies the Rhätische Bahn (RhB) undoubtedly operates a most fascinating goods traffic well suited to the needs of a serious model railway operator. Many of the activities I shall be describing are simple to achieve in model form, in most cases without the need to modify the existing layout.

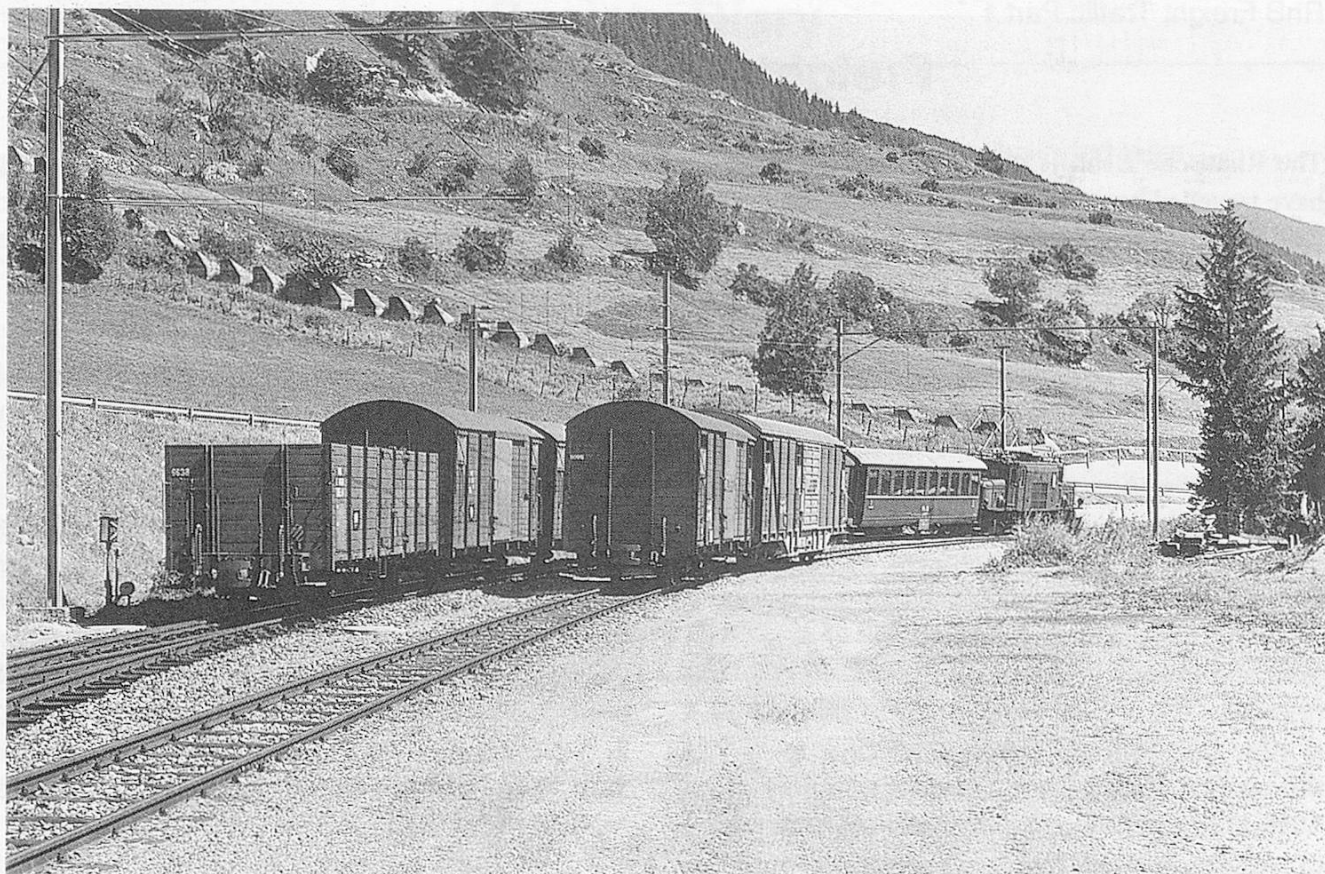
First of all, let us have a look at the amazing variety of trains circulating on the RhB network. The mixed cargo freight train, or as it is now designated, *Cargo Domizil Zug*, is still the backbone of freight traffic, generating about 40% of the revenue. In its make-up, every type of wagon owned by the Company is to be seen, carrying every conceivable type of freight. Some of the mixed freight trains (*Güterzug*) offer limited passenger facilities, these are shown in the timetable obtainable at the station's booking office. Don't forget to take your camera and notebook, you can learn more in a few hours about the RhB's freight activities than I will ever be able to tell you.

The tonnage of inbound goods (ie from outside Graubünden) is higher than the out-board one. Hence the better part of the traffic has to be hauled over gradients up to 70‰. An outmoded coupling system with central buffers is a limiting factor on permissible drawbar loading, forcing the management to operate a number of relatively light trains. Therefore, as a

general rule, all ascending freight trains are made up of loaded wagons only. No empty wagons are picked up en route, loaded wagons are only added if the permitted drawbar load is not thereby exceeded. There are of course, exceptions to this rule; if for example, the drawbar loading of a particular train is below the permitted maximum. Whenever possible, the despatcher arranges empty stock for a bulk train or PW maintenance vehicles to be added to the make-up. As Scuol is at a lower altitude than Samedan, empties have to be hauled against the grade.

Until 1984 the mixed freight trains stopped at each station, whatever the size of the consignment happened to be. Service was slow and the freight revenue got smaller and smaller. Since 1985 the wagons are dropped at fifteen regional freight centres located at logistically central points on the network. These centres handle the immediate distribution of





Mixed freight hauled by a Ge6/6<sup>1</sup> leaves Lavin in August 1978

mixed cargo and single wagon loads; how this is done will be discussed later. Downward running mixed cargo trains are made up of empty and loaded wagons and vans, picked up along the line and dropped again at regional centres when and where there is the need.

Loaded wagons from the Engadine or the Poschiavo Valley, for Davos-Platz and Disentis are transferred at Filisur and Reichenau either to the next regional mixed train to Davos or regular freight to Disentis. On the Chur - Arosa and Davos - Filisur lines it is common practice to add freight wagons to the normal regional passenger trains to speed up delivery. On the Bernina line however, the operation of mixed trains has much more to do with the permissible drawbar load which will discuss in a later instalment.

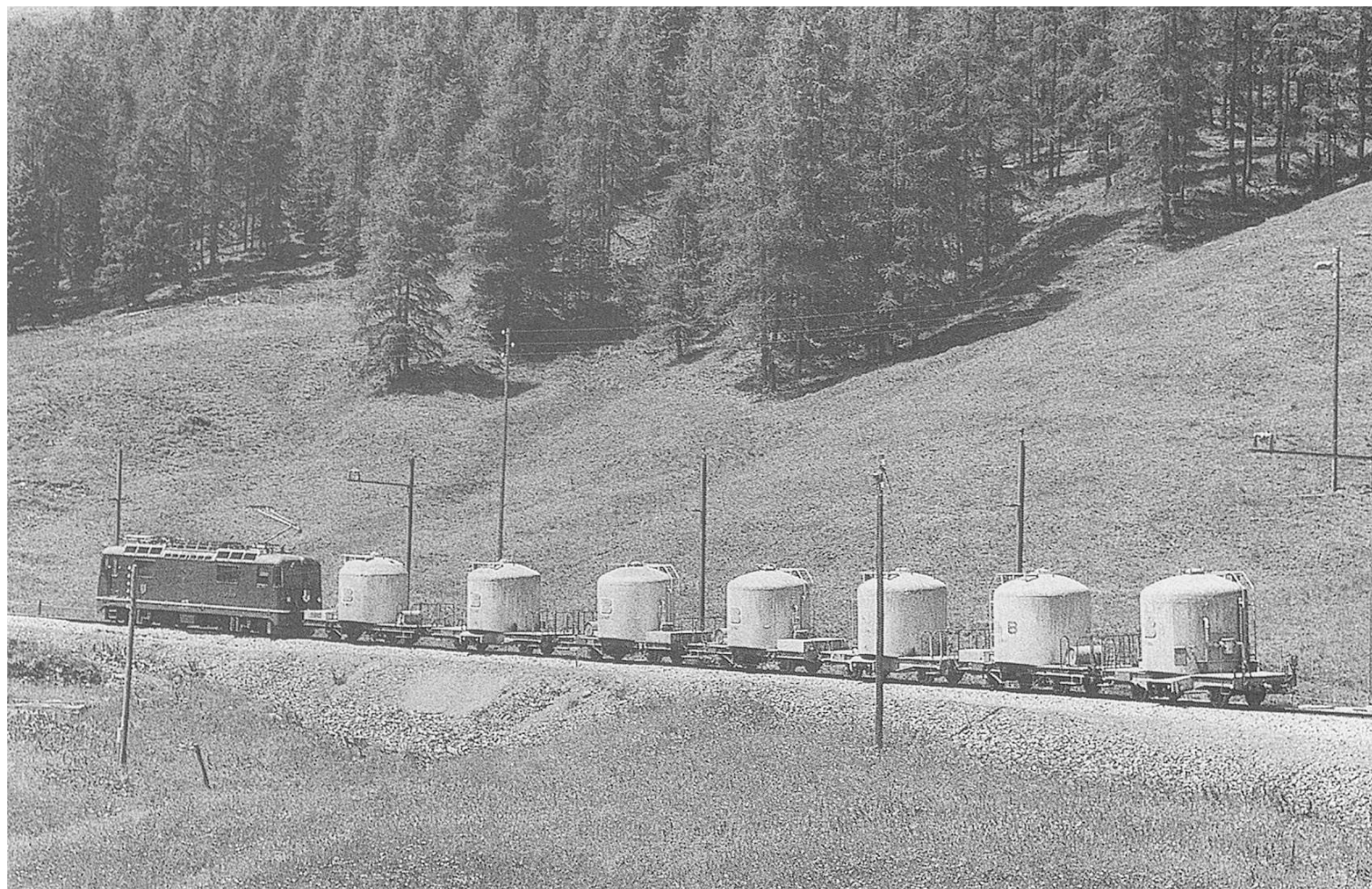
Most wagons on downward running freight trains are hauled to Landquart, where the outbound goods are transferred to the SBB, whilst the empty stock is either used for the inbound freight or held in reserve by the despatchers. There is one important exception to this rule, empty cement silo wagons are

always dropped at Untervaz for reloading by the Grison Cement Works.

In accordance with RhB practice it will be necessary to drop empties for reloading at those stations with outbound traffic. This is done, for example, by a downward running train or on despatcher's orders. Therefore it will be necessary to survey the whereabouts of your wagons, whether loaded or not. I would suggest using a simple card system as described by the British and American model press. Likewise I am convinced of the substantial advantages to be gained by using a carefully located fiddle yard. A fictitious 'Landquart' is well suited for this role, since all wagons will periodically return there, be it only for periodic maintenance.

Should you devise a timetable, note that general freight trains can be seen throughout the day, with a concentration of inbound freight in the early morning and afternoon, and for outbound freight in the late morning and afternoon. You should also bear in mind that the Landquart - Thusis industrial zone is served by its own general freight service. Therefore,





A cement bulk freight train on the 45‰ ramp below Davos Wolfgang hauled by a Ge4/4II on 23 June 1978

should you model Domat-Ems, the goods trains for the Engadine or Disentis roll through to Reichenau, unless they have to collect loaded wagons.

The variety of inbound products is a very wide one, ranging from articles for daily needs, through raw materials and machines for small industries to products used for tourism in its widest sense. The outbound traffic is made up of the products of the Canton's natural resources, timber, stone and mineral water, as well as the products of local industries and agriculture. It is therefore possible to model a wide selection of different wagon loads, cases, crates, casks, small containers, etc, most carrying the publicity slogans of the makers.

A very important type of train is the bulk freight. Cement, concrete products in a surprising variety, timber and timber products (sawn timber, sawdust, chip wood), fuel oil and aviation fuel, gravel, ballast, granite and various other kinds of stone and above all, garbage are shipped as bulk freight. Just imagine a string of cement silo cars, hauled by a *Baby Krok*, Ge6/6I on your 45‰ grade. Should you have

sufficient space to include a model of a cement silo tower or a wood chip factory, then you should definitely include them.

The empty wagons for a bulk freight train are as a rule taken by despatchers from the reserves at Landquart, Thusis or Samedan and sent directly to the stations where they are needed. Usually the same locomotive then hauls the loaded wagons to their destination. If immediate loading is not possible, the locomotive assigned to another duty.

Wherever possible, light engine working is avoided to keep the line open for normal traffic. Hence spare locomotives are frequently worked back at the head of the next train going in the required direction, giving the impression of a double headed train under full power. There is, of course, a good deal of genuine double heading, especially where higher tonnages than the permissible drawbar loading have to be forwarded as rapidly as possible over the mountain routes.

Bulk timber trains may also be assembled from single wagons received at a central depot, such as Reichenau. These wagons would be



Standard gauge wagons on transporter wagons at Fideris on 16 June 1978.

brought in by different general freight trains, even from different directions.

A very attractive freight service to model is the daily standard gauge freight service over the mixed gauge track between Chur and Domat-Ems. This is usually hauled by the ubiquitous Re4/4<sup>II</sup>, though occasionally an Ae4/7 or even a Re6/6 can be seen on this service. These trains carry raw materials and other freight for the Ems Chemical Works as well as standard UIC 10, 20, 30 and 40 ft containers, to be handled by the container terminal operated by the RhB in the works area. This terminal is used by quite a number of the RhB's industrial customers in the vicinity. RhB's rail stock is located at Ems, also served by a mixed gauge track. This feature is rarely seen in model form and for that reason alone is to be recommended.

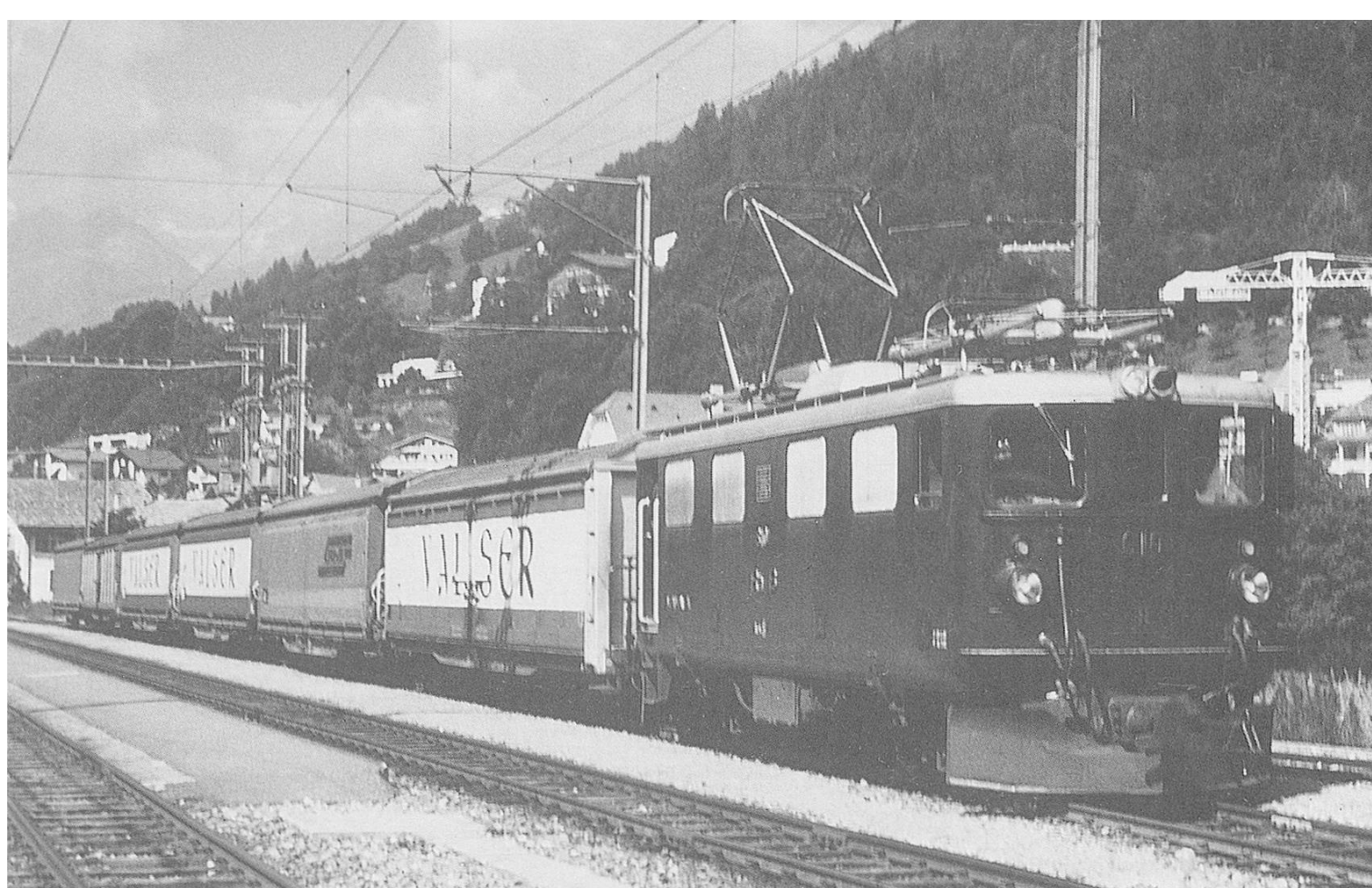
An interesting prototype for a model is the car-carrying train running between Thusis and Chur, the more so as so many models of private cars are now on the market. When demand is low, one flat wagon with a single car on it may be coupled at the rear of an express.

Although rare today, a model of a train of standard gauge wagons on metre gauge transporter wagons would be a welcome sight, the more so if you have space to include the appropriate industry. The rather large chip-board factory at Fideris (Splanplattenwerk Fideris) is a good example. One drawback to this is the shortage of good models of transporter wagons at an acceptable price and it would seem that, for the time being at least, these would have to be scratchbuilt.

Loaded transporter wagons are today more commonly seen in normal Cargo Domizil trains. In theory, standard gauge wagons have access to transporters over all routes, but in practice this is limited to flat wagons and low sided open wagons, there being insufficient clearance though many tunnels for vans. Almost all transporter wagon traffic is confined to the Küblis - Landquart - Chur - Reichenau - Thusis route.

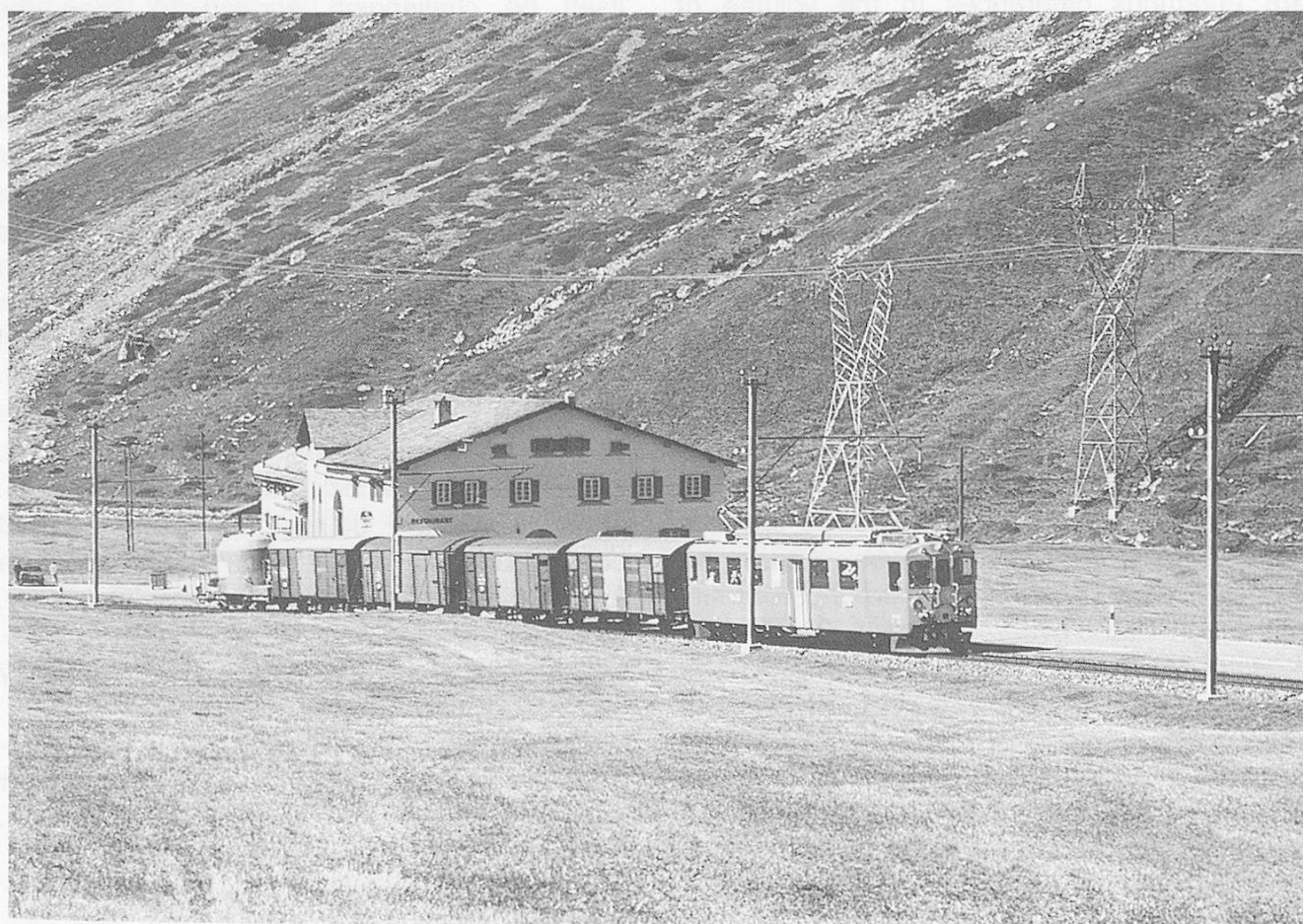
All the above mentioned trains are the subject of careful timetable planning. Bulk freight trains run in accordance with experience over the years of the requirements of the

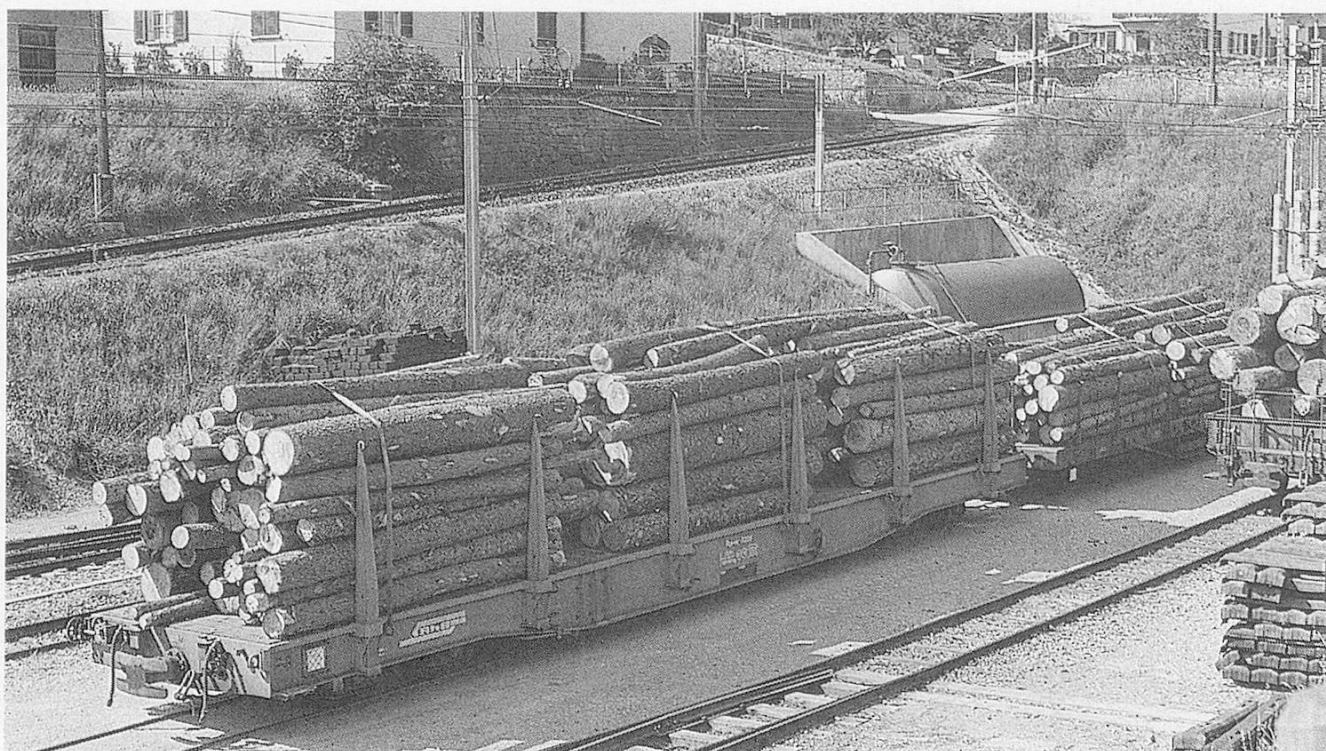




The mineral water express, with 150 tonnes of bottled mineral water ready to leave Ilanz on 6 June 1985

A mixed freight train on the 70‰ incline on the Berninabahn near Bernina-Suot on 6 September 1980





The storage sidings at Poschiavo for marshalling timber trains for Italy on 27 June 1978

various customers. The daily express mineral train from Ilanz to Zizers figures there as well as the beer train to the Engadine valley. There are enormous differences in the volume of traffic offered, often from day to day. Traffic depends of a number of factors, such as tourist demand and the changes in demand for bulk freight. As a result, the RhB has to cater for an extraordinarily high percentage of optional train paths for both passenger and freight services so that it may react quickly to peak demands of the market. These optional trains are scheduled in the working timetable and locomotive classes are assigned to duties on which they can maintain the scheduled running times. As a result, some 20% of the locomotive stock has to be kept in reserve for these extra services. Such as duplicate freight trains, cattle specials for an alpine meadow or even across the Bernina to Italy. There is also the import of fuel oil through Tirano over the Bernina ass.

I suggest that, by trial and error you determine your layout's traffic capacity, without abandoning normal schedules and then set out to operate both normal and peak operating loadings. This will add a pleasing touch to your operating pattern. It is possible to do this on even a small layout, where the need to add

variety to what could easily become a dull stereotyped service is paramount, whereas on an extensive system a normal pattern could in itself be challenging enough to keep the operators interested over a very long period of time.

There are numerous special trains for which individual timetable arrangements must be made. It is not always possible to use the path for an optional train either due to the special requirements of the extra or the simple fact that the slot is already occupied by an existing service. One example of such a special would be a very slow double headed train with out of gauge and extremely heavy loads such as generators and turbines for a power station, for which clearances have to be checked. These loads are usually carried on special deep loading wagons. Another special could be a bridge load test train. One must of course, always remember the snow clearance train, with its rotary ploughs, needed to clear heavy and sudden snowfalls off the line.

Please note that when devising your timetable that priority is given to all passenger trains.

*To be continued*