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# Transport during 'The Emergency'

Der Beobachter



**The impact of the Swiss National Emergency (WW2) on the nation's transport infrastructure.**

Ae 4/6 No.10811 at Arth Goldau in 1973.

In the 1920s and 1930s the patronage of many of the rural tramways that had been built in Switzerland during the 1890s and early 1900s had been on an almost inexorable downward trend due to the growth of rural bus services. These were often more convenient for the users as their routes were often better located for potential customers, and they generally ran to a more frequent timetable. Fare levels also obviously played a part. As in the rest of Europe the ownership of private cars in Switzerland was rising, but not to the same degree as in many other countries. From our current perspective it is difficult to realise but Switzerland was not at the time the wealthy country that we now know. Compared to the European industrial giants such as Germany, France and the UK the country lagged behind in many respects, and although tourism flourished in a number of prime locations most of the country outside the big cities was based on a rural economy. By the end of the 1930s many of the tramways and some rural railways were struggling to maintain services due to a lack of funds to invest in the replacement of worn out rolling stock, and/or to maintain their permanent way. Even the main networks were operating with a lot of life-expired equipment, often on the secondary services.

The U.K. declaration of war on Germany in September 1939, following that country's invasion of Poland, did not immediately impact on the majority of Swiss, but the potential problems their neutrality would bring became more to the fore with the Nazi invasion of France in May 1940. For Switzerland this marked the intensification of their National Emergency. In July 1940, as it became clear that oil imports would be greatly reduced, petrol rationing was introduced for the some 80,000 private cars that were

registered in the country. The better off owned most of these, generally in the north of the country. However, by this time many vehicles had either been taken off the road or 'evacuated' privately to remoter areas. At first 75 litres per month were allowed for small businesses and personal needs, however by early 1941 this was reduced to 10 litres per month. It is worth remembering that the typical internal combustion engines in use at the time were very inefficient and many probably only achieved some 5km/litre. A coupon system was in force and prices were controlled. In addition to introducing rationing the Swiss also reduced the demand by only permitting licences to be issued to just 20,000 private vehicles, basically only those used by small businesses and persons in essential occupations. Many of the other vehicles were stored, whilst some were requisitioned. As the National Emergency dragged-on, in 1944 a prohibition of all motorised Sunday road travel came into effect, with obvious exceptions for the emergency services, etc. A positive side of the poor Swiss economy, and the still-rural nature of much of the country, was that there were plenty of working horses around that could be used for some movement of goods. Again we possibly forget that 'horse-power' was still in use across Western Europe for many transport applications until the 1950s.

The main result of these restrictions was a boom in the use of the often desperately inadequate local railway and tramway services. Some rural tramways that had almost gone-to-the-wall in the 1930s were suddenly faced with increases in passenger loads of several hundred per cent. All this being carried on inadequate levels of rolling stock, much of which was really only fit for the scrap heap. Many




rural lines also saw a rise in the amount of freight on offer, as many of the trucks that had taken over local deliveries in the previous decades were not now available. In addition many of the railwaymen had been called-up as part of their compulsory commitment to service in Switzerland's Citizen Army. Even the potentially better funded SBB was struggling with a shortage of motive power. Due to restrictions and lack of resources it could only obtain a few locomotives. These included the 12 Ae4/6s for the Gotthard route (these were problematic in operation considered by many to be a unfortunate acquisition) and the Deh4/4s needed for the electrification of the Brünig line, altogether a more successful design that was in operation for some 70 years. The SBB also acquired 10 Tm2/2 shunting tractors that were designed to run on 'Producer Gas' (see below) but were soon converted to more conventional power when available. Another SBB initiative was to fit pantographs to the cab roofs of two E3/3 'Tigerli' locos Nos.8521/2, which with the addition of a transformer and heating elements in the water tanks could - very inefficiently - keep up steam pressure for a while to shunt under the wires. They too reverted to conventional operation once the Emergency was over with No.8522 still existing on the Sursee-Triengen line.

Apart from a shortage of fuel for road vehicles many of the railways were struggling to maintain even reduced service levels due to parallel coal shortages. Normally Switzerland imported all of its coal, generally from France or Germany, but the war outside its borders caused these supplies to dwindle. Switzerland's geology meant that there were few local sources of supply, although several small coal seams in various locations were exploited. Two small mines (both of which can now be visited) were in Kanton Zürich, at Käpf-nach near Horgen, and 8km west at Aeugst am Albis. Both mines had been dormant for many years but were reopened in 1941/2 and closed again in 1947. It was poor stuff (lignite), costly to extract, and amounts were small, but it burned, and was distributed with the rest. For some railway operations the major restriction on coal imports was a prompt to quickly electrify lines, as thanks to earlier investment in Hydro Electric schemes supplies of this power source were normally adequate. Coal, even for essential services such as railways and hospitals, and also to industry, was not rationed by coupon but by distribution permits, with supplies allocated as the coal came into the official depots. In practice there simply was no assured supply of any imported fuels. With hindsight some historians have accused the Swiss, despite their neutrality, of dealing with the Fascist regimes that surrounded them especially when trying to organise imports of commodities like coal. In reality some horse-trading was necessary simply to keep the nation's basic infrastructure together and its citizens fed and healthy.

A number of the licensed vehicles on the roads used for their ration a mixture of petrol and ethanol, with HOVAG Ems (the present day Emserwerke, at Domat-Ems in Kanton Graubünden) producing the ethanol from the nation's

plentiful supply of wood. It is understood that some 30% of the fuel requirements of the Swiss Air Force and surface transport came from this source, whose ethanol was apparently called 'Emser-Wasser' as a cover name. It is difficult to accurately quantify the amounts that went to various sources such as buses, agricultural vehicles and essential delivery vehicles as well as to the remaining private cars left on Swiss roads. Also around 14,000 vehicles were equipped with 'Producer Gas' devices, which in Switzerland fired with wood or peat (turf). Wood was available almost everywhere in the country but there were only limited areas where peat could be cut. One of these was around Ponts de Martel in the Jura where hauling this was a source of income for the local metre-gauge line right up to modern times. These devices were also used in Germany during the acute fuel shortages in the latter stages of WW2 where they were fired by Braunkohle/Lignite, and in Britain where anthracite or coke was used. The gas produced could be used in conventional petrol engines, but had a very low calorific value and most vehicle-mounted 'gassifiers' only gave a range of about 100km/charge.

Although some supply lines to Switzerland were opened by early 1945, and the fighting in Europe ceased in May 1945, the National Emergency remained in force for some time after this. War had reduced much of Europe to a broken entity and basic supplies were simply not immediately available. Although it did not take part in the hostilities and its infrastructure was intact Switzerland was in a very poor economic state and it would take some time for a state of normality to return. It was not until October 1946 that petrol rationing was finally done away with. By this time many aspects of the Swiss rail-based transport infrastructure was in dire straights and the more marginal transport organisations either required massive injections of renewal funds, or were doomed to finally fail. With the economy slow to recover some operations hung on to the 1950s before the end came, in some cases the delay was also perhaps due to replacement road vehicles not being readily available to take over either the passenger or freight services.

*Editor's Note: The authors have prepared this article based upon research into publically accessible published notes and reports that have been assumed to be reliable. *



A car fitted with a 'Producer Gas' generator ,waits for UOe CFe 2/2 No.3 to leave Esslingen for Oetwil. 1946.

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