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## Members' Letters

**From Vincent Hart (Retired Reader in Applied Mathematics, University of Queensland) – by email.**

On a recent trip on the Glacier Express we heard an announcement that, the Swiss Railways' rotary snow ploughs can remove 19,000t of snow per MINUTE from the track. My companion was convinced that this represented the effort of ONE snow plough when in action, but a little calculation persuades me that she is somewhat in error. Assuming a speed of 10kph, a cross section of 4sq.m and an average density of 320kg/m<sup>3</sup>, I came up with 213.4t of snow removed for the effort of one plough in one minute of steady motion. Thus 19,000t would represent the effort of about 89 snow ploughs. If you or one of your contributors could comment on this item of interest we would be very much obliged.

**Editor: One of our Swiss Rail friends has supplied the following information.**

The 'Zaugg' rotaries on the RhB Bernina line are the biggest in Switzerland with a side sweep, fully extended, of 6m. They are rated to move 8,500t/hour (142t/minute) at full power. The normal rotaries for the RhB main line can only sweep 4.6m wide at full extension. Their rating is 3,500t/hour. The width of sweep is related to clearances along the way. Much of the Bernina is single track and wide open, and apart from catenary masts there are few obstructions. Naturally the clearance at individual locations is greatly reduced e.g. at crossings and stations, and for all sorts of other reasons. The units for normal lines are generally not as powerful as those the RhB owns for its high and wild places and have no hope of sustained operations within the normal loading gauge, so they will clear far less snow. No practical snow clearance equipment can simply press on for a steady hour and shift thousands of tonnes; there are always interruptions. So the actual figures are rather different to the 19,000t/minute the Glacier Express commentary suggested.

A cumulative 19,000t/hour across the entire Swiss snow plough fleet working at full capacity in ideal conditions might be possible.

**From Michael Donovan – by email.**

Regarding the letter from Geoffrey Bryson in the June edition of Swiss Express, I am afraid his comments on closure processes in the UK are out of date. The Department for Transport (DfT) specifies the level of service to be operated by a train operating company, and this includes what your correspondent refers to as "Parliamentary Trains" although this is not a term that is recognised within the Railways Act. These trains (or a substitute bus in one case around London) are operated to avoid DfT having to initiate the closure process. The Rail Passengers' Council has long since ceased to exist, with some of its tasks having passed to Passenger Focus. The ultimate decision on whether to accept a closure proposal now lies with the Office of Rail Regulation. I hope that this clarifies the situation.

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### For free:

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## VERKEHRSHAUS EXTRA

**Keith Scotland**

In the June Swiss Express an article reported on the special exhibition running until 21st October 2012 at the Verkehrshaus in Luzern featuring the use of electricity, in particular energy from the sun. One superb transport exhibit is "Mathilde", an electric powered bus, built by Tribelhorn in 1912 for the Schweizerhof Hotel in Luzern, to shuttle guests to and from the Hauptbahnhof. Electric powered vehicles were much more common in the early days, and the wheel turns full circle as they find favour again using our modern batteries and technology. 

*Left: "Mathilde", the electric powered bus built by Tribelhorn in 1912.*

Photos: Ron Smith



*Above: This is not a traction engine, as it first seems, but is an electric light generator for road works. It was pulled to the site by horse power and just used as a generator.*