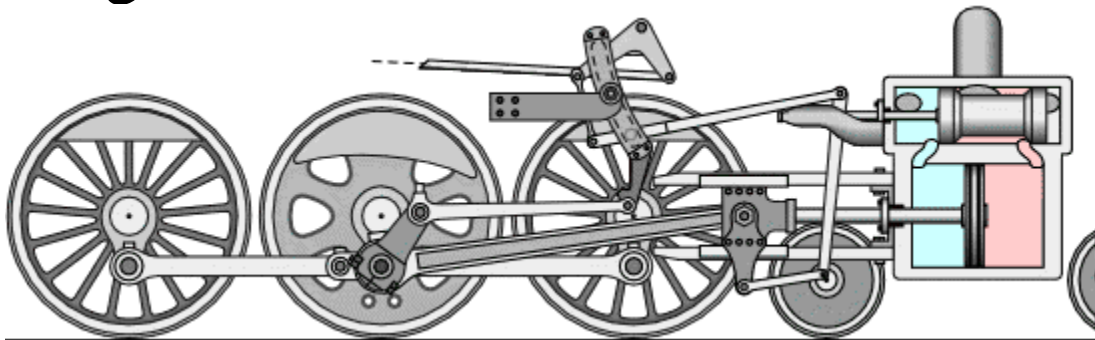




# *Rand Society of Model Engineers*



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**From the editor.....**

You can also see our newsletter in full colour on the club website [www.rsme.co.za](http://www.rsme.co.za) .  
Please send contributions, comments and stories to me at [tjtoere@lantic.net](mailto:tjtoere@lantic.net) .

## **The Snowdon Mountain Railway**

Tienie Jonker

I recently had the privilege to visit the Snowdon Mountain in the Snowdonia National park in North Wales. What attracted me most was of course the only public rack and pinion system in the British Isles.

Since 1869 a new branch line of the London and North Western Railway from Caernarfon to Llanberis had brought people to the foot of Snowdon, however, the only way to reach the peak then was to walk or take a donkey ride, so it was declared that the next extension must go to the top of Snowdon.

The local landowner George William Duff Assherton Smith thought a railway would spoil the scenery and turned down every proposal for the next twenty years but then a rival plan to build a railway to the summit of Snowdon, from Rhyd Ddu station on the other side of the mountain, brought fears that Llanberis would lose its tourist trade forever.

With this in mind Assherton Smith changed his decision and allowed the land to be used and on the 16th November 1894 the Snowdon Mountain Tramroad and Hotels Co. Ltd was formed to build the railway.



**Manufacturer's plate**



**Yours truly in the cab**

To ensure the trains were able to embark upon the steep and continual gradients of Snowdon safely, the newly formed Snowdon Mountain Tramroad and Hotels Co. Ltd

went to Switzerland to find the best mountain railway technology. A German engineer, Dr. Roman Abt, had patented a rack and pinion system that was being used reliably in the Swiss Alps. Whilst in Switzerland the company purchased three steam locomotives and they arrived in Llanberis in 1895 to help with the construction, a further two trains arrived in 1896 when the railway opened.

Smooth and constant operation when tackling the steep gradients is achieved by a double raked rail used with a rotating toothed pinion. The double rack rails are fastened to steel sleepers between the running rails. Each locomotive is equipped with toothed pinions (cogwheels), which engage the rack and provide all the traction necessary to scale the steepest inclines. The pinion is the only source of traction for the locomotive with the wheels only supporting the weight of the engine. On the way down, the rack and pinion system also acts as a brake.

The railway, laid to a gauge of 2ft 7 ½ in (800 mm) which is common to most mountain railways, consists of a single track with 3 passing loops spaced equidistantly between Llanberis and the Summit. (Hebron at 1069 ft (326 m), Halfway at 1641 ft (500 m) and Clogwyn at 2556 ft (779 m)). The average speed of the trains is 5 mph (8 km/h)

The total length of the railway is 4 miles 1188 yards (7.53 km), with an average gradient of 1 in 7.86. The steepest gradient on the route is 1 in 5.5. The gradients on the route make it unsuitable for a normal adhesion railway, therefore a rack and pinion system was used. The trip to the summit takes about an hour including a water drinking session for the thirsty loco at Halfway. The scenery on the way up is outstanding and from the peak breathtaking. At the summit station there is a restaurant where one can get some refreshments before embarking again for the ride down to Llanberis.



**Pushing up the gradient**



**Crossing the viaduct**

The company currently operates 4 coal-fired steam locomotives manufactured by the Swiss Locomotive & Manufacturing Co. of Winterthur. Three of which are the original ones dating from 1895 and 1896, whilst the remaining one was built in 1922. The first of the original locomotives cost £1525. We were pushed up by a veteran built in 1896.

The boilers are inclined on the locomotives to ensure that the boiler tubes and the firebox remain submerged when on the gradient, a standard practice on mountain

railways. The locomotive always runs chimney first up the mountain pushing a single carriage in front of it. For safety reasons the carriage is not coupled to the locomotive.

The original carriages were open above the waist and had canvas curtains, which provided little protection against the elements. Between 1951 and 1957 the superstructure of the original carriages was modified to produce the enclosed bodies that they sport today. Each carriage has a capacity of 54 passengers, plus a guard. Every passenger carriage has its own set of pinions, with automatic brakes as an added precaution. If the train's speed exceeds 7.5 mph for any reason, the brake comes on. Unique to rack railways, the locomotive always pushes the carriage up the mountain and, for safety reasons, is never coupled to the train. The carriage has its own set of brakes that bring the carriage to a standstill if it disengages from the locomotive.

### **Statistics**

Boiler working pressure: 200 lbs/sq in

Gauge: 2' 7½ " (800 mm)

The loco uses ¾ ton of coal per trip and 374 gallons of water.

The valve system is a modified Joy.

### **One Happy Chappie**



Cas Badenhorst asked around and advertised in our newsletter and website over several months for a locomotive. He had some response and wants to thank people for their offers. In the end Brian Armstrong made him an offer he could not refuse. On the ice cold, sleety and snowy day of 15<sup>th</sup> August the deal was struck and Cas became the proud owner of a modified Simplex with a driving car.

Despite the cold conditions he was smiling and grinning all the way back to Potch. The engine changed hands for an undisclosed amount, but a source close to the parties revealed that it was for less than 4 Rands (Kruger Rands of course).

The first occasion the new owner had to learn and drive the new loco, was at the club meet on 4<sup>th</sup> September. Under the watchful eye of Brian the engine was oiled, steamed up and driven out on the short track. Cas's smile was so broad he could hardly get through the tunnel!

### **Frank versus Loco 3015**

In the early morning of the 3rd August 1961 Frank Mundel set out from Rustenburg to Swartruggens for an urgent repair on a customer's fridge counter. He took the gravel road (not tared then) with his  $\frac{3}{4}$  ton Chev bakkie. In the back was loaded an oxy-acetylene set, the usual tools and two assistants.

As the stuff in the fridge of the customer was at risk of becoming spoilt and Frank had still a lot of other work, he was rather in a hurry. Consequently his right boot was a bit heavy on the accelerator pedal of the eager Chevy. Everything went well and fast in a cloud of dust until they reached the outskirts of Swartruggens.

Just outside the town the road crossed the railway line at a "public level crossing". Now everybody knew that nothing happens for weeks in Swartruggens, not even to mention a train passing through on a cold August morning.

Frank claims he never saw any train (in any case not in the direction he was looking) and he never heard any whistle. We all know train drivers are supposed to blow a warning whistle when approaching level crossings. What you are suspecting by now, happened. The loco (steam of course, Frank would never allow himself to be assaulted by a lowly diesel) struck the Chevy solidly between the front and rear wheels. The Chevy was cut in two with the engine and passenger cabin on the Swartruggens side and load area on the Rustenburg side. The train came to a stop way down the line and the driver reversed to assess the damage. In the mean time Frank was trapped in the wreckage while his assistants miraculously escaped death and injury. When the dust settled and after they recovered from the worst shock, these guys ran to see how Frank was. He was in such a state that they decided Frank passed away and subsequently covered him with a piece of green tarpaulin.

By this time everybody in the vicinity, including the local doctor, rushed to the scene. At last something had happened at Swartruggens. The doctor discovered that Frank was still alive. After he was cut free from the wreckage, he was removed to the doctor's surgery. There were no ambulances, helicopters or hospitals in Swartruggens in those days. Frank regained consciousness for the first time in the surgery. Somebody notified his brother in Rustenburg about the accident and he was on the scene within half an hour. How did they manage it in those days without cell phones?

The local constable, always suspicious (as they should be), started interrogating witnesses. His first question to the two passengers was about how much liquor Frank had consumed. He was quite surprised by the answer: "My baas drink nie!"

Fortunately for us, Frank fully recovered from this nightmarish experience. Unfortunately governmental bodies in those days would not let go before all the paper work was done. Damage to the loco was just a bit of scratched paint work, but they did not want Frank to sue them. They confronted Frank with an admission of guilt and indemnity paper, which he refused to sign. He wanted his day in court. David taking on the Goliath of government. If his bakkie couldn't make a dent, he sure was going to try. His brother, however, persuaded him that this was not the time to fool around with five pebbles and he reluctantly signed. That, unfortunately, was still not the end of the story. He had to pay 32 cents for administration costs to settle the case for once and for all.



**Frank and one of the many locos he built**

T. 737.

**SOUTH AFRICAN RAILWAYS**

**SUID AFRIKAANSE SPOORWEE**

TELEGRAPHIC ADDRESS  
TELEGRAFIESE ADRES  
RAILWAYS  
SPOORWEE

**TRANSPORTATION DEPARTMENT**  
**VERVOERDEPARTEMENT**

IN YOUR REPLY QUOTE  
HAAL IN U ANTWOORD AAN

A.6/1927.

REFER TO YOUR  
VERWYS NA U

ALL COMMUNICATIONS TO BE  
ADDRESSED TO THE  
SYSTEM MANAGER

/EH.

ALLES WEDEROMMOET NAAR DIE  
AFDELINGSBESTUURDER  
REKIS WEDU

SYSTEM MANAGER'S OFFICE  
KANTOOR VAN DIE AFDELINGSBESTUURDER  
JOHANNESBURG.

29 JAN 1962

P. O. BOX  
KUSSEL  
TELEPHONE  
TELEFOON

792 verl. 4198.  
Mr. Oosthuizen.

Waarde heer,

GOEDERETREIN NO. 3015 BOTS MET MOTORKAR NO. T.R.B.7353:  
SWATRUGGENS-MAZISTA : 3 AUGUSTUS 1961.

Ontvange van u posorder ter waarde van  
RC-32 word met dank erken.

Kwitansie F.no.3580 is aangeheg.

Die uwe,



namens WAARN. AFDELINGSBESTUURDER.

Mr. F. Mundel,  
Wolmaransstraat 341,  
RUSTENBURG.

# VlootMark

(083 417 4182) or  
e-mail: [tjtoere@lantic.net](mailto:tjtoere@lantic.net)

## Antique model

I recently acquired a model steam engine in the hope of restoring it, (picture attached). It was manufactured by Gebrüder Bing of Nürnberg in circa 1911. It is largely intact but requires some small repairs. Unfortunately I don't have the equipment or the expertise to carry out the repairs, so I was wondering if any of your members would be interested in purchasing it from me.

**Hollis Miles, 6 Peck Avenue , Florida Glen. 1725. Cell: 083 409 6891 .**

