

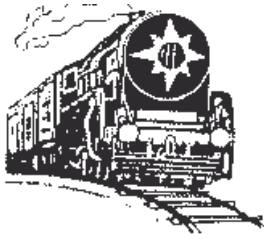
INDIAN STEAM RAILWAYS MAGAZINE

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Winter 2014





Indian Steam Railway Society

12th National Conference on Steam Locomotives

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The Indian Steam Railway Society is a non-profit organisation formed on 23rd October, 1999, by railway enthusiasts committed to the preservation of steam and other railway heritage.

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Cover Photo: YG3415 'Sahib' at Rewari Steam Centre - by Vikas Singh

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Indian Steam Railway Society (ISRS)

Photo

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List of Contents

Rail Walk at Raonoke	
- <i>by J. L. Singh</i>	4
To Puntaza and North to Pyin Oo Lwin and beyond to Goitek Viaduct	
– further adventures in Myanmar (Burma)	
- <i>by C. Ruthnaswamy</i>	9
Hogwarts Express	
- <i>by Ranjit Mathur</i>	14
The Indian Railways and War	
- <i>by M. L. Khanna</i>	18
An Introduction to Steam Traction	
- <i>by Ranjit Mathur</i>	22



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MESSAGE

Once again, it is my privilege to extend a warm welcome to the steam locomotive enthusiasts to the XIIth National Steam Congress.

The theme of this year's Congress is the Darjeeling Himalayan Railway where we have probably the most beautiful steam locomotives in the world operating regular train services.

In June 2010, landslides at Paglajhora caused breaches in the line between New Jalpaiguri and Darjeeling which was compounded by another major landslide at Tindharia, which swept away the National Highway 55 along with the track. The breaches were so bad and recurring that for 4½ years Railways ran truncated services, but finally the restoration is complete. So this is a very apt theme this year. Shri R.S.Virdi, General Manager, NF Railway will give the theme presentation on this.

We will also have the pleasure of having Mr. Adrian Shooter giving the Keynote Address. He owns the only DHR locomotive in the world outside India. She runs in his garden in Oxfordshire, England where a mile long track has been laid.

We look forward to this Steam Congress giving a fresh impetus to the movement to preserve this heritage.


19/1/2015

(L.K.Sinha)

Rail Walk at Raonoke

- by J. L. Singh



Sign announcing the Railwalk

In 2008, I had occasion to visit Raonoke in the State of Virginia, USA. This is a small town about 385 kms. from Washington DC. It is not a place that is normally on the itinerary of most Indians visiting the USA. I happened to be there for some work and spent my non-working hours walking around and seeing and absorbing as much as I could.

Small town USA is quite different from the USA of the New Yorks, Chicagos and Los Angeleses that we are normally familiar with. The traffic snarls and jams, the frenzied pace of life, etc. that are the hallmark of the big cities are exceptional and infrequent here. Thus, walking through the town on a cool summer day is a very satisfying and pleasing way of not only having a good time but being able to get the feel of the town.

It was on one such June morning in downtown Raonoke that I was walking on the side of a road that wound its way along the rail track that passes through the city. Only a chain-link fence separated me from

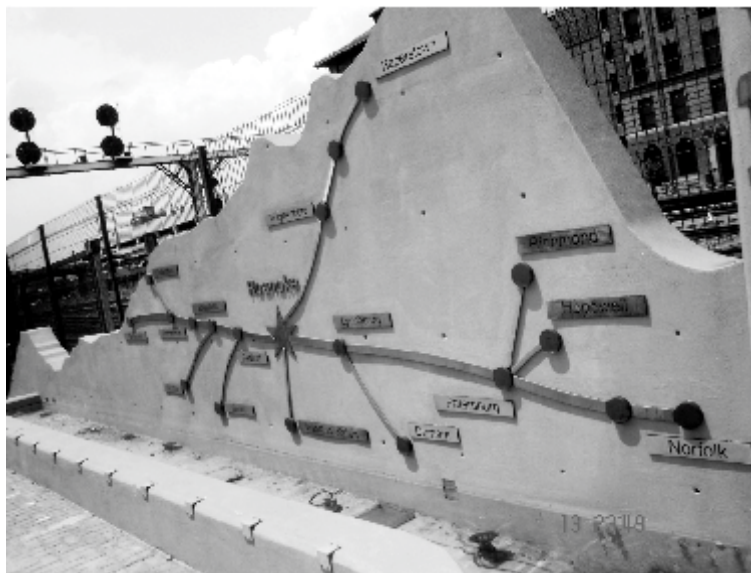
the rail track. This track is part of the Norfolk Southern Railway, a Class I railroad of the country. It is owned by the Norfolk Southern Corporation and operates more than 38,000 kms. of route, covering 22 of the Eastern states of the USA. Like many of the other railroads in the country, their main commodity is coal but they also offer the most extensive intermodal network in the area. Roanoke remains a major hub in Norfolk Southern's freight rail system.

As I walked down this sidewalk, I suddenly came upon what looked like 3 crankshafts of a large diesel engine standing vertically and supporting a sign which read:

David R. and Susan S. Goode

Railwalk

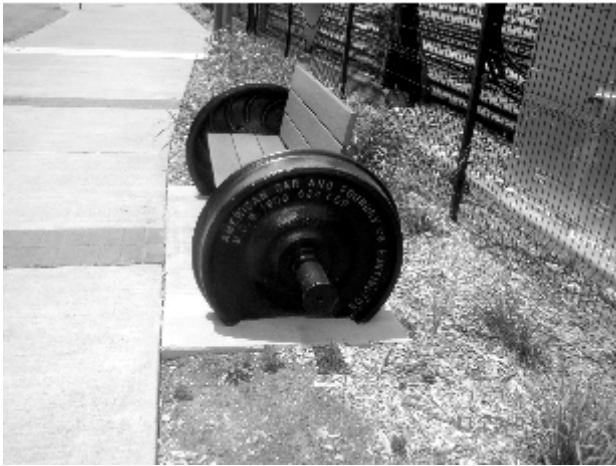
Beyond this, on the pavement along the fence, were a number of exhibits on display. It was indeed a "Railwalk" and one that not only a railwayman like me but also any normal tourist was likely to get attracted to and have a look at.



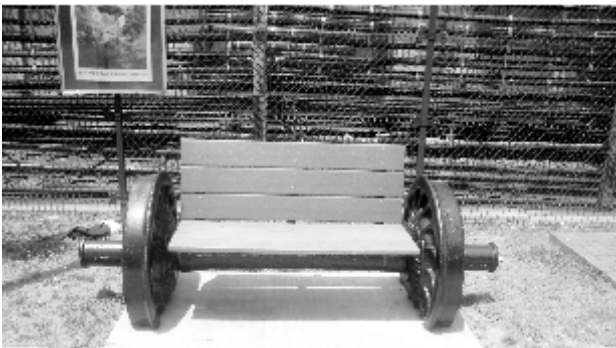
Map of rail lines around Raonoke

I m m e d i a t e l y following the sign was a map showing the rail lines around the city. What followed was an amazing display of rail artefacts, pictures and p h o t o g r a p h s , material and simple installations (like signals), etc. One of the exhibits was a flat wagon. Not only was the content

interesting, the display was eye-catching. In addition, it was a good demonstration of how simple rail objects can be used not just as exhibits but as utilitarian items as well. For instance, for your relaxation, there were benches at regular intervals that had been assembled from old freight wagon or steam locomotive driving



View of a rail-wheel bench



Another view of a rail-wheel bench

wheels by innovatively adding backrests and seats of wood. You can see pictures of two of these benches on this page. The simplicity of the design and the novel and inventive use of an item that is now obsolete took my breath away.

The antiquated steam loco driving wheel set was very much in evidence a number of other times also. One



Framed in a steam loco driving wheel

example was its use to frame a poster giving some information on the railway. You can see a picture of this as well.

The best way that I can convey a feel of the “walk” is through photographs. I have placed a number of pictures that I had clicked during the walk to go with this write-up so that you can get an idea of what this walk was all about.

One of the posters hanging on the fence was an advertisement for the Virginia Museum of Transportation. I noted the details and visited the museum later in the day.

The museum had an indoor and an outdoor gallery.



A vintage semaphore signal



A flat wagon on display

While it did not restrict itself to the railways, its major content was rail-based. Thus, you saw picture and photo galleries, vintage cars, old horse-drawn carts and wagons, fire engines, highway signs, etc. apart from locomotives, coaches, rail models, old and new rail equipment, and so on. Although named a museum of transportation, it was limited to land transportation, there being no displays of air or water transportation.

The outdoor gallery had a number of exhibits of steam and diesel locomotives, passenger carriages, coaches



A covered motor trolley



An array of posters

for carrying and sorting mail (reminiscent of our old RMS coaches), saloons, freight wagons, etc. What impressed me was that each of these exhibits had well-designed wooden stairs for climbing onto them and the interiors were immaculately clean and very well maintained.

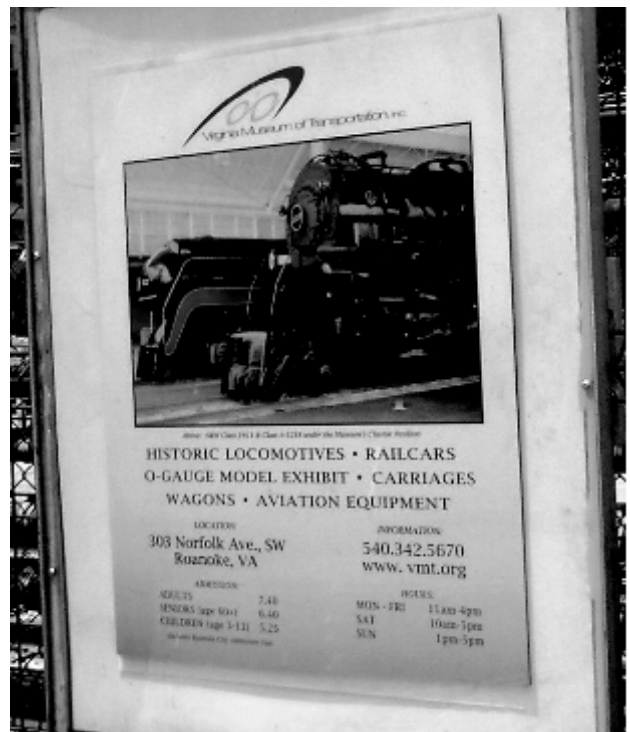


Along the Railwalk

Among the locomotives, the main exhibit of the museum was Locomotive No. J-611. Any lover of steam locomotive history will be interested in this locomotive as it holds a very special place in the chronology of steam traction in the USA. The Class J locomotives were designed and built by the East End Shops at Roanoke, part of what was then called the N&W (Norfolk and Western) Railway. Those were the days when steam traction was on its way out in the USA and only 14 were built. The first of the class was built in 1941, while No. 611 rolled out of the Roanoke Shops on the 29th of May, 1950, at a cost of USD 251,344. It was retired from service in

1959 and today is the only Class J locomotive in existence. Since its retirement, its home has been the Virginia Museum of Transportation and its predecessor, Raonoke Transportation Museum. It did have its years of action in between from 1981 to 1994 when it was used for steam excursions after restoration at the Norfolk Southern's steam shops at Birmingham, Alabama.

The Class J was a remarkable locomotive. Having a distinctive bullet-nosed look as well as a characteristic whistle, like our WPs, it pulled N&W's most prestigious trains in its heydays. These trains included the Powhatan Arrow, the Pocohantas, the Birmingham



Advertisement for the Virginia Museum of Transportation



Entry of the Museum



Close-up picture of a steam locomotive

Special and the Cavalier. Of course, except for the shape and its whistle, it dwarfed the WP and had innovations like roller bearings on its driving wheel axles that were not used on the latter. A brief comparison of some selected specifications of the J class and the WP are tabulated below.



A picture gallery



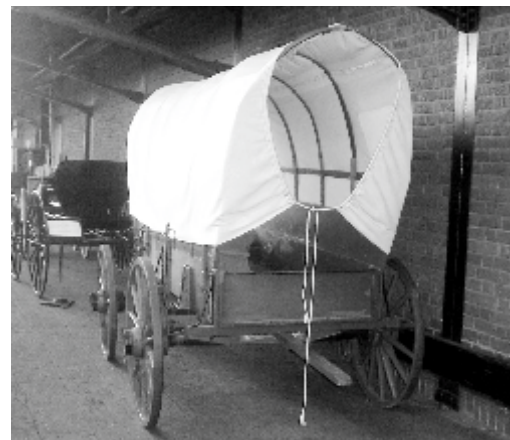
Vintage office with vintage equipment

S.No.	Item	J Class	WP
1	Length	109 2"	77 6"
2	Height	16 2"	13 6"
3	Coal capacity	35 tons	15 tons
4	Water capacity	83,000 litres	25,000 litres
5	Wheel arrangement	4-8-4	4-8-2
6	Driving wheel Axle Load	32.5 tons	18.5 tons
7	Driving wheel dia	70"	67"
8	Tractive Effort	80,000 lbf	30,600 lbf
9	Boiler pressure	300 psi	210 psi



A model railway

I have seen a number of museums of transportation as well as museums specific to rail in different parts of the world. In terms of content, the National Rail Museum in New Delhi is perhaps better than most of them and certainly equal to all. It is the display and the interactivity of the exhibits where many of the museums elsewhere score over ours. I feel confident that it won't be long before the National Rail Museum matches the best in the world in its display as well.



A cross-country horse-drawn wagon



Another wagon running on horse power



Interior of the Inspecting Car



An old diesel loco on display



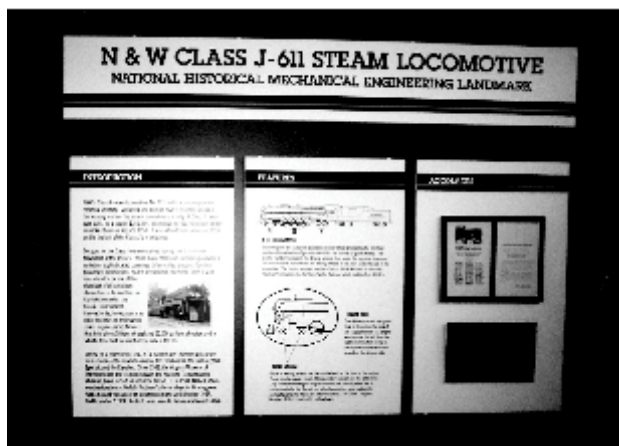
Steam loco exhibits. The locomotive partially seen is the J-611



The Class J, No. 611



An inspecting car

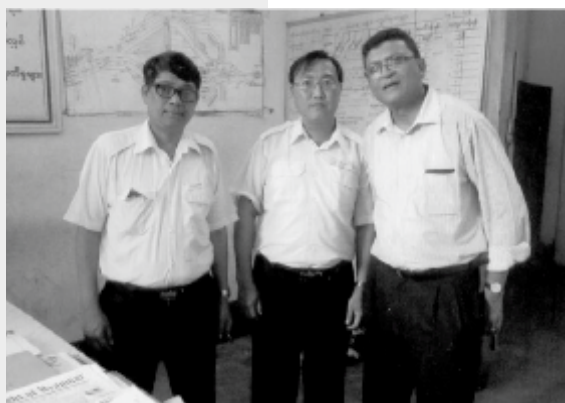


Descriptive posters of the 611

To Puntaza and North to Pyin Oo Lwin and beyond to Goitek Viaduct – further adventures in Myanmar (Burma)

- by C. Ruthnaswamy

The great challenge in travel is not arriving at the glamorous foreign city, but solving the departure problem, finding a way out of it, without flying. Buses are usually nasty, and bus stations the world over are dens of thieves, cutpurses, intimidators, mountebanks and muggers. Hired cars are convenient but nearly always a rip-off, and who wants narration from the driver? The train is still the ideal show up and hop on.



With Ye Luin, Deputy Station Master

2014. In Myanmar it is not an easy task to get information as fluency in English is restricted to a privileged few. Three years after the take over by the army strongman General Ne Win, Burmese language replaced English as a medium of instruction in 1965. When English was reintroduced in 1982 the teaching standards never reached the previous levels of instruction.

On a morning visit to Yangon railway station to reacquaint myself with Kan Sein, SSM, I was taken aback to find that he had recently retired and the current SSM was yet to arrive in the office. I took the next best option, to meet the Deputy SSM who was in an animated discussion with a young lady. When I mentioned to him that I had come all the way from New Delhi he gave me a cursory glance. When I pulled out the 2013 Indian Steam Railway Society magazine with the photo of the plinthed Bagnall, he suddenly got up and asked me to sign "With best compliments to Ye Luin" over my article "To Myanmar (Burma) in search of steam". I mentioned that I wished to go to Puntaza, he informed me that everything would be arranged at 8 am the next day.

Next morning reaching before 8 in the morning, there was no sign of the Deputy Station Master, the train to Puntaza was already on the platform, and when I requested for a ticket to Puntaza, the Assistant Station Master, asked me to produce my passport (which was



With Paul Theroux in January 2015

The previous year during my meeting with Kan Sein, Senior Station Master, Yangon Railway Station, he made a casual mention about several steam locomotives at Puntaza, to me it seemed a location as close to Timbaktou.

But I was determined to locate the loco shed during my visit to Yangon (Rangoon) the next year, in May



In the loco cabin with driver Soe Kyaw Thu



Drivers view

lying in my hotel) for getting my ticket and to top it all the 8 am train on the platform did not stop in Puntaza! I was on the point of calling the trip off, when I walked Ye Luin, like Merlin everything was done in a jiffy. First he asked for my passport number and for the fare to Puntaza and the next thing was – (a) I got a ticket for the next station after Puntaza (b) I was introduced to the diesel engine driver with a request to drop me off at Puntaza with a minute halt as it was unscheduled (c) the Ticket Collector and the Guard were similarly instructed (d) a favored seat near the exit was to be given to me so as to make a quick exit as the train neared Puntaza.

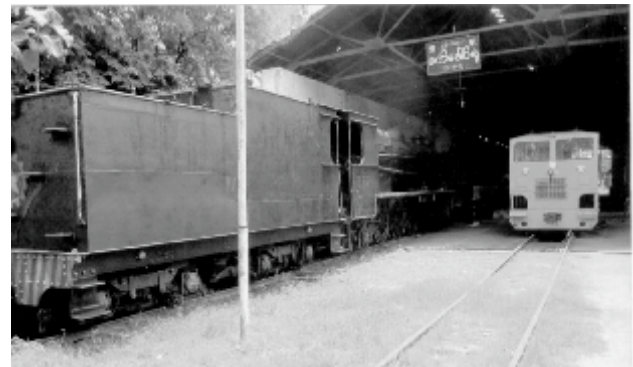
An hour before the arrival at Puntaza I shifted into the Chinese made Diesel locomotive with Soe Kyaw Thu at the wheel with an Assistant to pick up the clearance signal. Going at a leisurely pace of 40 mph with the only excitement was nearly running over a buffalo which refused to get up from the tracks. With so many level crossings the Diesel's whistle was the only continual sound apart from the regular drumming of the engines. After 3 hours and 15 minutes leaving Yangon, we neared Puntaza at 11.15



Formal handing over of ISRS magazine to Aung Wai Linn, Ticket Collector (L) and Nyein Than, Booking Clerk, Puntaza Railway Station

am. Thu gave me a short indication that Puntaza station was approaching I was get down.

Armed with the letter from the Deputy SSM to the Station Master to ensure my ticket back to Yangon was to be made (since I was not carrying my passport) I approached the Station Master of Puntaza and asked him to help me visit the Puntaza Steam Locomotive Shed. The junior railway staff who knew a smattering of English were all help in trying to get me into the Steam Locomotive Shed. The Locomotive Shed in charge was summoned, he arrived soon after, after hearing me out, he flatly refused to let me into the Shed as there was no authorisation from DME in Yangon! It looked like the end of line for me. But Railway Booking Clerk, Nyein Than and his colleague



Puntaza Steam Locomotive Shed

Aung Wai Linn, Ticket Collector a person of Indian origin hatched a plan to get the photographs of the locomotives in the shed. I was asked to take the photos from outside the shed through the grills while they went to take closer photos of the steam locomotives as there were no restrictions on the local railway staff entering the shed. There were 18 steam locomotives in the Shed, 4 of them had been sent out, 2 locomotives – YD 967 and YC 629 were running on tour charters to Bagan (Pagan), 2 locomotives YC 626 and YD 964 were in the Insen Workshop, the remaining locomotives being YD 1032, YD 967, YB 505, YD 974, YD 627, YD 974, YD 627, YD 972, YB 548 and YC 630.

It was a long wait to get back to Yangon on the next available train, it was a memorable wait as Nyein Than, Booking Clerk brought his mother to meet the foreigner (me) and Aung Wai Linn, whose Indian grand father came over to Burma,



Arriving at Pyin Oo Lwin in horse & carriage



Assistant Station Master of Pyin Oo Lwin - Zaw Moe Maing and his helpful Assistant, Zim Phyo Lin.



Candacraig Hotel estd 1904



With Peter Bernard former Manager, Candacraig Hotel

secured a job in the railways and later became a Ticket Collector, had married a Chinese lady, his son went on to join him in the Burmese Railway and become a Guard and now Linn, a third generation railway man was a Ticket Collector ! It was a touching moment when Linn went home and snipped the silver buttons from his fathers guard coat and presented me with a request that they be displayed at the National Railway Museum, New Delhi. The Station Master and both Linn and Nyein and his mother refused to go home for lunch until they saw me off. For some odd reasoning of the Myanmar Railways the trip to Puntaza cost 300 kyats or \$ 3 and the return trip 1800 kyats or \$ 18, maybe since the time taken was longer, 5.30 hours instead of 3.15 hours.

North of Yangon, 680 kilometers away lies the ancient city of Mandalay, seat of the kings of Burma and an hours drive up the steep mountain roads lies Pyin Oo Lwin, earlier called Mamyo at 3506 feet above sea level, the summer resort during British Burma. In a similar journey to Mamyo, travel writer Paul Theroux of "The Great Railway Bazaar (1975)" was to meet the 80 year old Bernard on the train to Pyin Oo Lwin, Bernard whose South Indian father came to Burma as a soldier in the 26th Madras Infantry. Bernard who was the Manager in the government run hotel Candacraig invited Theroux to Candacraig, it was earlier a "chummary" for Bombay – Burma Trading Company in British Burma which would have seen the likes of George Orwell coming down from Katha where he was posted as the Assistant District Superintendent in the Indian Imperial Police. Keen to see Candaraig on my visit in 2014, I found firmly closed. It had been sold to a private company 9 months earlier in August 2013, and was now called Thiri Myaing Hotel. Bernard, Senior the Manager of the hotel had long passed on, his son Peter, also mentioned by Theroux had left Candacraig and was



Johnnie (C) and Thed Nan ® mechanics on the Lashio Mail near Naung Peng Station



On the Goitek Viaduct

in Royal Reward Resort, couple of miles down the road as its Manager. I went to meet Bernard's son, Peter. In his book "The Ghost Train to the Easter Star" Theroux mentions meeting the family of Bernard nearly 33 years later in 2008, after his previous meeting in 1975 . He (Theroux) says "They showed family albums, memorabilia, a large studio portrait of their father, looking owlish in his horn rimmed glasses. And so I sat there, and drank tea, and was happy. It was a homecoming that I had not expected, like a visit to generous grateful relatives I had not seen in decades. Nothing like this had ever happened to me among my own family"

To recreate the travel of Theroux to the famous Goitek Viaduct, I went in a horse drawn coach or a covered tonga, the local means of transport apart from the ubiquitous motor cycle taxi to meet the Assistant Station Master of Pyin Oo Lwin - Zaw Moe Maing and his helpful Assistant, Zim Phyto Lin.

My idea was to cross the famous Goitek Viaduct, which on completion in 1901 was the largest railway trestle bridge in the world, from the rail deck to the ground was 102 meters or 335 feet it was only 40 years later it was surpassed by the Pit River bridge in California. Stretching 2,260 from end to end, the Goitek viaduct has 14 towers, it was fabricated by the Pennsylvania Steel Company and overseen by Sir Arthur Redel, engineer for Burma Railroad Company. To cross the viaduct in the footsteps of Theroux who to repeat his book " The Great Railway Bazaar" mentions " We climbed to 4,000 feet and then began descending into the gorge...The viaduct, a monster

of silver geometry in all the ragged rock and jungle came into view" Traveling without authorization Theroux was escorted back to Pyin Oo Lwin by the Army Security Officer with a warning " You can go. But you must not take the train to Gokteik again. If you do there will be trouble"

On his second visit Theroux, now 65 years old, recollects the trip to Goitek Viaduct "I had no desire to go further didn't have the stomach for it, I was somewhat in awe of of my younger self, that 32-year-old who sat on wooden benches in third class all the way to Naun Peng, just to see the all steel Gokteik Viaduct that crossed the gorge in the upper Shan States..."

My one way ticket to Naung Peng on 131 Up (this time I came armed with my passport), cost me 1700 kyats, slightly less than \$ 2, with an extra 100 kyats for chai pani , the ticket included a life insurance cover

of 0.50 kyats or Rs 30 appx. The cheapest insurance coverage I have ever taken. I wonder how much the repayment was in extreme cases. My trip 39 years after Theroux later was a more informal train ride to Naung-Peng the station after Gokteik. The train went through the enclosing forests the branches brushing angrily against the carriages as though to give a warning to the intruding train.

We were coasting along at a leisurely pace when without a warning the train jerked to a sudden halt. The brake had failed! The team of Johnnie, a person of India origin and his colleague Thed Nan, both mechanical engineers who had long experience in these matters managed to set right the problem, this seemed to be a regular occurrence with the Chinese made



100 year old crane in Pyin Oo Lwin Diesel Shed



Old Inspection Car in Pyin Oo Lwin Diesel Shed



Lot needs to be done on track maintenance

diesel engines. Uppermost on my mind, with the delay, would I be able to take the connection on 132Dn to Pyin Oo Lwin at Naung - Peng? This was the only connection that day, missing the connecting train back to Pyin Oo Lwin would mean roughing it out in a night halt at Naung-Peng railway station. But luckily the connecting train was also delayed, Johnnie and Thed Nan got my ticket, there was no language problem with me as Johnnie was quite fluent in Tamil and put me on the train back to Pyin Oo Lwin.

I was advised to visit the Diesel Loco Shed at Pyin Oo Lwin, on reaching Pyin Oo Lwin I met Mg Mg Min Lan, in charge of the Diesel Loco Shed. The Shed has 5 Diesel Locomotives left as the rest of the 4 diesel locomotives had been bought out by China. The highlight of my visit was the 100 year old crane manufactured by Hurst, Nelson & Co Ltd, Motherwell, the company also supplied to the London Underground (Metro). The Diesel Shed had an old wooden Inspection Car.

Got a shared taxi from Pyin Oo Lwin back to Mandalay, met the Station Master who was earlier there in 2013, also met the helpful Saw Kyan Naing, Booking Clerk got details of train timings to go to Katha, where George Orwell has been posted in the Imperial Police. Made a mental note to send the details to www.manintheseat61.com as this website's details has inadequate information on the train to Katha, very unusual for this website.

Then dropped the idea to go to Katha – citing paucity

of time.

Revisited the Diesel Loco Shed where a year earlier I had met U Myo Myint, who was out on work, by chance met the eager Kyaw Naing Tun, Engineer Grade 1, a person of Indian origin.

In the following days I was able to get some information. Myanmar Railway is headed by the First Minister, who reports to the President of Myanmar, after the First Minister is the 2nd Minister (naturally), then the Managing Director, the Chief Mechanical Engineer, below the CME are the 3 General Managers of the Saigaing State headquartered in Ywataung, Mandalay Division with headquarters in Myintnge and the Yangon Division with headquarters in Insein. Lower down are the Divisional Engineers, and reporting to the DE is the Assistant Divisional Engineer assisted by Foreman Mechanical and Electrical. There are 63 locomotives in operation in Myanmar which includes Diesel Hydraulic Locomotive (DHL) and Diesel Electrical Locomotives (DEL). The series are DF, YB, YC, YD and ST (shunting duties). The engines are mainly of Chinese manufacture, all of them have an inherent pneumatic problem especially in the 2000 series. Japanese made locomotives are from Hitachi, there are 10

German made Krupp locomotives, the 3 French locomotives are made by Alsthom and India has a tally of 12 locomotives in Myanmar.

The Diesel engine locomotives operating in Myanmar are mainly Chinese, the appellation given for Diesel Locomotives starts with DF 2001 meaning, D for Diesel, 2000 for the horse power and 1 stands for the series. There are a medley of wagons are from China, South Korea, Japan, Hungary and the former Yugoslavia. Railway coaches on the other hand are from China, South Korea and Japan. On my query on current running steam locomotives Tun mentioned that there are only 4 steam locomotives in operation, all of them running on charters from Yangon to Bagan (Pagan). So finally I was able to penetrate the mist surrounding steam locomotives in Myanmar. I guess this calls for a more exhaustive narrative - I leave it to another day.



*Saw Kyan Naing, Booking Clerk,
Mandalay Railway Station*

Hogwarts Express

- by Ranjit Mathur

Have you ever traveled on a train like Hogwarts Express?

Well, I have.

No, not in my imagination; nor did I have to push my luggage trolley through the pillar leading to Platform 9¾ at King's Cross. And, though I did not meet Harry Potter or Hermione or Ron, it was surely Hogwarts Express I saw standing with its red coaches gleaming and its locomotive self-consciously emitting steam for the benefit of photographers on platform 3 of Fort William.

No, not Fort William in Kolkata's Maidan; Fort William in Scotland.

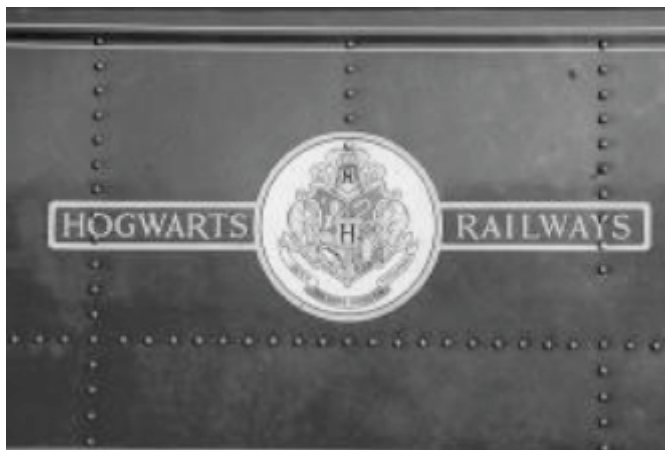
Scotland's Fort William lies in the country's west, near the head of Loch Linnhe next to the mouth of the rivers Nevis and Lochy, and in the shadow of Ben Nevis, Britain's highest mountain. It is the starting point of a journey that passes through beautiful, sometimes wild-looking undulating highland countryside. It is one of the most scenic rail journeys in Britain and it is small wonder that this was the line chosen for Hogwarts Express in the Harry Potter films.

Built in 1803, the 97 km long spectacular Caledonian canal, connects Fort William to Inverness using a series of lakes in the Great Glen – including Loch Ness, famous for its monsters. The Banavie end of the canal has an eight-rise flight of locks known as “Neptune's Staircase”.

This 40 mile (64.5 km) single line branch line extension of the West Highland Railway takes off from the Standard gauge (4 ft 8 1/2 in) main line 2 km after leaving Fort William. The line curves north-westwards into Banavie station and immediately crosses a stone arch bridge over the river

Locky. Then it turns due west and uses the steel bowed-truss swing bridge that spans the southern end of the Caledonian Canal, with its series of locks – an extremely Interesting engineering spectacle.

The next station is Corpach, where there is a pulp-



paper factory to which timber was delivered, and from which finished products were cleared, by the railway. Skirting the northern shore of Loch Eil, the line reaches the picturesque station of Lochelshide at the western end of the Loch. This station, like others on the route, is painted in the blue of the original Highland line.

The line then climbs for about 3 km steadily through a narrow glen (Scottish for 'valley') and reaches the famous Glenfinnan rail viaduct – another engineering spectacle. With 21 arches of standard 50 feet span standing 100 feet above the ground, this superb and truly spectacular concrete structure sweeps dramatically across the Finnan valley at the head of Loch Shiel in a great crescent-arc 1,248 feet in length.

Soon after the viaduct lies Glenfinnan station.

I knew about this line; so, two summers ago while holidaying in Scotland, I decided to travel on this train. I reached Glenfinnan station by car well ahead of the arrival there of the steam train on its outward journey from Fort William. I was thus able to visit the little Rail Museum set up at this station, to look into the dining car stabled on a siding for holidayers wanting a snack and a drink, and to photograph the train as it rolled in the station.

That morning the train was hauled by steam locomotive number 61264. This Thomson B1 Class 4-6-0 locomotive had been built in 1947 by the North British Locomotive Co, Glasgow and looked new in its shining black livery. I was told that the B1s were Thomson's first and most successful design. In all, 410 of these mixed traffic locomotives were built for the LNER and for British Rail between 1942 and 1952. I learnt from the Engine's History book that No 61264 had entered service at Parkeston Loco shed (near Harwich) to work services in England's east coast area and East Anglia, including the posh boat trains between Harwich and London's Liverpool Street

station. In 1960 it was transferred to Colwick shed, Nottingham, for work on the Great Central main line to and from London's Marylebone station, as well as from the Midlands to Norwich on the East Coast. When steam services started getting withdrawn, this locomotive was used as a stationary boiler from November 1965 to July 1967 in Colwick shed. After languishing for nearly eight years in a scrapyard, it was moved in 1976 to Loughborough, on the Great Central Railway. There it was given a complete and long overhaul, including extensive repairs to its boiler and firebox. Finally, No. 61264 re-entered service in 1997 and since then has been kept in semi-active service on identified steam runs, especially for the West Coast Railway. It is one of only two B1s that escaped the cutter's torch.

From my photograph see how fit No 61264 looks, and see locomotive driver Jim Bower of Glasgow giving me the thumbs up for a ride. He was proud of his charge and allowed me on to the footplate to take notes from the Engine's History book. Good coal, he said, was still available from some mines, but man-power trained in steam locomotives was dwindling. I told him this was also so in India. However, in the UK, steam buffs make good the shortage of man-power



... and the driver of No 61264 offers me a lift



"The Jacobite" rolls into Glenfinnan station...

to a very large extent, offering their services often voluntarily.

I hopped on to the train at Glenfinnan. After leaving the station, the train traveled through a beautiful, thickly wooded glen. It was first misty and then it started to drizzle. It was raining quite heavily when we emerged on the shores of Loch Eilort (which is not really a lake, but a bay off the sound that leads to the Atlantic). From Locheilort station the train went through a series of short, exciting tunnels, before another famous viaduct took us across Glen Mamie.

Suddenly it was clear and sunny ("Typical Scottish weather", I was told by passengers enjoying their brunch and beer) as we dropped down to the sea's edge as it reaches the Atlantic Ocean at Loch nan Uamh (Loch of the Cave). After a few more short tunnels, we reached Arisaig station, where the train has a scheduled halt. From here, on the western horizon, one could see the island of Eigg. As we left other islands of the Inner Hebrides came into view.

The 86km 2ft Gauge Darjeeling Himalayan Railway (DHR) was opened in 1881.

The 96.5km 2ft 6in Kalka-Simla Railway was opened on 1.3.1891. It has 100 tunnels.

After Arisaig, the line turned north, then moved a little inland. The coast line itself approaches the track alignment as we crossed the river Morar. This, the shortest river in Britain, flows from Loch Morar, the deepest lake in Britain - 1,017 feet deep. Another 5 km later and we reached the end of the line – Mallaig. The terminal station has two platforms under a single trellis-worked steel canopy topped now by what I think is transparent plastic. A tiny fishing village, Mallaig has a small heritage museum and from its sea-front ferries run to the isles. Here I bid good bye to some new-made friends and to Mr Bower. I returned to Fort William by car on Highway A830, which plays hide-and-seek with the rail line just as the road does along our DHR and Kalka Simla lines.

The “Iron Road to the Isles”, as this line is known, was built between 1897 and 1901 and is one of the last major railway enterprises in Britain. Over difficult terrain (hills and valleys), it ranks, along with many of our lines, among the greatest triumphs of Victorian railway engineering and construction.

Besides the pulp-paper factory at Corpach, it was the lucrative traffic in sea fish which drove the railway company westwards from its terminus at Fort William. A joint venture of two talented and determined engineering and contracting firms (Simpson & Wilson and Robert MacAlpine & Sons) enabled the line getting opened on 1 April 1901, a year ahead of schedule.

In 1876 Robert MacAlpine first began using the building material which earned him the enduring nickname ‘Concrete Bob’. Two of his sons, Robert Jn and Malcolm were placed in charge of the contracting work.

The building of the line entailed 11 tunnels and almost 100 rock cuttings. The region has some of the world’s hardest rocks – mica-schist, quartz and gneiss – which, in the engineer’s own words, “was admirably suited for concrete (but) was quite impossible to use for masonry on a large scale”. Blasting and removing this rock became extremely difficult and at that time expensive as the air compressors which powered the drills were driven by steam engines which consumed an enormous amount of coal. Observing a water-powered drill used by his dentist, the young Malcolm MacAlpine saw the considerable advantage of using water as a power source for the compressors. The changeover to water turbines brought about a four-

fold increase in the rate of drilling, later providing direct power for electric drills.

But blast injuries often occurred. To cope with such accidents, Robert MacAlpine Jn can claim the credit for the first field hospital to be set up on a construction site in Britain. He converted a school house at Polnish into an eight-bed hospital, staffed by a doctor and two nurses (incidentally using the profits from a canteen set up in an attempt to curb drunkenness!) His own brother Malcolm had to be treated in this field hospital after a near fatal blast for initial treatment before his removal to a Glasgow hospital.

Another sad incident took place during the construction of the eight-pier Loch-nan-Uamh viaduct. During its construction a cart horse and its driver were killed when the horse stumbled as it backed to tip its load into the 51 ft long central pier. The result was that the cart, horse and driver were entombed in the wet concrete. Penetrative radar scans have confirmed that the rubble-filled pier contains the skeletal remains of the horse. A plaque recording the fatality marks the location of the tragedy.

Besides the Glenfinnan viaduct, pictured below and mentioned earlier, and described by the author JJ Bell lovingly as ‘a thing so delicate that the fairies might have built it’, there were other feats of great technical skill that took concrete bridge building literally to new heights. One of the arches of the four-arched Morar viaduct extended the limit of concrete spans from 60 to 90 feet. At the Borrodale Burn, a local laird insisted on cladding intermediate piers in expensive granite. Here Wilson and MacAlpine decided upon a breathtaking 127 ft 6 inches for a central span of a three-arched viaduct – twice what the world had seen prior to the construction of the line.

When the original main line railway opened to Fort William on 7 August 1894, the station was given prime position at the south end of the town. This meant that the town was separated from the seaside by railway tracks. This disadvantage was overcome in the 1970s when a by-pass was built, and the station was re-located nearer the north end of the town. The southern-most of all the several squares off the now pedestrianised High Street, is, however, still called “Station Square”, though the station is long-since demolished.

In Gaelic Fort William is An Geardasdan, "The Garrison". Originally based on the still-existent village of Iverlochy, the town grew up as a settlement next to a fort constructed to control the population after Oliver Cromwell's invasion during the Civil War, and then to suppress the Jacobite uprisings of the 18th century. The fort was named "Fort William" after William of Orange. With the activity its location provides – mountaineering, trekking and sea sports - Fort William calls itself "The Outdoor Capital of UK". Ben Nevis is 4,406 ft above sea level. (Solan, on the route to Shimla is 4,900 ft above sea level.)

All the stations on the line carry both their English and their original Gaelic names. Fort William is An Geardasdan, Glen Finnan is Gleann Fhonnainn. I could not catch some of the other gaelic names, but one sign pointed to the rather unpronouncable town called Druimindarroch.

It was near the Glenfinnan viaduct that the Young Pretender, Bonnie Prince Charlie (Prince Charles Edward Stuart), led a Scottish army and unfurled his Jacobite standard in 1745 to start an uprising to claim the British throne. The uprising was suppressed but the legend lives on and is commemorated by a

monument at the site and now by the steam train that has been running these last 28 years as 'The Jacobite'. The train and the line were used extensively in the filming of "Harry Potter and the Chamber of Secrets", "The Prisoner of Azcaban" and "Harry Potter and the Philosopher's Stone".

Every summer, the West Coast Railway company operates this steam train service from Fort William to Mallaig and back. The steam train operates from mid-May to October-end Monday to Friday in the forenoon. During all of July and August it also has morning runs on Saturdays and Sundays. An additional afternoon service operates all June, July and August. Each round trip Fort William-Mallaig and back takes almost six hours, with a halt at Mallaig of almost two hours. So now, on your next visit to Scotland, you can enjoy a ride on a train that takes you on a great rail trip past Britain's highest mountain, deepest lake and shortest river, through beautiful highland country-side and over a magnificent crescent-shaped arch bridge (itself worth seeing), to its westernmost rail station. Perhaps your ride could be in a coach used in Harry Potter films.



A train crosses the Glenfinnan Viaduct

The Indian Railways and War

- by M. L. Khanna

December 3, 1971! On a wintery Friday evening, in a series of pre-emptive raids, the Pakistani air force struck various airports in North India, triggering the 3rd war between the two sub-continental giants. This was one of the shortest wars in history and led to the formation of a new nation Bangladesh. While India's quick response and its overwhelming victory are too well known to need repetition at this stage, what is not highlighted in the wars chronicles is the role of the Railways in the conflict. Lt. Col. M L Khanna, then Commanding Officer of 1033 Railway Engineers (TA), writes of the experience of his unit during the early days of the war. Lt. Col. M L Khanna was then a Deputy Head of Department on the Western Railway and later retired from Railway service as a Member of the Indian Railways Board.

His story...

The dilapidated road sign read: **Welcome to the land of 5 S's – Sand, Sandstorms, Sand-dunes, Snakes and Scorpions.** We were crossing the international border between Munabao in India en route to Khokhrapar in Pakistan and beyond towards Hyderabad in Pakistan's Sindh province. It was December, 1971, and the Indo-Pak war had just begun. We – a Territorial Army (TA) battalion of about 1000

railwaymen-turned-army men – were called upon to activate and then operate the 40 kms. rail line of the Pakistan Railways in the middle of the Thar desert that straddles the two countries at this point. Our task acquired great urgency as our advancing troops were left with meagre rations of food, water and ammunition. Our army's quick advance was creating a logistics nightmare as supply lines became longer and stocks dwindled by the hour. With no road in the desert for plying of army trucks, the problem was becoming critical and the running of supply trains imperative. Our unit, the 1033 Railway Engineers (TA), comprised of railwaymen from the Western Railway Zone of the Indian Railways and had been called upon when war was declared to don army uniforms and assist the war effort by giving support to the fighting troops.

Our first task was to bridge the gap between the two lines on the Indian and Pakistani sides. This was accomplished in a day and the first train carrying water in rail tankers and some other supplies steamed into Khokhrapar the following day. Since we were always in danger of air attacks, the non-TA railwaymen who had helped run this train were evacuated and leading contingents of the TA took over. However, this was only the beginning of our task: the supplies

had now to be carried 30 kms. to the front line where the battle raged.

The last contingent of our unit was still on its way in a special military train which was approaching Barmer and was scheduled to arrive there at 8 p.m. Apparently, Pakistani intelligence had got a whiff of this and its planes bombed and strafed Barmer railway station area that while night, with the aim of destroying the unit that was to activate the Pakistan Railway in the area that our army had over-run. After spending a couple of hours in a trench in the bitter cold,



Field Marshall Manekshaw pinning the VSM on Lt. Col. M. L. Khanna

since the bombing ceased to abate, we went around to see if our men were safe. Fortunately, they were. Along with Major O P Nayar, my Second-in-Command, I spent the rest of the night in the Station Master's office assessing the damage and planning for the future.

Quite obviously, the target of the sustained bombing by Pakistan's bombers was the military special that was carrying the last part of our unit according to its scheduled arrival. What the Pakistanis did not know was that by a subsequent order (half by anticipation and half by sixth sense) the train had been halted 20

To add to our woes, the enemy had damaged and destroyed many of the culverts and parts of the track as they retreated.

The next day saw the unit working at a feverish pace. We worked the whole day, restoring the line to a minimum level of fitness. As the sun sank over the distant dunes and darkness draped the desert, we returned to Khokhrapar, now our advance base. As we were fortifying ourselves for dinner, Pakistani planes struck again. They withdrew after setting an ammunition dump on fire. Guessing that they would not return till dawn, we quickly assembled the first



In front of Vasarba station in Pakistan. Lt. Col. M. L. Khanna is 7th from left

kms. away. Safe and in one piece, the train resumed to its destination soon after the air raids receded.

It was the next morning that we arrived at the above mentioned signboard. It was dark when we reached Khokhrapar Railway station in Pakistan. The last act of the day was a late night conference in total darkness when plans for the next day and allocation of duties were decided – to survey and repair the next 30 kms. of track right up to the front line where our infantry had dug in and were surviving on minimal supplies.

supply train of about 20 wagons loaded with food, water and, above all, ammunition.

It was past midnight when the train moved slowly and stealthily into the darkness. In time, we stopped near a station deep inside Pakistani territory just behind the front line. After a few moments of jubilation, unloading began and was almost completed when dawn broke with the arrival of more Pakistani planes. In the bombing that followed, the locomotive driver, Durga Shanker, suffered burn

injuries from a napalm bomb. To avoid further losses, the train was ordered back to Khokhrapar, the brave driver offering to work the train with his elbows as his hands were burnt. The train in reverse motion had covered about 12 kms. when 4 rail tankers derailed between two high sand dunes, where visibility was nil. Pushing of a long train is hazardous in the best of times and is normally not resorted to in peace time movement.

Our next task was clearing the obstruction caused by the derailed tankers. Working during the day in the open was an invitation for air attacks. We were fortunate that we were able to work till 4 p.m. without any disturbance from the air. This is when our luck ran out as 4 Pakistani Starfighters returning from a bombing mission over India spotted us. Luckily, they had exhausted their bombs on the mission. However, one of the planes circled back and dived to strafe us. As he dived, I could see the Pakistani pilot adjust his guns, before he opened fire and sprayed the desert around us with thousands of bullets. The desert has no place to take cover, so the 100 of us lay motionless waiting for the worst. The bullets

missed us by a few inches. What saved us was an anti-aircraft gun we had mounted on the train as a last minute innovation. We knew that the planes would come back fully loaded and charged. So, we finished the work quickly and returned to Khokhrapar. On arrival, we found Khokhrapar ablaze. Luckily, all our men were safe and the morale of these part-time army men was high.

We continued running these supply trains not only till the end of the war on December 16 but for a few months beyond while India held the Pakistani territory between our border and Naya Chor. The Army recognised the contribution of the railwaymen and our unit was decorated with one Vir Chakra, two Vishisth Sewa Medals and 3 Mention in Despatches. The Vir Chakra was won by the driver, Durga Shanker. To this day, this is the only Vir Chakra won by a member of the Railway Territorial Army.

Copy of a letter from the Chief Personal Officer of Western Railway addressed to Mr. M L Khanna is reproduced on the next page.



Territorial Army men at work inside Pakistan in 1971

WESTERN RAILWAY

S. G. Samant,
Chief Personnel Officer.

Churchgate, Bombay.

14th February, 1972.

Confidential
D. O. No. CPO/Misc. I.

My dear

I reproduce below a D. O. letter from the Chairman, Railway Board, addressed to our General Manager, which is self-explanatory :

"I wish to place on record my appreciation of the good work done by 1033 Railway Engineers Group (TA) of your Railway, which has been recognised, inter alia, by the award of "Vir Chakra" to Driver Durga Shankar and "Vishisht Seva Medal" to the Officer Commanding the Group, Lt. Col. M. L. Khanna.

The Group was mobilised and inducted into the Barmer Sector at short notice and had to move straight into captured enemy territory for restoration of railway facilities and running of essential trains. As there was no road communication, the railway line was a vital means of surface communication and assumed great importance. The enemy was very sensitive to our opening up of this route and specially directed their air raids towards destruction of railway track, stations and rolling stock. The TA Group had to function in the face of active enemy air attacks. In spite of all these hazards and difficulties, 1033 Railway Engineers Group acquitted itself creditably. The role of the officers and staff of the Group has been most commendable."

For and on behalf of the General Manager, I take this opportunity to congratulate each one of you of 1033 Railway Engineers Group (TA) for the excellent work done by you and your devotion to duty despite many hazards and difficulties.

With best wishes,

Yours sincerely

S. G. SAMANT

Shri. Shri M. L. Khanna
Deputy Chief Mechanical
Engineer (Carriage & Wagon)
Church gate

Copy for Personal/CR files of members of 1033 Railway Engineers Group (TA).

An Introduction to Steam Traction

- by *Ranjit Mathur*

Arguably one of the greatest manifestations of the Industrial Revolution was the use of steam locomotion as a means of transportation.

George Stephenson is usually credited with the invention of the locomotive. This is because the first use of steam power on a public highway was when on 27 September 1825 his locomotive pulled a train on a newly laid line from Darlington to the port of Stockton in Britain's north-east.

But many inventions, spanning over a century, preceded that final emergence of the steam locomotive.

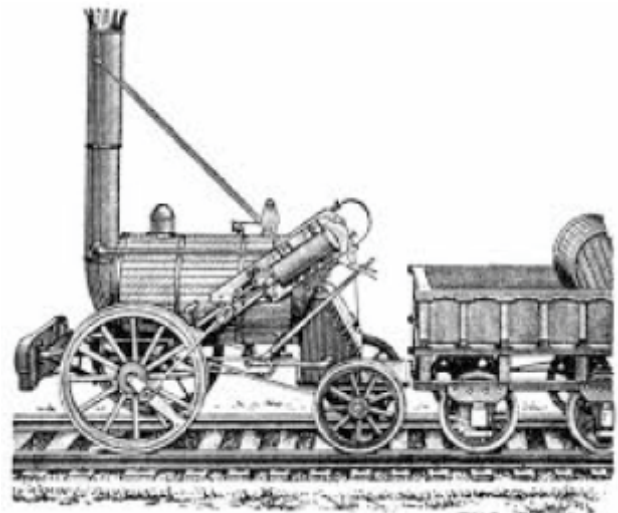
A piston engine was developed by the French physicist Denis Papin in 1690 for pumping water. Also for pumping water, the English engineer Thomas Savery built a "steam engine" in 1698. This was improved in 1705 by Thomas Newcomen, whose device was extensively used to pump water out of coal mines. These devices used condensation of steam to create a vacuum to help air from the atmosphere to push the piston.

James Watt, who, as a boy had observed the power of steam in a kettle of boiling water, incorporated many new ideas. *These were the ideas that made possible the modern steam locomotive.* He introduced a separate condensing chamber for the steam to avoid the loss of steam that occurred in alternately heating and cooling of the engine cylinder as required in Newcomen's device. The steam chamber remained insulated at steam temperature; the other cylinder being water-cooled. He patented this idea in 1769. Later, he introduced steam pressure to replace atmospheric pressure and devised a method by which the pistons drove a fly-wheel, initially by a system of gears and then by a crankshaft. He also admitted steam at each end of the cylinder alternatively, to drive the piston back and forth. Finally he equipped his engine with throttle valves and governors to control speed of operation.

In 1763, the Frenchman Nicolas Cugnot had built a steam carriage that carried four persons at a speed of 2.5 mph, but because of the smallness of the boiler, it could work for only 15 minutes at a time. Thereafter many attempts were made to apply steam engines to

road carriages: by Evans (in America in 1772), by Symington and by Murdock (both separately in England in 1784). But, the first practical locomotive was constructed by the English engineer Richard Trevithick, a pupil of Murdock. This he patented in 1802. Then he built a second and better locomotive, which he completed in 1804. It hauled several wagons, each laden with 10 tons of iron, at a speed of 5 mph. This locomotive exhausted its steam into the smoke stack of its firebox, thus providing a forced draft for the fire, a feature employed by all subsequent locomotives.

One of the earliest difficulties encountered by locomotive pioneers was entirely imaginary. It was supposed that the grip, or 'bite', of smooth wheels on smooth rails would be so slight that the wheels would slip and so no progress would be made when heavy loads had to be pulled. Many were the arrangements that were considered to 'overcome' the



slip. A locomotive built by Blenkinsop in 1812 which could haul thirty coal wagons from the Middleton collieries to Leeds, a distance of four miles at over 3 mph, had a special toothed wheel which engaged with a rack laid alongside the rail – the first rack-and-pinion rail.

The fact that smooth wheels could grip smooth rails was proved by William Hedley in 1813 with his 8-wheeled engine. It had a wrought iron boiler with a

double flue, thus creating a larger heating surface. It was capable of hauling 14 loaded wagons at 5 mph. The railway ran alongside a public highway. The exhaust steam caused so much alarm to horses that, whenever a horse was sighted *Puffing Billy*, as the locomotive was appropriately called, had to be stopped and remained standing until the horse was out of sight!

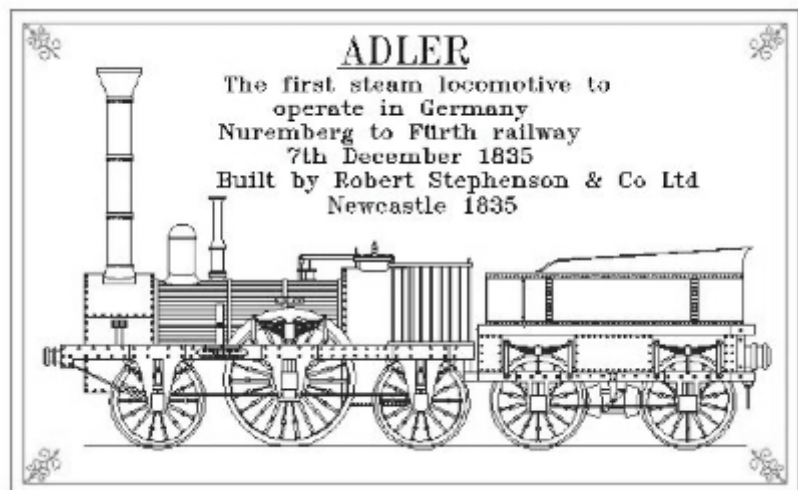
Meanwhile, working as assistant to his father who was the fireman of the old pumping engine at the Wylam colliery, near Newcastle, George Stephenson realized the need for mechanical means of hauling coal up from the pits. Although barely literate, he was both a mechanical genius and a visionary, who not only perfected the pattern on which all steam locomotives were based but also foresaw the creation of a national railway network for Britain. He examined both Blenkinsop's and Hedley's engines and succeeded, by combining their different plans with the addition of original inventions and adaptations of his own. It took him ten months to build a practical locomotive which, when tried on July 25 1814, was found to be a decided advance over all previous attempts. It had a wrought iron boiler and two vertical cylinders of 8-in diameter and a 2-ft stroke. The motion of the crank was transferred to the cylinders by spur gearing. *Blücher*, as this Loco was called, may also have been condemned as useless because it was so heavy had Stephenson not introduced the steam blast. This opened up a new field as the boiler was given such increased capacity for generating steam that the power of the engine was almost doubled. In 1815 Stephenson constructed a second and improved engine (now on a pedestal in the Central Station of Newcastle-upon-Tyne) in which the pistons were connected directly to the engine wheels by cross-bars and connecting rods.

Stephenson's great chance came in 1821. For carrying coal from the

Durham mines to the sea, a railway was proposed between Stockton and Darlington. Initially it was suggested the system would be a train load and that horses would be used for motive power, except on heavy inclines up which fixed engines would haul the trains by ropes. Stephenson was able to convince the company to use steam engines for the entire run, pointing out that they were more powerful and more economical. The railway was opened on 27

September 1825. His locomotive, called *Locomotion*, which hauled that first load of 38 wagons (each of 3 tonnes) carrying 600 people, stands on a platform in Darlington station.

But even more famous than *Locomotion* is the *Rocket*. George Stephenson had come to be regarded as an expert on railways and was asked to advise on the proposed railway between Liverpool and Manchester. A series of trials were held at Rainhill in October 1829 and the undoubted star was the *Rocket*. It embodied improvements introduced by Stephenson's son, Robert, including a multi-tube boiler and a blast pipe. Hot gasses from the fire-box passed through the fire-tubes in the boiler, heating the water in the boiler to produce steam. The steam was fed to the cylinders, placed outside in an inclined position, where, by acting on the pistons, it drove the wheels and was then exhausted through the blast pipe in the



chimney, creating a draught to draw the fire. *These features have remained essential for all steam locomotives.* The weight of the locomotive was also reduced to 4 ¼ tons. (In *Locomotion*, which weighed 6 ½ tons, the cylinders were vertical, with the lower portion inside the boiler.) The *Rocket* resides now in London where it has been assigned a commanding place in the Science Museum, South Kensington, where I went to see it. London gives one the really exciting opportunity of viewing two of the earliest inventions towards mechanized transport in a single location as “*Puffing Billy*” now *exactly 200 years old* is also installed in this Museum.

The Stephenson's produced locos for railways in Britain and abroad. Built immediately after *Rocket* for the Canterbury and Whitstable Railway in Kent, one of them, “*Invicta*”, has a place in the Heritage Museum in Canterbury. As you can see in this photograph with me in the foreground, it has a life-size replica of Stephenson on a narrow footplate.

I also made a special trip to the Rail Museum in Nürnberg (Nuremberg) to see a replica of the *Adler*, (“Eagle”), the first locomotive that was successfully used commercially for rail transport of passengers and goods in Germany. This was also designed and built by George and Robert Stephenson and was delivered to the Bavarian Ludwig Railway (*Bayerische Ludwigsbahn*) for service between Nürnberg and Fürth. It ran officially for the first time there on 7 December 1835 and incorporated yet another feature: the driving wheels had no flanges, thereby relieving a great deal of pressure from the crank.

But you do not need to go to London or Germany to see such magnificent machines of the 19th century. Moreover, they are stationary. For you, one lives....

..... In 1855 a locomotive was delivered to the East Indian Railway in Calcutta and numbered “22”. Constructed by the firm Kitson, Thompson and Hewitson of Leeds, England, she was named the *Fairy Queen* in 1895. This magnificent locomotive with a two-stroke engine, a power output of 130 Hp and a speed capability of 40 kmph, initially ran mail services between Howrah

and Raniganj covering the distance of 121 miles in five hours. She was later on material train duty for several years. Withdrawn from service in 1909, she was placed on a pedestal first in Jamalpur, then in Howrah until 1943 and then at the Chandausi Training School. Lovingly restored as an exhibit in the National Rail Museum in Delhi when it was opened on 7.10.1971 by President Giri, she was accorded heritage status in 1972. A dedicated band of steam lovers then restored her to full working order and in 1997 *Fairy Queen* returned to commercial service for the first time in 88 years. She was certified in 1999 by the Guinness Book of Records as *being the world's oldest locomotive in regular operation*. A second overhaul was undertaken in 2011-12 and she returned again to service in December 2012.

So now, on selected days you can travel between Delhi and Alwar on a special train hauled by the *Fairy Queen*.



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