A SHORT HISTORY OF BRITAIN’S RAILWAYS

(for teachers)

Written by Ray MacFadyen, June 2013
The idea of running a vehicle along a track dates back thousands of years to Ancient Greece, when tracks were worn into rock by primitive wagons that were moved along by hand or animal. The Romans also used sets of long, smooth, stones on their roads to help the passage of wheeled vehicles. However it was not until much later that what we now refer to as “railways” began to appear. Britain was to pioneer the steam railway in the early 1800s and remain the world leader in railway development for over 150 years.

By the 16th Century, wooden railed wagon-ways were being used to move small trucks, however these had to be kept on the paths by hand as there was no way to stop the wheels falling off to either side. Systems were later put into place to guide the vehicles, such as pegs which moved along a groove in the track. The earliest example of a railway in Scotland was the Tranent to Cockenzie Waggonway, which was a 2 ½ mile long route for mine wagons in East Lothian established in 1722. This horse-drawn line used wooden rails and was on a continuous gradient to help propel the wagons down towards the end of the line. A development of this type of railway came with the use of L-shaped iron rails in the late 18th Century by Benjamin Outram, whose Little Eaton Gangway in Derbyshire served the Derby Canal. At the same time, an engineer from Devon called William Jessop, had created from cast iron a type of rail which was flat on top, but which was designed to be used in conjunction with wheels which had a flange on their inside edges. This meant that the wheels easily stayed on the track, but also allowed for routes to diverge using points to control direction. Rails similar to this type are the basis of the present day rail system.

Developments in power generation had also been progressing. In 1712, an engineer from Devon, Thomas Newcomen, invented the first practical pumping engine powered by steam and it was subsequently used to pump water out of mines up and down the country. In Newcomen’s engine, a heated boiler pushed steam into a cylinder and pushed up a piston. When the steam cooled (achieved by injecting a small amount of cold water into the cylinder) a vacuum was created which then drew the piston back down. The engine was stationary and very large.

THE HARNESSING OF STEAM POWER

Newcomen’s stationary and cumbersome “atmospheric engine” remained very much unchanged until the work of James Watt further advanced the world of steam power. Watt was born in Greenock and, as a young man, had to move to Glasgow to get work. In 1763, after repairing a Newcomen engine, he realised that as much as 75% of the engine’s power was being wasted and duly modified the design. He went into partnership with John Roebuck, who lived at Kinneil House, near Bo’ness using a small cottage in the grounds as a workshop. Watt’s modifications increased the efficiency of the existing steam engines but he needed funds to patent his innovations. Shortly after obtaining the patent for Watt in 1769 Roebuck went bankrupt and Watt had to turn to someone else for financial help. This came from Matthew Boulton, a foundry owner from Birmingham. After Boulton bought Watt’s patent the two
developed a successful partnership, which would last for the next twenty-five years. With Boulton’s help and the expertise of some of the world’s finest iron-workers, Watt continued to improve the steam engine, coming up with a way of producing rotary or circular motion. Both Boulton and Watt became rich men by fully exploiting their patented steam engine improvements.

Building on the pioneering work of Newcomen and Watt, a Cornishman called Richard Trevithick built the world’s first steam locomotive in 1803. It was not given a name. His second locomotive, called ‘New Castle’, was the first to be put to practical use when it began hauling iron a year later at the Peny-darren Iron Works in South Wales. In 1807, South Wales also saw the operation of the Oystermouth Railway - the world's first railway to carry fare-paying passengers - although the wagons were still horse-drawn. By 1808, Trevithick had perfected his design, incorporating his innovation of a chimney to remove the exhaust gases. He also used advances in boiler construction to run his engines at higher pressures, meaning that the engines were now capable of hauling greater loads than before. Trevithick exhibited his engine, called “Catch Me Who Can”, to the high society of London, with willing passengers paying one shilling for the privilege of riding in a circle behind Trevithick’s creation. However, this promotion was not a success, partly because Trevithick’s design was too heavy for the cast iron rails and caused them to break as the train repeatedly went over them. Trevithick, because of this seeming failure, subsequently stopped designing any more locomotives and sank into obscurity, but the foundations for the subsequent development of steam railways in Britain were now well in place.

THE FIRST STEAM PASSENGER RAILWAYS

The first time passenger traffic was run on a steam locomotive powered railway was in 1825, when the Stockton and Darlington Railway was opened. It was the brainchild of George Stephenson, a civil and mechanical engineer from the North of England who, together with his son Robert Stephenson, would greatly advance the railways of Britain over the next few years. Stephenson, who became known as the “Father of Railways”, helped design the route of the subsequent Liverpool and Manchester Railway, overcoming obstacles such as a peat bog known as Chat Moss by having the railway line float over the seemingly bottomless peat bog on a base of heather, branches and moss. As well as masterminding the civil engineering on the routes, Stephenson and, later, his son, were responsible for creating the locomotives used. “Locomotion” was the most famous of those used on the Stockton and Darlington line, and was the first of several built for this route. Stephenson’s most famous engine has to be “Rocket”, which was a contestant in the Rainhill Trials, a competition set up to provide locomotives for the Liverpool and Manchester route in 1829. This engine was primarily designed by Robert Stephenson, with suggestions given by his father. Ten locomotives were entered, with five ultimately taking part on the line. They were: Cycloped, Novelty, Perseverance, Sans Pareil and Rocket. All were steam powered apart from Cycloped, which was powered by a horse walking on a treadmill! Rocket was the only locomotive which finished the course.
THE VICTORIANS
& THE SPREAD OF THE RAILWAYS INTO SCOTLAND

With the success of the Stockton and Darlington Railway and, then, the Liverpool and Manchester Railway, it became apparent that there was a future in the use of steam traction for commercial gain. At first the big profits came from the transportation of coal, with passengers being regarded as of secondary importance. However the early passenger railways had shown that there was a desire for this to be developed further and it was not long before Scottish towns and cities benefited from this revolutionary new form of transport.

The first true railway between towns in Scotland was the Kilmarnock and Troon Railway, established by an Act of Parliament on 27th May 1808. It first carried passengers in 1819. Prior to 1840 there had only been 289 miles of track laid in Scotland. In the year 1845 alone, 436 miles were laid and this became known as the year of “Railway Mania”. By 1866 Scottish track mileage had expanded to an impressive 2250 miles.

Edinburgh and Glasgow were connected during 1842, with a line between Haymarket and Queen Street opening on 18th February of that year and run by the Edinburgh and Glasgow Railway (the E&G was subsequently acquired by the North British Railway). The line was extended to Waverley station in 1846. By 1850, railway lines connected all the major towns.

There were five main railway companies in Scotland:

- The Caledonian Railway began in 1845 and in 1848 connected Glasgow with Carlisle.
- In 1846 Edinburgh was joined by rail to the English network by the North British Railway, which had begun its life in 1844. Its route to the South linked it with Berwick and then Newcastle.
- The Glasgow and South Western Railway was founded in 1840 with a line linking Glasgow with Ayr and with stations en route at Paisley and Kilmarnock.
- The Highland Railway began its life in 1855 with the opening of the Inverness to Nairn line. Its network of lines radiated south to Perth, north to Wick and Thurso, with its most westerly line reaching out to Kyle of Lochalsh.
- The Great North of Scotland Railway was founded in 1852 and served the North East of Scotland. Its centre of operations was based at Aberdeen.

CONQUERING NATURE

The Victorian age saw a number of great advances in railways in Scotland, most of which were civil engineering solutions to some of the natural barriers which stood in the way of direct routes between

THE MUSEUM OF SCOTTISH RAILWAYS
A short History of Britain’s Railways (for teachers)

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Scottish cities and towns. Two of the greatest of these barriers were the Firths of Tay and Forth, and it took great ingenuity, as well as tragedy, before both of these rivers were successfully bridged.

The first bridge across the river Tay was designed by the renowned engineer, Sir Thomas Bouch, and his design for a single track bridge was hailed as a great success when it was opened in 1878. However, on the stormy night of 28th December 1879, the central section of the bridge, known as the High Girders, was destroyed by gale force winds. A train carrying an estimated 78 people, including the crew, was travelling north from Wormit to Dundee and ploughed straight into the river, killing all on board. The subsequent inquiry found that the design and construction of some parts of the bridge had been inadequate and substandard and Bouch, his reputation as an engineer in tatters, was left a broken man for the rest of his life. A new, much stronger, bridge, this time double track, was opened in 1887 and still stands to this day. One of the twisted girders from the first bridge can be seen in the Museum of Scotland in Edinburgh and the piers from the old bridge still stand by the side of the new one.

The Firth of Forth was originally to have been spanned by a slender suspension bridge also designed by Bouch, which got as far as having its foundation stone laid, but, following the 1879 disaster, Bouch’s design was scrapped. A new bridge based on the Cantilever principle was planned by Sir John Fowler and Sir Benjamin Baker and built between South and North Queensferry, being opened by the Prince of Wales in 1890. This bridge - which was the first such major structure to be built in Britain using steel, rather than the cast or wrought iron of earlier designs - was a triumph and remains one of the greatest achievements of Victorian engineering.

Civil engineering is not only confined to the building of bridges across rivers and in Victorian Scotland there were numerous examples of railway lines built along stretches which tested the ingenuity of the engineers, such as the Inverness to Kyle of Lochalsh line. The final stretch of this railway was, at the time of its construction at the beginning of the 20th Century, the most expensive railway line - per mile - in the country. To keep gradients shallow much of it had to be routed through cuttings, tunnels or embankments, with thousands of tons of rock being blasted away to make way for the track bed.

**THE NAVVIES**

In Victorian Britain, much of the work of laying railway lines had been done by labourers who worked with tools such as picks, shovels and barrows. Some of these men, who became known as navvies, had fled from the Great Irish Potato Famine of the 1840s to settle with their families and find gainful employment in the West of Scotland and other areas. Despite the spread of workers from Ireland, the majority of the navvies in the country (numbering around 250,000 in Britain at the height of the railway boom in the 1850s) hailed from the British mainland, with those who built lines such as the Kyle of Lochalsh extension coming mostly from the Highlands and the Western Isles. The building of the railways was a very labour intensive task, and the navvies were paid well compared to those who worked in factories - they could earn up to 25 pence per day! The navvies stayed in shanty towns, close to where they worked, however the death toll in certain areas, particularly where tunnels were being constructed, was high, with the widow of a dead navvy perhaps getting up to £5 compensation if she was lucky. As the 19th Century wore on, mechanical equipment, such as steam shovels, became more widely used, but the bulk of work was still done by hand. The crucial role of the navvies in the construction of the railways in Victorian Britain cannot be overstated.
A CHANGED WAY OF LIFE

The Victorian Era saw the growth of railways from a small system for transporting goods and passengers over relatively short distances into a country-wide inter-city network which revolutionised British life. One way in which this happened was the first use of a standard time system in Britain in 1847. Prior to this, each town or village had used its own local time. The coming of the railway meant that the time had to be the same throughout the network for the timetable to work. By 1855 the vast majority of Britain’s clocks were standardised to Greenwich Mean Time (GMT) and those travelling could tell from a glance at their timetable exactly when a train would arrive or depart in any part of the country.

The ease of railway travel between Britain’s ports and its major cities and towns led to a change in the diet of the country. Fish, which had previously been an expensive food in areas away from the sea, became a very important part of the diet in Victorian Britain because it was now possible to have it taken to market and then sold in shops while it was still fresh. Deep freezing of food was still some way off in the future and, in Scotland, the ability to get fish quickly to market was a great boost to towns like Kyle of Lochalsh, Mallaig and Oban. Special trains would often be run at short notice to allow for an extra-large catch of fish. At most other times a fish van or two would be sufficient, added to the end of a passenger train heading for the cities.

The railway was used to quickly transport other perishable items such as fruit or milk, with milk being carried in special metal churns placed inside wagons. Special ventilated vans were designed to help with the transport of goods which needed to be kept fresh. At first such loads had been carried in open wagons and covered with a tarpaulin, but the newer vans had roofs to protect the contents and extra ventilation louvres in the body to help keep the goods cool within. Meat, in the form of cattle, was at first largely transported live to the markets, but, from the 1870s, shipments of meat were more common, carried in ventilated meat vans. The result was that, as with fish, those living in Victorian towns were able to choose from a much wider range of fresh produce than before.

RAILWAY SAFETY

The growth of the railways in Victorian times also required greater safety measures to be put in place to protect passengers and the public. Since the 1840s it has been a legal requirement that all railways in Britain are fenced off from the public and many of the railway companies spent much effort on producing signage to warn people off their property. However, the most important of the safety measures has to be the development of a proper system of signalling. Early systems had involved trains running to set timetables and a watchman looking out for each passing train. This worked fine if all was running to time, however if the train was delayed after it had gone out of the watchman’s sight there was no way to tell this had happened and an accident may occur.

On single track lines, tokens and tablets were used and the locomotive driver would be given a marked token in a leather pouch, which allowed him to travel over a stretch of line. There was only one token per stretch of line, which would be given to the signalman at the end of the single section. The token could then be given to the driver of the train coming in the opposite direction. This system worked very well and versions of this are still in use in some areas in Scotland, such as on the Stranraer to Girvan line. The
invention of blocked, interlocked, signalling and the adoption of national standards for this system in the 1889 Regulation of Railways Act, was a great advance in safety.

The signalling system was worked by a signalman from the signal box. These would be placed at points along the line, with each box controlling a number of signals and points. The size of the box was determined by the complexity of the route. The system was mechanical, with semaphore signals (these have a pivoting arm, which moves to indicate if the line is clear or not) and points controlled by rodding which went from a frame of levers in the box to the points or signals themselves. The signalman’s main duty was to get each train from point A to point B safely and on time. They would enter each train movement into the Train Register Book, which sat on a desk inside the signal box cabin. The signalman would be able to communicate with other signal boxes down the line via a series of bell codes. These were sent via telegraph wire. You can see the telegraph wires on many heritage lines up and down the country.

As well as actually operating the signals and points, all of which were interlocked (meaning that that signalman could not set these in an unsafe sequence) the signalman’s duties included watching the ends of passing trains. They did this to see if the last carriage or wagon displayed a red tail lamp. If it did then the train was complete. If it did not then this could mean that either part of the train had detached, or someone had forgotten to place the lamp, both of which were regarded as very serious.

THE VICTORIAN LEGACY

By 1901 the railway industry and infrastructure was on a completely different scale to that which had existed in 1837. The country was now criss-crossed with a network of lines that served hundreds of communities of varying sizes. Safety systems and regulations had been put in place which had drastically reduced the number of railway-related accidents and improved the efficiency of the system. The railways, which had been, in the early 19th Century, something to be feared, were now a part of the culture and life of the country, and there was a sense of pride in what railways in Britain had achieved. Formidable natural barriers had been successfully conquered through engineering marvels such as tunnels, viaducts and bridges, and the network was at the height of its profitability and influence. Locomotive works throughout the country, such as North British Ltd. - the largest locomotive and rolling stock works outside the United States - were also exporting examples of British made engines worldwide, with many of those who began their careers on British and Scottish railways using their expertise to help set up railway networks abroad.

It is no surprise that many people now regard the years prior to the outbreak of the First World War in 1914 as the zenith of railways in this country.
As the 19th Century gave way to the 20th Great Britain was at the height of its influence. Nowhere was this more evident than in the state of its railways, which were to reach the peak of their spread and profitability in the Edwardian era. This was well before a shadow was cast over the entire industry with the outbreak of the First World War. Nowadays, the railway of the Edwardian era is remembered through such fictional works as E. Nesbit’s 1905 story, “The Railway Children”, where three children, who move to near a railway line, befriend those on the railway and, among other adventures, avert disaster when there is a landslip on the line.

“Doon the Watter”

After the “railway mania” of the 19th Century, the Edwardian Era was a time of relative stability and consolidation for the railway companies in Britain, with the number of miles of track still expanding, but now more slowly. It was also the period when railway travel to Britain’s holiday resorts began to become open to the working classes. Many of today’s British seaside towns owe their present existence to the growth of tourism at this time. In Scotland, many of the travellers would use the railway to connect with steamers which would take them to the resorts on the River Clyde for either day trips or a much longer holiday break. This became known as going “Doon the Watter” and often a whole family would travel on the train, then board the steamer towards their chosen destination, their clothing and belongings carried in a huge trunk. Examples of these can be seen at Bo’ness station and in the Museum.

Edwardian Elegance

The Edwardian Era is now known as the period of railway elegance, with designs in all areas from locomotives to architecture reaching new heights of style. Designers such as Dugald Drummond, who had begun his career in Scotland, contributed greatly to the railways of Southern England with his locomotive designs for the London and South Western Railway, producing new and stylish locomotives until his death in 1912. With the aforementioned increases in passengers to the Clyde Coast resorts such as Rothesay, the line to the terminus at Wemyss Bay Station was enlarged from single to double track to cope with the resultant increase in traffic and in 1903 the present building was opened. With its circular glass-covered curved steel roof, it was a vast improvement on the old building and remains one of Scotland’s most elegant examples of railway architecture. At its peak it was decorated with beautifully tended displays of plants and flowers in countless hanging baskets. Many other station masters at this time took great pride in their stations and it was common to see ornamental gardens and flower displays at each station. It was not just the general masses who enjoyed travel by rail. The rich, too, travelled in splendour and great comfort, with some, such as King Edward VII himself, being privileged enough to have his own trains and carriages constructed for his own personal use. In the Museum of Scottish Railways you can see Edward VII’s personal saloon, rebuilt for him by the Great North of Scotland Railway in 1901.

Station Hotels

As well as looking pristine thanks to the pride of their staff, many of the larger stations found extra business in the form of the station hotel, a concept which, although begun in Victorian times, saw great expansion in the early 20th Century. An excellent example of an Edwardian station hotel is the North British Hotel, which opened beside Edinburgh Waverley Station in 1902. The clock on the hotel’s tower traditionally runs a few minutes fast so that travellers can be guaranteed that they will not miss their train. The hotel was renamed the “Balmoral Hotel” in the late 1980s. Glasgow Central Station was greatly extended by the Caledonian Railway in 1906 to cope with the extra traffic to the holiday destinations such as Ayr, Troon and Largs, and several extra platforms were added on to the existing station to meet demand. Part of this extension also included an enlargement of the station’s hotel,
which had been opened in 1883. The station hotel has recently undergone a refurbishment to bring it up to modern standards.

The Internal Combustion Engine

During the Edwardian Era an invention began to appear which was to have a profound effect on the railways of Britain and on transport systems throughout the world. This was the motor car, made possible by the invention and development of a lightweight engine powered by internal combustion. A subsequent development of this engine, the diesel, was later to find its uses on the railways, but in 1901 the car was in its infancy. It was popularised by King Edward VII, who purchased several cars, and by the end of his reign there were considerably more private cars and powered omnibuses than there had been in 1901. However, even with this increase, the car was still largely a toy for the rich and it would take many years before it would begin to threaten the position of the railways. While private cars were for the rich, buses could be used by many, and some companies actively embraced the new technology. The Great North of Scotland Railway was innovative in establishing its own feeder bus services as well as operating a fleet of goods lorries and delivery vans. This was established in the years before World War I, and other railways would follow this example into the 1920s and beyond.

The Coming of War

By the second decade of the 20th Century, the railways of Britain were at the height of their fortunes. Profits were high from the huge number of passengers and goods transported around the country. The railway was not just a service, it was a part of everyday life, with some towns, such as Crewe and Swindon, existing and growing simply because of their connection with the railway industry. It seemed that the railway companies had never had it so good and many of their staff were proud to work for them.

Unfortunately this situation was short-lived. By the summer of 1914, Britain was at war with Germany and the railways, which at this point were owned by around 130 different private companies, were to enter a new era yet again. At the outbreak of the war, the companies had to hand over their assets to a government-run Railway Executive, which continued to oversee control of the country’s railways until 1921. Although this system worked well, allowed the companies much autonomy and was more coherent than what had gone before, the railways were still put under considerable strain by the need to maintain supply links to the conflict on the European mainland.

The distinct lack of employees was a continuing problem, as a large number of men had volunteered or been called up to fight and, although women were beginning to be allowed to stand in for them, their numbers were not great enough to compensate for the men’s absence. Many of the soldiers were transported to the ports by troop train and a great number of the country’s railway locomotives and other stock were shipped to France for use nearer the front lines to help with the ever present need to keep the Army supplied. Maintenance of the railways’ remaining rolling stock at home suffered, and spares and raw materials became increasingly difficult to obtain. Numerous factories which had previously produced these turned over their manufacture to helping the war effort in other ways, with many women finding employment in factories for the very first time. By the time the war ended in November 1918, the railways, which remained under government control, were in a far less comfortable state than they had been in 1914.
AFTER WORLD WAR I: “THE BIG FOUR”

The First World War (1914-1918) had put a terrible strain on the railways of Britain. Unfortunately, the railways - which had come under Government control for the duration of the conflict - had suffered from the constant demands which wartime had brought. Locomotives and rolling stock were suffering from overuse and a lack of maintenance, and the railway industry, which at the beginning of the 1920s was made up of over 120 separate companies, was in dire need of huge changes.

THE GROUPING

Change came on January 1st, 1923, in the form of the Grouping, a Government rationalisation of the many operators which reduced the number of railway companies to just four (though there still existed a couple of smaller companies known as Joint Railways).

The four companies, known as “The Big Four” were:

- **The Great Western Railway (GWR)** – headquarters at Swindon
- **The London, Midland and Scottish Railway (LMS)** - headquarters at Crewe
- **The London and North Eastern Railway (LNER)** – headquarters at Doncaster
- **The Southern Railway (SR)** – headquarters at Waterloo, London

The GWR, which had existed since 1833, was the only one of the existing main railway companies to survive the Grouping. It absorbed several of the smaller companies in Wales and the South West of England. The other companies’ names largely indicated the geographical areas which they served, with the LNER running the London King’s Cross to Edinburgh mainline and the LMS controlling the western mainline from London Euston to Glasgow Central. Of the four companies only the LMS and the LNER ran in Scotland (the LMS also had lines in N. Ireland), with the Southern an exclusively English concern, and the GWR owning many of the lines in Wales and the West and South West of England.

THE GWR

The new companies began investing in new locomotives and rolling stock, with the Great Western building upon earlier achievements and concentrating on producing locomotive designs which used standardised components. Famous engines included the Hall, Castle and King Class, all of which were highly successful designs masterminded by the GWR’s CME (Chief Mechanical Engineer) , Charles B. Collett (1871-1952) C.B. Collett also continued to improve the design and construction of many previous tried and tested GWR designs such as the Pannier Tank loco, hundreds of which were used throughout its network.
THE LMS

The LMS, the largest of the four companies, had inherited a range of antiquated stock from its constituent parts. It was some time before it was able to organise itself and be in a position to replace some of these with more modern designs. The first sign of this came with such as Henry Fowler’s *Royal Scot* Class of 1927. This was to be the first of a new wave of successful LMS engines, and more began to appear from 1932, when a designer called (Sir)William Stanier (1876-1965) was brought over from the GWR to succeed Fowler as the LMS CME. Stanier would go on to design some of the most notable LMS locomotives, including the Black Five, used for all kinds of duties, the 8F heavy freight loco, and the express passenger “Princess” and “Princess Coronation” Class. The Coronations, the first of which were streamlined, would go on to set new world speed records on the West Coast main line, achievements which were immediately challenged by the LNER on its East Coast route. Stanier was also responsible for updating the LMS fleet of carriages, with wooden panelled construction giving way to steel sided vehicles which could be produced more quickly and efficiently.

THE LNER

The LNER inherited the talents of Edinburgh born (Sir) Nigel Gresley (1876-1941) - who would come to design some of the most famous and iconic of British steam locomotives - from the Great Northern Railway, of which he had been CME since 1911. While there, he had been responsible, in 1922, for designing the A1 Class (later Class A3), of which “Flying Scotsman” was one member, ultimately becoming known as the “most famous steam locomotive ever” thanks to its exploits following withdrawal in 1963. The streamlined Class A4 was a development of the A3, appearing in 1935 for use on the East Coast mainline. Three years later, an A4 named “Mallard” set a new world speed record for steam traction of 126mph, the ultimate achievement in a highly publicised speed war, which had developed between the LNER and the rival LMS. To this day the record still stands. Gresley also designed many other highly successful LNER locomotives as well as being responsible for their beautiful teak carriages and countless other designs.

THE SOUTHERN

The Southern Railway was the smallest of the Big Four. However, under the guidance of Richard Maunsell (1868-1944), it was one of the most forward thinking, with much of its suburban and urban network electrified by the 1930s. Maunsell was also responsible for designing some highly successful steam engines such as the “Lord Nelsons” and the “Schools” class. After Maunsell retired in 1937 he was succeeded by Oliver Bulleid (1882-1970), who was to come up with several radical designs which would not be produced until the war years including the Q1, Merchant Navy Class and Battle of Britain/West Country. All of these employed innovative techniques and design features.
THE ROMANCE OF THE RAILWAY

Largely the companies had their own routes in different parts of the country, but there were places where they did rival one-another. The best example of this was in the West and East Coast routes from London to Scotland.

The LMS and LNER fought a publicity war with each other for much of the second part of the 1930s. Streamlined trains, publicity films, and ever-faster speeds were a welcome diversion from the stark realities of Depression Era Britain and offsetting the reality of the rest of the railway system with its thousands of drab workhorse locomotives, usually painted in grimy black. In contrast to these, the star locomotives were excitingly clad in the most colourful of liveries: Garter Blue or Apple Green for the LNER, and Caledonian Blue or Crimson Lake for the LMS, with the Southern and GWR joining in with their different versions of green. The best artists of the day were hired to create colourful and lavish posters for all of the railway companies - not just the LMS and LNER - and, in spite of the economic troubles, trains such as the Silver Jubilee, Coronation, Coronation Scot, Atlantic Coast Express, Golden Arrow and Cornish Riviera Express, captured the public’s imagination, all adding to the romance and appeal of the railways, Companies, such as the Southern and the LNER also ran Pullman trains, which had an unrivalled reputation for providing passengers with luxury accommodation and dining.

THE APPROACH OF WAR

Sadly, the advances made to the public image of the railways were to be cut short with the outbreak of World War II. By September 1939, Britain was once more fighting in a struggle against Germany, and such frivolous activities as speed records and streamlining were abandoned, with the railways being firmly at the forefront of the war effort. Although some of the named expresses were to re-appear following the cessation of hostilities and the nationalisation of the railways in 1948, icons such as the “Coronation Scot” were consigned to the history books. The locomotives themselves suffered the indignity of being repainted in “wartime black” livery and having their streamlining either cut back, e.g. the Gresley A4s, or removed altogether, as in the case of all the streamlined LMS “Coronations”. It was the end of an era.
War is Declared Again

In 1939 the railways found themselves in a similar situation to where they had been 25 years earlier. On 3rd September of that year, Prime Minister Neville Chamberlain announced solemnly on radio that Britain was at war with Germany. However, rather than entering the conflict from a period of relative prosperity, the “Big Four” – the LMS, LNER, GWR and Southern Railways – were suffering from a distinct lack of money and resources well before the declaration had even been made. They had managed to survive the Great Depression of the late ‘20s and ‘30s, but only just, and to be plunged into a war in 1939 was the last thing they needed.

“Operation Pied Piper”

One of the first effects on the railway companies, which were taken - as in WW1 - under government control, was the need for Evacuation trains. These were needed immediately and plans, referred to as “Operation Pied Piper”, had been in place for some time. So it was that, two days before the September 3rd announcement, the evacuation of children and others began. It was a huge undertaking, and in the first 3 days, some 1.5 million people, over 800,000 of which were children of school age, were displaced from their urban homes, and sent to relative safety in the country. Other groups included were young mothers, children under 5, pregnant mothers, disabled persons and teachers and other helpers. This was a voluntary scheme, but many took up the offer, feeling that there would be too many risks in staying in the cities.

The trains in which the evacuees travelled were specially laid on, but the evacuees themselves did not know exactly what was happening or where they were meant to be going. They travelled with a minimum of luggage: one small suitcase with as many clothes as could be packed inside; some food for the journey, such as sandwiches; a regulation issue gasmask in a cardboard box, and a small paper label with the evacuees’ name and address. The carriages in which they travelled were often ones without corridor connections, which meant that there was no opportunity to get to a toilet en-route, especially as the compartments were also locked for safety at the start of the journey and not unlocked until the end!

When the evacuees arrived at their destinations they were usually taken to a building such as a Town Hall, where the process of “billeting” would be carried out. This was when the children and others were allocated to stay with a particular family or person (this was known as their “billet”). Often the evacuees would not be the ones that the people receiving them had expected, but everyone had to make do with the situation.
The initial period of the war was to become known as “The Phoney War” in that the expected attacks did not immediately come. Several thousand of those who had been evacuated returned to the cities within a few months, and many would be evacuated again once the prospects of invasion looked even more likely following the Fall of France in May 1940.

The Effect on the Railways

Aside from the evacuation, there were many other effects on the railways in wartime which greatly affected the lives of those who travelled and worked on them. At the outbreak of war, station nameplates, as well as road signs, were removed. The reason for this was to prevent the enemy from knowing where they were in the event of an invasion. This meant that, often, travellers unfamiliar with a route or an area would not know where they were. As it was regarded as suspicious behaviour if any stranger was to ask where they were, it became extremely difficult to find the way around. Indeed, so awkward did the war make railway travel, that posters stated: “Is Your Journey Really Necessary?” – a plea to reduce the number of unnecessary journeys to the bare minimum. This was meant to lessen the strain on everyday services, which were being changed and cut, often at short notice, to make way for trains carrying troops and equipment.

In addition to the removal of signs, the railways were also required to comply with the Blackout Regulations, which meant that no building should show any form of light after dusk. The reason for this was that, when it was dark, in the era before the use of infra-red “night vision” and other such technological advances, enemy planes (particularly bombers) would be unable to identify their targets and get their bearings using easily spotted landmarks, e.g. towns and cities, on the ground. Blackout curtains were installed in the windows of all buildings, including stations, with all exterior lights switched off.

Railway carriages’ lights were dimmed, with bright bulbs replaced by ones which glowed a dim blue. There were blinds on carriage windows to keep even this low level of light safely inside. On the engine footplate itself, thick canvas was hung between the cab and tender to prevent the bright glow from the engine’s firebox being spotted from above. Problems encountered included people getting off at the wrong stations, passengers falling off almost invisible platform edges and goods yard staff being unable to read destination labels in dark conditions.

Austerity Measures

The continuing war also affected the railways in other ways. With an absence of skilled men and resources it became more difficult to maintain the rolling stock. The glamorous expresses, with their brightly liveried engines and carriages, were no more and the LMS’s streamlined “Coronations” were painted plain black and then slowly stripped of their streamlining to make maintenance easier. To be fair, the streamlining had been more of a publicity gimmick rather than something which was actually economical, as any small speed benefits were cancelled out by the extra coal consumption of the heavier streamlined engines!
The LNER’s fleet of streamlined A4s fared slightly better, keeping all of their streamlined cladding above footplate level but losing most of that around the wheels. Like the LMS locos, when in the workshops, these were repainted in plain black as an economy measure. One of these A4s, “Gadwall” was wrecked in an air raid in 1942 when a bomb hit the York train shed where it was housed.

Servicing became less and less frequent during the course of the war, and some locos ran for long periods without proper maintenance. Loads hauled were also much greater than before and it was not unknown for a passenger locomotive to pull a train made up of around 20-25 carriages.

The War Affects Production

The huge locomotive works, such as those in Scotland, e.g. Cowlairs, St. Rollock and the North British company in Glasgow, had their vast production lines turned over to the making of such vital items as components for Rolls Royce Merlin engines (as used in the Spitfire and Mosquito aircraft) as well as gliders which would take part in D-Day in 1944. They consequently became prime targets for German bombers.

Locomotive production was confined to making engines that were going to be essential to the war effort. Austerity was the key word, with engines made which would be stripped of all excesses and easy to maintain. Such designs were the War Department Heavy Freight 2-8-0s and 2-10-0s, 0-6-0 Saddle Tanks (some later known as LNER J94) as well as the unique Q1 class 0-6-0s built by the Southern Railway. Many of the engines produced would be immediately shipped abroad to help with the movement of men and equipment across Europe following the June 1944 D-Day landings. The Bo’ness and Kinneil Railway has four “Austerity” 0-6-0 STs in various stages of condition, with one of these (War Department (WD) 75254) in operation on the railway.

What Came Next?

The “Big Four” companies would never really recover from the consequences of the war. While many of the designs of the 1920s and ‘30s had demonstrated just how capable they were of maintaining maximum performance with a minimum of outlay, the whole railway system was on its knees. The companies’ income during the war had been capped and once the conflict was over they simply did not have the resources to cope with the enormous backlog of repairs and reconstruction which had built up over the last 6 years. By 1947, with a Labour government in power after its landslide election victory of 1945, proposals for nationalising the railways became a reality, and on 1st January 1948 the era of the “Big Four” was over.
Nationalisation

The Transport Act, 1947, handed over many forms of transport, including buses, shipping, canals, and road haulage, to the newly created British Transport Commission (BTC). The BTC was also responsible for operating Britain’s railways and, from January 1st 1948, the railway was one entity known simply as “British Railways”.

There was a new branding for the railways to make them look better, but this did not arrive straight away. At first many of the engines stayed in their previous company colours or, when serviced, were repainted again in the colours of the old companies rather than the drab wartime black livery. They would come out from the workshops with the words “British Railways” replacing any previous insignia. After some consideration, mid-blue with white/black lining was decided upon for the top passenger locomotives, with black with white/grey/red lining for the mixed traffic types. Lowly freight locos would be continue in plain unlined black. Carriages were painted in contrasting crimson and cream (known as “blood and custard”). There was a new emblem designed showing a lion astride a railway wheel. This became known as the “Cycling Lion” and was replaced in 1956 with another new emblem, that of a lion holding a wheel and standing over a crown. A couple of years after first being used it was realised that the passenger blue livery faded too quickly. It was changed for a variation on the GWR livery of green, with black and orange lining. The stations too were given a makeover, with new lozenge shaped name signs in different regional colours using the fashionable “Gill Sans” typeface. Scotland’s regional colour was to be light blue.

Trials and Modernisation

It was realised that many of the locos and rolling stock inherited by BR would have to be replaced. Early in BR’s existence, trials were set up to see how well some locomotives worked in different areas. These were used to guide the design of a new series of steam engines known as the BR Standard Classes, which would contain all the best features from the pre-nationalisation designs, as well as introducing the latest innovations to make the lives of the loco crews much easier. However, many of these designs were to have very short lives. By 1955, a Modernisation Plan was unveiled that was to put an end to the use of steam traction on the railways altogether. The last of the Standards, the 9F heavy freight loco, went into production in 1955, with the final one, “Evening Star”, emerging from the works in 1960. Some of these engines, which had a projected life of 40 years, were cut up for scrap less than 10 years after coming into service. New steel carriages, the Mk 1s, were introduced to replace ageing wooden bodied stock from 1951 onwards. Freight stock was similarly updated over time, with thousands of steel bodied wagons replacing the wooden examples inherited by BR.
The plan envisaged a network in which the majority of locomotives were diesel, with the main lines electrified. Huge marshalling yards were built to use the new freight stock, but the traffic never arrived, having moved to the roads, which, with the brand-new motorways, were becoming more attractive to businesses. The first generation of diesels was largely a disaster, with many failing or at best unreliable. The shared facilities with steam engines did not help as the diesels’ air intakes sucked in huge amounts of sooty air! Some of the newer diesels, however, were a great success, with the “Deltics” (later class 55) taking over duties on the East Coast Main Line and reducing the journey to around 5 ½ hours, and the small Class 08 shunters being used in yards throughout the country. A major initiative in Scotland was the electrification of the Glasgow Suburban Network in 1960, with brand new Class 303 Electric Multiple Units (EMUs) introduced to replace ageing steam services. Although there were problems at first with the new units, they became a success and, with their bright blue liveries and push-button sliding doors, the “Blue Trains” helped establish a more modern image in the area. The last surviving Class 303 is in the Display Shed at Bo’ness.

By the end of the 1950s it was apparent that the Modernisation Plan had not reversed the railways’ fortunes, so it was decided that something would have to be done. By 1963 the British Transport Commission had gone. The new British Railways Board was headed by Dr Richard Beeching and his report – The Reshaping of British Railways – was to have huge consequences for the future of rail in this country.

The Beeching Report

Beeching recommended that large swathes of the network should be cut, simply because they did not pay for themselves. The report stated that 33% of the network was carrying just 1% of the traffic. These figures were arrived at through a 1 week traffic census carried out in 1961 and many still question the accuracy of the figures used. The result of implementing Beeching’s findings was that, between 1963 and 1974, just over 4000 miles of track was closed. Many areas, such as the Lake District and the Scottish Borders, were left completely without railways, with the Waverley line from Edinburgh through Hawick to Carlisle being one of the last major lines to shut in 1969.

Rail Blues

With the impending elimination of steam, BR decided there should be a new image for the company, now known as “British Rail”. Blue was chosen as the new livery, with blue and grey carriages and standardisation being the watchword. A white double arrow logo (nicknamed the “arrow of indecision”) was applied to all locomotives and carriages, and stations were given new corporate image signs to replace the old ones. By 1968 the last steam locomotive had run on the mainline and for BR the future lay in diesel and electric traction. Even here, the non-standard locomotives were phased out by the late ‘70s, with some of the Western Region’s diesel hydraulics being the last to be scrapped. By now, many of the problems with the diesels had been solved through the use of dedicated diesel depots and the withdrawal of the troublesome first generation engines. The late ‘60s and ‘70s saw advances in the routes electrified by BR, with West Coast Main Line electrification being completed by 1974. The new locos effortlessly sped up the gradients that had proved such a trial to the crews of the steam engines and helped to slash the journey times from around 6 ½ hours in the 1930s to around 5 hours by the mid-1970s.
The High Speed Train

The new diesel High Speed Train, known as the HST or Inter-City 125, was introduced in 1976. By 1978, HSTs had begun to take over from the Deltics on the East Coast Main Line. Their sleek modern design and stylish public image helped to increase passenger numbers, as well as decreasing the journey time by around 1 hour. Nearly 40 years after they first appeared they are still in service on the network.

There were still problems, and 1982 marked the point at which the lowest ever number of passengers were recorded as using the railways. It was becoming increasingly apparent that much of the network was still based on Victorian practice, and investment was still not keeping pace with the need to renew the infrastructure. In the 1980s the Advanced Passenger Train (APT), a tilting train for use on the West Coast Main Line, was shelved because of negative publicity and a lack of confidence from central government in the project’s viability. The East Coast Main Line was electrified by 1985 and this enabled the HSTs to be moved to other duties, with ECML trains formed of even newer and still faster stock. By the mid-1980s passenger numbers had begun to pick up again, reaching a 20 year high in 1988. Since this time the figures have continued to increase.

Privatisation

With the re-election of a Conservative government in 1992 it became inevitable that the railways would change again, and between 1994 and 1997 the railways were privatised. This meant that the single company of British Rail was split, with the infrastructure and track being controlled by a private company, Railtrack plc, and passenger operations being given to a set of 25 different private sector operators who were awarded franchises for each area they controlled. Other concerns, such as freight, were similarly split up and sold off.

The railway system of today is more or less the same, though several different operators have come and gone, most notably GNER, who ran the ECML franchise between 1996 and 2007, the line coming back into public ownership when GNER’s parent company collapsed. Also, in 2002, Railtrack was bought over by Network Rail after the disastrous consequences of the Hatfield train crash, where a broken rail led to an express bound for Leeds careering off the rails. The inquiry into the accident found Railtrack guilty of not properly maintaining the track which caused the train to crash. Scotland is the only one of the former BR regional areas to have passenger services run by just one operator, ScotRail. At first, from 1997, this was run by National Express, but in 2004, First Group plc took over the franchise until 2015. At present the trains are being repainted into dark blue “Saltire” livery, which will remain the same even if another company gains the franchise. Who knows what the future holds?
A LIST OF
NATIONAL RAILWAY OPERATORS
IN SCOTLAND - 2015

PASSENGER:

❖ **ScotRail** *(passenger services and sleepers)-operated by Albellio*
❖ **Virgin Trains**
❖ **Virgin East Coast Trains** *(operates to Inverness & Aberdeen)*
❖ **Cross-Country** *(Arriva)*
❖ **First Trans-Pennine** *(Manchester to Edinburgh/Glasgow)*
❖ **West Coast Railway Company** *(seasonal: Fort William to Mallaig)*

FREIGHT:

❖ **D.B. Schenker** *(coal, steel, containers, oil pipes, cement)*
❖ **D.R.S.** *(Direct Rail Services)*
❖ **Freightliner Group** *(Intermodal & Heavy Duty Divisions)*
❖ **G.B. Railfreight** *(Fort William to North Blyth, RTZ ALLAN)*
❖ **Colas Rail** *(Aviation Jet Fuel)*
  - Grangemouth to Prestwick
  - Grangemouth to Linkswood (Leuchars)
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