

Development of the UK railway

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Learning from history

In the 'History of Signalling' video, you saw how the block telegraph system and signal interlocking became a legal requirement for railways in the UK following the Armagh railway disaster. Sadly, advances in signalling have often been motivated by disasters on the railway.

Let's take a journey through the history of the railway in Britain, looking at its rise and fall and rise again, and some key moments that shaped how the railway operates.

1840s

Railway 'mania' and a royal endorsement

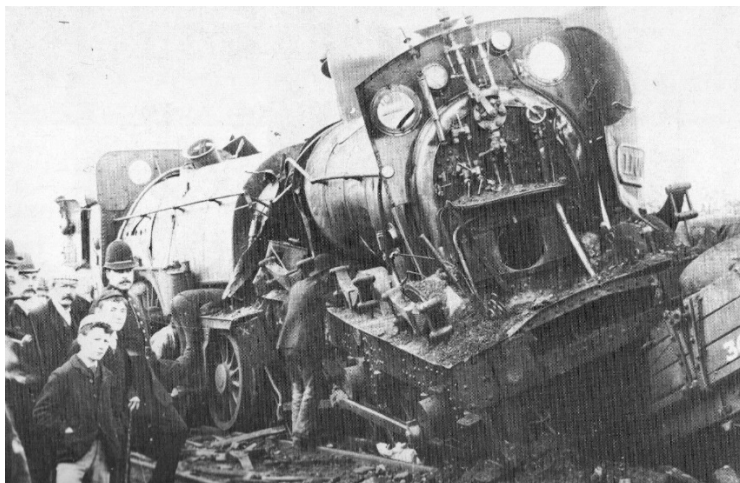
The British railway network expanded hugely during the mid-19th century. Investors made and lost fortunes dealing in shares, Thomas Cook ran his first rail excursion in 1841, Queen Victoria made her first railway journey in 1842, and in 1846 there were 263 Acts of Parliament for proposed railway lines.

https://en.wikipedia.org/wiki/Railway_Mania

1890

Wider use of reminder appliances

Signaller George Rice forgets that he had left a goods train standing on the main line at Norton Fitzwarren near Taunton in Somerset, allowing an approaching fast passenger train into the same section. The resulting collision kills 10 passengers and seriously injures many more. The report into the accident noted the practice of many signalmen of using a flag stick in the spring catch of the signal levers so they don't forget that a train is waiting to proceed. You'll learn about these reminder appliances on **Day 4: Equipment and information**.



15 November 1890

Colonel Rich, Norton Fitzwarren accident inspector:

“I would suggest that a slide-bar, a loop, a wedge or some other mechanical contrivance marked 'Train Waiting' should be fixed to the levers in the cabin to do this, and prevent these levers from being pulled by mistake”

1892

Signaller working hours improve

In Thirsk, North Yorkshire, an express train hits the back of a goods train, killing 9 passengers and the guard of the goods train. It's due to a mistake by signaller James Holmes. Holmes had been up for 36 hours tending to his sick daughter but his self-certification as unfit for work had been overruled. Recommendations in the accident report lead to a reduction in the working hours of signalmen and a better system of relief. You'll learn about the importance of being fit for duty and the arrangements that exist to manage working hours on **Day 2: Your role as a Signaller.**



1910

Signalling practices modernise

Christmas Eve at Hawes Junction in North Yorkshire and busy signaller Alfred Sutton allows an express train onto a line with a pair of light engines returning to their shed at Carlisle. The resulting collision kills many and changes the Midland Railway's practices on their entire network, bringing in reminder appliances as standard and initiating the use of track circuits and interlocking. You'll discover more about these safety devices on **Day 3: Controlling the Railway.** Listen to the song about the Hawes Junction accident.

<https://www.youtube.com/watch?v=8eF9FbCcDiM>

1915

The worst rail disaster in British history

The Quintinshill rail disaster was a multi-train rail crash outside the Quintinshill signal box near Gretna Green in Dumfriesshire, Scotland. Over 200 people die. First, a southbound

troop train collides with a stationary local train. A minute later, the wreckage is struck by a northbound sleeping car express train travelling from London Euston to Glasgow Central.



1915

Lessons from Quintshill

The Quintshill accident report finds that the on duty signalmen Meakin and Tinsley had been so preoccupied in discussing the news of the day with two brakesmen, they hadn't seen (in broad daylight) a train standing within a few yards of the signal box. Tinsley had also copied out false train entries from Meakin's paper. You'll look at the importance of the shift handover process on **Day 4: Equipment and information** and clear communication on **Day 5: Communication**. If you're interested in finding out more about this and other railway disasters, listen to this podcast from the National Archives (38min).

<https://media.nationalarchives.gov.uk/index.php/railway-disasters-an-introduction/>

1934

The importance of good record keeping

At Winwick Junction near Warrington, an express collides with a local passenger train, killing 11 and injuring 20. The crash was blamed on the booking lad, who kept the train register to remind the signalman of the position of trains within the section at any time. You'll look at the importance of the Train Register Book (TRB) as well as the level of detail required when completing one on **Day 4: Equipment and information**. Watch the video for old news footage of the accident.

<https://www.britishpathe.com/video/fatal-train-crash-near-warrington>

1935

New safety systems

Named after a fatal rear-end collision at Welwyn Garden City on the LNER, the Welwyn Control prevents the block being turned to "Line Clear" while a train is in the section, using

the track circuit control over block instruments and signals, with an emergency time release to override it if needed. You'll learn more about these controls on Day 3: Controlling the Railway. Read a contemporary newspaper report of the crash.

<https://www.ourwelwyngardencity.org.uk/content/topics/transport/shocking-train-smash-at-welwyn-garden-city>

Mid 20th century

Remodelling a nationalised railway

With the popularity of the railway declining, the network becomes state-owned on 1 January 1948. In 1955, the Modernisation Plan replaces some steam trains with diesel and electric models. But the railway is losing so much money that *The Reshaping of British Railways* report in 1963 (commonly known as the Beeching Report) recommends closing uneconomic lines and stations, developing inter-city routes and overhauling freight with a combined road-rail container service. This BBC Report from 1963 catalogues the cuts.

<https://www.bbc.co.uk/archive/beeching-report/zr97kmn>

1982

A low point for rail travel

1982 records the lowest number of passenger journeys, the lowest level of passenger-miles, and the lowest (real) level of passenger revenue since 1968.

1988

Signal failure causes three-train collision

A total of 35 people die in the 1988 Clapham Junction disaster in South London and 484 are injured. During the morning rush hour, a train crashes into the rear of another one that is stopped at a signal, which then sideswipes an empty train travelling in the opposite direction. The collision is the result of a signal failure caused by a wiring fault. New wiring had been installed, but the old wiring had been left in place and not adequately secured. Read the London Fire Brigade's account of the incident.

<https://www.london-fire.gov.uk/news/2016-news/clapham-train-crash-1988/>

1993

The railway is (re)privatised

The 1993 Railways Act creates a new regulatory regime for the railways, with the establishment of the Rail Regulator (dealing with the monopoly and dominant elements of the industry) and the Director of Passenger Rail Franchising, whose role is to sell passenger rail franchises to the private sector. The National Railway Museum has collected over 170 oral history recordings of people involved in the railway privatisation process.

<https://www.railwaymuseum.org.uk/research-and-archive/brac>

1997

Safety devices save lives

On the Great Western Line at Southall in West London, an InterCity 125 high-speed passenger train fails to slow down in response to warning signals and collides with a freight train crossing its path, causing seven deaths and 139 injuries. The signaller hadn't been notified that the Automatic Warning System (AWS) on the train had been disabled and, unaware of the danger, set a conflicting route. You'll find out about AWS and other safety devices on **Day 3: Controlling the railway**. Read about the accident on Wikipedia.

https://en.wikipedia.org/wiki/Southall_rail_crash

2002

A new infrastructure organisation is born

Network Rail take over from Railtrack as a state-controlled non-profit company.

2010

The consequences of distraction

A passenger train collides with two cars at the level crossing at Moreton-on-Lugg, near Hereford, and the front-seat passenger in one of the cars is fatally injured. The signaller had raised the barriers in error when the train was approaching and too close to be able to stop before reaching the level crossing. He had just been involved in an absorbing telephone call that had interrupted his normal task of monitoring the passage of the train, and so thought that the train had already passed over the crossing.

2014

Britain loves the railway again

Passenger journeys have doubled from 735 million in 1995 to 1.6 billion in 2014.

2021

A new approach is launched

In May, the *Williams-Shapps Plan for Rail* report is published. The new strategy for the UK's railways aims to end fragmentation of the system with the creation of a new public body: absorbing Network Rail, Great British Railways (GBR) will run and plan the network, own the infrastructure, procure passenger services and set most fares and timetables. The report promises investment of tens of billions of pounds in new lines, trains, services and electrification.

2033?

Advanced technology for expanded capacity

Digitisation of trains and the railway infrastructure using the ETCS (European Train Control System) could revolutionise how the network is controlled. The system involves in-cab equipment able to supervise train movements, combined with track technology to continuously monitor traffic. This explainer video from cyber solutions company Thales shows their vision of the future. <https://www.youtube.com/watch?v=I1iYUnm0yuE>