

OUR RAILWAYS

For over a hundred years, steam-powered railways transformed the British Isles. Built throughout the country during the nineteenth century, they changed the way we lived, worked, and travelled.

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- 1829 Merseyside**
The Rainhill Trials was a competition to decide the best steam locomotive design for the Liverpool and Manchester Railway. Stephenson's Rocket was both the winner and the only locomotive to complete the tests.
- 1840 Swindon**
The Great Western Railway (GWR) Works was established at Swindon, a junction and small market town on the London to Bristol line. Swindon became a booming railway centre and by 1901 there were 56,000 people living there, of whom around 14,000 were employed in the GWR works.
- 1842 Railway Ticket**
The printed, numbered card ticket which could be stamped and punched came into widespread use in 1842, before then tickets had been hand written. The ticket printing machine was invented by Thomas Edmondson, chief booking clerk on the Manchester and Leeds Railway; the last Edmondson ticket was issued by British Rail in 1989.
- 1844 Westminster**
The Railway Act required all train companies to run one cheap train a day. It also regulated railway accounts and established the requirement for companies to carry mail, troops or police, as required.
- 1845 London**
The Royal Commission on Railway Gauges was held to choose between the different gauges used by the railway companies so that Parliament could enforce a standard width. Standardisation meant that goods could be moved right across the network.
- 1889 Armagh**
A major railway disaster occurred when a runaway train collided into a Sunday school outing train, killing 80 people including many children. The accident led to changes in the law enforcing standard train braking systems in all trains.
- 1899 London to Sheffield**
The Great Central line opens up. This was the last long-distance main line railway built in Britain during the age of steam. Like the Great Western, it was engineered for high speed running.
- 1900 Wales**
The Taff Vale Railway strike led to the formation of the Labour Party to try to guarantee workers' rights to strike.
- 1909 Derby**
The Midland Railway introduced the first modern control room. Information was telephoned in to it in real time, and indicators on a rail showed controllers where their trains were. It made handling complex goods traffic more efficient.
- 1926 Britain**
The General Strike. Two million railway workers went on strike and some trains were kept running by untrained strike-breakers.
- 1948 Westminster**
British Railways formed, nationalising the four large railway companies in the UK, which had been under close state control since the outbreak of the Second World War.
- 1960 Swindon**
The heavy freight locomotive Evening Star was built. This was the last steam locomotive built for service by British Railways and was in service for just five years. Steam relied too much on skilled labour to compete against cheaper diesel engines.

Stockton and Darlington Railway, County Durham

Initially designed to carry coal from the minefields to the barges at Stockton on the River Tees, this was the world's first public steam railway, opened in September 1825. The 25 mile track rapidly became popular with passengers who paid one shilling and sat on basic wooden benches in open trucks although the company designed a passenger coach called the *Experiment*. The railway directors needed an Act of Parliament to authorise the building of the track; it took three attempts to get the Bill through Parliament as opinion was divided as to whether railways would be of any use. Lord Eldon, the Lord Chancellor, said 'I am sorry to find the intelligent people of the north country gone mad on the subject of railways', while the Duke of Cleveland defeated one application because the railway would interfere with his fox hunting. The whole railway cost £167,000 and journeys averaged 12.5 miles per hour. The success of the Stockton and Darlington Railway caused a sensation and triggered over a century of global steam railway building.



Dublin-Kingstown Railway, Ireland

Ireland's first railway opened in 1834 connecting Dublin to the important mail boat harbour and rapidly developing resort of Kingstown (Dun Laoghaire). The scenic six mile track became the world's first commuter line as property speculators began developing residential streets and building houses close to the proposed stations and halts, even before the line was finished. The proximity of the track to the sea created engineering challenges as embankments had to be built to protect the line against the tide in some places and cuts blasted through cliffs in others. This resulted in an extremely picturesque journey for passengers and one of the most expensive railways built in the nineteenth century at a cost of almost £60,000 (equivalent to £3 million today) per mile. The success of the line was explained by the *Dublin Penny Journal* in October 1834: "We consider that by the railway, Kingstown, with all its attractions to visitors, lodgers and residents... the harbour, shipping, bathing, promenades, pure air, scenery... will be as near in point of time to the centre of the metropolis, as if these were situated within the circular road."



Hartley's Jam Factory Aintree, Liverpool

Late Victorian consumers experienced the rise of the branded product. Railways made it possible for companies like Liptons, Cadburys, Pears, Bass and Colemans to advertise and market their products nationally and to become famous household names. Like today, Victorian shoppers embraced brands as they offered reliable quality and, in the case of foods, unadulterated or pure products. Railways also enabled companies like Rowntree, Levers and Hartleys to move out of the cities, build large factories and provide their workers with healthy environments and housing. In 1886 Hartleys opened a jam and marmalade factory at Aintree on the edge of Liverpool and built a 'model' village to house workers in cottages with gardens, green spaces and community facilities. Like many large firms, Hartleys had their own railway line servicing their factory. Hartleys claimed that their special line meant that strawberries picked at their farms in the morning were made into jam by the same evening, guaranteeing consumers a fresh and nutritious product.



Tay Bridge Disaster, Scotland

A tragic railway disaster occurred on the evening of 28th December 1879 when the iron bridge across the River Tay collapsed in a winter storm. The northbound train crossing the bridge tumbled into the river and around 75 people lost their lives including all the train crew. According to *The Times* newspaper, the station master and superintendent from Tay Bridge Station on the north side, walked out onto the broken bridge in the dark to try to see what had happened. The telegraph wire had gone down with the bridge and they hoped that the train was stopped at a signal on the other side; this hope was destroyed by finding the mailbags washing up on the shore. The approximate number of accident victims had to be estimated from the ticket sales. A national level inquiry into the accident found structural problems in the bridge, poor maintenance, high winds and the habitual breaking of the bridge speed limit had all contributed to the catastrophe. As a result, the government determined that (for the first time) wind speeds should be considered and assessed as part of railway bridge building in the future, so the accident contributed to the growing safety culture and regulation around railway development. The Tay Bridge disaster passed into railway history and featured in many ballads, poems and novels.



London to Brighton

Seaside resorts grew rapidly in the steam age and were enjoyed by all, as this painting by Charles Rossiter, 'To Brighton and Back for Three and Sixpence' (1859) shows. These are third class travellers on a day return from London; the carriage is crowded, basic, uncomfortable and open to the weather, but the passengers are willing to endure this for a day's holiday by the sea. Three shillings and sixpence would be around £16 sterling in today's money or a day's wages for an unskilled labourer. Like Scarborough and Blackpool, Brighton was a classic example of a seaside resort that was once the preserve of the elite but became a mass tourism destination with the arrival of the railway. The railway companies also invested to create and develop completely new destinations; the Chester and Holyhead Railway developed the seaside resorts of Rhyll and Abergale on the North Welsh coast, while an extension of the Stockton and Darlington line resulted in the cliff-top resort of Saltburn. The resorts that grew fastest were those that could be accessed easily from the big industrial areas; plentiful trains, cheap fares and regular wages meant that the seaside trip became a mass experience.



Crumlin Viaduct, South Wales

The Crumlin Viaduct was built between 1854-5 to carry the Taff Vale Extension line over the Ebbw valley. This line connected the Welsh mining valleys and Newport to Hereford and the West Midlands, enabling South Wales coal to fuel Victorian industry. The viaduct was a true product of the industrial revolution. Made of wrought and cast iron, it was the highest railway viaduct in the British Isles, standing almost 70 metres above the lowest point of the valley. Viaducts were a common and dramatic sight along the new railways, straddling empty valleys and busy towns. The majority of Victorian railway viaducts were built of brick; the Stockport Viaduct opened in 1842, had 27 arches and was the largest brick construction in the British Isles. Viaducts were popular with railway companies because, although expensive to build, they required little land purchase and overcame a whole range of geographical problems. Viaducts also made it possible to bring railway lines into the heart of the cities, high above existing streets and houses. The railway arches underneath were undesirable spaces; sometimes enclosed and rented out for commercial activities, they became a familiar part of the urban landscape and the phrase 'underneath the arches' became a reference to homelessness and poverty.





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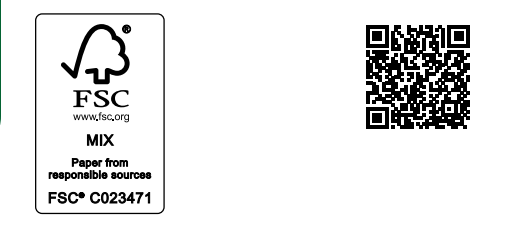


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Chris has worked as an OU Academic Consultant on several BBC/OU series, including *Full Steam Ahead*. As well as nineteenth and twentieth century history more generally, his main area of expertise is the history of criminal justice. He works with OU curriculum teams to create exciting and quality content for OU teaching. His most recent book is *Police Control Systems, 1775-1975, from parish constable to national computer*.
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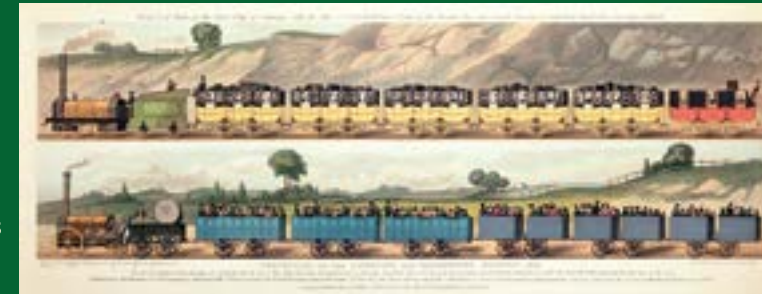
Building the Network

The railway network in the British Isles was built by private enterprise and at great speed. Rival companies raced to plan and build lines between busy towns and to serve industry. Railway building cost lives but developed new engineering and construction techniques. The railways expanded existing towns and cities and created new ones, such as Swindon, Crewe and Wolverton, at junctions and railway works. Railway companies invested to develop docks and ferry and bus services with the result that everywhere was connected.



The first railways
The Liverpool and Manchester Railway can be considered the first inter-city rail service. Opened in 1825, the train covered 31 miles in under two hours; it replaced the thirty stage coaches that had run between the two cities and carried a thousand passengers a day. The railway also carried goods, notably raw cotton from Liverpool's docks to Manchester's mills and finished cloth from Manchester to Liverpool for export. It soon saved Manchester merchants £20,000 a year in transport costs. The Canterbury and Whitstable Railway opened in the same year as a predominantly passenger service, carrying Canterbury passengers to the seaside at

Whitstable. Both railways encountered construction difficulties. The Canterbury line was built over a series of different gradients, requiring a tunnel and assistance from two stationary steam engines to get up hills, and the Liverpool and Manchester railway was built on an embankment over the peat bog of Chat Moss. These railways had the world's first railway signals and season tickets, and their success and popularity convinced the public of the value of railway travel.



Building the lines: navvies



The men and women who built the railways were known as 'navvies' after their forebears who had dug the 'navigation canals'. Navvies did backbreaking work in bad conditions and in all weathers; bridge building, unstable diggings and the use of dynamite to blast tunnels, made their jobs very dangerous. They worked in contracted groups of around twelve men, known as a 'butty gang', splitting their earnings between them. They were paid well compared to other workers but had the highest accident and death rates of any Victorian occupation. Women were sometimes paid as earth removers. The navvies moved across the country with the railway construction, living in cheap lodgings or temporary shanty towns in the open country, accompanied by their children. There were around a quarter of a million navvies in 1850 and the harsh work, regular fatalities, communal living and social isolation of their community meant that they evolved a culture of their own.

The Victorian public simultaneously romanticised the male navy while shunning him and his family. Navvies had a reputation for loyalty, toughness, coolness and courage, but they were also stigmatised for their mud-caked appearance, living conditions and lifestyle. Their drinking and perceived 'ungodliness' were particularly frowned upon and they were thought to bring crime to a neighbourhood. The press described their homes as 'hovels' and their habits as 'low'. Popular Victorian railway writer, F.S. Williams said: 'Their powers of endurance and their consumption of [meat] were alike enormous. They seemed to disregard danger and they were reckless of their earnings as of their lives'.



Making money

Railways were expensive to build but generally made good profits for investors. There were three great waves of railway investment in Victorian Britain known as 'railway manias', these were in 1839, 1847 and 1865, and each lasted just over a year. By the 1860s, the amount of money being invested in railways in Britain was nearly seven per cent of national income, or equivalent to twice the amount of gold bullion reserves held in the Bank of England. Railways were a popular investment for affluent people as they were seen as both safe and easy and it was not unusual for middle class and wealthy people to receive railway shares as wedding presents. The years of the railway manias were characterised by dubious, even fraudulent, railway schemes and money was lost, but, on the whole, the investors in the Victorian railways did well. Those who invested in the early decades made more money than those who came later, but railway investment was so popular that the late Victorian public was happy to fund extensive railway developments in South America and India.



The London stations

Railway development reshaped Britain and reinforced the importance and dominance of London. All the major railway routes were centred on London by 1850 and the five major railway companies all had 'London' in their names. The big companies wanted high status and fashionable London stations at the end of their lines. By 1846, there were nineteen companies with plans to build terminal stations in central London. The government set up a Royal Commission to consider how to stop London being 'destroyed' by railway development. The commission advised that railways should be kept out, with the result that the largest stations – Victoria, Paddington, Euston, St Pancras and Kings Cross – formed a ring around central London. Companies, with lines approaching London from the south, built their terminals where they could buy land. Charing Cross, the most central mainline station, was built on a medieval market place and Waterloo on a marsh.



These railway stations were places of innovation and luxury; they were designed to impress and acted as branding and advertising for their companies. Built in the latest fashions featuring Italianate, classical, Arabic or Gothic architecture, the stations were landmarks in the Victorian city. They contained comfortable hotels, waiting rooms (graded by class and segregated by gender), refreshment rooms, ticket offices, booking halls, left luggage departments and lost property offices. They also trailed innovations such as public lavatories and newspaper stands. Victorian Londoners first experienced hydraulic lifts, flushing toilets, revolving doors and electric bells at the larger railway stations. The London termini were ferociously busy places. By 1883, Paddington had a staff of 3,000, saw 300 trains daily and served 11 million passengers a year. The Midland Railway terminal at St Pancras handled 800,000 tonnes of coal a year, milk from Derbyshire and fish from the East Coast, as well as three special trains of beer from Burton upon Trent, daily. The London termini did not just keep London moving, they kept London fed.

Innovation & Regulation

Victorian railway networks transformed society as they enabled people in all corners of the British Isles to read the same daily newspapers, receive post and telegrams, buy, use or even eat, the same products and to share culture and ideas. The railways introduced new systems of accounting and new laws, they developed concepts of safety and ensured that everyone kept the same time.



Telling the time

For trains to run on time, everyone had to know what the time was. This was not the case in 1840 when many towns and cities had their own local time which was different from 'London (Greenwich) time'. This was not significant in the age of horse-drawn transport but on the railway, time discrepancies could cause serious accidents. Rail safety, the timetable and even catching a train, were all dependent on accurate time keeping, yet most people did not possess a watch. The railway companies began to impose uniform time from 1840, when the Great Western Railway announced it would be working to London

In the 1840s, time and time keeping were hot topics; factory workers and philanthropists campaigned to regulate working hours in the new factories, and industries and Parliament restricted the working hours of children. 'Clock time' was not only necessary in the new industrial society, but fashionable; railway stations had large visible public clocks, but so did many new factories, private houses and the new Parliament buildings at Westminster. From 1852, station clocks were set by telegraph and so were the most accurate timekeepers on the urban scene. On the railway station masters, guards, signal men and cabbies all needed a good clock or watch and strict attention to time keeping. The railway companies were increasingly involved in a race against time: trying to shave minutes off the arrival of mail trains or beat competitors over long distance routes. Trains had made time of the essence in modern society.



time throughout its network. As the network grew, the need for 'connections' made accuracy vital. As the railways spread London time, town clocks followed, and by 1852 London time was in use throughout mainland Britain. Not all communities welcomed the change, regarding their local time as part of their traditions and independence. The city of Exeter ran fourteen minutes behind until 1852 when the Dean and Chapter agreed reluctantly to bring the Cathedral clock into line with railway time. An Exeter town councillor asked if the Mayor would also be able to make the trains arrive on time.



Women's work?

The railways have always provided employment for women although in the early decades much of women's labour in and on the railways was 'invisible'; they worked as cleaners, cooks and attendants in ladies' waiting rooms. Women gradually began working in carriage building and operations; they worked as French polishers on wooden doors and carriage interiors for the Great Western Railway, but the same company would not allow them to work as clerks. Some women worked as telegraph clerks at railway stations, often they were teenagers and the daughters of railwaymen; the London, Brighton and South Coast Railway (LBSR) had an official policy of employing station masters' daughters. The employment of women in telegraph offices spread and in 1870, when the Post Office took over the telegraph system from the railway companies, it inherited over 200 women employees in the central London telegraph office. By the 1860s, women were selling tickets at Edinburgh station but there was strong resistance to employing them in what were regarded as jobs for men. By 1897, however, women were full members of the railway clerks union and could be found working in many larger stations.



Accidents and medical ethics

Accidents involving passengers began with the opening of public railways. Famously, the first passenger killed was the MP William Huskisson who fell onto the track and was run over and killed at the opening of the Liverpool and Manchester Railway in 1825. In the early years, accidents were often caused by technological issues, such as incorrect boiler pressures, causing death or injury to drivers and stokers, or by passengers being unfamiliar with train procedure. Legally, railway accidents were a civil matter and from 1846 the railways were liable to pay compensation for death and injury caused to passengers. By 1870, it was claimed that the civil courts in London spent a 'large portion of time trying actions for accidents' on cases which 'vary in importance from a case of £20,000 damages down to one of a shilling'. The railway companies were active in fighting such cases. They started by retaining the services of local doctors and authorising them to 'settle' the case at the scene, often with a bank note, while treating the patient. Subsequently, injured passengers could appeal these settlements in court as inadequate, often with success. The railway companies spent a great deal of time and money appealing court compensation settlements and trying to limit their liability by claiming that passengers themselves caused accidents and were careless.



The government tried to avoid interfering with the railways but, as lines became busier and traffic volumes escalated, accidents became more serious. In 1868, there were eight train collisions and, in 1870, 65 passengers were killed in railway accidents, more than in any previous year. In the four years 1872-1875, almost 3,000 railway employees were killed at work, but their employers were not considered liable in law. The government decided that all accidents should be recorded and reported to the Board of Trade and, in 1874, they established a Royal Commission on Railway Accidents (similar to a public enquiry). The railway companies hoped that the Commission would set or limit the amount of compensation that injured passengers or their dependants could claim, but the MPs took the view, along with the travelling public, that accidents were preventable. They also considered that the financial penalty of paying compensation would motivate the railways to improve their safety standards. There was to be no compensation for employees until the passing of the Employers' Liability Act of 1880. The complex systems of the railways, and their impact on individuals, caused society to re-examine its ideas about medical ethics, contractual obligations, redress, negligence and safety in ways that still affect us today.

FURTHER READING

If you are interested in this topic you may enjoy these publications:

- Simon Bradley, *The Railways: Nation, Network and People* (London: Profile Books, 2015)
- Jack Simmons, *The Victorian Railway* (London: Thames and Hudson, 2009)
- Christian Wolmar, *Fire and Steam: How the railways transformed Britain* (London: Atlantic Books, 2007)
- Ruth Goodman and Peter Ginn, *Full Steam Ahead* (Harper: Collins 2016)

War & Revolution

Trains allowed people, ideas and news to travel fast and they also enabled authorities to move police and troops in response to threats. The technological innovations produced by the steam railway industry could have military applications.



Industrial and political unrest

The potential for trains to carry reinforcements rapidly across wide distances became apparent to governments quickly and special trains were used to deliver police and troops to scenes of unrest across the British Isles. In 1839, the new London and Birmingham Railway carried a hundred London police to Birmingham to repress the popular Chartists movement's open air meetings in the 'Bull Ring Riots'. Like many towns, Birmingham did not have a police force which could disperse crowds and the government believed that using police was not as inflammatory as using troops, however the Chartists' demands for political reform and representation continued, as did the unrest in Britain's industrial cities. In 1842, after the Chartists' petition had been refused by Parliament, soldiers were sent by train from London Easton to confront Chartists rallying in Manchester. Using the railways in this way was controversial in London crowds objected to the troops going to Manchester by boosing, hissing and calling 'Don't go and slaughter your starving fellow countrymen' and in Manchester the troops were met by 'a mob' and had difficulty leaving the station, but because the government knew it could move troops to agitated areas, it helped to avoid over-reactions to civil unrest.

The Crimean War (1854-1856)

In the middle of the nineteenth century, Britain was involved in a disastrous and expensive military campaign against Russian expansion in Eastern Europe. Thanks to the new technologies of the telegraph and the railway, this was the first war where the newspaper-reading general public at home received up-to-date reports from the war zone. Special correspondents, notably William Howard Russell of *The Times*, sent back graphic reports, not only of the military actions, but of inadequate command, disorganisation, missing supplies, disease and the suffering of the ordinary soldier. Russell's reports took only two days to reach London from the Black Sea and another day to land on Victorian breakfast tables, mobilising public opinion and creating 'armchair strategists'. Russia's ambitions were stopped, but the Victorian British public was not impressed by the confusion and carnage, and the government fell as a result. The Crimean was the first media war, where the combatant government had to grapple with the views of the voting public, as well as with the enemy.



Getting to the Front and home again: World War One

At the outbreak of the First World War in summer 1914 Britain had over 23,000 miles of railway but none of them had been designed for defence or strategic purposes. Troops moving around the country, or sailors returning to their homes, initially this created problems for Britain's military command who had assumed the army would always leave from Southampton, but found that Dover and Folkestone were closer to the developing front. In the first two months of the war the army found itself competing for train space with holiday makers. The government took control of the railways to improve efficiency and prioritise war requirements. The Western Front alone produced a constant need for trains. In total Britain sent 5.4 million men to fight in France between 1914-1918 and they all travelled by train. Food for men, forage for horses, engineering supplies, arms, roadstone, timber for trenches, uniforms, mail and even tanks, were all carried to the front by train. In the early part of the war soldiers could post their laundry home and were not restricted in what they could receive back. 'A very modern war isn't it? When one can send one's dirty washing home to be washed' Sergeant Macfie from Liverpool wrote cheerfully to his brother in 1915. Train capacity was soon short, however, a single army division of men and horses ate half a train's worth of supplies a day. The unprecedented carnage and the vast numbers of troops in the First World War trenches made transporting casualties a military operation in itself. Ambulance train carriages were fitted out as basic hospital wards and staffed by service medics and trained nurses; they ran to the Channel ports in France and from the ports in England. The carriages were built differently to army and navy requirements, with the naval ambulance carriages having swinging cots, hammock style, just like in a ship. The wounded who made it to ambulance trains had a good chance of surviving, but they were still places of suffering. The poet Robert Graves, seriously wounded in the lung by shell shrapnel, recalled his evacuation from the Battle of the Somme, 'the R.A.M.C. orderlies dared not lift me from the stretcher to a hospital train bunk, for fear of its starting to vomit in the lung. So they laid the stretcher above it, with the handles resting on the head-rail and foot-rail. I had now been on the same stretcher for five days. I remember the journey as a nightmare'. By ensuring the constant supply of men, materials and weapons to the front, and removing the wounded, the railways had made war on an industrial scale possible.



Women, war and the railway

The role of women on the railways changed with the coming of the First World War when women's labour was needed to replace the railwaymen who had left for the front. In peacetime 1914, there were 13,000 women at work on Britain's railways, by the end of 1916 there were over 46,000 and by the Armistice in 1918, nearly 69,000. Women worked as station masters, porters, ticket inspectors, level crossing keepers, signallers, on train and track maintenance, and as railway police, but they could not be drivers, stokers or guards and the railway companies and unions tried hard to keep them out of the skilled jobs. The public found women in railway uniforms and jobs a novelty and women working in public roles and on train platforms were much photographed. It was debated whether tasks such as blowing whistles and calling out train destinations were 'feminine'. When peace returned these women workers were forced to give up their jobs to men but when the Second World War came, women kept the trains running once again.



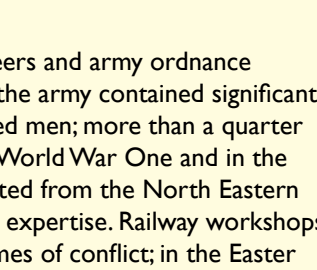
Revolution, war and railways in Ireland (1916-1923)

Irish nationalist revolutionaries staged an uprising against British rule in Ireland during Easter 1916 and proclaimed Ireland an independent republic. The British authorities repressed the rebellion immediately and were keen to promote a 'business as usual' atmosphere in Ireland, trying to keep the trains running on time and ensuring the mail got through. The rebels did not have control of either of Dublin's main train stations, so post and, more crucially, troops were able to move around almost as normal. Joseph Sweeney, a nineteen-year-old student and active participant in the Rising, remembered, 'We noticed that the British troops were beginning to encircle us and I could see troops moving about freely on the tower of Amiens Street railway station. I asked would I fire on them. I was told not to because they were the Inniskillings – an Irish regiment – and they might be friendly. Well, a very short time after that they indicated their feelings to us when they opened fire on me with a machine-gun'. The Rising was repressed but erupted into a war of independence, settled by the Anglo-Irish Treaty of 1921 and followed by a civil war where railways became a military target. In the new Irish Free State, track, bridges, signal boxes and railway buildings were all destroyed by Anti-Treaty forces and the new Irish government made railways a defence priority, setting up the Railway Protection Repair and Maintenance Corps in 1922.



Iron clad trains

The first armoured trains were used in the American Civil War (1861-1865); they transported troops and weapons but also proved effective as mobile cannon mounts and to patrol and protect railway bridges. Britain first improvised armoured trains in the Egyptian Campaign of 1882 and later used them extensively in the Boer Wars as they struggled to establish British imperial authority in the new colony of South Africa. In the Second Boer War (1899-1902) Lord Kitchener took control of all the railways in British South African territory and experimented with different types of armoured designs to try and keep the railways running in the face of Boer guerrilla attacks. Despite the success of armoured trains in colonial wars, they were not considered to be vital to military strength in Western Europe (unlike in Russia) and very few were purpose built. Armoured trains were often the result of joint problem solving by railway company engineers and army ordnance specialists in the field. In addition the army contained significant numbers of skilled and experienced men; more than a quarter of Britain's railwaymen served in World War One and in the first month alone 2,000 men enlisted from the North Eastern Railway, swelling army engineering expertise. Railway workshops also adapted and improvised in times of conflict; in the Easter Rising of 1916 Dublin's Inchicore railway works created, not an armoured train, but an armoured street vehicle for the British Army, made from a locomotive engine boiler. In the Second World War the Crewe Locomotive Works produced two special armoured trains to defend Britain's East Coast from a German invasion, while part of the south coast was patrolled by Romney, Hythe and Dymchurch light railway's miniature armoured train equipped with a Lewis Gun and anti-tank rifle.



The Open University has a wealth of fascinating information and features about the history of Britain and the impact of the railways for you to explore. Visit our website to access our free online content at OpenLearn – the home of free learning from The Open University