



INFORMATION SHEET NO 26

Railways and the Post Office



1 THE EARLIEST RAILWAYS

The Early Years 1825-50

For most people the term 'railways' conjures up a vision of steam-engined trains roaring along an elaborate network of iron rails linking towns, villages and seaports throughout a country.

In fact, of course, both 'railway' lines and steam engines had long developed almost independently, before that historic day in September 1825 when the first public steam passenger railway was inaugurated between Stockton and Darlington.

As early as the sixteenth century it was found that by putting wagons on rails, horses could pull heavier loads of, say, iron ore than they could along the rough roads of the time. Similarly, steam engines were developed firstly for stationary use, such as driving machinery or pulling loaded cars up inclined planes or, finally, hauling loads of coal and iron from collieries and mines to canal wharves or harbours.

When the Stockton and Darlington Railway opened as the first public railway in the world, though it did have one powerful and relatively reliable locomotive - George Stephenson's *Locomotion* - most of the work was done by horses. Nevertheless, success of this pioneer line started the railway age and it was quickly followed between 1827 and 1839 by railways in the United States, France, Germany, Belgium, Canada, Austria, Russia, Holland and Italy.

Among the British-built pioneer locomotives of this period shown on stamps are the *Austria* (Austria 1837 Robert Stephenson & Son), the *Adler* (Germany 1835 also built by Stephenson), the *Arend* (Netherlands 1839, built by Longridge Bellington) and the *Odin* (Denmark 1847, a Sharp-built 2-2-2).

The Period of Expansion 1850-75

Between about 1850 and 1875, there was a great rush to bring railway transport for the first time to new parts of the world or to develop primitive rail systems. As the lines grew longer, or stretched across increasingly difficult terrain such as mountains or deserts, and more goods and passengers required transportation, locomotives had to be improved to meet the specific needs.

British and continental engineers increasingly favoured the building of 'compound' locomotives (in which the available steam from the boiler was used more than once) but whereas the continental engines of this type normally had all the necessary pipes and steam reservoirs showing outside the boiler, in British engines all this was concealed inside a casing. Engine design was also influenced by the cheapness of coal so that reliability of new engines was more

significant than economy in fuel consumption. This railway development itself generated new engineering processes and particularly steel manufacture. The first plant anywhere in the world for the commercial manufacture of steel was that started up in 1864 at The Crewe Loco works of the London and North Western Railway. In 1845 there were locomotives (just) capable of reach 60 mph; by the mid-1870's this maximum speed had risen to 80 mph.

Heavier and Faster 1875-1914

Until the first world war the steam locomotive remained supreme, although the very first electric locos went into service in 1910. The continuous upsurge in industrialisation and the increasing mobility of the population called for ever faster and more powerful engines.

As coal became dearer, so did the engineers seek efficiency and greater fuel economy by the introduction of double and treblé expansion engines and a measure of streamlining, until by 1904 steam locomotives were capable of reaching speeds of 100 miles per hour.

This is the era which gave birth to the Drummond-design 'Waverley' class of 1876, and to the three and four-cylinder compound engines designed between 1880 and 1901 by Francis Webb, Chief Engineer of the London and North Western Railway. One of these, the Ionic in 1895, set a new world record for a non-stop long distance run, the 229 miles from Euston to Carlisle.

The Golden Age of Steam 1914-39

Many of the larger locomotives built between 1902 and 1912 provided the inspiration for the famous steam locomotives of the 1920's and 1930's. The GWR Castle class express passenger locos were derived from the Saint and Star classes of 1902 and 1907 while the Gresley Pacifics of 1922 were an improvement on the earlier Atlantic type.

This is the age to which most locomotive enthusiasts look back with nostalgia - when enormous locomotives in gay livery thundered along the lines with a roar of steam and thudding pistons. And no wonder, when by 1927 locomotives such as the Royal Scot were being built to pull trains weighing 500 tons at average speeds of 55 mph. Within little more than a decade, in 1938 further mechanical improvements, together with overall streamlining, enabled the 4-6-2 'Pacific' type locomotive Mallard to reach a world record speed (for steam) of 126 mph.

Transatlantic Locomotives

Although the very earliest American engines were imported from Britain, the Mohawk and Hudson Railroad Company was operating a locally built locomotive, the De Witt Clinton, in 1831.

Conditions for railway development in North (and South) America were very different to those in Britain and the rest of Europe. There was little competition from canals, because they were too long (and costly) and, anyway, froze in winter. Locomotives had to be designed to use low-grade steaming coal or wood; to take heavy trains for very long stages; and to run over roughly-laid tracks, often with sharp curves and fierce gradients. In 1836 the 136-mile rail line from Charleston to Hamburg (South Carolina) was the longest in the world. In 1869 the great 3,000-mile coast-to-coast railway link from New York to San Francisco was completed in Utah.

In addition to technical design differences, American railway locomotives were characterised by their size, smoke stacks, cow-catchers and general lack of streamlining. The steam locomotives used in Canada up to 1971 could pull 1,000 tons at speeds of 80 to 85 mph. The largest and heaviest locos ever were the 4-8-8-4. "Big Boy" express freight locomotives of the Union Pacific Railroad. Built in 1941, they were 117½ feet in length overall and, with the tender, weighed 548 tons.

Other Overseas Railroads

Generally, locomotives used on railways outside Europe and North America followed European and American designs and, until recently, were not often locally made.

The engines used to power the earliest railways of Australia, Austria, Argentina, Bulgaria, Egypt, Germany, India and the Netherlands were all British-built and almost identical to similar engines used in Britain.

The first Russian railroad (1836) used, for instance, a standard Stephenson 2-2-2 design; in the following year a Stephenson 2-4-0 locomotive was in service on the newly-opened Paris and Versailles Railway. At one time "Prendre le Crampton" was colloquial French for 'going by train' (Cramptons sold locomotives all over the Continent).

When the Khedive of Egypt started his railway system (1852) he also bought British locomotives but the one used to pull his private train (in 1859) was a standard Sharp 2-2-2 embellished all over with colourful painted decorations.

Still further afield, the earliest Australian locomotives (1854-55) were equally British-built but in some countries, such as Japan and New Zealand, both British and American-built locomotives were in use before 1900.

Many overseas countries, however, have special local requirements: for instance, where main-line engines have to pull heavy trains up to considerable altitudes, enormously large and powerful locomotives have been specially built. South Africa, Rhodesia and East Africa, for example, had Beyer Garratt 4-8-2+2-8-4 locos which could take 1,200-ton trains up to over 5,000 feet above sea level. India, in about 1900, used 0-8-0 saddle tank engines on gradients as steep as 1 in 37, and in Tasmania specially-designed 4-6-2 "M" class locos were built in 1951 to negotiate steep inclines and sharp bends on the 3ft 6in gauge railway between Hobart and Launceston.

Electric Locomotives

The first electric locomotives were built and operating by 1910, and certain countries with considerable reserves of hydro-electric power, eg Switzerland and Italy, electrified their railways in the 1920's and 1930's. But the real impetus towards electrification came especially in Europe, after the end of the second World War, when obsolete or partially war-wrecked railway systems were rebuilt for electric working. By planning for much faster services, especially on main lines, there was a good chance of meeting the growing competition of road transport.

Diesel High-Speed and Freight

Since 1940, the transition from steam to other forms of power for locomotives has been almost world-wide - with a few exceptions such as India and Southern Africa where large local reserves of cheap coal make steam power more

attractive. Diesel-hydraulic and diesel-electric locomotives for heavy freight trains, and streamlined high-speed diesel railcars for express passenger traffic, are now widely used and are being further developed. Such diesel locomotives, in the United States, develop as much as 6,600 hp while the express railcars can work at speeds well in excess of 100 mph. Many of these types and the modern electric locomotives are shown on postage stamps as evidence of the efficiency and modernity of the issuing country's transportation.

2 THE POST OFFICE TRAVELS BY RAIL

The First Carriage of Mail by Rail 1830

When the world's first public railway was opened in 1825 between Stockton and Darlington the Mail Coach era was at its height - mails being carried remarkably swiftly and securely over all the principal roads of the Kingdom.

A variation of the idea of utilising the marvelous new form of transport offered by the railway was first put to the Post Office in 1827, when Thomas Richardson of London, drawing attention to the speed of carriage on the Stockton and Darlington line "going as fast as any Mail in the Kingdom" suggested that similar rails be laid on each side of the Turnpike roads, to enable just one horse to draw the present load of a coach far more quickly, humanely and safely, all without any inconvenience to the other traffic on the road.

Three years passed, and by October 1830 the frequency and speed over that of ordinary road transport offered to travellers by the newly-opened rail-road linking the twin commercial cities of Manchester and Liverpool was beginning to have a damaging effect on Mail Coach services. And so, feeling "bound to keep pace with the wonderful improvements with which the present age abounds", the Post Office looked at speeding the Royal Mail by rail.

So, on 2 November 1830, the Royal Mail was entrusted to the railway for the first time, beginning a new era in the history of mail transport. By the Spring of 1846 the railway age had arrived and the last of the London-based Mail Coaches had been taken off the road.

"Duplicating time": the First TPOs

The idea of employing special Mail Coaches, in which the Guard could sort and tax letters while still on the road to London, had occurred to Rowland Hill, the great postal reformer of the 19th century, as early as 1826. Eleven years later, as the Post Office was preparing to switch from road transport to the long line of railway then being laid between London and Birmingham (to connect with the Grand Junction Railway to Liverpool), Frederick Karstadt, a Post Office Surveyor, developed the idea. Under the existing mail coach system, frequent stops were made to change the horses and refresh the passengers and, at certain stages, these were long enough for the sorting and exchange of bye-mails; despatch arrangements all along the way, and along the bye-roads, being regulated to coincide with the London coach's timetable. Karstadt, realising that the train's stops would not be long enough for this, thus throwing all the existing intricate arrangements into chaos, put forward a plan for special railway carriages fitted out for the sorting and exchanging of mails en route.

His plan was approved and it was decided that an experimental 'travelling post office' should be established on the Grand Junction Railway, between Birmingham and Warrington. And so, early in 1838, the first Travelling Post Office (a converted horse-box) was put into service. It was declared to be an immediate success - enabling the Post Office to "duplicate time, by travelling and working at the same instance".

Soon, arrangements had been made for the provision of our railway carriages specially designed as Travelling Post Offices. The first of these ran from Euston to a point just north of Bletchley, where the mails were transferred to the road Mail Coaches. In September 1838 the London and Birmingham Railway was opened throughout its length, joining the Grand Junction and North Union lines to give a direct and continuous route to the North and, shortly after, the TPO service was extended to Preston.

The first TPOs had no apparatus for exchanging the mail bags while the train was in motion - the train just had to slow down while the bags were thrown out, the Mail Guard seizing the incoming bag from the end of a pole thrust towards him.

The first apparatus submitted to the Post Office was designed by Nathaniel Worsdell. But shortly afterwards, because the Post Office considered Worsdell's price for his invention too high, his apparatus was re-designed by an employee of the Post Office, John Ramsey. Lineside standards for the new apparatus first came into use at Boxmoor, near Hemel Hempstead, in 1838. Ten years later it was simplified and greatly improved with nets fixed at the side of the railway track to catch the bags dropped by the TPOs. Hitherto, they had been dropped down a chute while the train slowed down.

Between 1902 and 1930 special adhesive labels were in use for attachment to delicate items; these bore the legend "This Packet has been diverted from the usual route, as it appeared to be too fragile for transfer by Mail Apparatus".

Today, because of increased speeds reached by trains, enabling more stops to be made without affecting the timetable, and an extended use of mail van services, bags are no longer exchanged by lineside apparatus. The last apparatus (at Penrith) - virtually the same in method of working and design as that on the first TPOs - came out of service on the night of 4 October 1971.

Sorting Carriages were the first vehicles to be fitted with gangways, forming a communication between carriages. Necessary to facilitate the sorting and making-up of bags, the Post Office agreed to pay for the experiment. Found successful, they were first introduced on the Great Western, South Eastern and London North Western routes in the early 1860s.

District Sorting

In 1857 London began to be divided into 10 Postal Districts - each exchanging mail bags not only with other District Offices but also with Post Towns outside London.

Between 1857 and 1896, to lessen the work in London of sorting and making-up bags for such towns, District Sorting Carriages were introduced. In these (unlike TPOs) letters from London were sorted and made-up into direct bags for Post Towns and, on journeys up to London, the correspondence divided into Postal Districts.

Late Fee

At first, the public could hand in late letters to the TPO Mail Guard without paying a fee for the service. Later, however, in about 1860, a Late Fee of 2d (reduced to 1p in 1880) was introduced, payable by means of an extra postage stamp, on letters handed in up to the time of the departure of the train.

Letter boxes for the receipt of Late Fee letters have been provided on TPOs since 1882 and, today, such boxes are fitted into the body of the carriage. In addition, portable letter boxes were sometimes suspended from the side of ordinary carriages for short periods at stopping places.

In 1859, to ensure a more punctual working of the Night Mail trains to and from the north of Scotland, and to enable them to be accelerated, it was decided to limit passenger and other traffic conveyed by them. Henceforth, the TPO was made a "Limited Mail".

The greatest of all changes in TPO working came in 1885, with the introduction of Special Mails - the sole use of the train being devoted to Post Office purposes. The service, first known as the NW Down Postal (Night), was amalgamated in 1923 with the Caledonian TPO (Night), to form the Down Special TPO (Euston-Aberdeen). The Specials ran as Bag Tenders during the Second World War even when all other TPO operations ceased.

The Travelling Post Office Service Today

In 1975 48 TPOs provided a web of postal communications reaching out to every corner of England, Scotland and Wales and between them processing some 400 million letters a year.

The 4 main TPOs are known as the Up Special (Aberdeen-Glasgow-Euston), the Down Special (Euston-Glasgow-Aberdeen), the Great Western Up (Penzance-Paddington) and the Great Western Down (Paddington-Penzance). The Up Special is the longest TPO, comprising 12 Post Office vehicles, 7 sorting carriages and 5 stowage vans.

Together, the TPOs complete a giant network - designed to contract time and distance - and every journey is an integral part of a complex system of finely dovetailed schedules reflecting the close relationship between the Post Office and the Railways which has developed over the last 145 years.

3 THE MAILS GO UNDERGROUND

Mails by Pneumatic Railway

The use of pneumatic tubes as a method of transmission - utilising air as a propelling power - was first suggested by the celebrated French engineer M Denis Papin, who presented a Paper on the subject to the Royal Society in London in 1667. Later, from the 1820s, various experiments were carried out; but none were used for the transmission of mails.

Early in 1863, however, the Post Office inspected London's new pneumatic railway, by which its builders - the Pneumatic Despatch Company - hoped to revolutionise the carriage of mails, messages and parcels in the metropolis. Their tube ran 9' below ground level, between Euston Station and Eversholt Street, near the NW District Post Office. Its cars, which ran on rails, were of wrought iron and weighed nearly 8 cwt.

Among those present was Sir Rowland Hill, by now Secretary to the Post Office. He was especially interested in the venture since, 11 years earlier, as part of his plan for dividing London into Postal Districts, he had proposed such a way of speeding the mails throughout London.

During these first trials the mails were sucked through the tube to Euston in about 1 minute and, once, two men accompanied the car - and returned, to everyone's relief. Indeed, later, to travel by the tube became the thing to do when in London and one lady, whose courage astonished all, "shot the whole length of the tube, crinoline and all, without injury to person or petticoat".

On February 20, 1863, regular mail despatches between the NWDO and Euston Station began as a working experiment. In the months which followed there were few failures, and the only doubt on the part of the Post Office was whether or not the high cost of the service over that of orthodox mail carts was really justified. However, trials continued until October 20, 1866, when, because of temporary financial difficulties, the Company terminated its arrangement with the Post Office.

It later recovered, however, and by November 1873, this time with Parliamentary backing, a new tube was operating between Euston Station and the GPO in St Martins-le-Grand, via a central station in Holborn. On December 1 of that year regular mail despatches were resumed; but, although the service was again found satisfactory and punctual, its speed (though a mere 3-4 minutes) over that of the mail carts was not enough to be of real practical value to the Post Office. The following year, upon the Post Office refusing to enter into a permanent arrangement, the Company again ended the carriage of mails, with effect from October 31.

By 1876, after an investment over the years of some £175,000 in the venture, the Company had been wound up, and its terminus in the yard of the GPO had become merely a store for coal and wood. Yet beneath the busy streets of London, there still remained intact the famous tube railway. Years later, in 1895, the tube was re-discovered, and for a time the man who found it, a consulting engineer, dreamed of restoring it to use, this time by means of electrically driven cars.

The Post Office (London) Railway

Few people are aware of the existence of the Post Office (London) Railway - the only one of its kind in the world - which every day speeds over 40,000 bags of mail beneath the busy streets of London.

Opened in December 1927, this railway links 6 important sorting offices with the main railway termini at Paddington and Liverpool Street. It runs through 6½ miles of tunnels, 8 stations and has some 20 trains rumbling along its tracks at a speed of 35 mph.

Operated by remote control, these miniature trains do not carry drivers, guards or passengers - and they do much to help reduce traffic on the streets of London and to provide an even flow of postal traffic through the sorting offices they serve.

4 RAILWAY DISASTER MAILS

Ever since the very first despatches of letter mails by railway train in 1830 there has always been a possibility that a mail train would be wrecked or burnt, and the mails it carried damaged, robbed or destroyed. The earliest

recorded survivor of such a disaster is an American envelope of 1862 which has a label affixed reading "POST OFFICE BUFFALO NY/FEBRUARY 11TH 1862/This letter has been recovered from the mutilated bag lately robbed on the State Line Railroad between this city and Erie Pa. It was forwarded at the earliest moment possible but in a damaged state AM CLAPP PM".

A remarkable example of Post Office efficiency is connected with the Tay Bridge disaster of Sunday 28 December 1879, which was one of the most terrible in railway history. The new bridge - opened only seven months earlier - carried the railway line from Edinburgh to Aberdeen across the Tay estuary near Dundee on 85 lattice girder spans.

When a northbound slow train, carrying 6 bags of mail, arrived at the south end of the bridge at 7.14pm, one of the worst gales in local memory was pounding the bridge and making it sway alarmingly. Nevertheless, the train went on but, as it was crossing in the pitch black night, the centre 3000-foot section of the bridge collapsed and the whole train and all 78 people aboard were lost in the waters of the Tay.

Two mail bags were recovered that same evening from the beach at Broughty Ferry, 4 miles downstream. The letters they contained were sent to Dundee and dried that same Sunday night. They were delivered the next day Monday 29 December. Only 7 of the recovered letters have been traced.

Wars, of course, have led to the destruction of many more trains. On a number of occasions during the South African war of 1900-1901, for instance, Boer Commandos captured British trains and the mails carried in them. Sometimes the letters were looted or taken away, sometimes they were thrown out of the train onto the open Veld.

The rapid changes in disposition of both armies sometimes led to the 'lost' mail being recovered: it was then usually stamped with one of a number of special cachets explaining the delay and forwarded.

Perhaps the most extraordinary mails to survive train disasters were sackfuls of ostensibly local mail but actually forged morale-damaging propaganda letters bearing forged German or French stamps which were scattered from the air by allied planes after they had bombed enemy mail trains during World War II. In most cases the propaganda letters were thought to have come from the wrecked mail trains and were collected up and delivered in the normal way by the German or Vichy French postal services.

5 RAILWAY LETTER STAMPS

Before 1891 it was illegal for railway companies to carry letters for the public except in the Mails, but the prohibition could be evaded by persons with urgent letters camouflaging them as railway "parcels" (which were legal).

By agreements which came into force on 1 February 1891 the Post Office allowed all interested Railway companies to accept letters for transmission provided that the sender paid the railway company 2d per letter and that the letters also bore the appropriate UK rate of postage in stamp(s). Payment of the Railway Company's fee was to be indicated by the affixing of a special (green) 2d stamp provided by the company. Apart from changes in Post Office letter rates, the Railway Letter fee was changed to 3d and 4d at various periods from January 1920 onwards.

Over 100 railway companies throughout the Britain Isles issued these special stamps, and similar stamps are still being issued by some of the private railway companies.

Before the agreements of 1891 the Post Office had intended to issue its own stamps to cover the carriage of urgent letters by the railway companies. Designs were commissioned from Thomas De la Rue & Co but they were not produced as stamps because there were found to be legal difficulties in the way of this scheme.

From 1914 onwards some railway companies ceased producing special letter stamps and used parcel stamps instead on letters carried by them.

In 1933-34 the Great Western Railway operated commercial air services which carried urgent letters (as had the railway trains) within the UK. This lasted only a short time until the Post Office (on 1 December 1934) announced that it would send ordinary mails by established air services without extra charge if the service accelerated transit times.

6 THE STORY OF THE LOCOMOTIVE ON POSTAGE STAMPS

Britain was one of the pioneers of steam locomotion, not only within the British Isles but throughout the world, and British engineers and British railway engines built and equipped railways from the Far East to the Andes. Many of these earliest railway links have been commemorated on postage stamps marking a jubilee, or centenary of a country's first railway line; the locomotive shown is, quite frequently, one built for that very purpose in Britain.

The age of the Steam Locomotive is almost over now; diesel and electric trains are used almost everywhere and are therefore quite properly shown on modern stamps.

The first postage stamp to picture a railway locomotive was issued by the Canadian province of New Brunswick in 1860 as part of a definitive issue. Since then railway locomotives of all kinds have been depicted on many hundreds of stamps from all over the world.

During the sixty or so years after 1860, the railway locomotive appeared on stamps from time to time, mainly in designs intended to illustrate progress and the opening up of new territories. This was the theme of locomotive stamps issued by the United States in 1869 and by Mexico, Honduras, Salvador and Uruguay between 1895 and 1899.

Many countries have found their railway centenaries an irresistible theme for a special stamp issue. The earliest was Germany (1935) closely followed by Austria (1937), Belgium (1935), Italy (1939), Hungary (1945) and many others. Similar centenary stamp issues in India (1953), Chile (1951), Egypt (1957), Australia (1954) and New Zealand (1963) bear witness to the world-wide expansion of rail transport.

7 SPECIAL STAMP ISSUE COMMEMORATING 150 YEARS OF BRITISH PUBLIC RAILWAYS 1975

The four postage stamps issued by the British Post Office on 13 August 1975 marked the 150 years since George Stephenson's pioneer engine Locomotion hauled a 34-wagon, 90 ton train, full of passengers and goods at speeds of up to 15

miles per hour, thus inaugurating the world's first public steam railway - the Stockton and Darlington. Locomotion and the three other engines featured on these four commemorative stamps record the development and progress of rail locomotives between 1825 and 1975. The designs, by Brian Crocker, for the issued stamps depict:-

- 7p 1825 **Locomotion** (0-4-0), built by George Stephenson; engineer No I of the Stockton and Darlington Railway; in service on 27 September 1825 when the line was publicly opened.
- 8p 1876 **Abbotsford** a 4-4-0 "Waverley" class engine of the North British Railway. Specially designed by Dugald Drummond to work the Carlisle - Edinburgh route, these engines could attain speeds of up to 80 mph.
- 10p 1923 **Caerphilly Castle** (4-6-0) the pioneer engine (No 0473) of the famous "Castle" class engines of the Great Western Railway. Conceived by C B Collett, this was one of the world's most famous and successful locomotive designs; with some slight modifications new engines of this class went on being built up to 1950. They could reach speeds of up to 100 mph.
- 12p 1975 **British Rail's High Speed Train** went into service during 1975 and is destined to reach speed of 125 mph on existing track. The train has a streamlined 2250 horsepower Car at each end containing a Paxman "Valenta" diesel engine. In early August 1975 this train reached a speed in excess of 150 mph on standard railway track near Didcot.

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