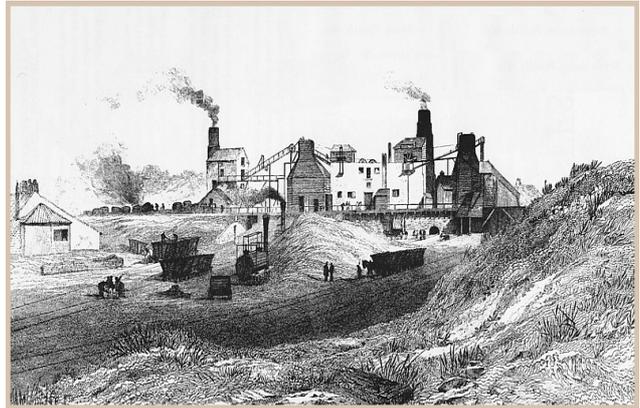


A BRIEF HISTORY OF THE STOCKTON AND DARLINGTON RAILWAY

PART 4- THE FORMATION OF A RAILWAY EMPIRE

BRANCH LINES

In Part 3 of our of history we talked about the “issue of common use” and the similarity of the constructed railway to a public right of way .Under the provisions of the first S&DR Act, of 1821, owners of land within 5 miles of either side of the line were given the right to lay down their own collateral branches and affect a junction, provided they bore the cost of the necessary points and signals, and without S&DR receiving any tonnage payments for passage along these branches. This provision,



designed in theory to protect the neighbouring land and coal owners in reality created a 10 mile wide corridor which they could exploit with minimum outlay on track .This effectively created a subsidised transport system brought to their door, although many of these landowners were themselves directors or shareholders of the S&DR.

This was in turn to create two classes of branch lines, those of the S&DR themselves as specified in the enabling Acts, and numerous private colliery branches that required no authorisation, other than the blanket provision in the 1821 Act.

As to the outcome of the S&DR branch lines, as related to Parliamentary Proceedings, these are summarised below:

FIRST S&DR ACT: 19 APRIL 1821

- | | |
|---------------------------------------|--------------------|
| 1 Darlington Coal Depot branch | |
| 2 Yarm Coal Depot branch | |
| 3 Coundon Turnpike Gate branch | Not proceeded with |
| 4 Norlees House-Evenwood Lane branch | Not proceeded with |
| 5 Stockton branch | Not proceeded with |

SECOND S&DR ACT : 23 MAY 1823

- 6 Black Boy branch**
- 7 Croft Depot branch**

THIRD S&DR ACT: 17 MAY 1824

- 8 Haggerleases branch**

In reality only five branch lines were proceeded with, after authorisation by Parliament, of these five three were to serve coal depots and two to act as lines to specific collieries .Their timing was directly affected by the parlous state of S&DR's finances for some years after the opening and their story is briefly told below:

1 DARLINGTON COAL DEPOT BRANCH

Authorised by the 1821 S&DR Act it was the only branch to opened at the same time as the main line, on the 27th September 1825.

George Stephenson had brought his main line much closer to the northern outskirts of Darlington, than Overton's original survey route, and in doing so he took the opportunity to both modify and shorten the branch from that authorised .Starting from a point west of (the later) North Road station it diverted after 300 yards to run alongside Hopetown Lane .As completed it was only some 800 yards long, some 750 yards shorter than originally envisaged.

2 YARM COAL DEPOT BRANCH

Starting at a point near what is now Allen's West station the branch was some 1.20 miles long heading south then east to terminate behind the New Inn (now the Cleveland Bay Hotel)

Although the depot was located on the Egglescliffe (Durham) side of the river Tees it was primarily intended to serve the residents of Yarm, on the Yorkshire side of the river, the home of a number of prominent promoters of the railway.

The first coals were carried along the branch on the 11th October 1825, with the depot being opened to the public on the 17th of the same month . The coal depot manager's house stands to this day bearing the S&DR property plate D13.

From 1825-33 the main-line horse drawn passenger service was diverted to travel up and down the branch to a station halt located at the junction. This service was suspended in 1833 when locomotives replaced horsepower.

6 BLACK BOY BRANCH

The naming of the branch relates directly to it intended purpose which was to serve two collieries near Coundon, both bore the name of Black Boy after a local public house. The first operating from 1810-30, the second from 1825-60's. The route itself was never fully completed falling some half mile short of its intended terminus.

The track itself was completed in in July 1827, after a difficult gestation, beginning at Shildon Junction half a mile East of the Mason's Arms and terminating some 2½ miles on near Coundon Gate colliery. In doing so crossing the Dene valley and surmounting a high ridge to the North of New Shildon, necessitating the positioning of two static steam engines at the ridge summit (similar to Etherly or Brusselton). Until the summit engines were operational, in



Black Boy Chauldon

1828, the line was entirely horse operated, although the section from the Coundon terminus to the Dene beck continued to be worked by a combination of gravity and horsepower. The summit engines as originally installed proved inadequate and were replaced by new 50hp engines in 1835, by Timothy Hackworth.

The opening of the branch line stimulated the development of further pits in the area (some of which were also named Black Boy to add to the confusion!) and a number of private colliery branches. In addition near the summit winding house Nicolas Downing established the Phoenix iron and brass foundry, served by its own sidings for transporting raw materials, fuel and finished product.

In terms of industrial archaeology, associated with this branch, there are remains of the stables, bank-riders cabin and coal drops east of the Mason's Arms. In addition we still have remaining Rose Cottages, which housed some of the railway workers, opposite the site of the winding house and bearing the S&DR property plate G12.



Shildon Coal Drops

7 CROFT DEPOT BRANCH

The 27th October 1829 witnesses a colourful procession of numerous horse drawn coaches, followed by a train of coal wagons signalling the opening of the Croft Depot branch, as authorised by the second S&DR Act of 1823. Some 3½ miles in length and diverging from the main line at Albert Hill it terminated at coal depot and wharf near Croft, on the the river Tees.

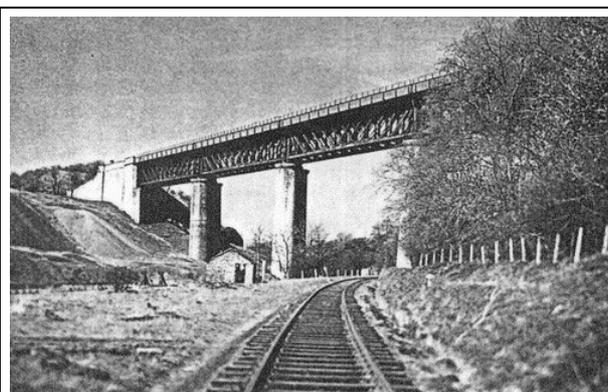
In common with the Yarm branch the actual depot and station were located on the Durham side of the river, although the declared purpose was to serve the people of North Yorkshire. In the early days the wagons were horse drawn and from the beginning a horse drawn passenger service was instituted, although withdrawn in 1833.

8 HAGGERLEASES BRANCH

The requirement to proceed with the Haggerleases branch was specifically to meet the urgings of the Earl of Stathmore and the Revd William Luke Prattman, the owners of the Butterknowle and Copley Bent collieries, and in fact the overriding raison d'être for the third S&DR Act of 1824.

In achieving assent the Norlees House-Evenwood Lane branch was relinquished and opportunity taken to ratify changes to the alignment of the Croft and Yarm Lane junctions.

The survey of the 4.80 mile branch, which was to follow the river Gaunless throughout, can be regarded as Robert Stephenson's first railway commission. For although George Stephenson was technically the full-time engineer on the line he had sufficient confidence to entrust the survey to his son Robert, whose name appears on the



Lands Viaduct with Haggerleases Branch under

title plans and sections when deposited in 1823. Robert was also entrusted, at the age of 21, with shepherding the survey through Parliament, where his father George had suffered a number of bruising encounters.

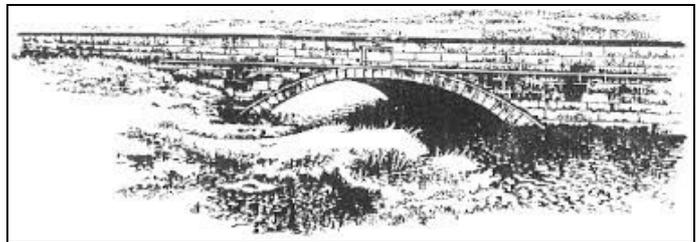
Ironically after submitting account for the works, to the S&DR in 1824, he sailed the following month from Liverpool to South America.

As constructed the branch diverges from the main-line at St Helens Auckland and follows the river westwards for almost 5 miles to terminate at West Mill on the Haggerleases Lane, just beyond the village of Butterknowle.

Although started in 1824, at the St Helens junction, it was quickly suspended due to the companies ongoing liquidity crisis and not recommenced until July 1828, under increasing pressure from the Revd. Pratt who threatened to oppose the Middlesbrough extension in parliament. The Revd had become increasingly frustrated at the isolation of the Butterknowle and Copley Bent collieries from a rail terminus.

Whilst works recommenced in 1828 completion was not achieved until May 1830, by 1848 it was serving no less than 12 collieries connected by private lines.

A need to cross the river Gaunless witnessed the construction of what is believed to be only the **second skew-arch bridge** on a British railway (a bridge built at an angle over a river rather than right angles), the first being built by George Stephenson at Rainhill on the L&MR. Built



at an angle of 27 degrees, and designed by Thomas Storey of the S&DR it still stands today some 12ft wide and 42ft long embellished by circular pillars.

Due to its pioneering engineering nature a full size timber prototype was built in the adjacent field prior to construction by Jones Wilson of Pontefract for the price of £420; this was preceded by an abortive attempt by Thomas Worth and John Batie at a price of £327. Subject to a rather infrequent horse drawn passenger service, and a probable station at Haggerleases Lane, the branch continued to be entirely worked by horsepower until 1856, when locomotives took over; only then was horse traction phased out on the entire S&DR system. The passenger service itself was finally withdrawn in 1872.

THE MIDDLESBROUGH EXTENSION

The Middlesbrough extension, in effect extending the line across the river Tees into North Yorkshire, was to prove a major and at times difficult undertaking for the S&DR. A classic example of a major river port migrating downstream driven by the need to increase trade. Whilst navigable, to Stockton, the river Tees was unable to cope with large vessels, due to silting issues and shoals, notably at Jenny Mills island, rendering the coaling staithes under capacity

Whilst the Yarm and Stockton based interests, in the S&DR, favoured a second river “cut” solution (after the Mandale cut) near Portrack the Darlington interests held sway, proposing an extension of the line and a new facility downstream.

An extension to a vacant site at Haverton Hill, on the north side of the river, was abandoned in favour of the shorter route to the then hamlet of Middlesbrough (or Leventhorpe), after survey work by Thomas Storey and Richard Otley proved its viability.

George Stephenson was appointed consulting engineer in 1827 and after further survey works and estimates a solution to proceed was passed in January 1828, but not without

acrimonious debate and the resignation of three of the original supporters of the S&DR, Leonard Raisbeck, Thomas Meynell and Benjamin Flowers. The parliamentary Act was authorised in May 1828, despite strong opposition in the House of Lords.

Joseph Pease was charged with land acquisition for the new port and famously took a boat trip up the river, on the 18th August 1828, and **was much pleased with the place altogether.**

A small group of Quaker bankers and financiers formed a company called "The Owners of the Middlesbrough Estate" and some 521 acres were purchased from the landowner William Chilton, for £30,000 in May 1829, to accommodate new coaling staithes and township.

Timothy Hackworth won the 150 guineas competition for the design of the new staithes with an ingenious arrangement that enabled wagons to unload directly into the holds of ships, also allowing coal to be discharged without undue breakage.

Six steam powered staithes of this type were built and in 1831 the first cargoes were loaded onto the brig Sunnyside, including coal from Black Boy colliery.

The line itself was opened in December 1830, the inaugural train being hauled by Timothy Hackworth's "The Globe" and the riverside terminus itself was named Port Darlington; later officially dropped in favour of Middlesbrough in deference to the remaining constituents of the Stockton faction, in the S&DR.

The 4 mile extension commenced at Bowesfield junction and was almost immediately required to cross the river Tees, made more challenging in engineering terms by the Tees Navigation Co's stipulation that the river should not be obstructed by intermediate supports.

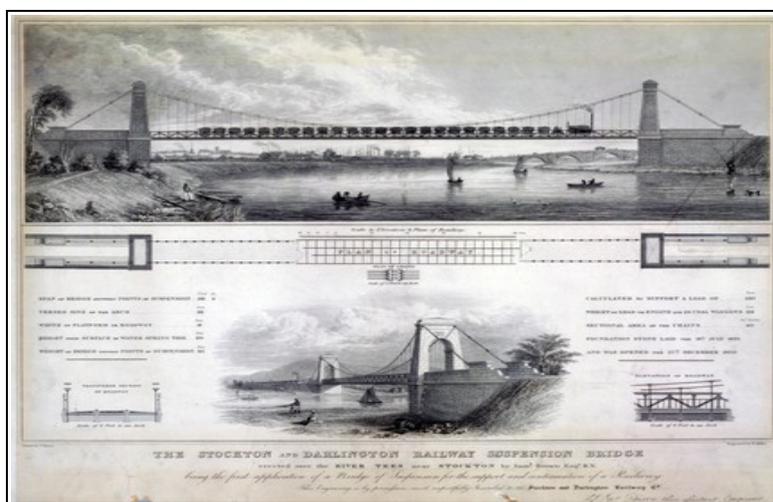
After considering design solutions, by S&DR's James Dixon and Timothy Hackworth, Captain Samuel Brown RN (1776-1852) was appointed to

design **the world's first railway suspension bridge and the first railway bridge over a navigable river**, at a cost of £2300. The bridge was 412ft in length, with a main span of 281ft, 16ft wide and stood 20ft above the high spring tide level, with the bridge decking supported by 110 perpendicular rods hung from chains.

Weighing only 111 tons the bridge was extremely light and was to prove a severe operational disappointment suffering severe deflections under load. Although a partial solution was found involving limiting wagon traffic it continued to be unstable in high winds and after 14 years of unsatisfactory use was replaced by a more conventional design by Robert Stephenson in 1844. This cast iron girder bridge was supported on intermediate piers and was itself renewed in 1907.

Following the opening of the Middlesbrough branch we witness the establishment of a locomotive repair shop, significantly at the other end of the line from Shildon. With again Quaker ownership it changed its name to the Tees Engine Works in 1844, manufacturing and maintaining locomotives for the S&DR and other railways, along with equipment for mines, ironworks, blast furnaces and agriculture.

Another not unexpected outcome of the opening of the branch was its downward effect on the price of coal, a process that had started with the opening of the line in 1825. Whereas the S&DR carried some 46,000 tons of coal in 1828/9, with the opening of the extension this increased to 152,000 tons in 1830/1 and 336,000 tons in 1832/3, with economies of scale



dictating coal prices fell dramatically.

MIDDLESBROUGH DOCK

Ironically by 1838 the facilities at Port Darlington were proving inadequate, with the very existence of the new town, the staithes and the railway itself under threat from the railway extensions to West Hartlepool with coal transport following. At West Hartlepool deep water was available on all tides.

Consequently a new dock designed by William Cubitt was completed after 2 years construction in 1842. Free from the effects of tides it covered 9 acres and could accommodate 150 ships and 1200 loaded wagons. It was approached by a 1.20 mile branch from just short of Port Darlington and terminating in ten diverging double lines serving coal staithes. The total cost of £140,000 was shared between the Middlesbrough Estate and the S&DR. In 1849 S&DR took over total ownership of the dock with ownership finally passing to the Tees Conservancy Commission in 1852.

MIDDLESBROUGH TOWN

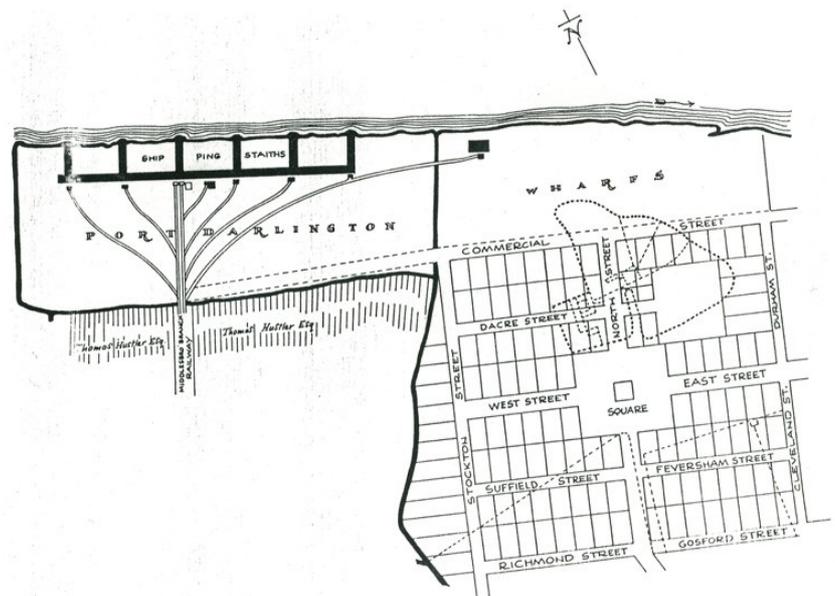
The owners of the Middlesbrough estate proceeded to build an entirely new town, "Middlesbrough" They

commissioned Richard Otley to put together plans for a new model town "a community free of squalor and disease"

Initially designed to support a population of 5,000, with four wide main streets radiating from a central square, which later became the site of the first town hall; 123 plots were initially developed and the first house was ready in 1830.

It took 10 years to reach its planned size, in essence **the first large settlement to be created as the direct result of railway development and the first industrial town to be laid out on a gridiron street pattern**, the prototype for planning development for decades.

After discovery of iron ore, in the Cleveland Hills in 1850, the development of the iron industry in Middlesbrough area exploded with dramatic consequences for the town, which ultimately extended well beyond its original site. It changed from a small coal town to a booming iron town overnight. The growth of Middlesbrough was phenomenal. In 1801 the census revealed a population of 25 and still only 150 by 1831. By 1841 this had risen to 5,463, by 1861 nearly 40,000 and by 1891 some 75,000.



The New Town of Middlesbrough

Middlesbrough was one of the “commercial prodigies” of the 19th century but the founders vision of a model community was never realised. The rapid expansion in population ultimately created cramped and squalid conditions in its wake!

COASTAL VENTURES !

In parallel with the development of the Middlesbrough estate the S&DR shrewdly promoted the Middlesbrough and Redcar Railway Co, opening a 7.40 mile extension in 1846, the first ceremonial train being hauled by Locomotion No1 itself .The line commenced at the Middlesbrough Dock junction and terminated in Redcar, near the site of the current town clock.

The company began holiday excursions in 1848, with some 2,200 passengers travelling in 1850; again although a nominally independent company it was controlled by S&DR .

Some 5 miles down the Yorkshire coast from Redcar was the small fishing community of Saltburn. After the success of Redcar S&DR soon recognised the potential success of another seaside resort. Forming the Saltburn Improvement Co a Darlington architect, George Dickinson, was commissioned to draw up plans to create a “northern Brighton,” **the first and almost unique occasion when a railway company built a seaside resort.**

Subject to Parliamentary approval, in 1858, which authorised the formation of the Stockton and Darlington (North Riding) Railway Co, the line was opened in August 1861, a new Redcar station built with Saltburn station on the heights overlooking the sea

A further Act of July 1859 also included powers to build a hotel. Opened in July 1863 and **described at the time as the finest railway hotel in the world.**

Named after Lord Zetland and designed in an Italian style, by William Peachy, it initially had some 37 bedrooms. To transport fuel to the hotel a siding was extended almost to its front door. In reality shortly after its construction passengers could board their trains in London and be transported all the way to the Zetland by rail. In 1975 the then owners sold the hotel for conversion into self-contained apartments.



In creating the line extensions to Redcar and Saltburn (both previously poor fishing hamlets) the S&DR again **created a virtuous business circle** , benefiting from the newly found leisure activities of a vibrant and expanding workforce they had been instrumental in creating.

NEW LINES

The branch lines as dealt with above are a continuation of the historic 26.50 mile S&DR main-line, between Witton Park colliery and Stockton Quay. From the historic date of the 27th September 1825 the S&DR company gradually expanded its empire, although generally it did not do so in its own name but by promoting nominally independent companies, whose directors and officers were S&DR men. In addition the owners of the S&DR often held major shareholdings, in these fledgeling companies, through which they exercised control. In reality in its heyday the S&DR's zone of influence spread from Consett, in the north to Tebay, in the south-west, to Saltburn in the east to Penrith in the west .All routes converged on Darlington to a greater or lesser extent!

The driving force for S&DR's expansion was mineral traffic, with passengers and the transport of other merchandise always a secondary consideration. In this respect the S&DR were happy to transport anyone's coal, as a "spiders web" of lines were developed within the heart of the coalfield; most of these lines were privately owned and built by the colliery owners. Although even during the independent lifetime of the S&DR coal production became centred on fewer larger collieries

In parallel the development of the iron industry in the region, with its ultimate concentration on Consett and Teeside, created a demand for coke (a by product of coal) as an essential raw material, with coke ovens being strategically sited alongside collieries. The railways were always in hand to provide a vital transport artery to these two independent industries.

Of almost equal importance to coal was limestone and its derivative "quicklime". It is significant that by 1861 lime depots are given equal prominence to coal depots on the OS map. Whilst originally derived from many local quarries, sited on the northern England limestone ridge, like coal its production ultimately concentrated in larger quarries accessible to the railways. Limestone was transported in bulk by the S&DR and its associated companies and as such increased dramatically in volume and revenue earning capacity, passing the 500,000 ton mark by the mid 1860's. In the early days much of the limestone was destined for Consett, where the Derwent Iron Companies works were founded in 1841, but this supply was soon surpassed by Teeside.

In reality the S&DR, and its associated companies, very shrewdly expanded their network to benefit from the restraints of economic geography

i.e. that major industries initially tend to be located at or near the source of one of their raw materials. In the case of the iron industry limestone was widespread in the north of England, with a principal source in Weardale. Coal was abundant in Northumberland and Durham and to a lesser extent in West Cumberland; and extensive deposits of iron ore were discovered and mined in Cleveland in the east and in the Furness district. Large deposits of haematite, high grade ore, were discovered north of Barrow-in-Furness.

The end result was the concentration of ironwork complexes at four large sites in the north of England, at Consett in North Durham, at Workington in West Cumberland, at Barrow-in-Furness and Teeside.

The S&DR and its associates played a crucial role in the development of these four ironworks and their prosperity, providing lines specifically tailored to enhance their functionality. The railways also served to transport the finished products to markets at home and abroad. A significant proportion of the wealth created flowed to these, often Quaker, businessmen who also frequently had a financial interest in the industries the railways served

Whilst it is beyond the scope of this brief history to consider in detail this complex web of associated companies it is well worth highlighting a small number:

THE WEAR VALLEY COMPLEX

At the core was the Bishop Auckland and Weardale Railway, reaching as far as Consett. The complex also involved the building of the Shildon Tunnel Line. The tunnel itself some 1225 yards in length ran through the 500ft high limestone Shildon ridge. The line, incorporating the tunnel, was opened in 1842 and ran from S&DR's main-line at New Shildon some 2 miles to South Church. From the beginning it was worked by S&DR with profound consequences on the Black Boy branch, as it provided a much less costly, and operationally difficult, outlet for coal from the Dene valley to the main-line at Shildon junction.



Consett Ironworks

THE DARLINGTON AND BARNARD CASTLE RAILWAY

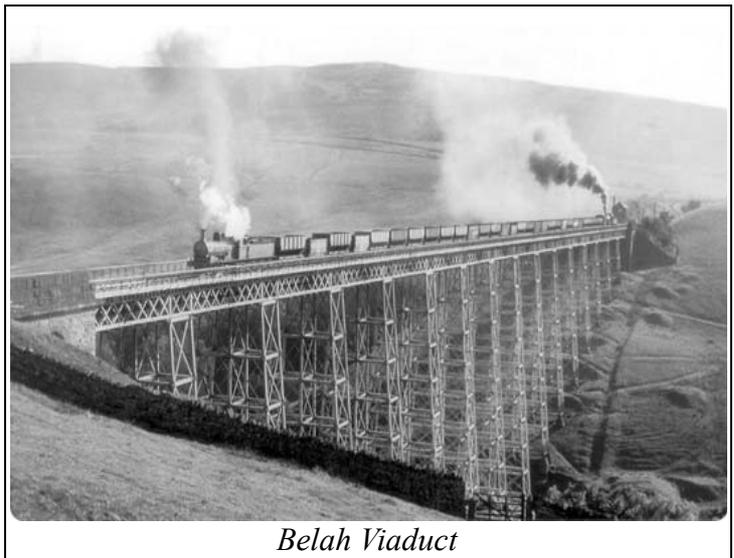
Yet another nominally independent line (the D&BCR) it opened in 1856, running from Hopetown to Galgate in Barnard Castle, a distance of some 18 miles, and the first major branch from the S&DR's main-line. The line was worked from the start by the S&DR, and the two companies amalgamated in July 1858

By an S&DR Act of July 1855 a spur was constructed at the Darlington end .The Stooperdale Curve was opened in August 1861 to enable traffic to work north from the D&BCR onto the S&DR and vice versa.

THE STAINMORE ROUTE

The D&BCR was a catalyst for a vastly more ambitious scheme i.e. the South Durham and Lancashire Railway (the SD&LUR). There were two main objectives, to transport south Durham coke westwards to the ironworks of Millom and Barrow and transport richer haematite ores to the ironworks of Consett and Teeside. The line was sponsored by the S&DR, with Henry Pease as the chief promoter, along with other S&DR proprietors. The SD&LUR Act was passed in 1857 authorising a line between the S&DR at Spring Gardens junction and the Lancaster and Carlisle Railway at Tebay (with a connection at Barnard Castle to the Darlington and Barnard Castle Railway). The line was worked from the outset by the S&DR, who took over entirely in 1862.

The chosen route for the Pennine section presented formidable physical challenges resulting in nine lofty viaducts ;in their day amongst the most remarkable feats of railway engineering. Foremost amongst them was the viaduct at Belah, between Barras and Kirby Stephen. The line reached its summit at Stainmore at some 1374 ft. The engineer appointed to supervise the construction and design the numerous viaducts was Thomas Bouch, whose brother was locomotive superintendent on the S&DR. Thomas was later the designer of the ill-fated Tay Bridge, for which he received a knighthood in June 1879, six months and a day before the bridge collapsed!



Belah Viaduct

PART 5

In Part 5, the concluding part of our history, we look at the supporting infrastructure of the S&DR, including the railway engineering works at Shildon and Darlington and the rise of the “rival railways” leading to amalgamation with the North Eastern Railway Co in 1863.