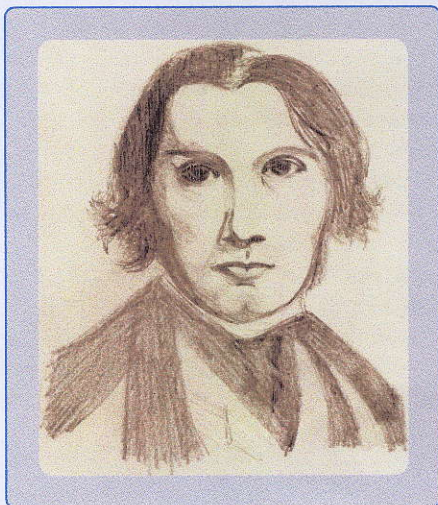


The
Joseph Locke
Memorial



and
A Short History
of the
Exeter and Crediton Railway

Published on the Occasion of the 160th Anniversary of the Opening of the
Exeter and Crediton Railway
12th May 2011

INTRODUCTION

History abounds with exemplary characters who, for some obscure reason or another, have failed to gain the recognition they deserve. In the field of early railway civil engineering, Joseph Locke is the paramount paradigm.

This pre-eminent British engineer was responsible for handing down countless miles of superbly engineered railway; building the first trunk lines of four countries, including Britain; bequeathing to posterity a design of track still basically in use, to a gauge universally adopted and which he always championed; building to cost, more cheaply than just about anyone else; with no unnecessary extravagance; usually to time - sometimes before; finishing off projects on which others had foundered; never suffering that ignominy himself. No-one else managed this. His works, quietly and efficiently managed and constructed, boasted of nothing but consummate confidence, and unassuming competence: he never really made any bad mistakes, and his name was never bandied about amongst those guilty of the lavish and the dramatic, meaning also the costly and the unwarranted. Nor did he become embroiled in dead-end technologies, such as atmospheric propulsion, always lending his name and his efforts to the promotion of the locomotive engine, a policy learnt at the hands of his early mentor, George Stephenson.

Whilst George's son Robert, a civil engineering giant in his own right, developed the science of the locomotive alongside other budding mechanical engineers, Joe concentrated on building the lines: the characteristic Lockian practice of around or over, rather than through, exercised the increasing power of the locomotives of his age, and provided Britain with its most cost-effective pioneer railways. Joseph Locke pleased his directors and shareholders, whilst building railways of unsurpassed quality and resilience. The next few pages will tell you how. *David Gosling, May 2011*



Cover Illustration:
The Young Joseph Locke
© Nicky Pincombe, May 2011

The Joseph Locke Memorial and A Short History of the Exeter and Crediton Railway

David Gosling

Part One Joseph Locke - A Biographical Summary

Beginnings

Joseph Locke was born, the youngest of four sons and the sixth of seven children, on 9th August 1805, at Attercliffe Common, Sheffield, to colliery manager William Locke and his wife Hester. Joe grew up in Barnsley, attending Barnsley Grammar School from 1818, when he was seven, until the age of thirteen.

William Locke was a friend of George Stephenson, who is known, not unreasonably, as the Father of Railways, and when it became clear that Joseph was not settling down after he had left school, George, on a visit to William, offered to take Joe on as a pupil, without salary or premium, for three years from the early summer of 1823. Within two years, Joe had been given responsibility for, and had constructed, his first railway, from Black Fell Colliery to the Tyne; he was not yet twenty.

Under George Stephenson's tutelage, Joe applied himself with enthusiasm, acquiring conspicuous success in science and mathematics, added to which was a gift for oratory, a consummate command of written English, and an increasing capacity for general knowledge. With his first railway behind him, Joe subsequently worked on the Canterbury and Whitstable Railway, the first in the south, opened on 3rd May 1830.

Concurrent with his work on the Canterbury and Whitstable, he also worked on the Liverpool and Manchester Railway, where George Stephenson

was engineer, Locke having responsibility, amongst other work, for Edgehill Tunnel, Liverpool during 1827-8, where he was obliged to correct errors perpetrated by previous resident engineers. In 1830, following the Rainhill trials of a year earlier, where the *Rocket*, of George and Robert Stephenson, had comfortably won a competition for the best locomotive, Robert and Joseph jointly published a report on the relative merits of locomotive versus fixed engines with rope haulage, successfully aimed at persuading the Liverpool and Manchester directors to adopt the former. The railway locomotive had come of age.

In connection with the opening of the Liverpool and Manchester Railway, on 15th September, 1830, it is fairly well known that William Huskisson MP was knocked down and killed by the Stephensons' *Rocket*; what is less well known is that the locomotive was, at the time, being driven by Joseph Locke. The fault was Huskisson's, who had been negligent, and had ignored warnings: Locke was exonerated.

Six years after the opening of the Liverpool and Manchester, Joe took over work on a one-and-a-quarter mile tunnel being built to bring the line down from Edgehill to a new and more convenient passenger station at Lime Street. Reminiscent of his experience on the Edgehill Tunnel, Joe became aware of a surveying error which would have resulted in the two tunnel workings failing to meet each other and, in remedying the mistake, he may have sown the seeds of later difficulties between himself and his mentor; for George Stephenson had ultimate responsibility for the resident engineer who had incorrectly surveyed the tunnel. The pupil was overtaking the master.

In his biography of Joseph Locke, *Joseph Locke: Railway Revolutionary*, George Allen and Unwin, 1970, N. W. Webster comments: *Throughout his life he had the ability to command confidence and, with growing experience, his genius was beginning to flower. On engineering matters he was unruffled, precise, competent and convincing. His planning was such that he permitted himself, and others, no mistakes. There were to be very few disasters or costly errors in his working life (though he was not to escape entirely unscathed), no wildly inaccurate estimates or schemes tackled for personal vanity.*" This is in marked contradistinction from his friends and fellow railway civil engineers, Robert Stephenson, George's son, and, more particularly, Isambard Brunel.

After working on the Liverpool and Manchester, generally recognised as the first locomotive-powered public railway in the world, Joe graduated to the Grand Junction Railway, still, for the present, under the guidance of George Stephenson, though the original survey and detailed plans had been Locke's work. The Grand Junction was intended to meet, head on, Robert

Stephenson's London and Birmingham Railway, effectively extending that line from Birmingham to a junction with the Liverpool and Manchester, thus creating the beginnings of what has long since been known as the West Coast Main Line. His increasing confidence, and the efficiency of his method of working, resulted in growing recognition from his employers, but unfortunately led simultaneously to developing friction with Stephenson. The latter eventually resigned, on 16th September 1835, after the directors of the Grand Junction had made Locke joint engineer, Stephenson finding it impossible to remain after what could only be seen as a criticism of his abilities. Locke was now totally responsible for the construction of Britain's first trunk line, successfully completing his task with what became somewhat of a trademark of his work; there were no tunnels! Crucial and unsurpassed as his contribution to early railway development was, his style was entirely free from hyperbole. As Webster relates, superb planning, and a less spectacular approach, were to bring him less publicity. The Grand Junction was a triumph for Locke. Opened on 4th July, 1837, eleven months before Stephenson's 112-mile London and Birmingham, the line was around 88 miles in length, was built in record time, and at a cost of less than £20,000 per mile, as against the £46,000 per mile of Robert Stephenson's admittedly more difficult connecting line. If the Grand Junction could not boast of a Kilsby Tunnel, a Blisworth cutting, or a Wolverton embankment, as Stephenson was faced with on the London and Birmingham, it is because Locke engineered a superb line calculated to avoid the need for such costly construction, instead going round or over, rightly understanding that locomotives were becoming capable of increasingly prodigious feats of haulage. It was also, however, a line calculated to promote no spurious, nor inflated, publicity for its engineer.

While working on the Grand Junction, Locke sought to further his education by attending lectures at the Philosophical Institution in Liverpool, by which means he became acquainted with eminent historian William Roscoe, through whom he met Liverpool printer John McCreery, to whose youngest daughter Phoebe he became attached, marrying in 1834.

Locke remained engineer of the Grand Junction until purchases of, and amalgamations with, other companies resulted in the birth of the London and North Western Railway, whereupon he became engineer of the Northern Division of the LNWR, whilst Robert Stephenson performed the same function on the Southern Division. Later, Stephenson assumed responsibility for the whole line; Locke had already been sent to survey northern extensions to Lancaster, Carlisle and Glasgow.

It was on the Grand Junction that Locke first came into contact with Thomas Brassey. Destined to become the greatest of all railway contractors,

Brassey was born in 1805, a few months after Locke, on 7th November; their engineering and contracting partnership was to ripen and endure as no other in the railway pioneering field.

Locke realised that improved communication between London and Manchester would ultimately be required, the long detour via Newton Junction on the Liverpool and Manchester being unacceptable in the long term, and a link would also be necessary to Chester. The result was that a small station on the trunk route to the north became a junction of some importance, subsequently becoming a focus for other lines: this station was Crewe. Essentially, the town was designed by Locke, the engineer being responsible for the selection of the site, the planning of the town, and the execution of the contracts for its construction. He prepared plans for the establishment of a works to provide the growing railway with facilities for the construction and maintenance of locomotives, carriages and wagons. To cater for the staff required to sustain such a works, a small town was laid out and streets lined with 250 company-owned cottages, housing 1,150 families. The works formally opened on 2nd September 1843, though work still continued on the town itself: Crewe soon included a gas works, and grants were made available for the construction of churches of various denominations.

While his civil engineering skills were being honed, Locke turned his attention to other aspects of railway design. In a report prepared in June 1835 Locke describes the characteristics of some of the malleable iron rails then in use, and details his own design of dumb-bell rail, the forerunner of the bull-head rail that was to be used as the standard design on the railways of Britain until the 1940s, and on many railways in France and elsewhere. It is still much in evidence today. The rail was keyed to cast chairs by wooden blocks, as it often still is. Brunel's bridge rail, by contrast, was not perpetuated. Brunel was also guilty of immersing himself in the promotion of atmospheric railways, the South Devon Railway's essay into this form of propulsion proving a breathtaking failure, its recommendation by Brunel costing the company £400,000 in lost capital expenditure: operating costs, too, proved prohibitive, being three times that of locomotive traction. Locke, and Robert Stephenson, kept well clear. Locke is also credited with designing the first Crewe locomotives, as well as being thought to have had some influence on locomotive design in the early days of the London and Southampton Railway. In contrast, Brunel's bizarre interference with the gifted Daniel Gooch's work in connection with the first Great Western Railway locomotives, almost brought that railway to its knees as soon as it opened: only when Gooch was left to himself did commonsense prevail, recourse largely being made to the products of Robert Stephenson and Co, locomotive manufacturers: regarding contemporary locomotive de-

sign, Stephenson, more than anyone, knew what he was doing.

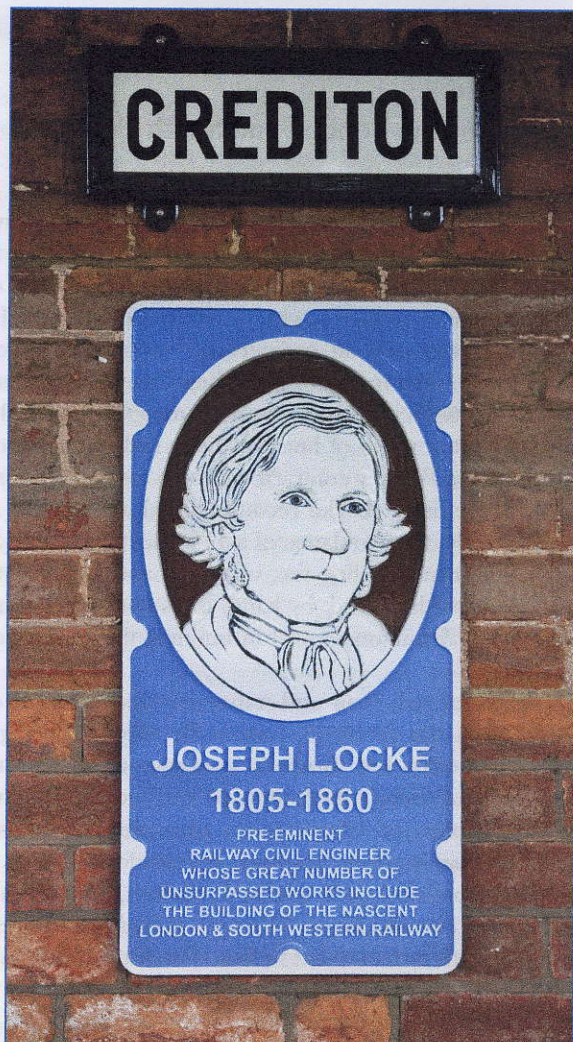
Building the London and South Western

At 17 years of age, Locke had been a part-time clerk and coal deliverer. By 21 he was resident assistant to George Stephenson and had built his first railway. By 30 he was chief engineer of the world's first trunk railway. Locke, therefore, was the obvious, and soundest, choice when the incipient London and Southampton Railway required an engineer to resolve the difficulties being experienced by Francis Giles in engineering their line. Giles had surveyed the line well but was an inefficient manager of contractors: work having commenced in 1834, only ten miles of line had been laid in two years. Joe took over in 1837, appointing Brassey contractor for two major sections, dismissing many smaller, less able firms. Locke recommended a couple of small deviations, including, typically, the avoidance of a 116ft deep cutting at St. George's Hill, Weybridge. The resultant line was very fine, and very smooth. The 16 million cubic yards of earth moved, by hand, in its construction may be compared with only the 11.5 million moved in building the M1, an operation of comparable length.

Locke's design of rail, chair and transverse sleeper, used on the London and Southampton, was eventually universally adopted, being superior to Stephenson's stone blocks and Brunel's contemporary longitudinal baulk road. The forerunner of today's flat-bottomed rail, incidentally, was the creation of Charles Vignoles, of whom more later. Introduced shortly after Locke's design, it ultimately gained universal worldwide use.

Fact is often conflated with received wisdom. History has generally given rise to the view that the Great Western Railway is the senior railway company, persisting both in name and in fact. The former only is true. Other early companies, it is true, eventually amalgamated, losing their names. Fact relates that one company, however, started life before the GWR, its integrity remaining until the compulsory grouping of the railways in 1923. Because of a name change only, itself nothing to do with amalgamations of any description, its claim to premier antiquity goes commonly unrecognised. Incorporated under an act of 25th July 1834, the London and Southampton Railway Company is older than the Great Western (incorporated 31st August 1835). Its first section, that from Nine Elms to Woking, was opened on 21st May 1838, a few months before that of the GWR: Southampton, too, was reached before the GWR reached its own destination of Bristol (30th June 1841), on 11th May

The Joseph Locke Memorial



Dedicated to Joseph Locke on the 160th Anniversary of the Opening of the
Exeter and Crediton Railway
12th May 2011

Clay Relief by Rosie Fierek - Original Master by Paul Bryant/Parc Signs
Designed by David Gosling and Linda Brown
Photograph by Cyril Chudley

1840. A party of directors had previously been taken to Woking on 12th May, thirteen years to the day before the opening of the Exeter and Crediton Railway in 1851. The London and Southampton Railway, on obtaining authorisation for a branch from Bishopstoke (later Eastleigh) to Gosport, serving Portsmouth, in June 1839, and in deference to the denizens of the latter town, changed its name to the London and South Western Railway.

This was nothing more than a company name change, however. Not commonly alluded to is the fact that the Great Western Railway was outmanoeuvred by the West Midland Railway into amalgamation in July 1861, the subsequent Great Western - West Midland working agreement resulting in the two systems being administered by a joint committee of directors, eighteen Great Western and six West Midland. Two years later the two railways were amalgamated under the GWR name, still with six West Midland directors. As far as is known, the LSWR, though purchasing or absorbing other, smaller companies, never suffered the ignominy of having to amalgamate with, and be diluted by, any other company during the independent private railway company era.

The LSWR's new Gosport line was engineered by Locke; Brassey was contractor. A tunnel had proved necessary at Fareham; a slip delaying opening from July to November 1841. After the opening Locke, nervous of further difficulties, closed it four days later, finally opening it for passenger service in February of the following year. This may be thought to have tarnished Locke's otherwise exemplary career to date. The tunnel, however, continued to give trouble throughout its life, subsequent efforts to overcome the difficulties raised by the local geology defeating all later engineers: only closure and the building of a new tunnel in the 1950s, through different strata, resolved the problem.

Subduing the Pennines

It has already been stated that Locke avoided tunnels where possible; Fareham Tunnel being instructive in this regard. It should not be thought from this, however, that tunnels were a weak point with him. His next major challenge would dispel any such imputation. Charles Vignoles, as engineer of the Sheffield and Manchester Railway, was charged with forging a tunnel through the Pennines at Woodhead, and was making little progress. Locke replaced Vignoles as engineer of the Sheffield and Manchester in May 1839, whilst still employed in the same capacity on the London and Southampton. Under Jo-

seph's management a tunnel, 5,300 yards long, through the millstone grit and shale of the Pennines, was successfully driven. Woodhead tunnel was over half as long again as Brunel's Box Tunnel on the Great Western's London to Bristol line, and over twice the length of Stephenson's Kilsby Tunnel on the London and Birmingham, neither of which, awkward though they were, could compare with the difficulties Locke encountered: 33 lives were lost, through 200 major and 450 minor accidents, these being less frequent during Locke's superintendency than that of Vignoles. On 20th December 1845 the tunnel was inspected by General Pasley who stated that he thought it one of the finest pieces of engineering he had ever seen. Two days later the Sheffield and Manchester Railway was opened throughout. At £25,000 per mile, costs were around half that of the Stephensons' own cross-Pennine route, the Manchester and Leeds, though it should be mentioned that this line had pierced England's backbone five years previously, with a tunnel a little over half the length of the Woodhead.

Europe

Up to now, Joe's major works were mainly, though not wholly, concerned with righting other engineers' mistakes, arguably more difficult than engineering a project from scratch. In 1839 the London and South Western Railway was approached by a French banker, Charles Lafitte, regarding the possibility of building the first trunk railway in France, from Paris to Le Havre. Locke, as LSWR engineer, became involved and was soon appointed as engineer to the French railway company, given responsibility for the construction of the line from its inception to its completion. The line was split into two parts: from Paris to Rouen, later continuing to Le Havre. French contractors proving disappointing Brassey and another British contractor, Mackenzie, succeeded in securing the contract to build practically the whole line. The extension to Le Havre proved the more challenging part of the line, with bridges, cuttings, tunnels and embankments following in succession. The Mirville valley, for example, was crossed by a viaduct of fifty-two arches each spanning 30 feet, 110 feet above the valley floor, half built on a curve. One of several tunnels was almost one and a half miles long - the nature of the terrain made these impossible to avoid. It was on this line that Locke's second major misfortune occurred. This was the collapse of the Barentin Viaduct. Twenty-seven arches, each spanning 50 feet, carries the line 100 feet above the gorge in a beautifully executed curve a third of a mile long. Shortly before completion, the fifth arch

of the bridge was seen to collapse, followed by those on either side, until the whole edifice was flattened. No one was hurt. The reason for the collapse was attributed to the viaduct being regarded as complete after having constructing it very quickly, in very bad weather. Before it had time to settle, the piling up of heavy ballasting had begun prematurely, the resident engineer ordering this to stop prior to removing it the following day. Neither Locke's nor Brassey's reputation suffered permanently as a result of the collapse. The viaduct was rebuilt exactly as before, with no time given over to attribute blame, locally or otherwise. Brassey's attitude was: "We must make the best of it." He rebuilt the structure at his own expense. The line was opened throughout on 22nd March 1847, providing the first railway connection from London, via Southampton and Le Havre, to Paris. For his work on France's first trunk railway, Locke was decorated with the Legion of Honour.

Autumn 1848 saw Locke complete the first line in Spain, again with Brassey as contractor. He was also to be consulting engineer on the Dutch-Rhenish Railway, once again a pioneering line, this time in Holland. He was again in France in 1852, constructing the 207 mile Mantes and Cherbourg Railway and, jointly with French engineer, M. Bergeron, an 84 mile branch from this railway, at Mezidon, to Le Mans. The opening of the Cherbourg line was celebrated with conspicuous coruscation: Napoleon III and his Empress attended, and Queen Victoria popped across from England. Napoleon conferred upon Locke the Cross of Officer of the Legion of Honour, the second of two major honours from France; this one in the presence of his own Queen! Locke, along with Stephenson and Brunel, was never similarly honoured by Victoria: George Stephenson had accepted a Belgian knighthood, refusing an English one! In September 1950, the viaduct at Barentin was named the Joseph Locke Viaduct, having been selected to represent Locke's monumental works in France, and a statue of Locke stands near the centre of the viaduct: this British engineering genius has arguably been honoured by the French at least as much as by his own countrymen.

Back Home Again

At 25, Locke had been elected a Member of the Institution of Civil Engineers, serving as President in 1858-59. On February 22nd, 1838, he was appointed a Fellow of the Royal Society. Joseph Locke had met John Errington, a fellow engineer, whilst engaged on the Manchester and Stockport Railway, as far

back as 1829. By 1840, Locke had taken Errington into partnership, a fruitful association considerably easing the workload he constantly imposed upon himself, as he continued work on a myriad of schemes. In 1844 he was working on the Blackburn and Preston; in 1847 on the East Lancashire Railway; together with the Blackwall Extension and the Windsor, Staines and South Western, later moving on to the Royston and Hitchin line, and the nearby Shepreth extension line. He engineered the Eastern Union from Colchester to Ipswich, and the line between Haughley and Norwich. Characteristically, the Eastern Union, at *less* than £20,000 per mile, cost less than half its original estimation. What wouldn't we give to have such quality, efficiency and integrity today?

In 1845 Joe was requested to speak before the Gauge Commission. He was one of thirty witnesses, out of a total of forty-six, who favoured the universal adoption of Stephenson's standard gauge of 4' 8½" against Brunel's 7' 0¼" broad gauge on the Great Western or, worse still, perpetuating a mixture of the two. Because of the inherent prejudice of mechanical engineers, relating to fears of tipping over on curves, locomotive boilers were kept low: on the GWR, this presented no problem, as large boilers could easily be mounted between the wheels, since these were so far apart. This provided the GWR with the most powerful engines of the day, so providing by far the fastest services. Subsequent history proved this fear quite unnecessary. Locke, it must be admitted, thought that speeds greatly in excess of 40 m.p.h. were unsafe, possibly his greatest miscalculation. Today, French experience, amongst others, clearly demonstrates the ability for trains to run safely up to 200 m.p.h. on the standard gauge: to do this on broad gauge would have occasioned more massive construction, resulting in heavier rolling stock and, consequently, more costly track construction: it is simply unnecessary.

Fortunately, common sense prevailed - ultimately - and standard gauge was universally adopted: nowhere in the world was the seven-foot gauge adopted extensively, nor for any length of time. Locke's objective of building the best possible line at minimum cost would never have been met by building to the broad gauge. Brunel's railway came at a cost, and perpetuating mixed gauge would have been absolutely ruinous.

In 1846, a bill was placed by the Taw Vale Railway Extension and Dock Company to build a line, surveyed by Joe, from Crediton to Barnstaple, with branches to Bideford and Ilfracombe. The Taw Vale line received its Act on 7th August 1846. This line is described in greater detail in the second part of this booklet.

The Push to Scotland

Joseph Locke had never lost sight of his desire to link his Grand Junction line to Carlisle and beyond. His report, *London & Glasgow Railway through Lancashire*, was published as early as 1836 when he was as yet still 30. By June 1840 Locke had completed the Lancaster and Preston: on 15th December 1846 this line was taken northward by way of the Lancaster and Carlisle Railway, with Locke again working alongside Brassey. An essay in magnificence, the line climbs from 30 feet above sea level at Carnforth, to an intermediate summit at Grayrigg; thence starts the majestic run up the Lune Valley to the final summit at Shap Fell, 916 feet above sea level and 30 miles from Carnforth. At a time when 1 in 200 was a popularly adopted maximum incline Locke, placing greater confidence in the increasing power of locomotives, constructed the four miles from Tebay to Shap Summit at 1 in 75. There were no tunnels.

History is equivocal regarding the implications this has had for motive power, for only recently could it be said that the hills of Westmorland have been ironed out owing to the puissance of modern traction. And, as always with Locke, the line was built with the greatest of economy and was of unsurpassed quality. The main alternative route, favoured by Stephenson, hugging the western coast, though flatter, was much longer; there was also a proposed eastern route: both designs involved tunnels. The increased fuel costs required to combat the inclines of Locke's line are mitigated, perhaps nullified, by the need to travel the greater mileage associated with these proposed alternative routes. The whole masterpiece was constructed in two and a half years, using the strength of men's backs; less time than was required for modern technology to build the M6 over Shap more than a century later. A branch from Oxenholme to Kendal was opened in 1847: engineer, Joseph Locke; contractor, Thomas Brassey.

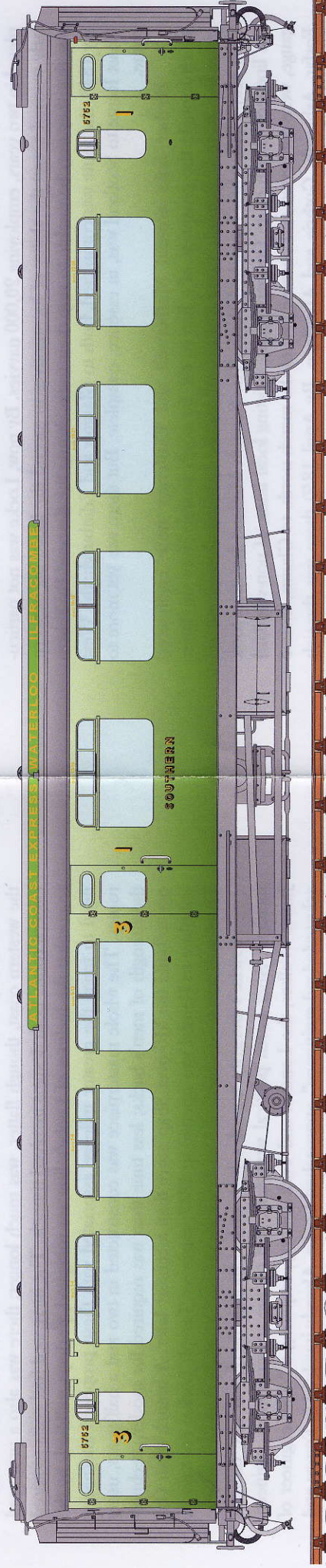
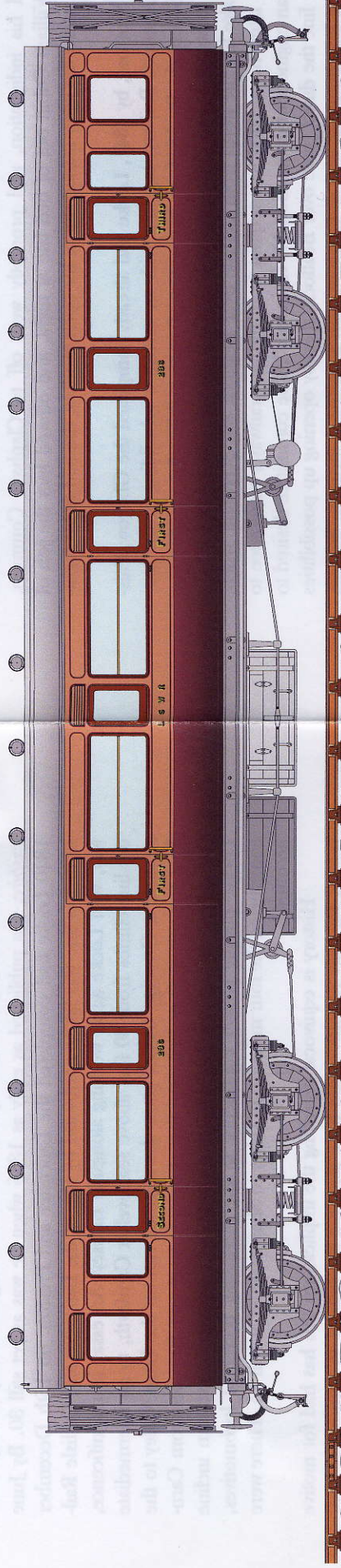
Locke's integrity was of a high order, though there was one difficult incident. After much political wrangling, and on the resignation of engineer, James Walker, the London and York Railway, requiring a "chief engineer of acknowledged eminence", approached Locke. Already involved in France and elsewhere, his workload was considerable. Locke's masters, the Grand Junction Railway, encouraged him to accept London and York overtures. The London and Birmingham, however, were disquieted since the new line would mean their losing the existing London - York traffic, which currently started from Euston and went via Birmingham. The Grand Junction changed their tune upon merging with the London and Birmingham, forming what was ulti-

Passenger Rolling Stock at CREDITON

London and South Western Railway 54ft 0in Corridor Tri-Composite

(LSWR Drawing 1690)

Nö. 286 entered revenue earning service *circa* September 1908.



Southern Railway 64ft 6in Corridor Composite

(SR Diagram 2318)

Originally designed in 1945 and ordered specifically for services from Waterloo to the West of England.
Nö. 5752 entered revenue earning service on 12th December 1946 on the Atlantic Coast Express.

Scale = 4mm : 1ft

mately to become the vast undertaking known as the London and North Western Railway. Pressure was put on Locke by the LNWR to withdraw: he did so in a letter, sent from Paris, which stated the reason as not being consulted on certain alterations made to the route. This did seem, to be fair, a little weak, and Edmund Denison, the London and York's Vice-Chairman, expressed his indignation, and promptly went off to Clapham Common, roused William Cubitt out of bed late at night, and offered him the job of engineer, whilst the latter leaned out of his open window, dressed in his night-cap.

In Scotland, by 1841, Locke had already completed the Glasgow, Paisley and Greenock Railway, together with an extensive rebuilding of the harbour at Greenock. By 1845 he had assumed responsibility for constructing what was to become the Caledonian Railway. Back in 1835, his original reluctance to take his line north from Carlisle over Beattock was overcome when, two years later, he acceded to a request from the new railway's committee to appoint "an engineer of unquestionable eminence". The committee desired to take their line the direct route over Beattock, thereby opening up possibilities of reaching Edinburgh as well as Glasgow, with a northern thrust to Stirling, Perth and the North. So Locke, now more confident, did as bid, taking his railway on from Carlisle up Beattock Bank, a tortuous climb of seven miles at 1 in 106. With Brassey once more as contractor, this part of the line was completed in two years, employing 20,000 navvies. By now, Locke was not particularly worried about the ability of locomotives to ascend the bank; his concern was that they may be unable to stop their trains during the descent! By February 1848, the route was completed, both to Glasgow and Edinburgh: the West Coast Route to Scotland was, in essence, complete. But there was yet more to come.

Further links around Motherwell and Castlecary were engineered which brought the prospects of a line to the far north nearer: from the latter place the 46-mile Scottish Central ran northwards, opening throughout on 23rd May 1848, when it reached Perth. The Scottish Midland Junction took the line from Perth on to Coupar Angus. Existing local lines, of non-standard gauge, were converted and became part of the march north, to Glamis, thence Forfar, Arbroath, Guthrie and Aberdeen. By April 1850 there was through railway communication between London and Aberdeen, Locke connecting the Granite City to Carlisle in less than five years.

Apart from a handful of miles of pre-existing lines, which he had to convert to standard from 5' 6" gauge, Joseph Locke had effectively engineered the whole of the West Coast route from Birmingham to Aberdeen, an unparalleled achievement at the time, never subsequently improved upon.

This was on top of everything else that has been described; yet history has signally failed to place his achievements in their proper perspective, relative to the approbation rained, often with abandon, on others. Received wisdom is often cruel to the deserving: though Locke would have been the last to denigrate the justly rewarded attainments of others, his own accomplishments are manifestly at least the equal of anything else produced in the pioneering days of the railway, and this ought not go unrecognised, nor uncelebrated.

The Drive to the West

In July, 1844, parliamentary assent was given for a line from a junction on Locke's London and South Western Railway at Bishopstoke (later renamed Eastleigh) to Salisbury, the first to reach that city; Locke as engineer. A subsequent split in the ranks of the LSWR board resulted in vacillation regarding the route to be selected for the thrust westwards on to and beyond Exeter and it was not until 1857 that the direct route from Basingstoke reached that attractive cathedral city. Locke, partly in frustration, resigned as engineer of the LSWR in January, 1849, but was still connected with matters in that he left his close friend and business partner, J. E. Errington to continue his work. Locke then placed his support, and some of his money, in the Salisbury and Yeovil Railway, and independent concern, regarded as the next stage in the central route to the West, preferring this to the coastal route via Southampton and Dorchester. The Salisbury and Yeovil was opened on 1st June, 1860.

Locke had surveyed even beyond Exeter, particularly in 1846/7, considering a continuation to Plymouth and Cornwall. Any LSWR line to Exeter would naturally include Honiton and, as the town was a convenient point from which to carry out these surveys, Locke made it his base, strengthening his ties in 1847 by purchasing the 3,000-acre manor of Honiton, and acquiring, by this means, one sixth of the parish. Also by this means he effectively secured one of the two parliamentary seats, sitting as a Liberal, but with decided independent leanings: he served Honiton as MP for 13 years, until his death, surviving five elections. Around this time, his great friend, and competitor, Stephenson, sat as a Tory for Whitby. Webster states Locke's aims as being: "...the controlled use of public funds, civil and religious liberty, extension of the franchise and reform of public institutions": the latter would have consigned his own seat to obscurity.

Semi-retirement

Later work, during what may be termed partial retirement, included the Crewe and Shrewsbury, opened 8th September, 1858, and the Direct Portsmouth line, built from the existing railhead at Godalming, south of Guildford, to Havant, and opened in January 1859; both with Brassey.

On making his presidential address to the Institute of Civil Engineering on 8th November 1859 Locke had the painful duty of speaking of the death of both Brunel and Stephenson. He praised the former highly, referring to his bold approach to railway construction, even though he had little affection for the destructive effects of Brunel's persistent adherence to the broad gauge. With Stephenson, however, eulogistic remarks were mixed with sincere sentiment, his oratorical powers at times failing to suppress palpable personal grief.

The other two engineers of the Triumvirate had died within a month of each other, in September and October of that year.

The following August Locke was staying at Moffat, a couple of miles from Beattock, on his own line to the North. Having rented a large swathe of moorland for shooting purposes, he decided to return to Phoebe, unwell at Weybridge, before the second party was due to assemble a couple of weeks later. He made his way to the station at Beattock and journeyed south, through Carlisle, Penrith, Lancaster and Crewe, the town of his own making, to Euston, thence to Waterloo and on to Weybridge. All but the 112 miles from Birmingham to Euston were Locke's own creation. The weather subsequently improved, so he once made the journey north to Shap and Beattock - for the last time. After a week at Moffat, on Sunday 16th September, Joe returned from the moors and retired around 11.00 p.m. He failed to show at breakfast the following morning. On calling the doctor, a severe abdominal pain was diagnosed as the Iliac Passion, an acute form of intestinal obstruction, which continued through Monday night. Joseph Locke died at 8.00 a.m. on Tuesday 18th September 1860.

The Triumvirate had been born within two years of each other and, within that same time span, had died.

Locke's methodology survived to be absorbed by others, notably his own pupils, and his long-term partner and close friend Errington continued where Locke had left off. Errington had borne the brunt of design work on the line from Yeovil to Exeter, including, this time, tunnels at Crewkerne, Honiton and Exeter, together with the characteristically Lockian ascent of Honiton Bank, most of the 7¼ miles at 1 in 80, with half a mile at 1 in 70. Thus Locke had a hand in the whole line between Waterloo and Exeter, via

Salisbury: difficult to build, it remains a line of unsurpassed quality, beautifully built through country beautifully pastoral. On 18th July 1860, on the opening day of the London and South Western line from Yeovil to Exeter, a special train left Waterloo for Exeter, carrying various LSWR directors. Locke, also, was present: he had waited for the consummation of this route since a young man. He survived its completion by exactly two months. Within two years Errington, too, was dead. Joseph Locke and John Errington are buried, close together, in Kensal Green cemetery.

The Joseph Locke Memorial

Phoebe, Locke's wife, was supported in her wishes for a national memorial by the Council of the Institution of Civil Engineers, but Locke's displayed parliamentary independence had not encouraged popularity. A request by the committee to have a statue erected in the garden of St. Margaret's, Westminster was, after a repeated application forced a response, disgracefully dismissed by Cowper, Commissioner of Public Works, a position for which Locke had at one time been favourite. Brunel is, amongst other places, in the Embankment Gardens; Stephenson outside Euston Station. A memorial window was, at one time, to be found in Westminster Abbey: this has since been unaccountably removed. This is how British officialdom celebrates a great Englishman: the French, it seems, know how to make a better job of it.

In Barnsley, Locke Park was created on land purchased specifically for that purpose by Phoebe. A statue, executed by Baron Carlo Marochetti, who had so recently immortalised Stephenson, as well as Richard, Coeur de Lion, Victoria and Wellington, was erected in the park on January 10th 1866. The statue was unveiled amongst joyous celebration, the firing of cannon, processions, and much waving of flags. Brassey, true to the last, was amongst those present. In 1855, with brother contractors Peto and Betts, he had built, at cost, 29 miles of railway from Balaclava to Sevastopol to relieve the British Army: work had started in earnest on the Crimea Railway in January and was completed by March. He had recently returned from Canada, having built the 539-mile Grand Trunk Railway from Quebec to Lake Huron, losing nearly a million pounds for his trouble. This greatest of contractors was to survive his friend Locke by ten years.

The statues at Locke Park, Barnsley, and at Barentin, France, serve as memorials to this pre-eminent of railway civil engineers. Their locations - one, although within the town of his upbringing, is neither close to the centre of his

activities - the railway - nor is it in a deservingly conspicuous setting, as St. Margaret's, Westminster would have been; the other, placed against the beautifully designed, curved viaduct that now bears his name, is more suitably located, courtesy of a country that must know that it is not honouring its own, and must be all the more congratulated for that fact. But this is removed from the country that first saw the seeds of his abilities flower, and which benefited from the excellence and economy of his work.

Of the types of railway which past engineers could have handed down to us, in terms of their operational legacy, cost and utility, Locke's conception of the form which a railway should take is the soundest. His legacy is more widespread than is understood, more valuable than is recognised, mainly because it is never inessentially elaborate. In day to day, operational railway terms, which is where it matters, it is unrivalled.

The memorial at Crediton Station can make but a tiny contribution to what should be celebrating his memory, but is, nonetheless, welcome.

More fitting memorials, certainly, are the railway lines his genius has produced.

Part Two

The Exeter & Crediton Railway - A Short History

Early Days

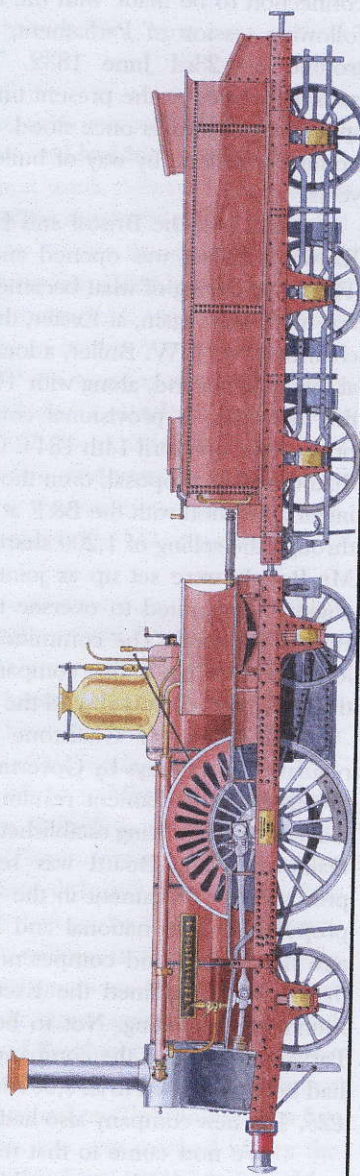
On 26th June 1879 the London and South Western Railway purchased a small west country line of only 5 miles, 1214 yards, and the Exeter and Crediton Railway ceased to exist, its line now firmly and safely in the hands of the Waterloo-based parent who had nursed it since its early days. Those days, however, had been somewhat tumultuous, involving much in the way of chicanery and dubious practice.

To start at the beginning we may go back to 1831. A few locals had got together and organised a meeting at Exeter, on 12th August of that year. At that meeting, Thomas Pringle, a solicitor from Crediton, called a further meeting to take place on the following day, to establish if local businessmen

Etna' Class 2-2-2 Nö. 116 Stromboli
Entered Service May 1851.

Ten locomotives were ordered, at an estimated cost of £2,300, from the Nine Elms Works of the LSWR, to a John Viret Gooch design, in March 1848. The class name resulted from Nö. 118 *Etna* being the first to enter service, in March 1850. By the time Nö. 116 *Stromboli* entered traffic, in May 1851 - the month in which the Exeter and Crediton Railway finally opened - Joseph Beattie had assumed responsibility for locomotive matters on the LSWR, having succeeded J. V. Gooch ten months earlier. On entering service, the class took over many of the Waterloo-Southampton and Waterloo-Salisbury expresses (the line to Exeter not being opened until 1860).

Stromboli is shown here in Indian red livery, prevalent on the LSWR under Beattie until dark brown was introduced around 1866. Prior to this, on 2nd May 1857, when approaching Waterloo with empty stock, *Stromboli* was struck by 'Mazeppea' Class 2-2-2 *Sultan*, no serious injuries resulting. At the end of her service life she was to be found working the Hamworthy branch, involving eighteen return journeys each day and necessitating a sixteen-hour working day for both *Stromboli* and her crew. She was withdrawn from service during May 1880.



Drawn by David Gosling

Illustrated by Ian Pethers

were truly interested in building a railway. In conjunction with his colleagues, Pringle devised a route from Crediton to the Exeter Canal Basin, enabling a connection to be made with the maritime trade. A Bill was presented in the following session of Parliament, the Act being obtained without too much trouble on 23rd June 1832. The line was to run from Four Mills, commemorated at the present time by Four Mills Lane, passing through the spot where the mills once stood. Capital had been authorised at £35,000 but nothing was done by way of building anything and powers lapsed after three years.

In 1844, the Bristol and Exeter Railway, a soon to be Great Western Railway satellite, was opened and interest in the Crediton scheme revived. The first meeting of what became the Exeter and Crediton Railway Company was held, once again, at Exeter, this time at the office of Robert Dymond. The chairman was J. W. Buller, a local public figure. A Mr Ford was also present at this meeting and, along with Thomas Pringle, argued spiritedly in favour of the new line. A provisional committee was established which published a prospectus, on April 14th 1844. Capital was to be £60,000, considerably more than the 1832 proposal, even though the line was to be shorter, now terminating at a junction with the B&E at Cowley Bridge. The capital was to be raised through the selling of 1,200 shares of equal value. Mr Ford, from Exeter, and Mr Pringle were set up as joint solicitors for the new company, while the engineer appointed to oversee the design and construction of the line was Robert Dymond. The committee agreed with the directors of the B&ER, to lease the new line to that company for a rent of £3,000 a year, together with a third of gross receipts should the total income be in excess of £7,000.

In 1844 Mr Gladstone succeeded in enacting a proposal for the regulation of railways by Government, because there were so many bills being presented to Parliament resulting in too heavy a workload. This led to an Advisory Board being established, under the Board of Trade, chaired by Lord Dalhousie. The Board was responsible for examining every railway bill presented to Parliament in the 1845 session, considering all aspects of each proposal such as national and local advantages, engineering features, costs, and the probity and competence of the promoters. The result, locally, was that, having examined the Exeter and Crediton Railway's credentials, they found them wanting. Not to be daunted, however, the E&C persisted and Parliament granted the company its Act on 21st July. By this time the capital had been increased to £70,000 in 2,800 shares, each at half the original cost at £25. The new company also had powers to raise a further £23,333 in loans.

We now come to that most singular aspect in the wording of the Act which was ultimately responsible for the equally singular sequence of events

that followed. The E&CR, under the terms of the Act, could be leased to the Bristol and Exeter Railway *or any other railway forming a junction or being united to it, provided that three fifths of the shareholders at a general meeting approved.* Under the same conditions, the company could be sold. Note that the condition did not specify *where, or at which end of the line*, such a junction might be made. Unknown to the E&C Board, the way was now clear for dubious machinations to visit the new line, consigning it to years of wasteful boardroom wrangling and, moreover, to a distinct lack of trains.

Meanwhile, a further meeting was held at Exeter High Street on 6th August at which arrangements were made to invite tenders for the line's construction. Messrs Waring and Co. Ltd., masonry and earthworks contractors of Dawlish, won the main contract with Sir John Guest obtaining that for the supply of rails. By 27th February 1846 five sixths of the required land had been obtained and all the calls on shares had been paid. Dymond informed the Board that the contractors had made a good start, the major cutting at Downes being completed together with significant stretches of embankment either side. The River Yeo had yet to be diverted, near Downes, while Longbridge and Pynes cuttings were under construction. Various bridge drawings were being prepared and the construction of these was soon to start. By 28th August the remaining land had been purchased. Contracts had been let for the laying of rails and the building of some wooden bridges. It is generally locally recognised that the forerunners of Berry and Vincent, the Crediton-based building contractors, were involved in some part of the construction of the line, and this company, miraculously, was still in existence one hundred and fifty years later, closing only recently. Robert Dymond, officially recognised as the E&CR's engineer, is to be credited with constructing the station and, indeed, the railway, notwithstanding any similarity some buildings may show to the products of a certain GWR engineer.

The building of Crediton station had by now started and earthworks and masonry construction were well-advanced, with about half the line being ballasted and the rails laid. Work on structures at the Cowley Bridge end, where the line would join the B&ER, was also in hand. Dymond, at this stage, thought it possible that the line would be in a position to open in November but, by the 24th February 1847 general meeting, some work was still outstanding. But now the significance of that momentous clause in the 1845 Act began to assert itself for, although history would show that no railway other than the B&E would connect to the E&C at Cowley Bridge, a different railway was projected to do so, somewhat unexpectedly, *at the Crediton end.* A railway from Barnstaple was being planned, coming south down the Taw and Yeo valleys. Board-room politics intervened: it would be over four years

before a revenue earning train would turn a wheel on Robert Dymond's railway.

The Fight for the Exeter and Crediton

In the 1846 parliamentary session, a bill had been placed by the Taw Vale Railway Extension and Dock Company to build a line traversing the beautiful Taw Valley southwards from Barnstaple to Crediton, giving access thence to Exeter. It allowed for branches to Bideford and Ilfracombe, anticipating future requirements. The provisional committee consisted, in part, of directors from lines connected with the London and South Western Railway which, much to the annoyance of the GWR, was now showing ambitions in the West of England.

Simultaneously, another bill was being prepared, backed by numerous directors of the GWR, B&ER, South Devon Railway (another GWR satellite), and others. This, the North Devon Railway, was for a line from Tiverton to Barnstaple and Bideford, with a branch to Ilfracombe, and further lines to Taunton and Plymouth; the latter having implications for the Taw Vale Railway Extension and Dock Company, of course.

For consideration in the 1846 session, both bills had to be deposited by 30th November 1845 by the companies' engineers. Joseph Locke, engineer for the LSWR and the Taw Vale, obliged with typical efficiency. Isambard Brunel, engineer for the North Devon Railway, failed to have his plans ready on time, depositing them some days later. Locke's Taw Vale line received its Act on 7th August 1846. Previously, on 12th May (a date of much significance for the E&CR some years later), the North Devon Railway bill had been thrown out, having failed standing orders through its bill having been deposited too late. The North Devon was wound up: Brunel's tardiness had cost the now defunct company £38,668.

So it was that the LSWR-backed Taw Vale Extension and Dock Company came to connect end-on with the Exeter and Crediton, and *not* a line supported by the GWR. This was to have far-reaching consequences for the future of the E&CR since, up to this point, its courtship with its putative broad-gauge ally had looked certain to result in marriage. Henceforward, matters were not to be so certain. Dubious share purchasing by both the LSWR and B&E ensued (the former being more successful), to gain control of the E&C and Taw Vale.

The B&E, however, was not prepared to see its hopes of capturing

North Devon slide away easily. Continuing what had now become a somewhat devious campaign, they wooed the Taw Vale company with such vigour that, by 26th May - fourteen days *after* they had lost their own North Devon bill, and some weeks *before* the Taw Vale obtained its own Act - they reached a provisional agreement whereby they would lease the latter on opening to Crediton. Such an agreement was designed to strengthen its position regarding its running the E&CR and controlling all railway communication between Bristol, Exeter, Crediton and Barnstaple.

Now crops up another fascinating clause destined to lead to trouble. The Gauge Act was also passed in the 1846 session, on 18th August. In anticipation, a clause in the Taw Vale's Act indicated that *the gauge shall be such as the Board of Trade shall in its discretion approve*. In effect, the gauge was unspecified.

Although the E&C had requested the B&E to operate their line from 22nd December, a leasing agreement between the Taw Vale and the B&E was ultimately rejected, the Taw Vale then approaching the LSWR, reaching agreement with them on 24th December (ratified on 18th January 1847). An E&C meeting of 11th January confirmed its lease to the B&E by a show of hands, but failed upon a count of shares. A further meeting, on 17th February, saw a proposal for the line to be leased instead to the Taw Vale. On 24th, yet another meeting resulted in three Taw Vale directors being elected to the E&C board, increasing their influence. Buller, chairman of the E&C (and of the B&E from 11th March), signed an agreement on 7th April, however, for George Hennett to work the line. This, not unnaturally, upset Taw Vale interests, an extraordinary meeting being called on 12th April, wherein it was resolved that Buller, and three other B&E directors, be removed from the E&C board. The resolution was carried on a show of hands, but Buller refused to leave the chair, attempting to close the meeting. A member of the retreating faction, deftly picking up the minute book on leaving, was collared by William Thorne. The book fell thence into the hands of the Secretary and disappeared. The result was a most undignified affray, the shaking of fists, and physical uproar! Subsequent legal proceedings compelled Buller to give up the book and company seal and Thorne, a Taw Vale director, became chairman of the E&C.

With the LSWR as its ally, the E&C began to convert to standard gauge, even though the Taw Vale had been obliged by the Gauge Commissioners to open on the broad gauge. A new station was to be built at Cowley (never opened), since it was now impossible to use the B&E's broad gauge line into Exeter. But money had become scarce and nothing happened until, on 28th February 1851, William Chaplin, chairman of the LSWR (also, now, the

E&C), announced an agreement to lease the line to the B&E, who commenced running broad gauge trains from opening day - 12th May 1851. The LSWR purchased the Taw Vale (by now renamed the North Devon Railway) on 1st January 1865, but the E&C was instead leased by the LSWR (by an agreement dated 1st January 1862) for seven years, from 1st February when the gauge was mixed (broad gauge being removed by 20th May 1892). This lease, expiring on 31st January 1869, was renewed, on slightly different terms, by an agreement dated ten days earlier; further renewal was agreed on its expiry (31st January 1876). The last meeting of the E&CR was held at Waterloo Station on 20th February 1879, when a 5% dividend was declared. The LSWR purchased the Exeter and Crediton Railway Company on 26th June of that same year.

If the E&C could not have been leased to '*...any other railway forming a junction or being united to it...*', the LSWR would never have fought to acquire it. But, similarly, if the Taw Vale gauge were not to be '*...such as the Board of Trade shall in its discretion approve...*' the E&C would have been opened, soon after completion in 1847, on the standard gauge (the gauge the Taw Vale *would* have chosen), and its subsequent acquisition by the LSWR would have been merely incidental - *the line not being left, as it was, unused and rusting, for four years.*

Ultimately, the Exeter and Crediton Railway, as part of the London and South Western Railway, became, like Crediton itself, part of that great company's main line from Waterloo, through Woking, Basingstoke, Andover, Salisbury, Yeovil and Exeter Central to Okehampton, Tavistock and Plymouth; to Barnstaple, Bideford, Torrington and Ilfracombe; to Holsworthy and Bude; to Launceston, Wadebridge and Padstow.



FRIENDS OF CREDITON STATION

and

THE CREDITON STATION HERITAGE PROJECT

Friends of Crediton Station was set up in January 2002 to look after this unique, historically important, Grade II listed railway station, and to obtain funding for improvements. As a result, the station is now painted in the London and South Western livery extant around 1900-10, and we hope to make as many improvements as practicable to evoke something of the comfort and elegance that characterised travelling by train during the Edwardian period.

Friends of Crediton Station welcomes volunteers wishing to help care for this gem of Victorian railway heritage.



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