ART. XV – The Alston branch of the Newcastle and Carlisle Railway BY T. M. BELL AND R. W. RENNISON

RIGINALLY authorised by Act of Parliament in 1846, its route altered by a second Act in 1849, and finally opened in 1852, the Alston Branch of the Newcastle and Carlisle Railway (N&CR) was the only railway promoted in the North Pennines during the Railway Mania which actually came to be built. The second Act allowed the Company to open the branch in sections, a matter which has caused confusion both about the date of completion of Lambley viaduct and when passenger services started from the Alston terminus. It is the authors' intention to answer both of these uncertainties and also to provide hitherto unrecorded information on the line's construction and the personalities involved.

The early years of the Newcastle and Carlisle Railway

The Act of Parliament authorising the formation of the N&CR received the Royal Assent on 22 May 1829.1 The first meeting of the directors was held on 22 September 1829 and in the same month they agreed to appoint a "working engineer, the post to be filled by one who would devote his whole time to their service".² The post was advertised and applications were received from eight men. Francis Giles, who had previously undertaken canal and river navigation work with John Rennie, was appointed on 8 January 1830 with the stipulation that his assistant was to work full-time for the company; Giles was to be paid $f_{.700}$ p.a., this sum to include the salary of his assistant.³ Work began in April 1830, at which time Giles referred to "my assistant, Mr.Blackmore",⁴ but within six months the directors' reservations regarding Giles became apparent when he was castigated regarding errors in levels, taken to task for the employment of the company's assistants in his private practice, and criticised because of a lack of estimates. As a result of the board's dissatisfaction, Benjamin Thompson, Nicholas Wood and George Johnson, all directors, were asked to make a survey of the work in progress.⁵ Two months later, John Buddle - like the other three men, a colliery viewer - was also asked to report independently. In May 1833, Giles was noted as acting only in a consulting capacity, it being recorded that "his Errors seem to have arisen chiefly from the want of his personal presence in the North".6 In his place, John Blackmore was appointed as "operative engineer".

Under the direction of Wood, Thompson and Johnson, Blackmore carried out construction work for the completion of the line. In March 1834 the directors recorded that they were "highly satisfied with his care and attention to the Interests of the Company",⁸ so much so that in August he was given approval to take up the post of engineer to the newly-formed Blaydon, Gateshead and Hebburn Railway in addition to his work with the N&CR.⁹ Construction work continued under the three-man Management Committee, enabling the first section of the line to be opened to goods traffic late in 1834, although it was 1839 before the line was extended to the station at the Shot Tower, in the west end of Newcastle.¹⁰



FIG. 1. Plan of the Alston branch as built under the 1849 Act of Parliament, and showing the sections abandoned. (R. W. Rennison).

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Blackmore continued as engineer after the completion of the line and in 1840 became engineer, additionally, to the Maryport and Carlisle Railway, but his tenure was of short duration and he resigned in 1842. Before that time, however, he had proposed that a major branch be formed from the N&CR to the north, and in 1838 he submitted a report on a 96 mile long extension of the N&CR into Scotland by means of a branch from Hexham,¹¹ an idea which found little support. It was noted that this was in fact almost the same proposal as that put forward by Joshua Richardson two years before.¹² The proposal was revived in 1843, in a slightly different form, by Wood and Johnson but, again, no progress was made, principally the result of their line having been gone over by George Hudson and the Stephensons, all of whom favoured an east coast line.¹³ Blackmore died in Newcastle in March 1844 but it is probable that before his demise he had been involved in preparatory work for other branches from the N&CR.

Background to the Alston Branch

The Directors of the N&CR had always seen Alston Moor as being within their natural empire. However, once they had opened their line from Newcastle to Carlisle, their main concerns were to make the route more suitable for operation by steam locomotives, convert the single track sections to double track, and pay off the huge debts that had been incurred in order to complete the original construction.¹⁴

The first proposal for a railway through Alston came from the Stockton and Darlington (S&DR) group in November 1844, and was for a line leaving the S&DR two miles east of Crook, running through Stanhope to the head of the Wear valley, then down the valleys of the Nent and Tyne to Haltwhistle on the N&CR.¹⁵ This line was expected to shorten the distance to Glasgow by 28 miles, saving one and a half hours. It should be remembered that in 1844 there were no lines even authorised to connect the railway system of central Scotland with the English system, and the significance of the Weardale line as part of a through trunk route was clearly considered to be at least as important as its ability to serve the North Pennine ore-fields.

Nevertheless, on 7 December 1844, when notice was given to Parliament for a Bill for the Wear Valley Railway (WVR), it was for a line only ten miles long from Wear Valley Junction, on the Bishop Auckland & Weardale Railway (BA&WR) near Witton-le-Wear, to Frosterley, with a proposed capital of $f_{.82,000}$ and Robert Stephenson as engineer.¹⁶ The Proprietors of the newly-authorised Company held their first general meeting on 25 August 1845, the Chairman stating they "must turn their eyes still further north, and look at this as the great road into Scotland".¹⁷ On 29 November, John Dixon, the S&DR engineer, deposited a very detailed set of plans for the proposed Wear Valley Extension Railway (WVER), the main line of which was to run from Frosterley, up the Wear Valley, tunnel under Killhope, then follow the valleys of the rivers Nent and South Tyne to Lambley, where it would turn west to run north of Lord Carlisle's Railway to join the N&CR at Milton." Branches would connect it to the Wear and Derwent Junction Railway at Stanhope and Lord Carlisle's Railway at Halton Lea Gate, while a third branch would run from just west of Wearhead to Allendale. With capital becoming more difficult to raise as a result of nationwide railway construction, the directors of the WVR met on

16 December to discuss the proposed extension "from Frosterley by Alston and Milton to Carlisle".¹⁹ The meeting resolved that "whilst this Board continues impressed with the importance of the proposed undertaking, and has become increasingly alive to the advantages likely to be secured to the public from its prosecution, it is expedient to postpone for another session any application to Parliament, to sanction the same; thus giving to the engineer full opportunity for further investigation and to other influential bodies who have expressed an anxious desire to co-operate with this Company, the time required for maturing their plans and perfecting their arrangements".²⁰ This, in effect, was the end of the first Wear Valley Extension Railway.

The N&CR did nothing until 15 October 1845,²¹ when the directors announced their intention to construct a branch to Bellingham and Woodburn. Several other proposals had been made for railways up the North Tyne and, on 18 October, Herepath announced²² that two schemes, the Newcastle and Carlisle and North Tyne Junction; and the Newcastle upon Tyne, Hawick, Edinburgh, and Glasgow Junction Companies, were to be merged to form a single entity, the Newcastleupon-Tyne, Edinburgh & (Direct) Glasgow Junction Railway (NE&DGJR), which was supported by several influential local business people and landowners.²³ In the end it was only this merged company and the N&CR which deposited plans for railways in the North Tyne Valley for the 1846 Parliamentary Session.²⁴ It was the local support for the NE&DGJR which was to have important consequences for the bill for the branch to Alston Moor. The announcement in the Tyne Mercury of 15 October 1845²⁵ also reported that the N&CR intended to build a second branch up the valley of the South Tyne. Notice was given to Parliament on 12 November that the Company intended to apply for two separate Acts, with the first being simply for a branch to Allenheads, while the second, called the Newcastle and Carlisle Extension Bill, was more complex. The purpose of this Bill was "to extend the line from the present terminus at Elswick to Neville Street, near the Town Hall, Newcastle; and to make the following branches, namely, from Haltwhistle to Alston Moor; from Warden to West Woodburn, Corsenside; from Nook to Bellingham; from the main line at West Woodburn, terminating near the Ridsdale iron works, Chesterhope; and to raise a further sum of money".²⁶ This decision to include both North and South Tyne lines in the one Bill created considerable difficulties for the N&CR in the months to come.

Newcastle and Carlisle Extension Bill

At the beginning of January 1846²⁷ it was reported that only those plans, sections and books of reference necessary for the second Bill had been deposited at the Private Bill Office, while the Allenheads branch had been abandoned, at least for the time being. There were to be no tunnels on the South Tyne section, while the maximum gradient on the main line was stated to be 1 in 100, rising to 1 in 33¹/₂ on the branch. According to Herepath, Nicholas Wood was named as engineer.²⁸ The plans deposited in Parliament were drawn up by John Bourne, a railway surveyor who was to later to become Engineer to the Northern Division of the North Eastern Railway and who, in this instance, was described as "Acting Engineer".²⁹ Although the 28 feet width of the bridges indicated that the line was designed for double track, the severity of the gradients and some of the curves make it clear that it could never realistically have been seen as part of a major through route. Furthermore, there were 17 changes of gradient in the 17 miles of the N&CR branch, whereas there were only 14 changes, producing nothing steeper than 1 in 50, in the entire 38 miles of the WVER. The Directors of the WVR decided not to go ahead with their application for the WVER, but if their application had been pursued, it is certain that the two lines would have been considered by the same Parliamentary Committee, which would then have had to decide if either or both preambles had been proved.

At the Annual General Meeting of the N&CR, held on 27 March 1846, the Chairman, Matthew Plummer, stated that the directors "have felt themselves called upon, for the protection of the interests of this Company, to apply to parliament, in the present Session, for powers to make two branches from the main line".³⁰ He confirmed that the South Tyne branch would run from Haltwhistle through Alston to Nenthead to serve "a district abounding in mines of lead and other minerals (adding that they) have it also in contemplation to make another branch up the River Allen to Allenheads, in which district are extensive and rich mines".³¹ Taken as a whole, these comments suggest that it had not been the Directors' intention to construct any branch lines at that time. It therefore appears that it was the proposal for the WVER which persuaded the N&CR to survey both the South Tyne and the Allen valleys, with the line along the latter being dropped when the WVR decided not to pursue its line in the 1846 Parliamentary Session.³² The fact that there were other proposals which could readily encompass the South Tyne valley, one of which included a line from Northallerton, through Barnard Castle and Alston to Haltwhistle,33 probably accounts for the retention of this branch. In the case of the North Tyne branch, the Hexham branch of the NE&DGJR was a direct competitor.34

At the special meeting of the proprietors, which Parliament required to be held for the purpose of confirming that the shareholders wished the Bill to proceed, it was stated that the estimated cost of building the Alston branch was between $f_{200,000}$ and $f_{.210,000}$, while the expected annual revenue was about $f_{.18,000.35}$ In contrast, the cost of the North Tyne branch was estimated at between £250,000 and $f_{260,000}$, with an annual revenue of about $f_{12,600}$. Doubts were expressed concerning the latter branch, but the meeting agreed to continue with the Bill unaltered. At the Committee stage the Bellingham branch was removed from the preamble of the N&CR Bill, but Parliament passed the preamble for the Alston and Newcastle branches - with the proviso that "the line from Alston to Nenthead shall not be worked by locomotive engines, without the express sanction of the Board of Trade"36 - while the preamble for the competing NE&DGJR Bill was found not proved, which meant the end of both proposals for lines up the North Tyne valley. On 7 July 184637 the N&CR Bill was passed by the House of Commons and proceeded to the House of Lords where it sustained a rather difficult passage before receiving the Royal Assent on 26 August 1846.38 The main opposition to the N&CR Bill was related to the North Tyne branch, but even after this section had been deleted, the opposition continued and a major effort was made by one M.P., John Abel Smith, to discredit financially the N&CR and prevent its Bill from passing into law.³⁹ In addition to the branch to Alston Moor, the Act also authorised the N&CR to extend the main line to the new Central Station in Newcastle and to raise an extra $\pounds 240,000$ of capital and $\pounds 80,000$ on loan, primarily for the construction of the Alston branch. According to Herepath, the estimated cost of the line was $\pounds 263,534$, with working expenses of 40%.⁴⁰

The Newcastle and Carlisle Railway's Alston Branch of 1849

The Act authorising the N&CR to construct its branch to Nenthead was passed at the height of the Railway Mania and the Directors took little action until after the next AGM of the N&CR, held on 25 March 1847. Here the Chairman stated that a "careful examination of the country through which the line of the Alston branch passes, has suggested various alterations and improvements, all of which may be carried into effect without further authority from Parliament".41 There would, however, be a delay in commencing work on the branch, although it was hoped to complete it rapidly. The Chairman also stated that the Directors considered the Alston branch to be very important, while the mines in the district would greatly increase the general traffic of the railway. The decision of the Parliamentary Committee to forbid the use of steam locomotives between Alston and Nenthead without the express sanction of the Board of Trade was also undoubtedly one of the reasons why the route was looked at again by the Company's engineers. The N&CR placed advertisements in March⁴² requesting tenders for the formation of portions of the line, and in June the Newcastle Chronicle reported that contracts had been arranged for the river bridge at Haltwhistle and that work had begun;⁴³ tenders for rails, chairs and sleepers for "a portion of their Alston branch"44 were sought in April. On 26 July it was announced that the $\pounds 240,000$ authorised to be raised as capital would be offered in the form of 2,400 shares of $\pounds 100$ each, payable in seven instalments during 1847 and 1848:45 these shares became known as Alston Branch shares.

The words spoken by Plummer in March 1847, that improvements might be made to the route, suggest that the original survey, and the resulting plans, were made primarily in response to the proposals for the WVER, in order that a viable Parliamentary Bill could be presented for the 1846 Session. The first suggested alteration, which would have kept the line on the east bank of the South Tyne, met with considerable opposition as it would have been very difficult to make the promised connection with Lord Carlisle's Railway.⁴⁶ Although in March it had been believed that the necessary alterations could be carried out without a further Act of Parliament, the N&CR gave notice in November 1847 that it intended to apply for a further Act to alter the branch line from "Haltwhistle to Knaresdall".⁴⁷ Nothing further was heard of this Bill, while at the AGM held on 28 March 1848 it was reported that during "the prevalence of the high prices of labour and materials, it was not deemed expedient to press forward the works on the Alston branch".48 It was stated that those parts of the works requiring most time had been let, while several deviations, making great improvements in the line, had been agreed, but they would require a further Act of Parliament. Following the death of Blackmore in March 1844, Peter Tate had been appointed as engineer to the N&CR,⁴⁹ a position he was to hold until the N&CR merged with the NER in 186250 but, nevertheless, he was not to be responsible for the next stage of the line's development.

From 1 July 1848 both the N&CR and the Maryport & Carlisle Railway had been leased, officially by the York, Newcastle and Berwick Railway (YNBR), but in reality by George Hudson himself⁵¹ and it was he who brought the resources of his other railways to benefit the N&CR. Through him, John Thornhill Harrison, the younger brother of Thomas Elliot Harrison, was appointed as engineer52 and a new survey undertaken in 1848. Whereas the drawings deposited in 1845 had shown the Lambley viaduct as being 268 yards long, the 1848 drawings showed a structure 190 yards long with "twenty four arches of 20 ft span";53 a connection to Lord Carlisle's railway was also shown. The N&CR applied to Parliament for a Bill to "make deviations in the Alston branch, and also in the branch line from the Alston branch, and to make a branch therefrom; also to extend time for the completion of the works".54 The Bill started its passage through Parliament in February, being given a first reading on the 5th⁵⁵ and a second on the 13th.⁵⁶ Also before Parliament at this time was a Bill to allow the YN&BR to lease, or amalgamate with, the N&CR. A special meeting of the N&CR, held on 27 March 1849,57 sanctioned the Alston Branch Bill, but requested that the clauses relating to amalgamation be removed from the leasing Bill. The Alston Branch Bill continued to make steady progress through Parliament, with the Royal Assent being granted on the 13 July 1849.58 Shortly after this the Railway Commissioners reported against the amalgamation scheme,⁵⁹ and that Bill was lost at the end of July.⁶⁰

The plans of the deviations authorised in 1849 are in four sections. Two sections of the original route in Northumberland, and the bulk of the line in Cumberland, were to be replaced by new alignments. Between Haltwhistle and Alston a total of seven miles was to be replaced by 73/4 miles of new line, while the heavily graded $4^{3/4}$ miles from Alston to Nenthead were to be abandoned. In addition, a branch of 11/2 miles was authorised to connect the Alston branch with Lord Carlisle's Railway at Halton Lea Gate. The alterations at Haltwhistle involved moving the junction from the west to the east end of the station, thus providing for through running from Carlisle rather than Newcastle. The initial rise at 1 in 491/2 for 11/2 miles was replaced by a section half a mile longer but with the gradient mostly reduced to 1 in 80 or 1 in 70. The sharpest radius of curve on the original line was two furlongs, but on the amended line it was 11/2 furlongs, although the highest embankment was 33 feet lower and the cuttings 45 feet less deep. The viaduct over the Tipalt was no longer required, while that over the Tyne was reduced from 176 yards long and 85 feet high to 145 yards long and 48 feet high. The Act authorised the Company, if it so wished, to construct the bridge over the river South Tyne at Haltwhistle in such a manner as to include a public roadway. The requirement which had been included in the original Act, forbidding the Company to open any part of the branch before the entire section from Haltwhistle to Alston had been completed, was repealed. Although their railway was being worked by James Allport, manager of the YN&BR on behalf of Hudson, the N&CR Directors were responsible for maintaining the line and building the Alston branch. On 1 September 184961 the N&CR advertised for large quantities of permanent way materials, while on 25 October⁶² the shareholders of the YN&BR were told that they should not contemplate leasing the N&CR due to the large outlay required to re-lay the main line and complete the Alston branch. At a meeting of the N&CR shareholders, held on the 7th of the following month,63 Hudson's offer to give up the lease of their railway from 31 December was accepted.

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Meanwhile work on the branch was progressing, with the staking out completed by 1 November 1849,⁶⁴ and the meeting was told that between £60,000 and £70,000 had been already spent on the Alston branch.

Construction of the Line

On 1 January 1850,65 the working of the railway reverted to the Company's own Board of Directors and Harrison, initially employed directly by Hudson, was transferred to the staff of the N&CR as engineer for the construction of the Alston branch at a salary of £350 p.a., beginning in December 1849.66 The Newcastle *fournal* reported that although there had been earlier expenditure, work on the branch had commenced in earnest in June 184967 and on 28 March 1850,68 the Chairman, Plummer, was able to report that the works were progressing and £56,320 had already been spent on the Alston branch. Some 13 miles 1 furlong $8^{3/4}$ chains long, the branch had on it 40 masonry bridges or viaducts⁶⁹ and was constructed for double track throughout, except for the viaduct at Lambley. Work was divided into five contracts. The first two, together comprising some five miles from Haltwhistle to Lambley, were undertaken by Edward Reed, his work including the six-span viaduct over the river at Haltwhistle for which a sum of $\pounds 13,000$ had been tendered, and by Cowen, Marshall & Ridley, their work being mainly earthworks.⁷⁰ The same contractors had actually begun work in 1847 and it is probable that after executing a certain amount of work which, as a result of the changes, proved abortive, their services were continued on the new alignment. The shortest contract was that which included Lambley viaduct, the line's major structure. The original tender price for this contract was $f_{21},460$, submitted by Messrs Rush and Lawton⁷¹ who had then recently completed much of the work on the High Level Bridge, Newcastle. The remaining two contracts, in total some seven miles, were also tendered for by the same partnership, their initial prices $f_{16,140}$ and £22,400. In April 1850 they were appointed to undertake all three contracts for a total of £60,000.72 To facilitate work, Rush and Lawton established a construction encampment for their workmen, its location approximately half a mile south of Burnstones viaduct. According to the Census of Population for 1851, some 350 men were lodged there and in nearby houses; almost half of them were natives of Ireland or Scotland.

Harrison resigned from his post in November 1850, when "Mr. Bruce having applied individually to the Directors",⁷³ was appointed in his place. George Barclay Bruce had been resident engineer for the construction of the Royal Border Bridge over the river Tweed, opened in August 1850, and under his direction the construction of the line was continued. As a result of delays in the construction of the Lambley viaduct, Rush and Lawton suggested that a temporary structure be built but this move was countered by the directors informing Harrison that he was to forbid it and the masonry design proceeded.⁷⁴ In the absence of documented attribution, it is possible that the initial design of the viaduct was Harrison's, as the contract was let while he was engineer. It is also possible, however, that the detailing of the arches was due to Bruce's influence, but the fact that its spans and detailing are very similar to the Tweed structure does not point directly to his involvement. The viaduct – the major structure on the line – in its finished form, is approximately



PLATE 1. Aerial view of Lambley viaduct from the South. (Rail Property Ltd.)



PLATE 2. Alston Arches, Haltwhistle, viewed from the east. (R. W. Rennison)

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280 yards long and crosses the river at an elevation of about 105 feet. It comprises nine main arches of 58 ft span contained between heavy abutment piers, each including a 12 ft arch. Three approach spans at the north end and four at the south are of 20 ft span. All arches are semicircular and the piers taper from eleven feet at the base to eight feet at the arch springing and are built of massive rough-faced stones, some weighing almost half a ton. The piers, one of which reaches a depth of 30 feet below the river bed, were built by diverting the river's flow, so obviating the use of a coffer-dam. By September 1851 three of the piers had been brought up above river level and it was commented that construction had been delayed because of access problems; not until much of the railtrack had been laid could materials be brought to site.⁷⁵

Completion of the Works

At the AGM of the N&CR held on 28 March 1851 it was announced that "the line from Haltwhistle to near Lambley, about four miles, is now finished and is already used for the carriage of minerals and goods. It will be opened for passengers as soon as it shall have been surveyed and approved by the officer of the railway commissioners"⁷⁶ and Tomlinson states that the branch was opened from Haltwhistle to Shafthill (Coanwood) for goods in March, and for passengers on 19 July 1851.⁷⁷ At the beginning of June, Plummer, who was in his 80th year, resigned as Chairman of the N&CR after 18 years in office⁷⁸ and James Losh, whose father had been the first Chairman of the Company, was unanimously elected in his place.⁷⁹

According to the contemporary diary of Joseph Pearson, an Alston resident, the railway company started running a road coach three times a week from Alston to Harper Town (Lambley) on 8 August,⁸⁰ while a report in the *Newcastle Journal* noted that the line from Lambley to Alston was complete, apart from Gilderdale viaduct.⁸¹ The nine miles of line from Lambley Colliery to Alston were opened for goods on 5 January 1852, the ³/₄ mile from Halton Lea Gate to Lambley Colliery having been opened as the final extension of Lord Carlisle's Railway in 1849.⁸² Pearson's diary and the Carlisle⁸³ and Newcastle⁸⁴ newspapers give accounts of the opening for goods traffic which would not have been inappropriate as a ceremony for the commencement of passenger services; the opening included the distribution of coal to the poor.

The information provided by various adverts in the local press indicate that passenger trains started using the section from Alston to Lambley before Lambley Viaduct was completed. According to Pearson's diary, on 14 May the "Government Inspector" visited the line from Lambley to Alston, which was then opened for passenger traffic on 21 May 1852. Later advertisements in the press indicate that excursions were run from Alston at the end of June and a timetable, published in the *Newcastle Chronicle*, indicated that trains were running regularly⁸⁵ from Haltwhistle at 8.50 a.m. and 6.20 p.m., and from Alston at 7.20 a.m. and 5.00 p.m. The complete line was not operable until 17 November 1852 when Lambley viaduct was brought into service; in the Carlisle and Newcastle press, its opening went unrecorded, perhaps having been eclipsed by the funeral of the Duke of Wellington.

An article written in 1912⁸⁶ stated that the viaduct was not opened until 1854 and

that passengers were required to alight at Coanwood and make their own way to join the train at Lambley, but the statement made to the AGM on 17 March 1853 says quite specifically that the Alston branch "was opened throughout on 17 November, parts of it having been previously used".⁸⁷ In September 1851 there was a footpath

quite specifically that the Alston branch "was opened throughout on 17 November, parts of it having been previously used".⁸⁷ In September 1851 there was a footpath over the scaffolding for Lambley viaduct, while from 21 May 1852 until the viaduct was completed, trains were running from Alston to Lambley and from Shafthill (Coanwood) to Haltwhistle. Therefore, although the article was correct in suggesting that passenger trains did operate in two sections for a period before the viaduct was completed, the date of 17 November 1852 given by Tomlinson for the opening of the viaduct is also correct. It would appear that not only was Lord Carlisle's Railway used to take the freight traffic from Alston during most of 1852, but it was also used to take a locomotive and passenger carriages to Alston. According to Pearson's diary the locomotive was *Carlisle*, a six-wheeled engine built by Thompson Brothers; it was delivered to the N&CR in June 1837.⁸⁸

As a postscript to the construction of the branch, on 31 July 1851 the Directors had circulated an advertisement in the local press asking for sealed tenders for the erection of stations, coal depots, etc., to be received by 18 August.⁸⁹ Bruce, a future President of the Institution of Civil Engineers, tendered his resignation in November 1851 and took up an appointment in India, having been replaced by Francis Charlton,⁹⁰ earlier a pupil of Thomas Elliot Harrison, and employed – like Bruce – on the Newcastle and Berwick Railway.

Changes in Design

The line as actually built differs from that represented on the plans, particularly in regard to the number of viaducts constructed, and on the section from Slaggyford to Gilderdale. A short distance from the junction with the main line the South Tyne was crossed on a viaduct that became known as the Alston Arches. According to the section, this viaduct was to have six arches with a maximum span of 42 feet. Although it does have six arches, the maximum span is 53 feet. As has already been noted, the Lambley viaduct changed its character during the period of construction.

In the next seven miles, six viaducts were built over deep tributaries of the South Tyne, none of which was indicated on the sections produced in 1845 and 1848. The most unusual structure was the Burnstones viaduct over both the turnpike road and the Thinhope Burn where only the first arch over the turnpike is mentioned on the section. This arch is skewed in one direction, while the remaining arches over the valley of the burn are skewed in the opposite direction. In fact, the intermediate arch is a blind 'V' at the eastern side of the structure. The Thornhope Burn at Lintley is crossed by a viaduct of four arches, and then the line rises at 1 in 56 for almost a mile, although the sections, unaltered from 1845, show a gradient of 1 in 107 for almost two miles. Shortly after, the gradient eases and the small, but deep, Whitley viaduct takes the line over the Lort Burn, which the section indicates as going over the railway. The final viaduct over the South Tyne has three arches as shown on the section of 1848 and the branch follows a relatively sinuous course from there to the terminus, although the plans show it running straight over the last five and a half furlongs.



PLATE 3. Burnstones viaduct: West elevation. (T. M. Bell)



PLATE 4. Bridge over the river South Tyne, near Alston: West elevation. (T. M. Bell)

Conclusion

In 1853 the cost of the Alston branch was stated to have been $f_{205,027}$ of which £.163,814 had been expended on actual construction work.91 The cost was little different from the figure which had been given at the initial consideration of the branch. So far as the economics of the line were concerned, for the first 50 years it carried large quantities of coal from the Lambley and Coanwood areas, but this ended temporarily when the collieries closed. Lambley colliery re-opened later and provided considerable traffic until the end of the 1950s. Fluorspar as well as lead and zinc ore provided varying amounts of traffic until 1960, while limestone and lime products from Alston lasted from 1875 until well after the Second World War. It is doubtful, however, if there would have been any significant improvement in traffic if the line had reached Nenthead. Had the WVER been built, either in place of, or as well as the N&CR branch, Alston would have been on what must surely have become a major Anglo-Scottish route; the future could then have been very different. Later schemes to connect Alston with either Middleton-in-Teesdale by a surface route, or with Stanhope by a tunnel under Killhope came to nothing, and it is doubtful if they would have successfully prolonged the life of the branch. It is probable that only the first WVER scheme would have made a substantial difference. With the main local extractive industries and population in a slow but steady decline, the profitability of the branch certainly disappeared as road transport increased but, nevertheless, the branch successfully served the South Tyne Valley for over 120 years.

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APPENDIX

Distances from Haltwhistle showing the line as finally authorised

	DISTANCES		
	Miles	Furlongs	Chains
Bridge over River South Tyne	0	2	3
End of first deviation	1	6	3
Featherstone Halt	3	7	8
Start of second deviation	3	0	$1^{1/2}$
Bridge over River South Tyne	4	3	9
Junction of branch to Halton-lea-Gate	4	5	$0^{1/2}$
Bridge over Glendew Burn	5	5	$9^{1/2}$
Bridge over Brampton Turnpike (A689) Burnstones	7	1	$5^{1/2}$
Bridge over Thinhope Burn Viaduct	7	1	$8^{1/4}$
Bridge under public road to Hanging Shaw	7	4	0
End of second deviation	7	6	0
Bridge over Knar Burn	8	3	$0^{1/2}$
Slaggyford Station	8	6	$0^{1/2}$
Bridge under turnpike at Lintley (A689)	9	5	$1^{1}/_{2}$
Bridge over Thornhope Burn	9	6	$4^{1/4}$
Bridge over Gilderdale Burn	11	5	$6^{1/2}$
Start of third deviation	11	6	$9^{1}/_{2}$
Bridge over River South Tyne	12	5	$7^{1/4}$
Terminus of branch	13	1	$8^{3}/4$

Notes and References

Abbreviat	tions of Sources:
PRO	Public Record Office, Kew
CRO(C)	Cumbria Record Office, Carlisle
NRO	Northumberland Record Office
T&WAS	Tyne and Wear Archive Service, Newcastle
NCL	Newcastle City Library
L&P	Literary and Philosophical Society, Newcastle

¹ 10 Geo. 4. Cap 72 (22 May 1829).

- ² Newcastle and Carlisle Railway (N&CR): Shareholders and Directors Meetings, 27 November 1829 [PRO: RAIL 509.2].
- ³ *Ibid.*, 8 and 11 January 1830.
- ⁴ N&CR: Shareholders, directors and committee meetings, 25 April 1830 [PRO: RAIL 509.4].
- ⁵ *Ibid.*, 21 December 1832.
- ⁶ Ibid., 11 May 1833.
- ⁷ *Ibid.*, 25 June 1833.
- ⁸ Ibid., 16 March 1834.
- 9 Ibid., 5 August 1834
- ¹⁰ J. Herepath, The Journals edited by John Herepath: Railway Magazine: Railway Magazine and Annals of Science, NS; Railway Magazine and Commercial Journal, QS., p. 352, v. 6, 1839 [L&P].
- ¹¹ John Blackmore, Great Inland Junction Railway, or Inland Line of Railway from Newcastle upon Tyne to Edinburgh (December 1838) [NRO: For/3/42/10 & 11].

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- ¹² J. Richardson, Report on the Newcastle, Edinburgh and Glasgow Railway (1836) [In Local Tracts, D 29: NCL: L.042].
- ¹³ W. W. Tomlinson, North Eastern Railway (1914), 447.
- ¹⁴ Herepath, 242, v. 2, 1840.
- ¹⁵ *Ibid.*, 1411, v. 6, 1844.
- ¹⁶ *Ibid.*, 1463, v. 6, 1844 and p. 382, v. 7, 1845.
- ¹⁷ Newcastle Chronicle, 30 August 1845.
- ¹⁸ Plans, sections and books of reference for the Wear Valley Extension Railway, 1845, Engineer, John Dixon. [CRO(C): Q/RZ/1/132].
- ¹⁹ Herepath, 2750, v. 7, 1845.
- ²⁰ Ibid.
- ²¹ Tyne Mercury, 15 October 1845.
- ²² Herepath, 2231, v. 7, 1845.
- ²³ Ibid., 2348, v. 7, 1845.
- ²⁴ Tyne Mercury, 10 December 1845.
- ²⁵ *Ibid.*, 15 October 1845.
- ²⁶ Herepath, pp. 2648 to 2652, v. 7, 1845.
- ²⁷ *Ibid.*, 35 to 38, v. 8, 1846.
- ²⁸ *Ibid.*, 1165, v. 8, 1846
- ²⁹ Plan of the Newcastle and Carlisle Railway branch from Haltwhistle to Nenthead, 1845, John Bourne, Acting Engineer; [TWAS: D/NCP/4/69, NRO: QRUp 67a, CRO(C): Q/RZ/1/5].
- ³⁰ Herepath, 194, v. 8, 1846.
- ³¹ Ibid.
- ³² *Ibid.*, p. 2750, v. 7, 1845.
- ³³ *Ibid.*, pp. 1273 to 1274, v. 8, 1846.
- ³⁴ *Ibid.*, p. 760, v. 8, 1846.
- ³⁵ *Ibid.*, p. 683, v. 8, 1846.
- ³⁶ *Ibid.*, p. 792, v. 8, 1846.
- ³⁷ *Ibid.*, p. 870, v. 8, 1846.
- ³⁸ 9 & 10 Vic. Cap. 394. (26 August 1846).
- ³⁹ Herepath, 1169, v. 8, 1846. (Here Smith is accused of being motivated purely by his family connections with the Greys of Chipchase Castle).
- ⁴⁰ *Ibid.*, 1165, v. 8, 1846.
- ⁴¹ Ibid., 453, v. 9, 1847.
- ⁴² Newcastle Courant, 26 March 1847.
- ⁴³ Newcastle Chronicle, 25 June 1847.
- ⁴⁴ Herepath, 519, v. 9, 1847.
- 45 Ibid., 886, v. 9, 1847.
- ⁴⁶ Brian Webb and David A. Gordon, Lord Carlisle's Railways (Railway Correspondence & Travel Society, London, 1978).
- ⁴⁷ Herepath, 1323, v. 9, 1847.
- ⁴⁸ *Ibid.*, 363, v. 10, 1848.
- ⁴⁹ N&CR: Shareholders, directors and committee meetings, 21 Apr 1844 [PRO: RAIL 509.7].
- ⁵⁰ Tomlinson, op. cit., 606.
- ⁵¹ Herepath, 1210, Vol. 10, 1848.
- ⁵² Herepath, 623, Vol. 11, 1849.
- ⁵³ Newcastle & Carlisle Railway plans for deviations of, and a branch from the Alston branch authorized in 1846, November 1848. [CRO(C): QRZ/1/8; NRO: QRUp/75]
- ⁵⁴ Herepath, 1236, Vol. 10, 1848.
- ⁵⁵ *Ibid.*, 121, Vol. 11, 1849.
- ⁵⁶ Ibid., 277, Vol. 11, 1849.
- ⁵⁷ Ibid., 325, Vol. 11, 1849.
- 58 12 & 13 Vic. Cap. 43. (13 July 1849).
- ⁵⁹ Herepath, 731, Vol. 11, 1849.
- ⁶⁰ *Ibid.*, 777, Vol. 11, 1849.
- 61 Ibid., 902, Vol. 11, 1849.

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- 62 Ibid., 1088, Vol. 11, 1849.
- ⁶³ Herapath, 1149, Vol. 11, 1849.
- ⁶⁴ Joseph Pearson, *Diary* [Unpublished: property of the Kearton Family, Alston].
- ⁶⁵ Herepath, 333, vol. 12, 1850.
- ⁶⁶ N&CR: Shareholders, directors and committee meetings, 24 December 1849 [PRO: RAIL 509.8].
- ⁶⁷ Newcastle Journal, 13 September 1851.
- 68 Herepath, 333 vol. 12, 1850.
- ⁶⁹ Newcastle Journal, 13 September 1851.
- ⁷⁰ N&CR: Alston Branch Railway, Certificates [PRO: RAIL 509.47].
- ⁷¹ N&CR: Alston Branch, 1850 [PRO: RAIL 509.49].
- ⁷² N&CR: Shareholders, directors and committee meetings, 3 April 1850 [PRO: RAIL 509.8].
- ⁷³ Ibid., 18 November 1850.
- ⁷⁴ Ibid., 31 July 1850.
- ⁷⁵ Newcastle Journal, 13 September 1851.
- ⁷⁶ Newcastle Chronicle, 4 April 1851.
- ⁷⁷ Tomlinson, op. cit, 511.
- ⁷⁸ Newcastle Journal, 7 June 1851.
- ⁷⁹ Ibid., 21 June 1851.
- ⁸⁰ Pearson, Diary, op. cit.
- ⁸¹ Newcastle Journal, 13 September 1851.
- ⁸² B. Webb and D. A. Gordon, op. cit.
- ⁸³ Carlisle Patriot, 10 January 1852.
- ⁸⁴ Newcastle Journal, 10 January 1852.
- ⁸⁵ Newcastle Chronicle, 23 July 1852.
- ⁸⁶ Wanderer (ps), "Lambley Viaduct". *Tynedalesman*, No. 112, October 1997, Reproduced from *North Eastern Railway Magazine*, November 1912.
- ⁸⁷ Newcastle Chronicle, 18 March 1853.
- ⁸⁸ John S. MacLean, The Newcastle & Carlisle Railway (J. S. MacLean, Newcastle, 1948).
- ⁸⁹ Newcastle Chronicle, 1 August 1851.
- ⁹⁰ N&CR: Shareholders, directors and committee meetings, 17 November 1851 [PRO: RAIL 509.9]
- ⁹¹ Report of the Directors of the Newcastle and Carlisle Railway, 17 March 1853. [NCL: L 656.2].

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