ART. XIV.—*The Tindale Fell waggonway.* By ALAN HARRIS, M.A., Ph.D.

Read at St Mary's College, Durham, Sept. 8th, 1972.

ALTHOUGH the Earl of Carlisle's waggonway on the east Cumberland fells is mentioned in several accounts of early railways, its detailed history remains largely unexplored. Little has been written about its origins and almost nothing about its place in the local economy. Information on these and related subjects is not only hard to find, but is frequently also inconsistent.[1] Even the date at which the waggonway was formed, its precise route, and the nature of the original track have been the subject either of speculation or debate. That this should be so is due partly, perhaps, to its situation on a small and isolated coalfield which itself has attracted little historical research, and partly to the fact that the waggonway has been overshadowed by the Brampton and Hartleyburn line, a later railway venture in the same district. Most important of all, however, it has been assumed that contemporary evidence is lacking.[2]

In most accounts of railways in east Cumberland, the Tindale Fell line emerges from obscurity in 1808 when, already a going concern, it became the scene of experiments in the use of wrought-iron rails.[3] These appear to have gone largely unnoticed beyond a small circle of experts until 1824, when they received wider publicity through the correspondence columns of the

[1] *Carlisle Patriot,* 16 August 1889; *VCH Cumberland* ii, 380; B. Baxter, *Stone Blocks and Iron Rails,* Newton Abbot (1966), 159-160; M. J. T. Lewis, *Early Wooden Railways,* London (1970), 129.

[2] J. E. Shelbourn and L. G. Charlton, "The Brampton Railway", *Journ. Stephenson Locomotive Soc.,* 34 (1958), 337; Lewis, *op. cit.,* 129.

[3] Nicholas Wood, *A Practical Treatise on Rail-Roads,* London, (3rd ed., 1838), 12-13, 55-56; C. F. Dendy Marshall, *A History of British Railways to 1830,* London (1938), 34, 145, 153; Lewis, *op. cit.,* 294.

Newcastle Courant.[4] At about the same time, we are told, the original waggonway was extended, first to a colliery at Blacksike and later to Midgeholme, where coal was also mined (Fig. 1). Thereafter, apart from occasional references to mining activity, the published sources are reticent until 1836, when the waggonway was replaced in part by a new line to Brampton.

Some at least of the obscurities which have surrounded the Tindale Fell line are removed by evidence contained in the Howard of Naworth estate papers at the University of Durham. These have been used here to develop two themes: first, the circumstances which prompted the construction of a waggonway in a remote corner of 18th-century Cumberland and second, the character and functions of the line itself.

Coal in east Cumberland.

During the second half of the 18th century a number of land-sale collieries were at work in east Cumberland, within an area which extended from the Scottish border as far as Westmorland and from the vicinity of Brampton to the boundary with Northumberland. Each colliery district was usually separated from its neighbours by country in which, for geological reasons, little or no coal had been won.[5] Thus, mines near Brampton were separated by unproductive ground from other mines on the fells above Croglin and Renwick. A further group of mines lay on the flanks of the Lake District, between Hesket Newmarket and Sebergham, while coal was worked also in the extreme

[4] 27 November, 4 and 18 December 1824. Also Robert Stevenson (ed.), "Essays on Rail-Roads", *Highland Soc. of Scotland*, 6 (1824), 132. Some of this material is quoted in Wood, *op. cit.*, 55-56 and in Dendy Marshall, *op. cit.*, 153.

[5] F. M. Trotter and S. E. Hollingworth, *The Geology of the Brampton District*, London (1932), *passim*; Sir Arthur Trueman (ed.), *The Coalfields of Great Britain*, London (1954), 289 *et seq.*; Nicholas Wood, *On the Geology of a part of Northumberland and Cumberland*, Newcastle (1831), 19 *et seq.*

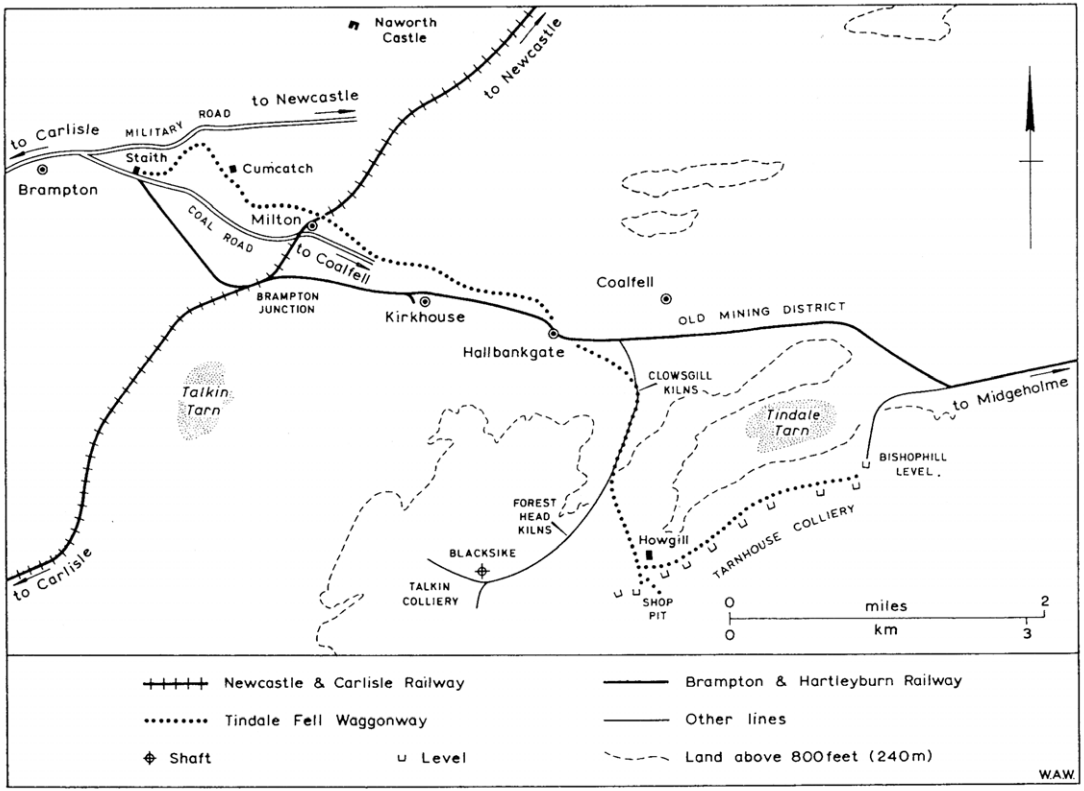

FIG. 1.—The Brampton mining district, showing features mentioned in the text. The names of the day-levels near Howgill are (from the west): Venture, Shop, Recovery, Colliery (Collier) Thorn, Hazard, Fox, Stag, Morpeth and Henry.

east of the county, about Midgeholme, and again near Alston.

Each colliery served an area whose boundaries, although seldom inflexible, nevertheless were capable of being expanded only with difficulty. Expansion might be achieved by means of improved systems of transport, or by accepting the not inconsiderable risks involved in leasing a neighbouring colliery. Within each area the volume of sales depended, among other things, on the numbers of the local inhabitants and on the presence of coal-using activities generally. Local difficulties notwithstanding, some inland collieries commanded a large district. Coal from Talkin, near Brampton, regularly found its way in horse-drawn carts to both Carlisle and Penrith, respectively ten and twenty miles distant from the pits.[6] Carlisle was supplied also from Blenkinsopp, twenty miles away in Northumberland, and Penrith from Warnell Fell, near Sebergham, about twelve miles from the town.[7]

Since even a comparatively short journey added greatly to the delivered price of coal, more especially in the absence of navigable waterways, some of these examples are at first sight perhaps a little surprising.[8] As Hutchinson pointed out, however, under certain circumstances coal from a distant colliery might be preferred to a cheaper, though possibly less satisfactory product, from a more readily accessible source.[9] The inherent qualities of the local coals thus played a not unimportant role in the competition for markets. In the form of coke, Brampton coals established themselves in Wigton, which for most purposes lay within

[6] William Hutchinson, *The History of the County of Cumberland*, Carlisle (1794), i 321; ii 680. Hutchinson's remarks on fuel supplies generally are informative.

[7] *Ibid.*, i 321; ii 665.

[8] The Brampton colliery accounts cited below suggest that *c.* 1770 the costs of moving coal overland were such that a journey of between six and seven miles was sufficient to increase the pithead price by 100 per cent.

[9] *Loc. cit.*, ii 665; *Carlisle Patriot*, 23 March 1827.

the territory of nearby land-sale collieries.[10] Similarly, some customers in Alston preferred Midgeholme coal to the product of the local mines, even though it cost more.[11] By contrast, other coals never left the immediate neighbourhood of the pits, but were instead consumed in nearby lime kilns or used by local farmers.[12]

A number of mines near Midgeholme and Hartleyburn, on the Northumberland border, worked the true Coal Measures, but most east Cumberland coal was won from seams within the older Carboniferous Limestones. The coal was frequently worked by means of vertical shafts, but it was even more common for it to be won from adits, or day-levels, which were driven from some convenient hillside.[13] Both types of mine were usually small, though their working life might extend over a considerable number of years.[14] Most of the workings were already well established by the 18th century. Some, including Coalfell and Tindale Fell, are mentioned in surveys of Elizabethan and earlier date.[15] Of others, perhaps equally old, almost nothing is known. As Thomas Robinson disarmingly observed, they are "so antient, that we cannot find out the Original".[16]

[10] Howard of Naworth papers, Department of Palaeography and Diplomatic, University of Durham [hereafter HN], C665 and C666 (e.g., 1769, 1791); North of England Inst. of Mining Engineers, Newcastle upon Tyne, "Barnes' View Book", 265-266, 278 (*c.* 1775).

[11] HN C665 and C666, where, for example in 1791, sales of coke to Alston Brewery are recorded.

[12] N. of England Inst. Min. Eng., "Barnes' View Book", 268 (for Croglin), and Bell Collection, vol. 15 (1805), for Alston "crow coals". For a later period, Thomas Sopwith, *An Account of the Mining Districts of Alston Moor, Weardale and Teesdale,* Alnwick (1833), 88.

[13] Contemporary plans in Northumberland Record Office, ZAN M17/197/B (Midgeholme 1763, Hartleyburn 1771); N. of England Inst. Min. Eng., shelf 24, no. 32 (Talkin, *c.* 1800); HN Cumberland maps (Tarnhouse 1798, Croglin 1830, Talkin 1860).

[14] HN C645, C665, C666. Tarnhouse Colliery provides the following examples: Fox Pit opened 1779-80, closed *c.* 1818; Hazard Pit opened 1782, closed *c.* 1809; Shop Pit already working 1768, closed *c.* 1801.

[15] Conveniently summarised in HN C565, "Attorney-General v. Lord Carlisle", report by Stuart Moore. Also J. U. Nef, *The Rise of the British Coal Industry,* London (1932), i 72, footnote 6, where, however, Tindale Fell is assigned to the Lake District.

[16] *An Essay towards a Natural History of Westmorland and Cumberland,* London (1709), 44.

Tarnhouse and Talkin.

The most important of the inland coal-bearing tracts *c.* 1790 lay near Brampton and formed part of Lord Carlisle's extensive properties within the Barony of Gilsland, a district well endowed with limestone, coal and freestone. Here, in the hills behind the town, were the earl's Tarnhouse and Talkin Collieries.

Two features of the Brampton colliery district must be emphasised, since both were to influence plans for a waggonway. As James Thompson, Carlisle's colliery agent, was later to point out, the traffic from both Tarnhouse and Talkin was "a descending trade".[17] The principal limestone quarries occupied relatively high ground on the flanks of Tindale and Talkin Fells, immediately below the sites of the most productive coal mines. The quarries and kilns at Clowsgill, for example, the most important in the district, were not far from the 800 ft. contour (240 m.), while Tarnhouse Colliery was situated still higher, at about 1,000 ft. O.D.

On the other hand, with one exception all the principal markets for coal and most of those for lime were to be found not within the colliery district but in Carlisle, in smaller towns such as Penrith and Brampton or, more generally, in the agricultural lowlands nearby (Fig. 2).[18] Detailed records of sales have not survived for this period, but available evidence suggests that, within the area shown on

[17] HN C596, file 204, Jas. Thompson to Jas. Loch, 26 February 1828. James Thompson (1794-1851) was employed in the colliery offices at Kirkhouse from 1808. In 1819 he became colliery agent and in 1838 lessee of Carlisle's mines and limeworks in Cumberland and west Northumberland. Though not the first of his name to serve the Howards in Cumberland, James seems to have laid the foundations of the Thompson family fortunes. He is said "to have died wealthy" (HN C591/101, 27 July 1851). No will has been discovered, but his wife Maria (née Bell), who survived him by forty years, left personal estate worth £137, 461 (C.R.O., Carlisle Wills, 1891, 204).

[18] Fig. 2 is based on material contained in HN C666, where arrears in respect of purchases of coal, coke and lime are recorded. It is important to note that the map does not convey any idea of the quantities involved in these transactions. There are more entries in the map for lime than for either coal or coke.

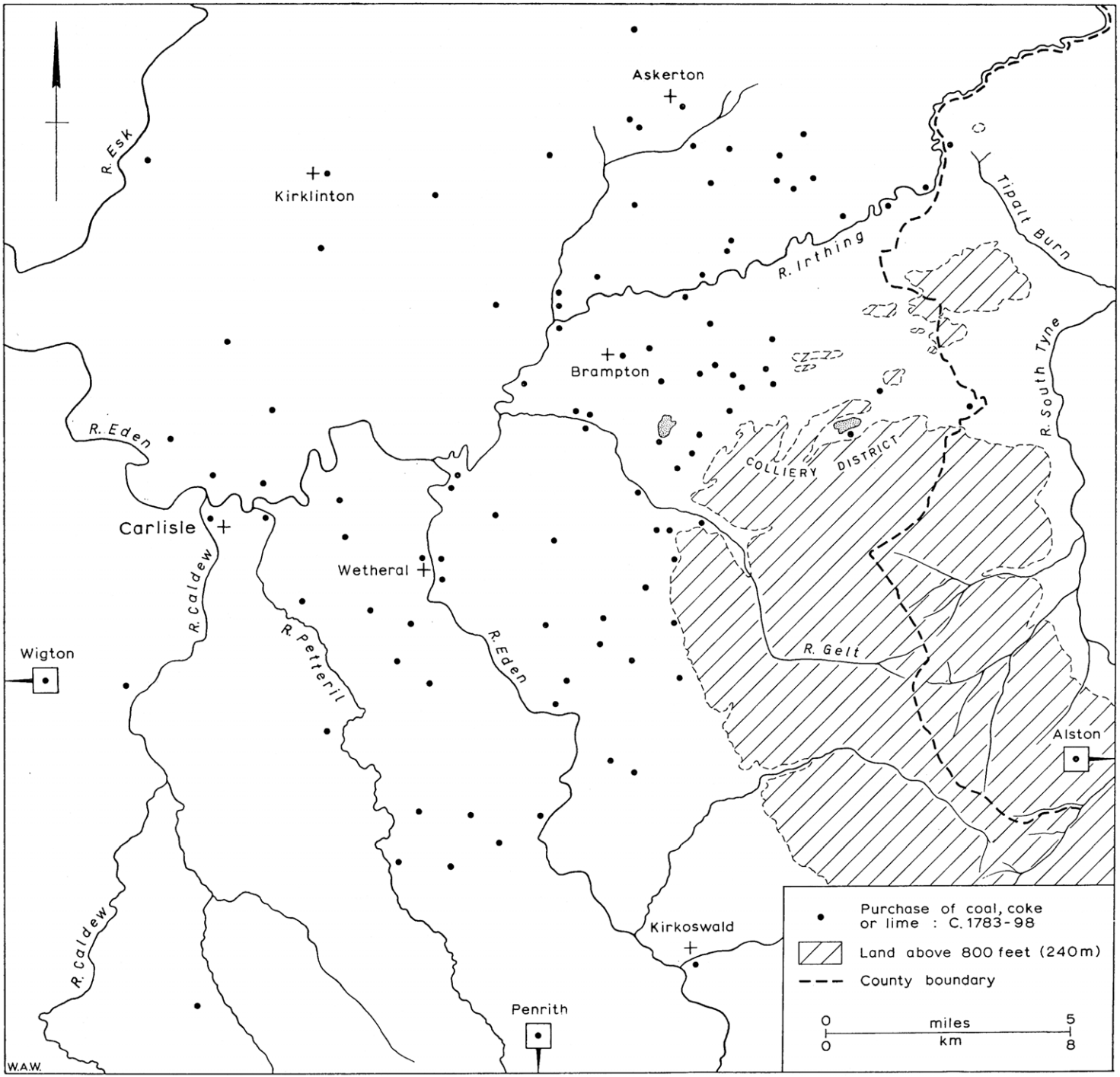

FIG. 2.—Purchases of coal, coke or lime from the Brampton collieries, *c.* 1783-98. The map provides a general, but imperfect, view of the market area served by these collieries. For the basis of the map see note 18.

facing p. 232.

Figure 2, Carlisle and its immediate vicinity provided a particularly large and important group of customers, both domestic and industrial.[19] Sales were necessarily limited in the high fells by a sparse population, some of whom moreover enjoyed access to alternative sources of coal and lime. Thus, potential customers on the borders of Cumberland and Northumberland usually preferred to buy their coal and lime either from Blenkinsopp, near Greenhead, or from Midgeholme and Hartleyburn.[20] An area in the far north of the county, including part of Bewcastle, was supplied from a small colliery at Oakshaw, not far from the Scottish border.[21]

While coal and limestone could be won fairly easily near Brampton — the former by means of both shafts and day-levels and the latter by removing an overburden of glacial deposits and shales — their subsequent disposal created problems. The accounts for Tarnhouse and Talkin for the late 18th century suggest that it was usual for about three-quarters of the entire output of these collieries, or between 16,000 tons and 17,000 tons annually, to be sold at the pits. Some of this amount was bought by local farmers who subsequently used it for burning lime, but much of it was destined for more general sale.[22]

After leaving the pits, the coal was drawn in carts over one of two main routes. The more important of these led from Tarnhouse Colliery to Hallbankgate and Kirkhouse, where it joined a similar road that

19 HN C665, C666; Hutchinson, *op. cit.*, i 150; ii 680.
20 HN C645, C666 (arrears).
21 *Cumberland Pacquet*, 30 January 1798, 14 February 1837.
22 HN C666 (1790-97), for quantities sold. Tenancy agreements on the Naworth estates frequently encouraged the use of coal and lime from the local collieries. When William Magnay, of Hullerbank, leased lands at Templegarth and Haining House in 1782, Carlisle undertook to build a lime kiln and "to furnish the said William Magnay with Coals at Tindale Fell Pitt (such as the said Earl burns lime with) . . . at Four pence p. Load" (HN C129A/6, 28 September 1782). At Naworth Barns in 1770, the tenant was obliged to use lime on his fallows. He could either burn the lime for himself, using Carlisle's coal, or purchase it ready made from Carlisle's lime kilns (HN C170/53, 18 August 1770).

linked Midgeholme and Coalfell with Brampton and Carlisle.[23] The second route, which was sometimes known as the Penrith Coal Road, traversed the fells between Tarnhouse and Talkin before eventually emerging from the uplands near Talkin village. There the ways parted, one making for Warwick Bridge and Carlisle, the other turning south for Castle Carrock and Penrith. Numerous "coal leaders" were employed by the colliery on the Castle Carrock route, their task being to replenish the "banks", or depots, which were maintained at readily accessible places below the western escarpment of the hills.[24] Sometimes blocked by snow in winter and occasionally difficult even at other times, the local coal roads demanded frequent attention. Under the circumstances, it is not surprising that successive land stewards and colliery agents should have found it necessary to build new roads and contribute towards the cost of repairing others which carried a heavy traffic in coal, even though these might lie beyond the coalfield.[25]

Excluding some coal which was consumed about the mines, made into coke or sent for the use of Lord Carlisle's household at Naworth, the remainder of the output from the Brampton collieries, amounting in most years to between 14 per cent and 20 per cent of the total, eventually found its way to Lord Carlisle's own lime kilns at Clowsgill and on Talkin Fell. Each set of kilns naturally tended to rely most heavily for

23 HN Cumberland maps, "A Plan of the Waggonway . . . from . . . Tarnhouse Colliery to the Town of Brampton" (1798); "A Plan of the Barony of Gilsland" (1771). The latter is particularly valuable for the local coal roads, some of which are named according to their destination.

24 HN C665 contains numerous details relating to the Penrith trade. Blackdub Farm in Carlatton was the principal depôt in the late 18th century, but was later superseded by Armathwaite (HN C636/8, plan of 1838).

25 HN C601/5, 30 June 1772, remarks of the Carlatton route: "This Road never needed any Repairs till it became the Coal Road to Penrith." Putting this road in order cost Carlisle "near £60", not including the labour of his own men and horses. Payments to the inhabitants of Little Corby for damage sustained by their roads from the coal traffic are recorded in C665, 25 August 1779.

fuel on pits that were situated nearby. Clowsgill made considerable use of Tarnhouse coal, while the kilns in Talkin drew most of their fuel from the local colliery. Even so, the cost of moving several thousand tons of coal annually could not be avoided. Depending on the kilns involved, as much as one-quarter of the total cost of burning lime might be acounted for in this way.[26] The lime accounts for the period 1770-90 afford ample evidence of road improvement as a means of reducing costs. An entry dated 1775, which records the making of a new road to Clowsgill "for the more convenient and cheaper leading of Coals thereto", though more explicit than most of its kind, is not unique.[27]

Some of the more important economic features of Tarnhouse and Talkin in the late 18th century are summarised in the following table.[28]

Table 1.

Year	Coal Production (Tons)	Sales of Coal and Coke (£s)	Net Profit (£s)	Lime Production (Bushels)	Sales of Lime (£s)	Net Profit (£s)	Net Profit all coal and lime enterprises (£s)
1790	20,178	3,572	1,460	64,870	1,622	585	1,909
1791	21,340	3,682	1,305	60,581	1,515	512	1,775
1792	21,330	3,646	1,180	77,945	1,949	704	1,744
1793	20,888	3,581	805	62,625	1,566	381	1,052
1794	18,460	3,320	1,337	67,752	1,694	453	1,773
1795	25,287	4,124	1,471	79,346	1,983	540	1,814
1796	27,017	4,918	1,756	84,070	2,207	615	2,081
1797	28,909	5,993	2,337	68,569	2,286	718	2,738
1798	—	—	—	—	—	—	—

It will be seen that coal production increased significantly only after 1794. The value of sales also rose appreciably during the last three years of the period

26 Calculated from HN C666 (1790-97).
27 HN C665, colliery accounts for 1775.
28 Based on HN C666. (1) Coal output is expressed in loads in the original accounts. Loads have been converted into tons at the rate of 7 loads = 1 ton (HN C172/200). (2) All figures have been rounded upwards to the nearest ton, etc. (3) Figures in the final column include Carlisle's enterprises at Thirlwall, Midgeholme and Troddermain as well as Tarnhouse and Talkin.

covered by Table I, in response to a more active market and a substantial advance in prices during time of war.[29] Although subject to considerable fluctuation, the output of lime remained at a high level after 1790. What is not obvious from the figures is a marked rise in working costs, especially after 1795. Among other items affected by inflation were the charges of stabling and feeding the collieries' horses. Never less than £600 per annum after 1790, these had risen to £900 by 1796 and to £1,018 by 1797. Part of the increase is attributable to a rise in the price of fodder crops, notably oats and beans.[30] This was a serious matter, since the collieries depended heavily on the services of carters, whose own costs were also rising.

It is unfortunate that neither correspondence nor contemporary comment relating to the waggonway has so far been discovered. If conclusions based on a set of colliery accounts must of necessity be tentative in the absence of other evidence, then at least they point in a certain direction. The Tindale Fell waggonway came at a time when unusually high prices were disturbing an established order of sales and marketing arrangements, thus presenting both a threat and an opportunity. And its construction followed a period when an old-fashioned, costly and cumbersome system of transport had been subjected to considerable strain.[31]

[29] The price of lime at the kilns was raised from 6d. to 8d. per bushel in 1796. The price of coal at the pits remained at between 6d. and 7½d. a load until 1796, when it too began to rise.

[30] Fodder prices from HN C666. According to a later account, low fodder prices encouraged carters to visit the pits and kilns (HN C590/46, August 1833). Hay and crops were produced on the collieries' own farms, but not in sufficient quantities to meet the demand.

[31] HN C666 indicates greater reliance on outside carriers after 1795. The collieries' own working horses were presumably thus released for other duties.

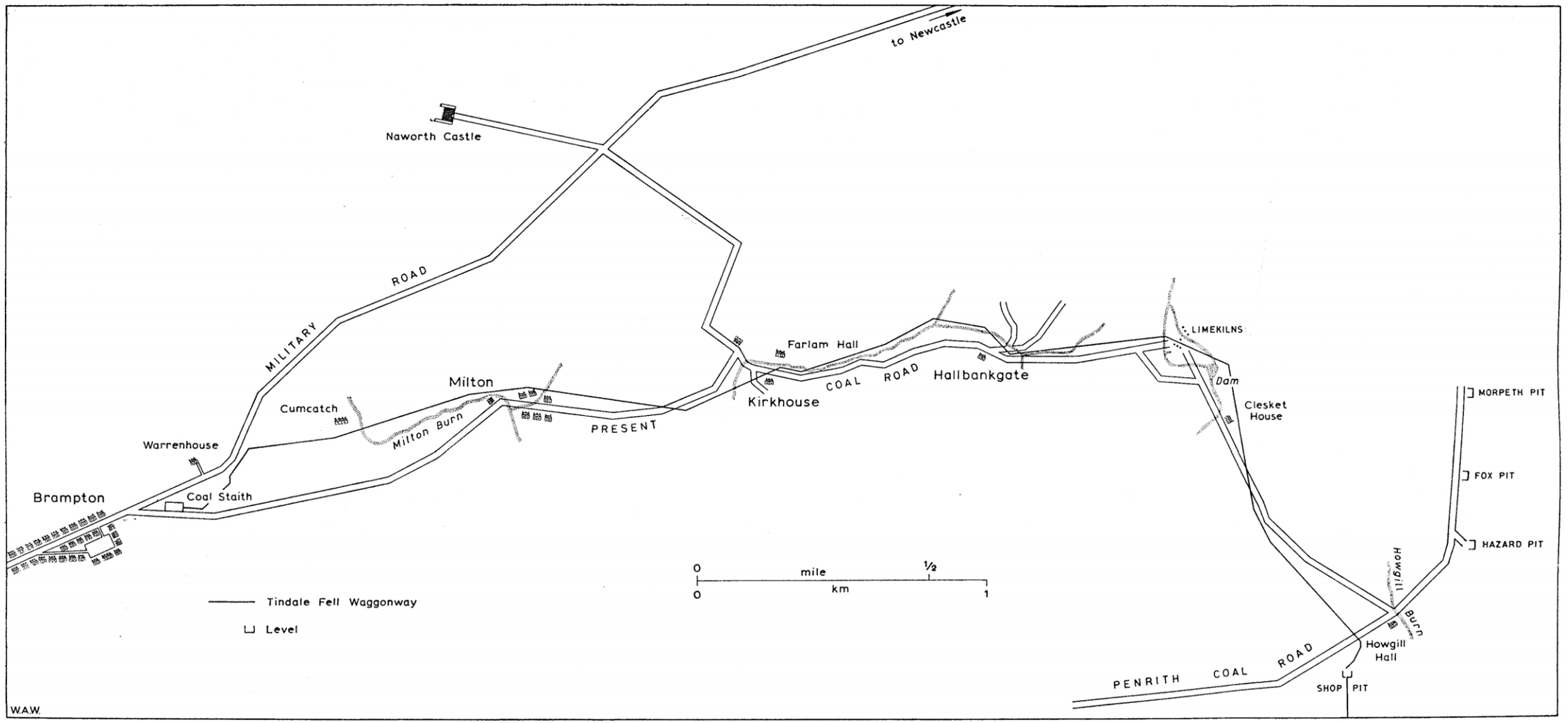

FIG. 3.—The Tindale Fell waggonway in 1798, redrawn from "A Plan of the Waggonway making from the Rt Honorable the Earl of Carlisle's Tarnhouse Colliery to the Town of Brampton". The scale of the original is 8 chains to the inch. Whoever was responsible for taking the levels in 1798 may well have drawn this plan, which unfortunately carries no signature. The plan is in the Department of Palaeography and Diplomatic, the University, Durham. Orientation as original. Stipple represents streams.

facing p. 237.

The Waggonway.

Work on the line almost certainly began in 1798, a year for which there are no surviving colliery accounts. The accounts for 1797, however, contain nothing unusual, while those for 1799 record the final stages of construction and the formal opening of the line on 15 April.[32]

The waggonway was designed to link Tarnhouse, the more important of the two local collieries, with a staith, or depot, situated on the eastern outskirts of Brampton.[33] It was intended also that it should serve the limestone quarries and kilns at Clowsgill. At its upper, or colliery, end the line was taken as far as a day-level known as the Shop Pit, which lay close to the centre of mining activity at the time (Fig. 3). In order to reach Tarnhouse Colliery, it was necessary for the waggonway to cross from the drainage system of the Eden into that of the Tyne and to surmount a difference in height of some 700 ft. The first three and a half miles after leaving the staith carried the line to the water-parting near Clowsgill, where it was 360 ft. above its starting point.[34] Thereafter, the waggonway attained its destination, still climbing steadily, by means of a broad gap in the hills drained by the northward-flowing Cleskett Beck. It was somewhere here, many years later, that James Loch, Carlisle's principal agent, "rejoined [a] Railway Carriage and without a horse descended at a rapid

[32] HN C645 contains a payment of £33. 5s. 4d. "for Expences on opening the New Waggonway the 15th April 1799". There is a brief report of the event in the *Cumberland Pacquet*, 23 April 1799. The occasion was marked by a procession of coal waggons and a band of music.

[33] Brampton staith was built by the side of the Alston road, where the remains of its successor may still be seen. It appears to have been placed as close to the centre of the town as conveniently possible without leaving the Carlisle estates or encroaching upon the built-up area. (HN C23/3, Brampton Enclosure and Tithe Award, 1778.)

[34] HN Cumberland maps, "Brampton to Clowsgill", June 1824.

pace to Kirkhouse".[35] Loch's pleasure in being able to travel over a route that was apparently wholly within his lordship's estate, and thus free from vexatious litigation or problems of wayleave, may well have been tempered by anxiety, for in spite of skilful use of minor natural features, the line contained some formidable gradients, including at least two steeper than 1 in 30.[36] The track itself was of wood, laid to a gauge whose dimensions are not recorded, but which was less than 4 ft. 8 in.[37]

Although the collieries' work force of joiners, carpenters, masons, smiths and general labourers appears to have been largely responsible for forming the line, many of the materials used in its construction were drawn from elsewhere. This is not surprising, for Carlisle's agents had been accustomed for many years to dealing with outside suppliers in the normal course of business. Their contacts at this period were almost entirely with other parts of Cumberland and with Northumberland. Within Northumberland, the lower Tyne was pre-eminent as a source of colliery equipment. "Tram Wheels, Sledshoes & other Ironwork" had been purchased from Newcastle as early as 1768, and the flow of iron goods from Tyneside had continued almost without interruption thereafter.[38] Indeed, over

[35] HN C591/39, 3 September 1835. James Loch (1780-1855) was "at one and the same time, auditor to the Duke of Sutherland, to the Earl of Carlisle, to Lord Francis Egerton ... and to the trust estates of the late Earl of Dudley and the late Viscount Keith" (*Gent. Mag.*, xliv, N.S., 1855, 206). There is more about this remarkable figure in Gordon Loch, *The Family of Loch*, Edinburgh (1934), and in F. C. Mather, *After the Canal Duke*, Oxford (1970).

[36] HN Cumberland maps, "Brampton to Clowsgill". A plan of the waggonway dated 1798 suggests that two small closes in Milton may in fact have belonged at that time to proprietors other than Carlisle.

[37] HN C591/7 (a) 3 November 1825 and 591/7 (c) 13 November 1825; C590/30, 30 August 1828 (for gauge). HN C645, 1799 *et seq.*, for wooden track. Some late references to the waggonway (e.g., *Carlisle Patriot*, 16 August 1889) mentions rails of birchwood. The waggonway accounts contain references to birch, alder, sycamore, beech, oak and fir, although their precise use is not always clear.

[38] HN C665, 8 September 1768. The suppliers were Surtees & Co. The trade connection with Tyneside was already well established by the 17th century (*vide Surtees Soc.*, 68, 1877, 94).

the years many of the leading ironfounders and iron merchants on Tyneside transacted business with the collieries.[39] Cookson and Hodgson had supplied cast iron barrow-way plates in 1775, for example, Hawks & Co. had sent tram wheels in 1779, while in 1792 John Gray & Co. had been asked for wrought-iron rails for an underground waggonway in the Hazard Pit.[40] And from Tyneside also there had come a host of other manufactured goods and raw materials: colliery winding ropes, oil, lamps, boring equipment and great quantities of timber for use as pit props and in building work generally. Other sources of supply, in Brampton and Carlisle particularly, were not overlooked, though none could offer the range of specialised goods and services provided by the lower Tyne. It was perhaps natural, then, that Carlisle's agents should have turned to many of their established contacts in the early days of the waggonway. Oak, beech, alder and birch were purchased from Corby, the home of Carlisle's kinsman Henry Howard, but fir wood came from Newcastle. So, too, did cast-iron wheels for the coal waggons. Other necessary items, including hardware and some larger iron goods, were purchased in Carlisle and Brampton.[41]

The new line was soon handling a considerable volume of traffic (Table 2). As the table shows, however, the cart trade from the pits and kilns continued. Talkin was not yet affected by the waggonway, while

39 HN C665, C666, and local directories.

40 Published accounts of the Tindale Fell line frequently refer to a waggonway *c.* 1775. Primary sources contain nothing that would substantiate the view that surface waggonways were in use before 1799. Underground waggonways were in use, however, at an earlier period. A waggon road was cut in the Hazard Pit in 1785, and a waggonway, constructed of wood, was laid there in 1786. This was later repaired (or replaced?) using iron rails (HN C665, C666). A report in the *Carlisle Patriot*, 16 August 1889, says that "there was a question about making a tram road" at the colliery in 1774.

41 HN C645. The area of supply was widened considerably during the 1820s and 1830s to include districts as far afield as South Wales and Lancashire. Contact with west Cumberland, on the other hand, appears to have been slight.

some coal and lime from Tarnhouse continued to be disposed of in the old way.[42]

Table 2.

Year	Coal Output Tarnhouse and Talkin (Tons)	To Brampton Staith (Tons)	Lime Output (Bushels)	To Brampton Staith (Bushels)
1799	26,802	9,646	50,746	Nil
1800	29,983	18,100	59,376	9,800
1801	28,145	14,318	88,090	12,660
1802	35,444	15,969	92,700	27,820
1803	35,326	17,097	82,735	28,240
1804	35,588	15,758	68,404	19,940
1805	37,170	18,941	62,910	11,920
1806	33,649	18,166	69,660	15,484
1807	38,555	22,849	82,575	20,800
1808	37,061	23,166	80,670	19,340
1809	39,616	20,187	69,340	16,400
1810	39,802	20,338	84,950	22,620
1811	35,891	19,351	75,920	22,220
1812	38,549	18,184	73,495	17,600
1813	38,096	17,024	90,560	24,340
1814	32,373	11,104	83,485	21,220
1815	29,515	9,333	64,052	15,080

Although costly to operate, the waggonway earned a profit from the start. So successful was it that by 1804 steps had been taken to enlarge Brampton staith, to purchase more coal waggons and to improve day-to-day running by the provision of "sidings or Railways for the convenience of the Waggons passing by".[43] Meanwhile, a specialised labour force had become responsible for its efficient working. Supervised by a "Clerk & Assistant", this consisted in 1804 of 18 drivers, 7 waggonway wrights under a foreman, 3 staithmen and 11 labourers.[44]

42 The coal road through Talkin is marked on the Enclosure Award plan of Talkin Fell in 1854 (C.R.O., QRE 1/119).
43 HN C645, 11 June 1804.
44 HN C669, Coal Accounts 1772-1805, account for 18 February-17 March 1804.

Improvement and extension.

The original waggonway, which was slightly less than five miles in length, was extended piecemeal. William Pit, not far from Shop Pit, was reached in 1802 and then, after Howgill Beck had been bridged, the line was carried along the fellside high above Tindale Tarn to Hazard, Fox and Morpeth Pits.[45] By 1823 all the workings lying to the west of Bishophill were either served directly by the line or were capable of being reached from it without any difficulty.[46]

Even while extensions were in progress above the tarn, using wooden rails and sleepers, iron rails set on stone blocks were being laid elsewhere along the route. Their precise location is not known, although James Thompson's account of their introduction clearly suggests a position below Clowsgill, where the track had to carry both coal and lime.[47] Iron rails first appear in the waggonway accounts in 1808. These were almost certainly the wrought-iron rails for which Tindale Fell later became famous.[48] But most of the rails purchased between 1808 and 1812 as replacements for the original wooden track were of cast iron.[49]

The waggonway appears to have undergone little

45 HN C645 (e.g., accounts for 1803, 1808 and 1811).

46 HN C590/12, 1 September 1823, and *ibid.* Cumberland maps, "Brampton Roads", February 1824. See also C. and J. Greenwood, "Map of the County of Cumberland", 1823. The line above the tarn is shown in some detail on a "Plan and Section of Midgeholme, etc. Collieries", July 1835, and on a "Sketch of part of Tarnhouse & Talkin Colliery Workings", August 1832, at the Old Brewery, Brampton.

47 "The Coal Waggons used upon this Road, carry nearly a Newcastle Chaldron of Coals [53 cwt.]; a considerable Quantity of Lime is also conveyed along this Rail-Way, and the laden Waggons are much heavier than those laden with Coals." Thompson's remarks were made during a discussion of the quality of wrought-iron rails at Tindale Fell, some of which had recently been lifted after a period of intensive use (*Newcastle Courant*, 18 December 1824).

48 HN C645, 11 September 1808, where a payment of £48. 19s. 7d. to Thomas Morris "for Iron Rails for Waggonway" is recorded. Morris has not been identified, though payments made in 1808 for the carriage of goods to the collieries suggest that he may have had Tyneside connections. There was a firm of Crowther and Morris at Ouseburn in 1820. Morris also supplied cast-iron waggon wheels.

49 Purchased from Messrs R. W. and R. Porter, of Carlisle (for this firm see *A Picture of Carlisle, and Directory*, Carlisle, 1810, 139).

further change until 1821, when it received the first of two branches, both of which were destined to become more important than the original. Under James Thompson's energetic direction, a deep mine was sunk at Blacksike, in Talkin Colliery, and was provided with its own iron railway.[50] After 1822, when Blacksike came into production, large quantities of Talkin coal travelled by the new route to Brampton staith. Concerned for the future of the ageing Tarnhouse workings and anxious to keep out potential rivals, Carlisle's advisers next turned their attention to Midgeholme, an old but potentially valuable colliery.[51] At a cost of nearly £13,000 a railway was built from Hallbankgate to Midgeholme, where a new mine was developed by Thompson.[52] Coal and coke from Midgeholme moved down the railway in horse-drawn waggons after 1828.[53] Not long afterwards the other lines were converted to the same gauge as the Midgeholme branch, namely 4 ft. 8 in.[54]

Throughout the 1820s both Loch and Thompson became increasingly preoccupied with the possible effects on the local coal trade of the projected railway between Newcastle and Carlisle. It was realised that such a scheme carried important implications for the

50 HN C645, 4 August 1821; C590/10, 9 August 1822. A waggonway was also built from Blacksike to Moss Pit, an old working on Talkin Fell, in 1821.

51 HN C170/106b, 24 March 1823; C590/13, 24 April 1824; 590/16 August 1824; C591/5, 23 December 1824.

52 HN C645, accounts for 1825-29. The mine was known as the Railway Pit, or King Pit. A shaft section dated November 1827 is in "Sections of Strata", Northumberland Record Office, 538/2. For the part played by George Stephenson in the planning of the Midgeholme branch see F. C. Mather, *op cit.*, 48.

53 James Thompson recorded the opening of the Midgeholme line on 9 December 1828: "first Coals came along Midgeholme Railway" (HN C, *Petty Payments*, uncalendared).

54 In 1825 the Midgeholme branch was "the same width as the Darlington Railway" (HN C591/7). Thompson reported in August 1829 that he proposed "about the end of next month" to widen or extend the Rails of the Brampton and Talkin Railway to the same width as Midgeholme" (HN C590/38). In 1835 Loch rode down the original line "to Kirkhouse" (C591/39). An extra half-inch may have appeared during the 1830s, when the colliery vouchers show a considerable amount of work in progress on the lines in connection with the link to the Newcastle and Carlisle Railway.

collieries, since it threatened to introduce a greater element of competition than had existed hitherto. Carlisle's advisers accordingly sought means of strengthening his position in the district.[55]

Even before the Midgeholme extension had been completed, a lease was secured of the adjacent royalty of Hartleyburn, in Northumberland. Shortly afterwards, efforts were made to develop Thirlwall Colliery farther north, close to the line of the projected railway. In due course an ambitious scheme of railway building was initiated to ensure that Carlisle's properties would be provided with adequate rail links of their own when the Newcastle and Carlisle line was eventually opened.[56] The old waggonway was replaced between Hallbankgate and Milton by an entirely new line designed for locomotive operation and was extended, again on a new alignment, beyond the junction with the Newcastle and Carlisle route, to the staith at Brampton.[57] In 1837 locomotive working was introduced above Hallbankgate.[58] The Midgeholme line was extended into the Hartleyburn coalfield at Halton-Lea-Gate and was eventually carried through to Lambley in 1849.[59] A new mine was opened at Baron House, in Thirlwall, and was given its own rail link with the Newcastle and Carlisle line. Lime works were developed at Bishophill and at Forest Head, an old quarry site on the Blacksike Railway.[60] Thus, by 1838,

[55] HN C590/15, 23 August 1824; 590/35, 23 December 1828; 612/152, November 1833.

[56] HN C591/40, 26 November 1835. The Newcastle and Carlisle line was opened locally in 1836.

[57] HN C590/50, August 1835; 590/52, August 1836; *Carlisle Patriot*, 23 July 1836.

[58] The purchase of the *Rocket* for this purpose is documented in HN C590/53 and 55; C591/42; C676, Colliery Vouchers (1837); and in *Petty Payments* (uncalendared), where James Thompson notes a journey with his brother Mark in October 1836 "To Bolton, Manchester, Liverpool . . . to buy Rocket."

[59] HN C590/50, August 1835 and 52, August 1836; 636 (plan no. 4 on lease of 1838); 591/85, 22 November 1849; 590/149, 29 December 1849. For the later railway connections at Lambley, *Newcastle Courant*, 19 September 1851.

[60] HN C590/47, May 1834; 590/52, August 1836; 636 (lease of 1838); 675, New Works Vouchers 1835; 671 (1834-38).

when James Thompson assumed the lease of these and other coal and lime works on the Carlisle estates, the original waggonway had become part of a wider system of railway communications.

Conclusions.

Interpreted in the context of the 1838 lease, the subsequent history of the local railway system provides a fascinating story of protracted struggles for the control of regional and Irish markets; struggles in which the Thompsons themselves, who were to remain lessees until 1908, figure prominently. It is, however, impossible to follow these events here. All that can be attempted is some assessment of the part played by the waggonway in the economy of the district before 1838 and a brief indication of its eventual fate.

That the line proved of benefit to the Earls of Carlisle is certain, for it showed a consistent profit. Contemporaries also believed that it benefited those who previously had relied on the cart traffic for coal and lime.[61] The costs of moving bulky goods to distant places, however, remained high. As late as 1825 the journey from Brampton to Carlisle was said to add as much as eight shillings per ton to the price of coal in the city even during the summer months. In winter, it was alleged, the cost was "so much heavier as to occasion, not unfrequently, a scarcity of fuel".[62] Four years later the price of coal in Carlisle was "never less than 16s. per ton, frequently much higher".[63] It was left to the railways of the 1830s to reduce the price significantly.[64] On the other hand, cheaper coal

[61] Wm. Parson and Wm. White, *History, Directory and Gazetteer of Cumberland and Westmorland*, Leeds (1829), 414.
[62] British Transport Record Office, York, NWC 1/17, 3 December 1825.
[63] *Copy of the Evidence on the Newcastle & Carlisle Railway Bill* (1829), 3.
[64] HN C590/72, 1 May 1838 and 92, 26 January 1839; 591/51, 22 November 1837.

had attracted new manufacturing industry to Brampton by 1811, according to one observer.[65]

That the waggonway came at an important stage in the development of the local collieries also seems certain, although it is difficult to isolate its effects. The years of war and post-war recession over, the mines were gradually expanded and by 1823 were producing more than ever before. The new line below Hallbankgate was used on a scale for which there was no local precedent; between April 1837 and May 1838 almost 70,000 tons of coal and lime were moved over it.[66] While the outlines of the market area of the late 18th century may still be detected in the records of sales at this time, the county town and its growing industrial suburbs appear to have assumed even greater importance for the local collieries during the early Railway Age.[67]

The decline of the original waggonway is poorly documented. The section below Hallbankgate was abandoned in 1836, its rails being lifted for use elsewhere on the line.[68] By that time many of the day-levels above Tindale Tarn had been exhausted, while others were kept open with difficulty. The lease of 1838 suggests that neither the pits in this part of Tarnhouse Colliery nor the waggonways that served them were of much importance. Howgill Pit, a comparatively new mine situated close to Howgill itself, remained open however and continued to make use of the railway, probably until 1848, when this mine too was closed.[69] Small workings also remained open on the fellside farther west, and some of these may have

65 *Jollies' Cumberland Guide and Directory, Carlisle* (1811), 66.
66 HN C676, 1838.
67 HN C596, bundle 204, 18 March 1828; *Copy of Evidence* (1829), 6; British Transport Record Office, York, NWC 3/2, 6 October 1832. Individual customers are identified in HN C692 of 1823. See also *Carlisle Journal*, 23 June, 7 July 1838.
68 HN C590/52, August 1836.
69 C590/141, 12 June 1848; HN Cumberland maps, "Plan of Tarnhouse Collieries Old Workings" (no date).

used the upper section of the line. By 1861, however, the old waggonway had been abandoned above its junction with the Blacksike branch.[70] In 1909 this part of the route was followed by a new railway — surely one of the most spectacular in the country — which climbed steeply beyond Howgill towards the site of yet another 19th-century colliery at Gairs, 1,300 ft. above sea level.[71] Following the abandonment of Gairs in 1936, this railway was dismantled.[72]

Most of the activities which provided work for several hundred men and boys little more than a century ago, and which gave this part of Cumberland its own peculiar blend of industry and agriculture, have now disappeared.[73] The last large mine was closed in 1954, though one or two day-levels remain open at the time of writing.[74] Quarrying is still active, although lime is no longer burned at Forest Head and Clowsgill has been deserted for a century.[75] The colliery railways too have gone, only their cuttings and embankments serving as a reminder of the network of lines which once linked together the parts of a busy mining district.

[70] HN C636, plan no. 1, 1861.

[71] File 112A, May 1908 *et seq.*, Old Brewery, Brampton; Public Record Office, BT 31/18865/103204, 25 May 1909.

[72] *Catalogue of Abandoned Mines*, London (1938), 5.

[73] The unpublished Enumeration Schedules of 1851 (H.O. 2427), suggest that about 270 men and boys were employed in the local mines. See also William Whellan, *The History and Topography of the Counties of Cumberland and Westmorland* (1860), 675.

[74] Burt Hall, Newcastle upon Tyne, *Minutes of the Northumberland Miners' Association*, 16 July and 13 August 1954. The mine was the King Pit, Midgeholme, which lay close to the site of its 19th-century predecessor of the same name.

[75] There are no returns for Clowsgill in the lime and colliery accounts after 1871.

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