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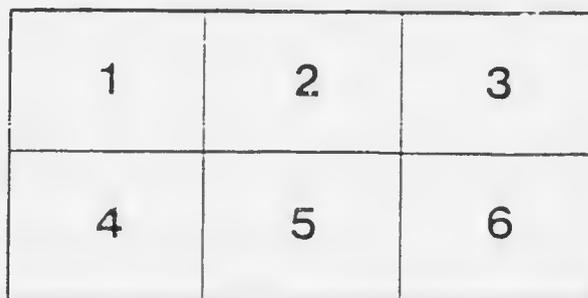
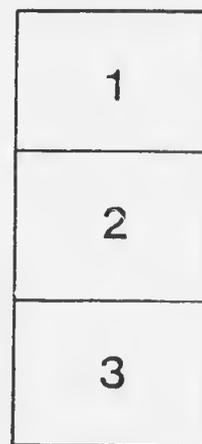
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THE
DEVELOPMENT OF TRANSPORTATION
IN
MODERN ENGLAND

IN TWO VOLUMES
VOLUME II

CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

London: FETTER LANE, E.C.

Edinburgh: 100 PRINCES STREET



New York: G. P. PUTNAM'S SONS

Bombay, Calcutta and Madras: MACMILLAN AND CO., LTD.

Toronto: J. M. DENT AND SONS, LTD.

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THE
DEVELOPMENT OF TRANSPORTATION
IN
MODERN ENGLAND

BY

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VOLUME II

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Cambridge:
at the University Press
1916

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MAP

Collins' Railway Map of England *in pocket of Vol. II*

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CHAPTER VII

DEVELOPMENT OF RAILWAYS

It is not easy to trace the origin of railways, but the earliest approximation to the modern railway was, doubtless, the wooden tramroad, the existence and use of which dates far anterior to the modern railway era. The earliest system for the conveyance of coal from inland collieries was by the use of pack-horses, mules or asses, over the backs of which were slung the bags filled with coal; and this method prevailed down to the close of the eighteenth century¹. Of course, with the gradual improvement of the roads, some carts had come into use; and the amount of load that could be drawn upon these roads had increased. There still remained, however, the difficulty of bringing the coal from the pit's mouth down to the river or to the road; and to effect this end, wooden tramroads came in time to be laid down.

We are informed that, as early as 1555, there was a tram from the west end of the Bridge Gate in Barnard Castle, for the repairing of which the proprietor of the castle left the sum of 20s. The word "tram," at that time, seems to have been used in the north of England and the south of Scotland to describe the special track or road and the truck that ran on it. The truck was drawn along this way by men or horses². The use of the tramroad in the coal districts, however, for facilitating the conveyance of that heavy commodity, does not seem to have come into public attention until half a century or a century after that time; for a record in the books of one of the free companies in Newcastle, dated 1602, states that from time immemorial the coal carts had been accustomed to carrying eight "banlls" of coal from the pits to the river³, but recently that amount had been reduced

¹ Jeans, *Jubilee Memorial of the Railway System*, p. 5. Jeans says of his work that the facts and figures were all "compiled from official and accredited sources, so that their accuracy may be accepted as unimpeachable."

² Gordon, *Our Home Railways: How they began and How they are worked*, 1, p. 4. Gordon says that his work has been drawn from the original sources, and has been officially approved by the railway authorities as authentic.

³ Eight bolts of coal were equal to 17 cwt.

to seven "banils¹." The expense of carrying such heavy loads on poor roads would naturally cause them to seek some other means of conveyance than by cart; but it would seem as if no great change had been made before the middle of the seventeenth century, for a gentleman, writing in 1649, said that many thousand people were employed in the coal trade, some by working in the pit, and others by carrying in waggons and wains to the river Tyne. Some change, however, had been made, for shortly before that time—perhaps about 1630, a man by the name of Beaumont went north to Newcastle with new kinds of implements for mining the coal, and he it was who introduced the "wooden way" and waggons for carrying the coal from the pits down to the river. He, apparently, had thirty thousand pounds in money with which to begin his improved system of mining the coal and sending it on its way toward the market; but in a few years he had used up all his money and "rode home upon his light horse," having lost all his capital². By the old system, it was not uncommon for these northern mine-owners to employ five or six hundred horses and carts in this traffic: and hence it was of vast importance to reduce the great expense incurred in keeping so many horses and drivers, in the wear and tear of carts, and in the making and repairing of roads⁴. It was recognized that the difficulties of the soft roads would be overcome by the adoption and use of the wooden rails upon which to draw the loaded waggons; so that, although Beaumont lost all that he had, others took up his ideas and put them successfully into operation. About 1670 the use of wooden ways seemed to be a common method for conveying the coal from the pits to the river, and those who had lands between the collieries and the river would lease or sell strips of these lands to the mine-owners, upon which the latter would lay their rails from the mines to the bank of the river. Rails of timber were laid down and bulky four-wheeled waggons were made to fit these timbers: so that a keen observer, in 1676, asserted that by this means the carriage was made so easy that one horse would draw down as much as four or five chaldrons of coal at one time, which was an immense benefit to the coal merchants⁵.

¹ Wood, *Practical Treatise on Railroads* (1825), p. 34.

² Gray, *Chorographia, or a Survey of Newcastle upon Tyne* (1649), pp. 24-25.

³ *Ibid.*, pp. 24-25; Wood, *Practical Treatise on Railroads* (1825), p. 35, quoting from Gray; Stretton, *A Few Notes on Early Railway History*, p. 3.

⁴ Jeans, *op. cit.*, p. 5.

⁵ North, *Life of the Right Honourable Francis North, Baron of Guilford, Lord Keeper of the Great Seal*, pp. 136-7. See also Wood, *Practical Treatise on Railroads* (1825), p. 36, and Cumming, *Rail and Tram Roads* (1824), p. 7. In *Transactions of the Highland Society*, vi, p. 6 et seq., Scott gives an account of the origin and

In constructing such a road an effort was usually made to have it on a slight decline from the pit's mouth to the place where the coal was to be discharged from the waggons, so that heavy loads might be easily conveyed without a great expenditure of energy by the horses employed in hauling. The rails were not always laid so as to give a uniform declivity throughout the whole length; but they followed more or less the surface of the ground. Where, on part of the road, there was a steep declivity, the speed of the waggon was regulated by a brake attached to the vehicle and managed by the driver. The waggons used had low wheels, for the smoothness of the rails made high wheels unnecessary; and upon the roads of ordinary declination it was easy for a horse to draw three tons of coal from the pit to the river¹, although the ordinary load for one horse was nineteen bolls or about forty-two hundredweight². The economy of the waggon-way over the old way of carrying coal may be noted from the fact that, upon the common roads, the regular load for a horse with a cart was only about seventeen hundredweight³. Of course, the empty waggons had to be drawn back up the incline and the road was made so that horses could meet and pass at certain places.

In time the wooden rail had its upper surface worn away; and it is probable that at first such repairs were made by fastening another rail or plank upon the top of the one that was worn⁴. But on some parts of the road where occasional declivities occurred which could not be levelled, or where sudden windings of the road had to be made, and where, therefore, there would be an unusual amount of friction with the wheels, thin plates of wrought-iron were laid on the wooden rails and fastened to them. The advantages secured by this means in diminishing friction and keeping the rails from wearing would suggest the obvious advantage of having the wooden rails plated throughout with sheet-iron, or covered with iron plates or bars nailed on them. These were called "plateways." When these rails were first faced with iron, we do not know; but the use of such plated rails

development of railways, and says that from the records of Ravensworth Castle it would appear that railways came into use there in 1671. See also the petition of Charles Brandling, Lord of the manor of Middleton, owner of coal mines there, and several other owners and occupiers of grounds in Leeds, asking Parliament for permission to lay a waggon-way, from the coal mines, through the grounds of the other petitioners, to Leeds, where Brandling agreed to deliver coal at reduced prices (*J., H. of C.*, xxviii, p. 57).

¹ Cumming, *op. cit.*, p. 9, and Wood, *op. cit.*, pp. 36-41, give full details as to the construction of the road.

² Cumming, *op. cit.*, p. 8; Wood, *op. cit.*, p. 41.

³ Wood, *op. cit.*, p. 41.

⁴ Stretton, *A Few Notes on Early Railway History*, p. 3.

soon caused much wear to the wooden wheels of the waggons, and the next improvement was to replace the wooden wheels by those made of cast-iron¹. From one source we are informed that as early as 1734 cast-iron wheels with an inner flange were in use near Bath²; and another who has looked carefully into the history of some early railways gives the introduction of cast-iron wheels as having taken place about 1753³. Which of these dates is more nearly correct we shall not undertake to say.

The use of the plated rail did not seem to be very much extended. Probably the chief reason for this was that the nails, which were intended to securely hold the plates on the rails, would be continually working loose and demanding constant expense in effecting repairs. Instead of this method being continued, the plated rails were displaced and cast-iron rails were adopted. At what time the introduction of the latter occurred we are unable to definitely ascertain; the year 1738 has been given as the time when cast-iron took the place of wooden rails⁴, but we have not found anything to substantiate this, and regard the date given as too early. Probably the year 1767 more nearly marks the date when the cast-iron rail superseded the old plated rail; for the books of the great Coalbrookdale Iron Works in Shropshire show that on November 13, 1767, there were between five and six tons of such rails cast there and tried as an experiment⁵. These rails were made with a flange on the inside, and they were so long and without any support in the centre that the heavy waggons frequently caused them to break; but, later, that was remedied by making the waggons smaller and the loads lighter, and coupling the ears together so as to distribute the weight over a greater length of road⁶. In 1776 a similar cast-iron railway was laid down by John

¹ Stretton, *op. cit.*, p. 3; Gordon, *Our Home Railways*, p. 4.

² Gordon, *op. cit.*, p. 4.

³ Stretton, *op. cit.*, p. 3.

⁴ Wood, *op. cit.*, p. 44, quoting from an anonymous writer. See also Cumming, *Rail and Tram Roads*, p. 10, and Francis, *History of the English Railway*, i, p. 45.

⁵ Stretton, *op. cit.*, p. 4; also Wood, *op. cit.*, pp. 44-45, who quotes the statement of Robert Stephenson to substantiate this assertion. See also Gordon, *op. cit.*, p. 4. Scott, in *Transactions of the Highland Society*, vi, p. 7, said that below ground, in the pits, cast-iron rails did not begin to replace wooden ones till 1776.

⁶ Stretton, *op. cit.*, p. 4; Wood, *op. cit.*, p. 44. In *Communications to the Board of Agriculture*, i, p. 203, there is given the description of a tramroad from the coal-pit to Alloa, Scotland. The sleepers were eighteen inches apart; the wooden rails were covered by iron on top; and the waggons would each hold one and one-half ton of coal. Two, and sometimes three, waggons were linked together; so that, under the latter circumstances, one horse would draw four and one-half tons of coal and three tons weight of carriages. The first cost of construction was £900 to £1000 per mile.

Curr at the Nunnery Colliery, near Sheffield¹; but it was not until about 1794 that cast-iron rails were first used in the collieries of Durham and Northumberland².

One of the greatest improvements was made in 1789, when, at the suggestion of Smeaton, William Jessop, in constructing a railway from Nanpantan to the Loughborough Canal, used narrow, east-iron "edge rails," three feet long, and removed the flange from the rail to the inner side of the wheel³. This form of rail and of wheel has been the model upon which the construction of rails and wheels has proceeded during most of the time since that day.

Up to this time wooden sleepers had been in use and the rails had been bolted or pinned to them. But in 1797, when laying a railroad at the Lawson Colliery, near Newcastle-upon-Tyne, Barns introduced stone blocks instead of wooden sleepers, the inducement, doubtless, being that the stone supports would be more suitable for a road which had to carry loads of such heavy material as coal⁴. This was also applied by Benjamin Outram, in 1799, in the construction of a line from Ticknall to the Ashby Canal; the rails used here were of the same form as those used in 1776 by Curr on the Sheffield line, namely, with the flange on the outside of the rails, and the latter had both ends fastened securely to the stone supports. It is evident, therefore, that Outram was not the first to employ stones as the foundation of the railway, although some have supposed that his name, shortened by the maintenance of only the last part of it, has been perpetuated by calling these "tram-ways⁵."

In 1799 there was a proposal to build a line from London to Portsmouth and in 1801 the Surrey Iron Railway Company obtained an Act for accomplishing the first part of this road, from Wandsworth to Croydon. This was the first railway company, the first public railway, and the first so-called railway Act, although it was not the first Act in which a railway was authorized. The line was opened in 1804 between these two places and traction was effected by horse-power; and the rails, resting on stone block sleepers, were four inches

¹ Wood, op. cit., p. 45, quoting from Carr's *Coal Viewer and Engine Builder*; Stretton, op. cit., p. 4; Gordon, op. cit., p. 4.

² Jeans, *Jubilee Memorial of the Railway System*, p. 6.

³ Wood, op. cit., p. 48; Stretton, op. cit., p. 4; Gordon, op. cit., p. 5. The Jessop rail may now be seen in the South Kensington Museum, London.

⁴ Wood, op. cit., p. 46; Stretton, op. cit., p. 5.

⁵ Wood, op. cit., p. 46; Stretton, op. cit., p. 5; Gordon, op. cit., p. 5. The name "tram" was in use much earlier than this, for in 1555 Ambrose Middleton bequeathed 20s. "to the amendinge of the highwaye or tram from the weste ende of Bridgegait, in Barnard Castle." (*Surtees Society Publications*, xxxviii, p. 37 note.)

wide, one inch thick, and with an arched flange one inch thick and three and one-half inches high. The delight of a certain nobleman in witnessing the economy of horse-power on this railway caused him to think that such lines should be extended from London to Edinburgh, Glasgow, Holyhead, Milford, Falmouth, Yarmouth, Dover and Portsmouth; but the idea of the general extension of railways over the country was at that time considered as absurd¹.

Between this Act of 1801 and that of 1821 sanctioning the construction of the Stockton and Darlington Railway, there were not less than nineteen railway Acts passed, five of which were allowed to lapse. Among the plate-ways which were constructed at this time were some of great significance, such as the Peak Forest line over the Derbyshire hills²; a line at Ashby-de-la-Zouch in Leicestershire²; the Forest of Dean line; the Gloucester and Cheltenham; the Dartmoor Railway to connect with the port of Plymouth²; and others, such as the proposed railways from Stortford to Cambridge and from Liverpool to Manchester, had been under consideration but had not been authorized³. As early as 1810 there was a movement for the construction of a railway or canal from Stockton, via Darlington, to Winston, in order to provide an outlet for the mineral wealth of that district⁵. We are justified in saying that the first quarter of the nineteenth century was a time when, gradually, the claim of the railways upon public attention was becoming accentuated and the mechanical advances were showing that this was to be the coming means of locomotion.

The constant breaking of the cast-iron rails induced interested individuals to attempt to find a better substitute for them; and the results of experiment seemed to indicate that malleable iron rails, if properly supported so that they could not bend too much in the centre, would be more durable than cast-iron. Nicholas Wood, whose knowledge of early railway development was unsurpassed, informs us that malleable iron rails were tried at the Wallbottle Colliery, near Newcastle-upon-Tyne, about 1805, but because their narrow surface cut the periphery of the wheels they were superseded by cast-iron rails of wider surface⁶. Robert Stephenson's assertion was that this kind of

¹ Stretton, *op. cit.*, p. 5; Gordon, *op. cit.*, p. 6.

² Stretton, *op. cit.*, p. 5.

³ *The Times*, Nov. 21, 1823, p. 4. The road was just completed at this time after four years of construction work. For others that were constructed at this time see Francis, *History of the English Railway*.

⁴ *Cambridge Chronicle and Journal*, Aug. 30, 1811, p. 2; *The Times*, July 29, 1822, p. 3.

⁵ Jeans, *Jubilee Memorial of the Railway System*, p. 14.

⁶ Wood, *Practical Treatise on Railroads*, pp. 60-61; Stretton, *op. cit.*, p. 5.

rail was first introduced about 1815, at Lord Carlisle's coal works, on Tindale Fell, in Cumberland¹, and Jeans seems to have followed Stephenson in his acceptance of this date²; but Wood shows that, by the statement of the agent of these coal works, the date given by these two men was erroneous, for malleable iron rails were laid down on this tramroad in 1808³. We may say, apparently with truthfulness, therefore, that cast-iron rails began to be replaced by those of malleable iron in the first years of the nineteenth century; and although the wooden plated rails and the cast-iron rails were not immediately displaced by the malleable iron rails, the results obtained from the gradual adoption of the latter showed the wisdom of their increasing use⁴.

The construction of the tramroads, or iron railways⁵, varied according to the nature of the ground and the traffic to be carried upon them. If most of the traffic went in one direction, as in the carriage of coal from the mines, the road was made to slope slightly in that direction; and the degree of declivity was determined by the traffic and its extent, the object being to equalize the draught each way as nearly as possible. The road was sometimes made single and sometimes double, according to the expected amount of carrying upon the line and the way in which this was to be done⁶. As a rule, the track was not double, but the single track was made more serviceable by having turnouts, where waggons might meet and pass. The width of the rails apart was largely decided by the shape of the waggons and by the physical characteristics of the country through which the road passed; it usually varied between three and four and one-half feet. Where stone sleepers were in use, they were generally embedded about three feet apart from centre to centre, so as to accommodate the fastening of the rails which were generally three feet in length; and the space between the sleepers was filled up with gravel or other material to make a good hard road⁷. The rails were then laid end to end and fixed in position by having an iron spike driven through

¹ Wood, *op. cit.*, p. 61.

² Jeans, *op. cit.*, p. 12.

³ Wood, *op. cit.*, p. 61.

⁴ Wood, *op. cit.*, pp. 61-70, enters into a long discussion of the advantages and disadvantages of the malleable iron rail.

⁵ In the early Acts, no difference is made between the terms tramroad and railway in regard to their meaning.

⁶ If the descent of loaded waggons by gravity were to be used to draw up the waggons when unloaded, it was, of course, necessary to have a double track. So too, when one track was not sufficient to accommodate the amount of the carrying.

⁷ On the tramroad from the coal-pits to Alloa (Scotland) the sleepers were only eighteen inches apart. See description of this road in *Communications to the Board of Agriculture*, 1, p. 203.

each end into a wooden plug in the centre of the stone sleeper, or else by driving the spike through the rail into a cavity in the stone sleeper and fixing this securely in position by means of molten lead¹. Of course, after malleable iron rails were substituted for those of cast-iron, it was not necessary to have the sleepers set so close together. We must not form the picture of these tramroads from what we know of our modern railways: it was rare, indeed, that the former demanded the cuttings and the embankments that we see on railway lines to-day, for instead of cutting through a hill in order to get a more or less straight course, they easily wound around the sides of the hills, preferring the circuitous rather than the straighter but more expensive road. In the same way, they avoided the filling up of large concavities along the line, and sought a more devious route in order to avoid the heavy costs of filling and embanking. The line of rail followed the great inequalities of the surface of the route chosen; and was not, as the present railways, laid upon as nearly a uniform, straight and level road as possible².

¹ Scott, in *Transactions of the Highland Society*, vi, pp. 8-10, gives the method of constructing the railway between Kilmarnock and Troon harbour. It was a double-track line, laid with flat or plate rails, although he says that at that time the edge-rail was generally introduced.

² Wood, *op. cit.*, pp. 36-37, quotes a description of these tramways as given in Jaa's *Voyages Métallurgiques*, i. p. 199, in 1765; and he amplifies this description of the early railways on pp. 38-40 of his book. I have thought that the account of such a tramway, as given by Coxe, in his *Historical Tour through Monmouthshire* (1904), p. 202, would be illuminating, and would show what they were like in the year 1801, when his book was first published. As much as possible his own words are preserved in the narration of the process of making such a railroad: "The ground being excavated about six feet in breadth, and two in depth, is strewed over with broken pieces of stone, and the frame laid down. It is composed of rails, sleepers, or cross bars, and under sleepers. The rail is a bar of cast-iron, four feet in length, three inches thick, and one and a half broad; its extremities are respectively concave and convex, or in other words are morticed and tenanted into each other and fastened at the ends by two wooden pegs to a cross bar called the sleeper. This sleeper was originally of iron, but experience having shown that iron was liable to snap or bend, it is now made of wood, which is considerably cheaper, and requires less repair. Under each extremity of the sleeper is a square piece of wood, called the under sleeper, to which it is attached by a peg. The frame being thus laid down and filled with stones, gravel, and earth, the iron rails form a ridge above the surface, over which the wheels of the cars glide by means of iron grooved rims three inches and a half broad." At the junction of two roads, and to facilitate the passage of two cars in opposite directions, movable rails, called turn rails, are occasionally used, which are fastened with screws instead of pegs, and may be pushed sideways. "The declivity is in general so gentle as to be almost imperceptible: the road, sometimes conveyed in a straight line, sometimes winding round the sides of precipices, is a picturesque object, and the cars filled with coals or iron, and gliding along occasionally without horses, impress the traveller, who is unaccustomed to such spectacles, with

Another particular in which the tramroads differed from the railways of to-day is that the latter are the principal means for the land conveyance of goods, whereas the tramroads were regarded not as principal but as auxiliary agencies for transportation. In the later years of the eighteenth century, when the early tramroads were coming into notice in certain localities, the canals and the ordinary roads were claiming more and more attention, since these were considered as the permanent routes along which the conveyance of goods should be effected. It was but natural, therefore, that the new facilities of transport should be thought of, not as displacing in any sense the existing modes of conveyance, but as accessories to them. Canal companies considered the tramroads as valuable additions to their facilities, for by means of them trade and communications could be effected with districts that would otherwise be inaccessible. There were canals that were constructed through territory to tap the coal resources of that region; but either because they could not economically reach the source of the coal on account of its height above a water supply, or because, if they did reach it, the operation of the canal was too expensive to be remunerative, these canals were impotent to supply the necessary facilities for the development of this mineral wealth. In such places, the use of a tramway would enable such materials as coal, stone and iron-ore to be brought down to a lower level, where the canals could do the effective service that they were designed to fulfil in carrying these things thence to the places of manufacture. In fact, at the end of the eighteenth century, and even during the early part of the nineteenth century, tramways were regarded as strictly tributary to the canals; for in many petitions to Parliament, asking for authority to construct canals, there were also requests for the privilege of making collateral cuts, "with proper railways and other roads to communicate with these canals¹." In most of these cases, the tramway was to reach some

pleasing astonishment." The expense of construction of these roads varies according to circumstances. It is seldom less than one thousand pounds per mile, and sometimes exceeds that sum. The cars weigh not less than three and a half tons. They are drawn by a single horse, and the driver stands on a kind of footboard behind, and can instantaneously stop the car by means of a lever and a drop, which falls between the wheels, and suspends their motion. In places where the declivity is more rapid than usual, the horse is taken out, and the car impelled forward by its own weight. For description of the waggons used, see Wood, *op. cit.*, pp. 76-80; and other data regarding the formation and operation of these roads are given in Cumming, *Rail and Tram Roads*.

¹ See, for example, *J., H. of C.*, Mar. 11, 1789, regarding railways and roads to lead to the Cromford Canal; *J., H. of C.*, Feb. 9, 1791, regarding railways and roads to connect with the Hereford and Gloucester Canal; *J., H. of C.*, Dec. 20, 1792, for railways and roads to connect with the proposed Grand Junction Canal; *J., H. of C.*,

high and broken land where there were considerable amounts of mineral resources and where a canal would have been impossible or unprofitable¹. From the above we can see that the tramways and roads were closely associated in their relation with the canals; but the fact that tramways were occasionally constructed to terminate at a certain bridge or a certain turnpike road is still stronger evidence that the iron roads were closely associated with the ordinary roads and subsidiary to them²,—in other words, the tramways were collecting and distributing agencies for products carried along the great highways of the kingdom.

In England, Wales and Scotland, these tramroads were in some parts fairly numerous, and most of them were only short lines, branching off from the navigable rivers and canals to the different mines. The majority of those in the United Kingdom were in the extensive mining districts south of the Severn, including South Wales; in the coal districts near Newcastle and Sunderland along the rivers Tyne and Wear; in the coal and other mining areas of Lancashire and Yorkshire, as well as of Derbyshire and Staffordshire; in the mining regions of the county of Salop and adjacent parts of the Severn valley; in the mining sections near Glasgow, and in the coalfields of Midlothian and

Jan. 31, 1793, regarding railways and roads to connect with the Stratford-on-Avon Canal; *J., H. of C.*, Feb. 11, 1793, for railways and roads to connect with the Birmingham and Fazeley Canal. See also Pitt, *Agriculture of Leicester* (1809), p. 313, and Dickson, *Agriculture of Lancashire* (1815), p. 613, both of which show that by means of these iron roads coal and iron were brought down from the pits to the canals by a cheap and very convenient way, and that the tramways were primarily regarded as subservient to the canals, even down to the first quarter of the nineteenth century. That railways were not much thought of apart from canals, is shown also by *Communications to the Board of Agriculture*, II, p. 478, and *Transactions of the Highland Society*, VI, pp. 10-11. For details of this close relation between tramroads and canals, see the pamphlets of C. E. Stretton given in bibliography.

¹ There were many of these early tramroads in southern Wales, where there are mines of coal and iron; also in Lancashire, Derbyshire and the Newcastle region, as well as in Scotland. Anderson, *Recreations in Agriculture*, IV, p. 198, urged the construction of railways where canals were not possible, and showed (*ibid.*, IV, pp. 199-201) to what extent railways had already been constructed in the Midlands of England and what a great increase in carriage had been effected by them. *Communications to the Board of Agriculture*, II, p. 477, shows the utility of the railways in extending the influence of canals for ten to twenty miles on each side of the latter, and also into the mountainous sections where canals were almost impracticable. See also Hassall, *Agriculture of Monmouth* (1812), p. 105, containing an account of the iron railways of that county and their effects.

² *J., H. of C.*, Feb. 15, 1826, petition for a railway or tramroad from the Grosmont railway at Llangua (co. Monmouth) to Wye Bridge, in the city of Hereford; *J., H. of C.*, LXXXV, p. 59, petition for the Leicester and Swannington railway or tramroad.

Fife, where they were found in great numbers but on a small scale¹. These roads in South Wales, and in the counties along the Severn valley, were chiefly inclined planes with various slopes, on which one horse could easily take down thirty to forty tons together with the weight of the waggons, but it required three or four horses to bring the empty waggons up again, and even then the up-grade work was the heavier. There were, however, a few inclined planes on which the loaded waggons in descending brought up the empty ones, but this method was employed only in cases where the declivities were very great². In the county of Salop and adjoining mineral areas of the west of England, and in Wales, these iron roads increased considerably in number in the first quarter of the nineteenth century³; and it can be justly claimed that this district may boast of being the place where the inclined plane was first used to introduce railways in aid of inland navigation and for the development of the wealth of the country⁴. The tramroads in the coalfields of Northumberland and

¹ Scott, in *Transactions of the Highland Society*, vi, pp. 11-15, gives the names of the many tramways or railways, in 1824, in the Severn valley, in Yorkshire, Derbyshire, Leicestershire, Staffordshire, Lancashire, and in the coal counties of Northumberland and Durham, as well as those in Scotland. Regarding the difficulties and dangers connected with carriages moving up and down these inclined planes, see Wood, *Practical Treatise on Railroads*, pp. 86-103.

² That is, from six to eighteen inches in the yard. The lengths of these inclined planes varied from 100 to 600 yards at one place. On inclined planes, see Scott, in *Transactions of the Highland Society*, vi, pp. 15-30, who goes into this subject very fully. This double railway was in use in Shropshire, for instance, in the railway connexions of the Ketley and Shropshire Canals (Plymley, *Agriculture of Shropshire* (1803), pp. 291 ff.). See also Scott, *op. cit.*, vi, pp. 8-9.

³ As late as 1790, there was hardly a single railway in all South Wales; while in 1824 the aggregate extent of rail and tramroads in the counties of Monmouth, Glamorgan and Carmarthen alone was thought to exceed 400 miles (Cunning, *Rail and Tram Roads*, p. 27).

⁴ The history of the great Sirhowy tramway, in the county of Monmouth, may enable us to see more clearly the relation of these early roads to the development of the wealth of the country through which they passed; and we have chosen this one because, in point of magnitude, it was one of the greatest. It extended from Pilgwell, near Newport, to the Sirhowy and Tredegar Iron Works (24 miles), whence it was continued five miles further to the Trevil Line Works, in Brecknockshire, along with a branch westward to the Rumney and Union iron works. This railway was constructed at the suggestion of Mr Outram. On being consulted by the Monmouthshire Canal Company, as to the best means of supplying that canal with water, of which there was such a great scarcity that trade was suffering severely, Outram recommended a few reservoirs to be made, but more particularly a tramroad, to run parallel with the Crumlin line for eight or nine miles out from the town of Newport. In order to ease or take away part of the trade from the canal, this line was to pass through Tredegar park, the property of Sir Charles Morgan; and it was finally arranged between Sir Charles, the Monmouthshire Canal Co., and the

Durham were many and important, and were used not only in carrying the coal from the mouth of the mine to the river, but in bringing it from the interior of the mine to the entrance. It is in connexion with these colliery roads that we get some very important advances in the practical application of steam to locomotion on rails. Apart from these tramroads leading to coal and other mineral supplies, the only important tramroad made during these first two decades of the nineteenth century was the Surrey Iron Railway, from Croydon to Wandsworth¹, which was authorized in 1801. It was to be of advantage to a very populous agricultural country through which it was to be built, by opening up cheap and easy communication for carrying coal, corn, merchandise, and, in fact, commodities of all kinds; in other words, as we have already noted, this was doubtless the first attempt to construct a public railway for the carrying of miscellaneous products.

In all these cases the introduction of the tramway was for the purpose of facilitating the carriage of commodities, especially of heavy commodities like coal, and thereby reducing the cost of carrying these along the highways that were then and there available. Experiments

Tredegar Iron Works Co., that he should make one mile, which was in his park, the Monmouthshire Canal Company to make eight miles, and the Tredegar Iron Works Company to make the remaining fifteen miles, each to take tonnage on its respective part of the road. The road was completed about 1804, and also a turnpike by the side of it for about seventeen miles, at a total cost of about £74,000, or about £3000 per mile. About £40,000 of this sum was spent by the Canal Company in building a bridge and making some very deep and expensive cuttings; while the Tredegar Iron Co. completed nearly double the distance at a cost of £30,000. Sir Charles Morgan spent £4000 upon one mile, but he too had some deep cuttings and a double road to make. Notwithstanding the expense, this road, in 1824, paid the proprietors thirty per cent., by reason of having a considerable trade upon it in coal and iron, which paid the same tonnage as upon the canal. For the first nine miles out of Newport (the parts made by the Canal Company and Sir Charles Morgan) it was a double road: one for the loaded waggons to come down, and the other for the empty ones to return; and on the Tredegar Iron Company's part (fifteen miles) it was a single road, with frequent places for teams to turn out and pass. The whole length of the road for twenty-four miles was an inclined plane, averaging about one-eighth of an inch in the yard, or a little more; but the Tredegar Iron Company's part was of somewhat greater declivity than the rest. The coal and iron were conveyed on it in waggons, each carrying about forty-five to fifty hundredweight, exclusive of the waggon; and a team of four or five horses would draw about fifteen of these waggons down with ease. The waggons were variously constructed, according to the fancy of the parties, some of wood, some wholly of iron. The width of the road was four feet two inches, and it was laid down with cast-iron plates, three feet long, fastened to the sleepers by a pin passing through the rail, and into a hole bored in the stone block four to five inches deep, and there secured with lead (Cumming, *Rail and Tram Roads*, pp. 25, 26, 28-30).

¹ *J., H. of C.*, Feb. 27 and Mar. 5, 1801, LVI, pp. 112-13.

had been conducted to show how much more effective was the work of a horse when drawing upon a railway than upon the ordinary roads, and important results had been obtained. For example, in 1799, on a railway at Measham, the declivity of which was five-sixteenths of an inch in the yard, one horse drew nineteen waggons, which with their loading amounted to thirty tons, and was not subjected to extraordinary work in doing so. At a later time, on the same road, one horse drew down a load amounting in all to thirty-five tons; while up the grade or ascent he drew five tons with ease¹. From the facts which were being demonstrated, it was becoming more evident that there were possibilities in this method of conveyance which were not fully realized; that, instead of being confined to the operations of mining, it was also fitted to take an important place in the conveyance of all kinds of products and merchandise, and to facilitate the interchange of traffic from one centre to another. But it was recognized that if tramways were to be used for general traffic, where there was carriage of goods each way, the more the line approximated to a perfect level the better it would serve the purposes for which it was intended². While most people regarded the railways as useful in the limited sphere in which they had been employed, there was but an occasional individual, at the beginning of the nineteenth century, who contemplated a broader field of service for them. There were at that time at least two who foresaw the general extension of railways over England; and one of these proposed that all the railroads constructed should be owned by the state and free to all so that each could use his own waggons upon them³.

But tramroads or railways for general purposes could have but partial success until some other than horse-power could be employed⁴;

¹ *Communications to the Board of Agriculture*, II, pp. 475-6.

² Statement of Robert Stephenson, in *Transactions of the Highland Society*, VI, p. 136.

³ Sir Richard Phillips, after witnessing the economy of horse-labour on the Surrey Iron Railway, thought that such lines should be extended from London to the principal places of the kingdom (Stretton, *A Few Notes on Early Railway History*, p. 5). Dr James Anderson, in his *Recreations in Agriculture*, IV, pp. 204 ff., 214, pointed out the advantages of carrying railroads from London to every other part of the country and recommended that they be owned by the public. In 1818, the scientific men of the country were offered a reward for the advancement of the railway system; and a piece of plate of fifty guineas value was to be given for the best essay on the construction of railroads for the conveyance of ordinary commodities. See this advertisement in *Transactions of the Highland Society*, VI, pp. 3-4; and the essays sent in are printed immediately following these pages.

⁴ Cumming, *Rail and Tram Roads*, p. 33, in speaking of the Surrey Iron Railway, says: "But it must be observed, that rail-ways, as hitherto worked by horses, generally speaking possess very little, if any, advantage over canals." The fact is,

and the perfecting of the steam-engine by Watt turned the attention of many to the application of steam-power to locomotion on common roads, and of a few others to the possibility of its use on the trainways. We have already seen that the limited use of steam for navigation was a practical reality before the beginning of the nineteenth century; and we have also noted the introduction of the steam-carriage in the early years of that century, to take the place, to some extent, of the stage coach. While experiments were being conducted with the steam-engine, with a view to its use on the common roads, the possible application of steam for traction purposes on railway lines was also a subject of interest; and in 1804, for the first time, a steam-engine, constructed by Richard Trevithick, was employed on the railroad at the Merthyr Tydvil coal mines in South Wales. It was very imperfect but was used for a short time.

As early as 1800 the possibilities of the use of steam on railways were foreseen by some and were loudly proclaimed¹; but the public mind failed to grasp the real importance of this new power in its wider applications. Many became engaged in its investigation whose names and results have not come much into public notice; but of these we do not propose to treat in detail here². One of the most important

that railways were not constructed as a rival conveyance to the canals, but merely as supplementary to them. Yet railways certainly had advantages that were not possessed by canals, else there would not have been so many of them authorized during the first quarter of the nineteenth century. Note the perfect rage for railways, in 1825, when horse-power alone was in general use in connexion with them. For example, the prospectus of the Surrey, Sussex, Hants, Wilts and Somerset Rail-Road Company [Brit. Mus. 8223. c. 10 (148)], issued in 1825, says: "The necessity of using locomotive engines is not contemplated, every calculation being made on the use of horses only, although scientific improvement, when fully confirmed, will be availed of."

¹ Anderson, *Recreations in Agriculture*, iv, pp. 198-214.

² On the historical development of the steam-engine and the locomotive, see Gordon, *A Historical and Practical Treatise upon Elemental Locomotion*; Archer, *William Hedley, Inventor of Railway Locomotion*; Gordon, *Our Home Railways*, pp. 7-19. A few facts regarding one of the most ingenious inventors, William Murdock, whose name has been largely obscured by the glory attached to others, may help to place this man in his true light. As a Scotch boy, he came down to Boulton and Watt's works at Soho to secure employment and after some hesitation Watt engaged him. The boy soon showed his ability and began working during his spare time to produce an engine that could be used for locomotion. Watt discouraged this and the firm, in order to withdraw him from his purpose, sent him to Redruth, in Cornwall, about 1780, as engineer, to look after some of their engines that were in use in the mines there. Away from Watt, Murdock had a freer hand, and he again took up the problem of making a locomotive carriage, which he brought to a successful issue. In 1786 Murdock was on his way to London to take out a patent on his steam-carriage when he was met by Boulton who prevailed on him to

men to devote time and ability to the study of this new power was Richard Trevithick, and we are disposed to mention him in particular, not only because of the good results which he secured, but also because some have arrogated to themselves what was really accomplished by Trevithick. We have already learned of his success with the steam-carriage in the first three years of the century; but he was convinced that better results could be obtained on a smooth than on a rough road and he lost no time in applying his locomotive engine to tramways. In February, 1804, his locomotive was working on a tramroad at Penderyn, near Merthyr Tydvil in Wales, and running with facility up and down inclines of one in fifty¹. The ten tons which the locomotive drew were soon increased to twenty-five tons, on this same road, with its unevenness and sharp curves², and this load was drawn at the rate of four miles per hour³. After Trevithick had made some further improvements in his engine and had constructed several of them for various purposes⁴, he demonstrated in London for several months of the year 1808 that the locomotive with smooth wheels on smooth rails could draw heavy loads with no other assistance than the force of adhesion or gravity⁵. This is a fact which is supported by such apparently incontrovertible evidence that we wonder that any subsequent worker in this field should have attempted to take away the honour which belongs to Trevithick as the "father of the locomotive engine⁶." For some reason, which is not very clear, Trevithick's results were obscured by the partial success of Blenkinsop, who in 1811 patented his device of the rackrail and cog-wheel which was in use in his colliery. Under this arrangement the wheels were prevented from slipping on the rails by having the toothed wheels of the locomotive fit into the corresponding notches of the rails. But in 1812 and 1813 both William Hedley and George Stephenson again demonstrated the possibility of drawing loads by using locomotive engines with smooth wheels on smooth rails by the mere action of the friction of the wheels

come back, which he did. The Soho firm did not want to lose Murdock, and, loyal to them, he was deprived of the honour of introducing the locomotive. On Murdock's work, see Samuel Timmins's essay on him and his accomplishments, in the Birmingham Free Reference Library; also Gordon, *Our Home Railways*, pp. 7-9; Smiles, *Lives of the Engineers*; Wood, *op. cit.*, pp. 123-57.

¹ Trevithick, *Life of Trevithick*, I, p. 160.

² *Ibid.*, I, pp. 164, 167, 182.

⁴ *Ibid.*, I, pp. 191-2.

³ *Ibid.*, I, p. 182.

⁵ *Ibid.*, I, pp. 192, 201.

⁶ *Ibid.*, I, pp. 193-4; *ibid.*, I, p. 206, testimony of Luke Hebert, in his *Railroads and Locomotion*, p. 30; *ibid.*, I, pp. 201-3. To this we may add the confirmation given by Wood, *Practical Treatise on Railroads* (1825), p. 124; Stretton, *A Few Notes on Early Railway History*, p. 6; Gordon, *Our Home Railways*, pp. 11-16.

on the rails¹. From that time on, there was a gradual increase in the employment of the locomotive, at first on colliery railroads, and, later, on the railways built for general purposes.

It is not our province to enter into details concerning the development of the locomotive, nor to trace the successive changes in the application of this power on the colliery roads in the north of England. Some good results had been secured by such men as Hedley, Stephenson and Wood, proving conclusively the great superiority of the locomotive engine over all other kinds of power. For example, on the Killingworth Colliery railroad, in 1814, an engine was tried on a line the steepest gradient of which was one in four hundred and fifty; and the locomotive ascended this with eight loaded waggons, weighing altogether about thirty tons, at the rate of four miles per hour². In the years which followed these initial successes, improvements were made by Stephenson both in the locomotive itself and in the mode of constructing and laying down the rails; and these results were attracting attention all over the country.

¹ Both Hedley and Stephenson claimed the priority of this discovery; but, as we have seen above, Trevithick was some years ahead of either of them. In a letter written by William Hedley, he says: "I beg to say that I am the individual who established the principle of locomotion by the friction or adhesion of the wheels upon the rails." Trevithick, *Life of Trevithick*, 1, p. 263; Archer, *William Hedley, Inventor of Railway Locomotion*, pp. 4-6. How false this statement is, we have already noted. But as between Hedley and Stephenson, a dispute has arisen as to their claim for precedence. Smiles, in his *Lives of the Engineers*, III, p. 142, clearly admits that Hedley discovered and demonstrated the sufficiency for traction of the smooth wheel and rail, but he fails to give him very ample credit; on the contrary, he reserves this for Stephenson. Archer, *op. cit.*, pp. 4-6, in taking up the case for Hedley, gives a letter from the latter to Dr Lardner, to show that Hedley was really earlier than Stephenson in the application of this principle; and Archer says that this letter and the complete absence of denial from any source whatever is the clearest possible proof that Hedley's claim was considered incontrovertible. He says, moreover, that this fact has never been challenged nor answered by Stephenson or anyone else. This last statement of his does not seem to accord with what we find in the report of the *Proceedings of the Great Western Railway Company*, p. 27, for in this case when George Stephenson was asked: "You are the first person who suggested the using of locomotive engines, and applying them to the purposes to which they are now applied?" his answer was, "Yes." Evidently, then, Stephenson did claim priority in this matter. While there is a decided probability that Hedley's claim to priority is the stronger, we have not sufficient data to prove it conclusively. But the point to be emphasized is that Trevithick was ahead of either of them. The claim of the latter inventor is substantiated also by Sir John Rennie, in his *Autobiography*, pp. 230, 232. He says (*ibid.*, p. 233) that Trevithick's principle had been forgotten by later experimenters. Stretton says that Trevithick's principle of the adhesion of the wheels to the rails was apparently not understood at that time (*A Few Notes on Early Railway History*, p. 6). See also Gordon, *Our Home Railways*, p. 18. ² Jeans, *Jubilee Memorial of the Railway System*, p. 10.

One of the most important of the coal-roads, which was constructed after the traction power of the locomotive had been demonstrated, was the Stockton and Darlington; and as the history of this enterprise is instructive from several standpoints it is desirable that we should consider it minutely.

A protracted controversy had been taking place as to the easiest and most advantageous way of improving the carrying facilities from the Durham coalfield. In those times, Stockton was the port of the river Tees, but the winding of the river from its mouth up to that town made the time required for sailing this distance sometimes as long as that occupied in the journey from London to the Tees¹. In the year 1805 it was decided to shorten the channel of the river by a "cut" at Portrack, near Stockton; the Act for this purpose was passed in 1808, and by 1810 the work was completed by which that part of the river was shortened two miles². In the same year began a movement for constructing a railway or canal from Stockton, by way of Darlington, to Winston, in order to provide a better outlet for the mineral and other traffic of South Durham and North Yorkshire. A committee in 1811 confirmed the great advantage of such a railway or canal, and reported this to a meeting of those desirous of promoting this undertaking, held at Darlington in the beginning of 1812. Those who were present at this meeting resolved to engage Rennie to make a survey before any further measures were taken³.

For some years there was diversity of opinion, some favouring a railway and some a canal; and this is not to be wondered at, for up to that time no locomotive had been made that could attain a greater speed than four or five miles per hour, whereas steam navigation had many years before reached the rate of seven miles per hour⁴. Apparently, therefore, the railway offered no advantage over a canal in the matter of speed. Nor was there yet any widespread or generally accepted idea in favour of making railways take the place of the stage coach for passenger travel. In the public mind, railways seemed to be designed chiefly for the better and faster carriage of minerals and goods, and only a few saw the latent possibilities in the locomotive engine. Whatever the cause, this project was allowed to rest until in 1818 it was actively revived by the advocates of the canal. These

¹ Pease, *Diaries of Edward Pease*, p. 83.

² *Ibid.*, p. 83; Jeans, *op. cit.*, p. 14.

³ Jeans, *op. cit.*, pp. 14-15; Pease, *Diaries of Edward Pease*, pp. 83-84. From Jeans has been obtained much of the historical account of this railway that is here given.

⁴ Jeans, *op. cit.*, p. 15, quoting from John Willcox, *The Steam Fleet of Liverpool* (1865).

recommended that the contemplated canal, according to the suggestion of Rennie in 1813 and Whitworth in 1768, should begin at Stockton and take its course by way of Darlington to Winston, where, perhaps by the aid of a railway, it could secure a rich harvest from the coal-field. Or, if that were not deemed advisable, the end sought might be accomplished by the construction of a railway at one-half the expense of a canal; and according to Rennie's opinion the railway would be satisfactory in cases like this where the principal carriage must proceed from one end only¹. The only result of this meeting was the appointment of a committee to investigate the comparative merits of the two schemes; but later in the year another meeting was held to consider the whole subject and at that time most of those who were present advocated the adoption of a railway in preference to a canal. That meeting decided in favour of a railway, and drew up a prospectus showing the estimated cost and anticipated revenue from the railway, as well as its advantages to the country².

The road had been surveyed by Overton, but as there was much doubt as to the best route and the probable cost Robert Stephenson was called in to report on the proposed line. His survey was not very satisfactory to the committee that had the work in charge; and the latter, retaining Overton as engineer, prosecuted their work according to his directions. A Bill was brought into Parliament to secure the required authority for the construction of the road; but the opposition offered, especially by some of the landowners, was so formidable that it became necessary to employ every means to conciliate them, by the promoters using all authority and influence they could command in Parliament; and even then some of the most pertinacious opponents, like Lord Darlington, remained implacable and the Bill was lost³.

But the committee that had the work in charge were undaunted by this defeat and it was determined to bring the measure before Parliament again in the next session. The former route lay through one of the Duke of Cleveland's fox-covers, which, to the nobility of those days, were of greater importance than public highways; so it was agreed that a new survey should be made to get another route and the committee wisely decided to lose no time in conciliating opposition. After making this survey, Overton made a report to the directors on September 29, 1820. This report gave little that was new⁴; and on the basis of that report the committee, in November,

¹ Jeans, *op. cit.*, pp. 16-17.

² Pease, *Diaries of Edward Pease*, p. 84; Jeans, *op. cit.*, pp. 23-24. Jeans gives the prospectus on pp. 24-26.

³ Jeans, *op. cit.*, pp. 28-31.

⁴ Jeans, *op. cit.*, pp. 32-34.

1820, issued a manifesto showing the advantages of the railway in the conveyance of coal. They declared that everything had been done to conciliate those who hitherto opposed the railway and to avoid any injury to private property; that, because one horse on the railway could draw as much as ten on the common road, a vast reduction in the price of carriage would take place; that easier access to markets would be of great benefit to the farmers in enabling them to procure coal, as well as lime and manure for their land, while permitting them more conveniently to dispose of their surplus produce; that the commercial, mining and manufacturing interests would secure important benefits from the reduced rate of carriage for their respective products; and that the population at large would partake of beneficent results in the reduced price of fuel. In the matter of revenue it was shown that, from data already presented, there was reasonable expectation of the subscribers receiving fifteen per cent. a year, without anticipating any increased consumption, which was invariably the consequence of a reduced cost of conveyance. A very significant statement of the committee was to the effect that public opinion toward the railway had changed, as shown by the fact that there were very few who objected to the railway crossing their property¹. Under these conditions application was again made to Parliament for a Bill in 1820; but on account of the circumstances due to the death of the King it was determined to defer proceedings until the session of 1820-21. For this second Bill, as for the first, they had to make a great fight, in which they were led by their Quaker promoter, Edward Pease, whose name is indissolubly associated with the Stockton and Darlington railway. "Every member of Parliament that could be influenced, directly or indirectly, was pressed into the service of the promoters. Every peer that was known to have any doubt or hesitation was seized upon and interviewed until he became a convert, while those who looked upon the measure with favour were confirmed in the faith. Nay, more, the promoters and their friends even carried their influence as far as the hustings, and spared neither trouble nor expense in endeavouring to secure—especially in the north of England—the return of candidates known to be partial to their cause²." This second Bill was passed in April, 1821³.

After legislation had been secured, George Stephenson was appointed engineer of the Stockton and Darlington railway. This first Act comprises sixty-seven closely printed pages, embodying the whole of the law relating to railways; it was the earliest and probably the longest

¹ Jeans, *op. cit.*, pp. 34-35.

² *Ibid.*, pp. 35-36.

³ Act 1 & 2 Geo. IV, c. 44.

railway Act that received the sanction of Parliament. No mention was made of the employment of engines, for it was intended to work the line entirely by horse-power; although a general provision was made that the company should "appoint their roads and ways convenient for the hauling or drawing of waggons and other carriages passing upon the said railways or tramroads, with men or horses, or otherwise." The adoption of steam-power was, apparently, not seriously considered until the construction of the roadway was far advanced. Then Edward Pease went to Killingworth Colliery to see Stephenson's engine working, and from that time he had implicit faith in the locomotive engine. Through his influence the amended Stockton and Darlington Railway Act of 1823 gave the company authority to erect one stationary steam-engine in a suitable position and to make and use locomotives or movable engines for the conveyance of goods and passengers along the line¹. In this there was a wide departure from the first Act, which said nothing about passenger traffic and made no mention of locomotives. According to the statute, the road was to be free to all persons who chose to place their waggons and horses upon it for the hauling of coal and merchandise, provided they paid the tolls fixed by the Act; and the gauge of the railway, four feet eight and one-half inches, was taken from the width of the road waggons.

On the success or failure of Stephenson's locomotive engines on this "Quaker line" very much depended; if failure, a check would be given to railway enterprise; if success, a new era would dawn which would show a complete revolution in the means of communication. The first engine used on this railway was built by Stephenson; and in comparison with later results its performance was very modest. The best it could do was to travel at the rate of four to six miles per hour; and an engine and tender of fifteen tons could draw on a level nearly forty-eight tons gross load at the rate of five miles per hour². Stationary engines were used for drawing the waggons up the incline. But even this result was enough to cause many a speculative mind to become enthusiastic over the prospects and to predict the time when high rates of speed would be attained. To them it seemed as if the vision were already within their grasp as a reality and they lost no occasion to communicate to the public, in glowing terms, the picture of the

¹ Jeans, *op. cit.*, p. 43; Pease, *Diaries of Edward Pease*, pp. 85-87. This second Act was 4 Geo. IV, c. 33.

² Jeans, *op. cit.*, pp. 53-54. On the early life and training of Stephenson, see *Autobiography of Sir John Rennie*, p. 235 et seq.; also the life of Stephenson in Smiles' *Lives of the Engineers*, which gives full details.

near future. Concerning railroads and other speculative schemes of that day, Lord Eldon said that Englishmen, who were wont to be sober, had grown mad: and to aid in forming a more reasonable view, Nicholas Wood, who was recognized as an expert in railway affairs, declared: "It is far from my wish to promulgate to the world that the ridiculous expectations, or rather professions, of the enthusiastic speculist will be realized, and that we shall see them travelling at the rate of twelve, sixteen, eighteen, or twenty miles an hour. Nothing could do more harm towards their adoption or general improvement than the promulgation of such nonsense¹."

But people did not have to wait long before they found that some of the dreams of the enthusiasts were already accomplished facts. On Sept. 27, 1825, when the railway was opened amid great demonstration of splendour², it was shown that, on an incline, one engine could draw a whole train, with a weight of at least eighty tons, at the rate of ten to fifteen miles per hour³. The success of the railway was immediate but not startling⁴: and soon the line was extended back to Witton Park Colliery, about 125 miles from Stockton, so that Darlington was just about half-way along the line. In 1827, the first year in which the coal and merchandise traffic was fully worked, the revenue from coal was £14,455, while the receipts from lime, merchandise and sundries was only £3285. The chief source of revenue was the coal, the tolls on which in 1830 were six or seven times the amount of revenue derived from all other sources combined⁵. Both in the amount of revenue that accrued to the company and the speed at which the traffic was carried, it was evident that this line of road was a paying investment.

The Stockton and Darlington promoters did not at first count upon any revenue worth speaking of from passengers. Between these two places there was only one coach, which went three or four times a week,

¹ Jeans, *op. cit.*, p. 66.

² Concerning the opening, see Pease, *Diaries of Edward Pease*, p. 88; *Newcastle Courant*, Oct. 1, 1825, which gives an account of that great occasion. Smiles, *Lives of the Engineers*, III, pt. 2, ch. viii, gives an extremely interesting account of the arrangements for this railway. Tweddell's *History of the Stockton and Darlington Railway* was well intended, but it does not get far enough to even touch the subject of which it proposed to treat.

³ Jeans, *op. cit.*, p. 70.

⁴ The success of the railway is shown in a statement signed by S. P. (probably Samuel Pease, one of the directors of the railway), showing the facts for the railway as on Mar. 23, 1829 (*Collection of Prospectuses, etc.*, pp. 121-4). Note also *Remarks upon Pamphlet by Investigator on the Proposed Birmingham and London Railway*, p. 4, showing that by 1831 the shares of the company had risen in value from £100 to £200 each.

⁵ Booth, *History of the Liverpool and Manchester Railway*, p. 2.

on the turnpike road; and the amount of passenger travel scarcely paid a reasonable profit to the coach proprietor. Nor was there much likelihood that there would be any increase of passenger traffic on the rail unless greater speed could be developed in order to encourage the desire to travel. The railway made no special provision for this aspect of the business. It was originally intended to allow proprietors of stage coaches or other vehicles to use the line under certain specified conditions for the conveyance of passengers, and on similar terms to allow carriers to make use of the line for the carriage of goods, so that both these phases of enterprise might be carried on independently of the railway company. After the railway had been opened two weeks, the company put on a coach of their own for the conveyance of passengers¹; but shortly after, a contract was made with Pickersgill, who leased the railway company's coach and operated it on the railway. Up to 1830 the two or three coach proprietors on the line carried on the passenger and merchandise business; they used horses to draw the coaches along the line, paying the tolls for the use of the line and receiving the amounts paid for these services². They seem to have had their own way, in large measure, as to regulating hours and traffic; and it appears certain that their arrangements must have clashed, for on Jan. 22, 1830, the company began to regulate the times of arrival and departure at each end so as to give them equality of advantages³. The early organization of the passenger and goods traffic on the line shows us, then, several coach proprietors each of whom took out a licence for himself and paid his tax to the state, but gave no account to the railway company except the total number of journeys each coach had made per month, on the basis of which they paid the company for the use of the line. Anyone was at liberty to put his horse and carriage on the railway and draw for himself or others, provided he complied with the company's by-laws. The growth of the passenger traffic was slow, for before 1832 the number of passengers travelling between Stockton and Darlington did not average more than 520 per week⁴, although the number of coaches had increased from two or three in 1830 to seven in 1832⁵. About 1833, the company found that, instead of having so many different interests

¹ Jeans, *op. cit.*, p. 81, gives in full their hand-bill concerning the passenger service. This is also given in Layson, *Life of George Stephenson*, p. 93, advertising the passenger coach between Stockton and Darlington. It gives the times of departure and arrival at each place along the line for each day of the week. It is interesting as the first railway passenger time-table.

² Jeans, *op. cit.*, pp. 81-82; Booth, *History of the Liverpool and Manchester Railway*, p. 2.

³ Jeans, *op. cit.*, p. 84.

⁴ Details are given in Jeans, *op. cit.*, pp. 85-86.

⁵ *Ibid.*, pp. 84, 86.

represented on their line, it would be more convenient and advantageous if they should take the whole carrying trade into their own hands and displace horses by steam-power¹. The respective interests of the different proprietors were acquired by purchase and arrangements were made for more comfortable and speedy carriage of passengers; and on April 7, 1834, the company announced that they had commenced to run coaches and carriages by locomotives for the conveyance of passengers and goods between Stockton and Middlesborough "six times per day at present fares, thus forming a regular line of communication via Stockton and Darlington with Shildon, Auckland," etc.²

We have given somewhat fully the conditions regarding the operation of this railway, to show the way in which the carrying trade was organized on it, for, since this line was an intermediate between the colliery roads and the modern railway designed for both passenger and freight carriage, it is instructive to see the steps through which the orderly process of development has taken place. It will help us to appreciate the circumstances under which the enterprise was carried on if we picture to ourselves what two noted railway engineers observed on this road in 1829; between Stockton and Darlington there were several locomotive engines of different forms and power and horses also were employed upon the same part of the line; while, toward the upper end of it, there were two inclined planes with stationary engines³. When the declivity was such that the waggons would run down without the horse drawing, the animal was detached and took his place in his own carriage behind the train of waggons until his services were again required⁴. With this aggregation of the different kinds of power in

¹ Competition among the rival coach proprietors using the single line of roadway led to confusion and collisions among them; their merchandise trains sometimes got so heavily loaded that they had to be helped by the locomotive engine in order that other traffic might not be held up or delayed. This method, of course, was simply carrying out the same conditions that existed in the carrying trade on the canals. Even before the railway was opened, the committee in charge of the work, after careful investigation, had declared that it would "greatly conduce to the interest of the company that they should become the principal carriers on the line." They had been asked by a certain individual for permission to use his locomotive engine on the railway, but the committee thought that it would be improper to grant this application (Jeans, *op. cit.*, p. 63).

² Jeans, *op. cit.*, pp. 87-89.

³ Walker and Rastrick, *Report to the Directors of the Liverpool and Manchester Railway, on the Comparative Merits of Loco-motive and Fixed Engines, as a Moving Power*, p. 3. On the application of stationary engines on some railroads, see Wood, *Practical Treatise on Railroads*, pp. 110-23.

⁴ Maeturk, *History of Railways into Hull*, p. 29, quoting from Walker's observations concerning the operation of the Stockton and Darlington Railway.

use upon the line, together with the facts already noted in regard to the diversity of interests in the passenger and merchandise traffic, we can see how difficult it would be to maintain harmony among the different carriers and to fix the responsibility for any breach of the company's regulations or any misuse of its property.

From our present-day standpoint, we would imagine that the question as to whether locomotive engines should be employed, or whether horse power should be used for traction purposes, could be easily settled; but it does not seem that the former was immediately accepted as the motive power that was soon to displace all other. Even after the Liverpool and Manchester Railway had been in full operation for some years and the utility of the locomotive engine had been completely demonstrated, there were still those, and some of them engineers, who cling tenaciously to the idea that, under certain conditions, horses or stationary engines might be profitably employed. In 1833 when the agitation was going on for a railway to connect London with the west, one writer urged the employment of horses because they would be more economical than steam power¹. In 1825 when George Stephenson had surveyed the line of the proposed Leeds and Selby Railway, he recommended three inclined planes for part of the line and locomotive engines for the rest²; but as the committee in charge of the work did not agree with him they asked James Walker, another famous railway engineer, to make another survey. He opposed the use of stationary engines recommended by Stephenson; but said that, if the road as then designed were to be constructed, he would favour the employment of horses, as on the Stockton and Darlington, instead of stationary engines. If they were used, the inclination from Leeds toward Selby was such that the horse might ride six to seven miles, in the proposed distance of about thirty miles, and in the opposite direction it might ride about three miles. Walker's report seems to imply that the committee had decided to use horses on the railway³; to this he agreed if speed were not desired; but, taking everything into consideration, he strongly favoured the uniform level, without inclined planes, and the employment of locomotive engines upon it⁴. His

¹ *Bristol Mercury*, Oct. 5, 1833, p. 4, letter of "A Well Wisher."

² Maetruk, *History of the Hull Railways*, pp. 18-32.

³ *Ibid.*, pp. 18-32, gives in full Walker's report to the committee of the proposed Leeds and Selby Railway Co.

⁴ Walker said that on the Darlington line the horse-power amounted to about one halfpenny per ton per mile on the coal conveyed down to Stockton, and, all things considered, the cost of hauling by locomotives was not less; but at the rate of eight or ten miles per hour the engine-power would be very much cheaper if there were enough traffic to form full loads for the engines. Maetruk, *op. cit.*, p. 32.

calculations, however, were made with a view to the use of rails that would be strong enough to support locomotive engines, although he expected that at first horse-power chiefly would be used. It is evident, therefore, that public attention did not turn away immediately and entirely from the time-honoured motive power as soon as the locomotive engine had demonstrated its possibilities.

From the results that had been accomplished on the coal-roads, it was apparent that the ultimate triumph of steam locomotion on rails was certain; but the efforts toward its actual realization did not wait until the success of the Stockton and Darlington had been shown. In the meantime, other roads were in process of construction, such as the Moreton and the Liverpool and Manchester; and here, too, the decision had been made in favour of the employment of locomotive engines¹. When, therefore, it was obvious, beyond all doubt, that it was practicable to use the locomotive engine for hauling heavy loads on rails, the canal proprietors found that their waterways had a powerful rival in bidding for traffic; and in the decade beginning with 1820, when the railway propaganda was being vigorously pushed, a very active discussion was going on as to the relative merits of steam railways, canals and turnpike roads. Such periods of change, when the social and industrial world must be adapted to some new development in commercial life, necessarily elicit much controversy and bring to light the underlying current of public thought in regard to existing conditions and proposed improvements. Under the circumstances, during the above decade, one of the great questions was as to the relative importance of the railways and the canals, since it was the competition between these two agencies that was likely to produce the most pronounced effects. It may help us to understand the situation more perfectly, therefore, if we can see the way in which the friends of each regarded them just at the time before the railway came to assume such great importance.

One of the great reasons put forward for the construction of railways was the reduced cost of carriage that would thereby ensue. In many cases a considerable part of the prices of articles of necessity consisted of the cost of transporting them from producer to consumer, and therefore it was recognized that every saving in this cost would produce a corresponding reduction in the prices of the articles. The decreased cost of commodities would redound to the benefit of the consumer, by giving him command over a larger supply of the necessaries of life, and this larger supply at lower prices would stimulate consumption, both at home and abroad. The increased consumption would, in turn, call for

¹ Cumming, *Rail and Tram Roads*, p. 33.

increased production of both manufactured and agricultural products; and so the whole fabric of rural and urban industry would be strengthened and developed¹. In addition to securing their food supplies cheaper, they would also be able to obtain a cheaper and more regular supply of coal. During severe frosts, when the canals were frozen for some weeks, the price of coal sometimes went up to exorbitant figures and even the supply was inadequate to the need; but during the most inclement weather the railroad would be able to continue the bringing of the usual amount of this much needed article the same as at other times, so that the possibility of scarcity or high prices would not cause any alarm². The same thing applies with regard to the provision of abundant supplies of coal and other raw materials for manufacturing; and the cities that could draw upon wider and wider areas for these necessities of manufacture would flourish all the more abundantly³. What was true of the necessity of regularity and certainty, as well as cheapness, in supplying consumption goods was equally true in regard to goods intended for export; if the goods did not reach port from the interior in time for the sailing dates of the vessels the shipper lost the orders and the shipowner the amount of the freight. This was no infrequent occurrence⁴. But cheapness of carriage, in addition to benefiting consumers, would be equally profitable to producers, both in industry and agriculture. By reducing the cost of transport there would remain to the producer a greater surplus to reward his labour; lands more distant from markets could be cultivated because of being more nearly on a parity with those nearer the markets, and in this way also the margin of cultivation could be extended; land that had hitherto lain waste could now become productive, and, therefore, while there would be much increase in the food supply of the country, there would also be a larger return to the landlords as well as to the farmers. By making possible the application of more capital to tracts already under cultivation and increasing the

¹ Cundy, *Inland Transit*, 2nd ed. (1834), pp. 19-21; Godwin, *An Appeal to the Public on the subject of Railways*, pp. 8-18; *The Times*, Mar. 16, 1836, p. 7.

² *Manchester Guardian*, Jan. 1, 1831, p. 4, letter from "W. N. R." on the "Liverpool and Leeds Railway;" *ibid.*, Jan. 29, 1831, p. 1, prospectus or "report" on the Manchester and Leeds Railway; Mudge, *Observations on Railways*, p. 2.

³ *Manchester Guardian*, Jan. 29, 1831, p. 1; *The Times*, Oct. 28, 1837, p. 3, on the first general meeting of the Sheffield and Manchester Railway; *Sheffield Iris*, July 29, 1834, p. 2, on the "New Railroad;" *ibid.*, Oct. 7, 1834, p. 1, prospectus of the proposed railway from Sheffield to Rotherham.

⁴ *London and Birmingham Railway Bill. Extracts from Minutes of Evidence given before the Committee of the Lords on this Bill*, pp. 1-12, evidence of Messrs Barry, Hemstey, Barnes, Dillon, Mason, Moore; Mudge, *Observations on Railways*, p. 3.

extent of tillable land, the population of the kingdom would be provided with a more ample and less expensive food supply and the amount of labour would be increased, thus reducing the poor rates¹. The extension of the markets for the product of any section would tend to maintain uniformity of price, so that the farmer would not be subjected to the occasional alternations of over-abundance and scarcity and the price fluctuations which accompanied such changes. The more equal distribution of goods throughout the country would result in benefit to the consumer also, by making his food cheaper and less precarious. What we have said as to the prospective advantages to the consumers and producers of agricultural produce applied with equal force in the case of manufactured products; to maintain and enlarge both the home and the foreign market, the articles supplied must be cheaper and better than could be produced elsewhere, and that necessitated cheaper communication and facility in executing orders. The opening up of new and larger markets would infuse a new spirit into industry as well as agriculture, and the material resources of the realm would no longer lie waste².

Increased speed in the conveyance of passengers and goods was another great desideratum which was anticipated as the outcome of the introduction of railways. As a consequence of this, both producers and consumers expected that new and more distant markets would be opened for commodities of a perishable nature, such as vegetables, dairy produce and meat. In order that these should be most successfully marketed they would have to be sent as quickly as possible from the producer to the consumer; and as the railway speed would be six or seven times as great as that of the carts or waggons the railway would cause the area of production of these things to be thirty-six to forty-nine times greater than its present extent³. Butter, cream, vegetables and similar commodities would not stand transportation by the slow-going canal or road-waggon, and, therefore, were confined to the markets at a very limited distance from the grower or feeder;

¹ Cundy, *Inland Transit*, 2nd ed. (1834), pp. 19-20; Cundy, *Observations on Railways*, 2nd ed. (1835), pp. 23-24; *Manchester Guardian*, Jan. 1, 1831, p. 4, letter from "W. N. R.;" Mudge, *Observations on Railways*, p. 3.

² *Herepath's Railway Magazine*, N.S., 1, pp. 96-100, "A Few Words on Railways," by "Delta." He said that the cost of conveyance in the case of coal was a large element of the price; that coal was sold at the pit's mouth for five to ten shillings per ton, and at the distance of fourteen miles it cost double that amount, so that for lack of cheap transportation facilities the natural resources of the country were lying waste. He regarded this as an unanswerable argument for railroads.

³ Cundy, *Observations on Railways*, 2nd ed. (1835), pp. 21-23; Cundy, *Inland Transit*, 2nd ed. (1834), pp. 22-23.

but with the faster conveyance by rail they would secure an enlarged market that would make them profitable for production. Similar conditions would enlarge the area for the remunerative rearing of animals to provide the meat supply of the large centres. Before the railway, if animals were transported alive from the growers to the consumers' market, the market was limited by the power of the animals to travel and the cost of their support on the road; or if they had to be carried by waggons the cost was still greater by reason of the added expense of horses and waggons. But, by the railway, lambs, calves and other animals could be sent easily and cheaply to the metropolitan markets to meet the requirements of these large centres. In this way the urban population would be able to draw upon wider and wider sources of supply and thus eliminate any peculiarities of local conditions; while the rural producers would find a more extended market for their surplus and a more stable equilibrium of prices and of demand¹. The improvement of the marketing would enhance the value of the land which produced these things, and so both the tenant and the owner would derive advantage from being made independent of merely local circumstances. Along with accelerated speed in the conveyance of agricultural and industrial products, there would be a similar advance in the rate of passenger travel. Towns under existing conditions some stages distant from London or other large city would become its suburbs; men doing business in the greater centres would be able to reside at considerable distances from the places of their employment, and thus not only enjoy a more healthful environment for themselves but also help to prevent the overcrowding of population within confined areas²; and time that had been spent on the slow journeys of the coaches could now be saved, in great measure, and devoted to remunerative employment. This saving of time that would accompany the frequency of communication between places of great commercial intercourse would be a considerable economy in enabling them to expedite the transaction

¹ Cundy, *Inland Transit*, p. 23; *London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Lords Committee*, pp. 13-21, evidence of Messrs Warner, Whitworth, Sharp, Attenborough, and Kay; *The Times*, Mar. 16, 1836, p. 7, concerning the South Eastern Railway; Maetürk, *History of Railways into Hull*, p. 44, original prospectus of the Hull and Selby Railway; Boyle, *Hope for the Canals*, p. 19; *Hampshire Advertiser and Salisbury Guardian*, Mar. 29, 1834, p. 2, on the "Southampton Railway;" Parkes, *Claim of the Subscribers*, pp. 4-17.

² Cundy, *Inland Transit*, p. 24. A notable instance of this is observed to-day when we see business men, who carry on their occupation in smoke-begrimed Glasgow, going to and from their residences in the royal city of Edinburgh. On the saving of time and expense in travelling, see *London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Lords Committee*, pp. 22-24, evidence of Messrs Mason and Cheetham.

of business both by personal visits and through the medium of correspondence¹. Then, too, in the transportation of troops and of military and naval supplies the railway would be of vast importance over the former slow and expensive means of conveyance².

Railways were desired also because they would bring increased facilities and introduce certainty and regularity of conveyance. The lack of accommodation and equipment on the part of the canal companies was, in some instances, notorious, especially on the routes connecting the great industrial and distributing markets, like Manchester, Liverpool, Birmingham and London³. The inadequacy of the canals between Manchester and Leeds for the conveyance of general merchandise was so strongly felt that even with the carriage of a large part of the traffic by waggons the need for a railway was keenly appreciated⁴. But, supposing the carrying facilities of a canal chain to be sufficient for all ordinary purposes, there were other elements which affected the desirable uniformity of the flow of traffic. The droughts of summer or the frosts of winter frequently caused delays of several weeks; and these were attended with serious results to those who were affected to the greatest extent by them⁵. The cessation of trade on a canal that served a particular town would, at times, cause the price of coal to increase as much as 100 per cent., on account of the scarcity of that commodity at that special time⁶. Exporters who were depending upon goods from the interior reaching the port by a certain sailing day were sometimes disappointed, and the goods, when delivered, were rejected because out of time. Orders were frequently lost because the goods could not be

¹ Cundy, *Observations on Railways*, 2nd ed. (1835), pp. 29-32.

² This was especially emphasized in the case of the London and Southampton Railway. See summary of evidence on this railway Bill in *Hampshire Advertiser and Salisbury Guardian*, Mar. 29, 1834, p. 2.

³ To each of these we shall refer in more detail when we come to consider the railways connecting these places.

⁴ *Manchester Guardian*, Jan. 29, 1831, p. 1, prospectus of the Manchester and Leeds Railway.

⁵ *Manchester Guardian*, Jan. 29, 1831, p. 1, prospectus of the Manchester and Leeds Railway; Sandars' pamphlet on the *Liverpool and Manchester Railway*; Parkes, *Claim of the Subscribers to the Birmingham and Liverpool Railroad*, pp. 46-51; Brit. Mus. 8223. c. 10 (70), 'Prospectus of Kentish Railway Company,' 'Prospectus of the Birmingham and Liverpool Rail Road Company;' Brit. Mus. 8223. c. 10 (149), 'Prospectus of the Tamton Great Western Railroad;' Vallance, *Sinking Capital in Railways*, p. 9; Maetirk, *History of Railways into Hull*, pp. 43-44.

⁶ *Manchester Gazette*, Jan. 1, 1831, p. 4, letter from "W. N. R." refers to the fact that in January and February 1830, the canals were frozen for some weeks, and during that time "the price of coals in Liverpool rose, in many instances, upwards of one hundred per cent.," and the daily demand for the town was more than the supply.

got to the seaport in time for shipment by certain vessels¹. All such vexations would be avoided by having railways upon which to carry the goods and the public thought turned to the desirability of this new accession to the agencies of conveyance. Furthermore, many of the canals took a circuitous route, which added greatly to the length of the journey; and while this enabled them to get access to all those places that would be likely to have most traffic to offer, it was very inconvenient for those who wished the transport of their goods with the least possible delay.

Another prospective advantage of railways was that there would be a saving in the amount of capital required to be invested in business. It was expected that capital would not need to be locked up in warehouses where individual merchants had to keep on hand large supplies of stock because of the uncertainty and difficulty of renewing their supply. Under the existing circumstances, for example, coal was unable to stand the expense of land carriage, and so every dealer had to lay in an immense stock before winter, lest the canals should freeze, and before summer, lest they should be deficient in water supply. To remunerate the extra capital that was thus unproductively tied up something had to be added to the price of the coal. But it was a foregone conclusion that the railway would be able to operate without reference to these accidents of time or season, so as to bring a uniform supply throughout the year; and, therefore, dealers would not need to have a large capital lying barren for months at a time. The retail merchants of the country could go or send to London in the morning and have their purchases in the evening; this would obviate the necessity of their keeping an expensive and redundant stock, and in their country establishments, which would cost less than in the town, they would be enabled to enter advantageously into competition with the London dealers².

The coming of the railway was eagerly awaited in other cases because it was thought that this would emancipate the people from the thralldom of a canal monopoly that had become oppressive, sometimes almost beyond endurance. The canals between London and the Midland metropolis long enjoyed a monopoly and reimbursed their capital with

¹ *London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Lords Committee*, pp. 6-11, evidence of Messrs Barnes, Dillon, Mason, Moore and Westall. Sometimes when there was an insistent demand for the goods by a certain time the dealer paid the heavy cost of land carriage, rather than depend upon the slow movement of freight by water.

² Cundy, *Observations on Railways*, 2nd ed. (1835), p. 50; Mudge, *Observations on Railways*, p. 2; Shaen, *Review of Railways and Railway Legislation*, p. 33; *The Times*, Mar. 16, 1836, p. 7, on the "South Eastern Railway."

great profit; and one of the objects of projecting a railway to connect these two places was to get rid of the high charges which the canals continued to impose¹. Among the chief reasons for the construction of the proposed railway between Sheffield and Rotherham, in 1834, was the desire to break down the monopoly in coal that then existed, and to supply these cities, especially the former, with coal brought from greater distance. The unfortunate condition of the navigation along this six and one-half miles, particularly of the Sheffield and Tinsley Canal, precluded all hope of reduction of charges on this waterway; and the people turned to the proposed railway as the only means of affording relief². The conditions in the county of Monmouth at the time the plan was formed for a railway from Newport, through Pontypool, to Blaen Avon and Nant-y-glo, exemplify a situation which called loudly for and warranted the construction of the railway along this valley. The carrying traffic of the extensive mineral country there was almost monopolized by "The Company of Proprietors of the Monmouthshire Canal Navigation," which had been incorporated in 1792³ and had been given most arbitrary powers for making canals and railways. Its Act exempted the tolls receivable by the company from the payment of any rates, and the lands purchased by them were to be rated at their original, not their improved value. Within a few years the company had completed two lines of canal, one from Newport to a little above Pontypool, and the other from Newport through another valley to Crumlin. From these canals a variety of ill-constructed railways and tramways had been made in order to open communication with new works. For lack of water the Crumlin branch could not be operated, and necessity compelled the construction of a tramroad which almost superseded the canal. The other branch of the canal, because of the numerous locks and continual impediments and cessation from one cause and another, was almost useless⁴. Yet notwithstanding the unsatisfactory state of their works, the company charged such exorbitant rates and provided such poor facilities that many of the iron-masters of that section preferred to send their products

¹ *Birmingham Journal*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway."

² *Sheffield Iris*, Oct. 7, 1834, p. 1, 'Prospectus of the Proposed Railway from Sheffield to Rotherham.'

³ Act 32 Geo. III, c. 102.

⁴ Blewitt, *New Monmouthshire Railway*, p. 6, informs us that, in 1844, a boat from the Pontypool works could make only five journeys in a fortnight between that town and Newport, a distance of not over ten miles; and coal taken down the canal about five and one-half miles did not, on the average, reach Newport in less than eight hours.

around by a more circuitous route, sometimes at great expense, than to utilize this shorter waterway¹. Then, too, the iron-masters of Merthyr, by means of the Taff Vale Railway, were able to land down and ship their iron from Cardiff, in first-class condition, without rust, just as it came from the rolling mills. This led to the desire for a better quality of material among the iron merchants of Liverpool and elsewhere; and they demurred to receive iron from the Monmouthshire district which, on account of having been so long on the canal and waiting so long at the docks at Newport, exposed to air, had become badly rusted². Cardiff, the adjoining port and great rival of Newport in the iron trade, had always had the advantage of lower rates by canal, and, after the construction of the Taff Vale Railway, its trade had markedly increased³. From the foregoing facts we can judge how oppressive was the Monmouthshire Canal Company's monopoly upon the iron-masters of that portion of the country, and with what eagerness the industrial community contemplated, and actively set to work to secure, the advantages of a railway⁴. But the greatest canal monopolies, from which release was earnestly sought by the projecting of railways, were probably those between Liverpool and Manchester and between Liverpool and Birmingham: these we shall consider in detail when we come to discuss the formation of railway lines along these routes⁵.

¹ Blewitt, *New Monmouthshire Railway*, pp. 7-9. The Ebbw Vale Iron Works had made, at their own expense, a tunnel a mile long, to communicate with the Sirhowy Tramroad, by which their iron reached Newport much cheaper, although the route was four miles longer. The Bailey Iron Works brought their iron from Beaufort to Nant-y-glo by a tunnel about a mile long, at the end of which it was raised by a water balance, and then sent via Abergavenny to Newport, 31 miles, though the canal company's road was convenient to their works and the distance by that route to Newport was only 22 miles. The greater part of the Blaen Avon iron was sent at heavy cost, via Abergavenny, to Newport, about 28 miles, when by the canal route it was only about 16 miles.

² *Ibid.*, pp. 7-8.

³ *Ibid.*, p. 10. In 1829 the amount of coal sent to Cardiff was only about one-sixth of that sent to Newport; while in 1840 the amount sent to Cardiff was more than one-half of that sent to Newport.

⁴ The canal company had turned a deaf ear to all complaints of the traders, as to the excessive charges, bad construction and indifferent repair of their canals and tramroads, until the wholesome fear of threatened competition compelled them to take the first step toward amelioration by reducing their tonnage rates on iron and coal (*ibid.*, pp. 12-14).

⁵ On the canal monopoly between Liverpool and Manchester, see Sandars' pamphlet on the Liverpool and Manchester Railway, and *The Times*, April 7, 1826, p. 2, on the Liverpool and Manchester Railway Bill in the House of Commons. On the conditions that prevailed between Liverpool and Birmingham, see Parkes, *Claim of the Subscribers to the Birmingham and Liverpool Railroad*.

Of the other reasons which were given as incentives to railway construction we shall give but brief mention, because they did not assume such importance in the estimation of the public. Railways were urged by some because it was thought that they would reduce the number of horses required for the transportation service, and that land which had been devoted to the keeping of horses for the carriage of freight and passengers along the highways could now be used for growing food supplies for the families of the kingdom. Adam Smith had said that to support each horse required, on the average, as much land as would support eight men; and if there were, as was estimated, over 1,000,000 horses engaged on the roads, the land required to provide for them would be able to support an additional 8,000,000 people, or else it would largely increase the means of subsistence of the existing population¹. This same argument was used, as we have seen, in favour of the canals when their introduction was the subject of public interest; but in neither case did the contemplated decrease of horses employed on the highways materialize, for increasing facilities of conveyance brought an increasing demand for horses in collecting and distributing traffic². Another circumstance favourable to the new means of conveyance was that the introduction of the railway would furnish a more efficient method of handling large quantities of freight than was possible on the canals. In the ports of the north of England from which coal was shipped machinery was used for lifting a loaded car and suspending it over the hold of the vessel, after which the bottom of the car was displaced and the coal was allowed to fall easily into the vessel. But no such service was possible with canal barges and so the cost of unloading them was much greater. Of course, this system was not known until after the tramways were found in effective operation³. Of other inducements for the formation of railways, there was the expectation that thereby the pilfering from canal barges, which in some cases seems to have been an organized business systematically pursued, would be for ever abolished⁴; the ordinary roads would be greatly relieved of the transport of coal, lime and other heavy articles, so that the expense of their maintenance would be much less than under

¹ Cundy, *Inland Transit*, 2nd ed. (1834), pp. 20-21; *Bristol Mercury*, Sept. 1, 1832, p. 2, letter from "J. O." Suppose the coaches on the road from London to Edinburgh changed horses twenty-five times; that would require one hundred horses for one journey of each coach, besides the supernumerary ones kept in case of accident. But the work of a great many coaches might be performed by the expense of one steam-engine and this would result in great economy.

² Cundy, *Inland Transit*, 2nd ed. (1834), p. 21; Cundy, *Observations on Railways*, 2nd ed. (1835), p. 47.

³ Blewitt, *New Monmouthshire Railway*, p. 11.

⁴ *Ibid.*, pp. 9-10.

existing conditions; and, in fact, no limit could be assigned to the wealth that would be saved and the increase of wealth that would be produced by this change in inland conveyance.

In contrast to the claims made for the railways, those made for the canals seem decidedly lacking in many features of economic significance. The two enterprises were entirely different in character. The railway had an air of parade and display that dazzled and tended to deceive the superficial observer. Its general aspect was that of vitality, energy and efficiency: the large trains, their promptitude of arrival and departure and the speed of the engines were all subjects of admiration, and stood out in great relief when viewed alongside the quiet, unseen canal and its slowly plodding barges. In consequence of this there were few who ventured to lift up their voices in favour of the canals as an effective competitor of the railways. There were, indeed, some who, despite the unfortunate system of construction and maintenance of the canals, argued in favour of them and urged their claim from the standpoint of cheapness and facility of carriage. For example, a writer, in 1825, after showing the relative advantages of rivers and canals in the matter of ease and speed of carriage, finally concluded that, at a given rate of speed, a horse could move four times the weight on a canal or river that he could on a railroad¹. Others who looked into this subject carefully and with scientific precision were convinced that, up to a certain low rate of speed, a horse could draw more on a canal than on the railway; but this rate of traction was so much less than what was possible on the rails that the waterway would be thought of only in connexion with the conveyance of commodities for the carriage of which speed was of little account². Occasionally, other reasons were adduced to prove that railways were inferior to canals as means for the carriage of freight³;

¹ Brit. Mus. 08,235. f. 77, 'Observations on the Comparative Merits of Inland Navigations and Railroads,' pp. 22-23.

² Wood, *Practical Treatise on Railroads* (1825), p. 157 et seq., and Thomas Tredgold on *Railroads*.

³ Brit. Mus. 08,235. f. 77, 'Observations on the Comparative Merits of Inland Navigations and Railroads,' pp. 28-38, gives arguments against the locomotive and in favour of canals; and the writer finally says: "But I certainly think sufficient proofs appear, that in competition with a long line of canal or river navigation, enjoying a general trade, and affording the means of free and open competition, any project of a railroad would prove ruinous to the adventurers, and useless to the public" (p. 43). To the same effect were the words of another in 1832, after the Liverpool and Manchester Railway had been in operation for two years. He showed that for passenger traffic the railway was superior to any other mode of travelling; but, in regard to the freight traffic, his conclusion was that, mile for mile, goods were not carried so cheaply on the Liverpool and Manchester Railway as on the great lines of canals, and could neither remunerate the carrier as to his

but the number of people who laid any emphasis upon this possible outcome of the competition seemed to be very small.

The facts appear to indicate that the canal companies, instead of becoming more active and endeavouring to secure more of the traffic in the field which was now being invaded by a rival, usually acted on the defensive in trying to protect their alleged rights¹. The great argument put forth by those who favoured the canals was the constant plea of vested interests: that Parliament had, by statutory provision, authorized the construction of and investment in canals, and, therefore, nothing should be done to destroy such facilities, under which the trade of the country was said to be flourishing². Canal property, in many cases, was the only basis of security for wills, settlements and family incomes; and to destroy them would ruin thousands of families. If the canal were not sufficient for the increased traffic, why should the canal companies not be allowed to enlarge their works to meet the needs of an expanding commerce?³ To interfere with private property was to overthrow the stability which was fundamental to social life and the protection which the individual might justly claim from the government; and this appeal of protection to individual rights seldom failed of response when addressed to any class of the English people⁴. In

freight nor the proprietor as to his tolls in the same manner as canals did (P., *Letter to a Friend, containing Observations on the Comparative Merits of Canals and Railways*, pp. 2, 3, 8). His inference was "that the level railway 30 miles long between Liverpool and Manchester cannot put down two navigations, between the same points the first of which is fifty and the other forty-five miles long" (*ibid.*, pp. 12-13); and in this opinion he seems to have been entirely sincere, since his pamphlet shows the utmost candour in giving the railway its full share of praise. See also *Birmingham Journal*, Mar. 5, 1831, p. 3, "On Railways."

¹ There were, of course, some exceptions to this. At Manchester, for example, in 1825, the activity of the railroads in carrying on their plans excited the feeling of competition among the proprietors of inland navigation; and the latter (called the fourth estate of the realm, because of their immense parliamentary interest) determined to prove that the speed on inland navigation was much greater than it had been represented. To establish their point, a flat left Manchester on the Mersey and Irwell Navigation in the morning and reached Liverpool by one o'clock. There she loaded a full load of cotton and started back for Manchester which was reached at 10.30 that night. This was repeated the following day (*Manchester Gazette*, Jan. 15, 1825, p. 3, on "Effect of Competition"). It is possible that such sporadic attempts as this were found elsewhere; but that does not disprove the statement we have made.

² *Hansard's Parliamentary Debates*, N.S., XII (1825), pp. 845-9; *ibid.*, XV (1826), pp. 89 ff.; *Brit. Mus. T.* 1371 (18), pp. 9-11.

³ "J. C." in *Gentleman's Magazine*, xciv, Pt. 1, pp. 113-15, showing the "advantages of canals over railways."

⁴ *Hansard's Parliamentary Debates*, N.S., XII (1825), p. 847, debate on the Liverpool and Manchester Railway Bill. Jeaffreson, *Life of Robert Stephenson*, I, p. 268.

answer to this plea of vested rights it was said that Parliament, by sanctioning the building of railways, would not be breaking faith with the canal proprietors, for it was never contemplated that monopolies should be protected nor that further impetus to the development of commerce should be denied. The carriers by waggon had, in vain, urged the same consideration against the development of water conveyance, when the latter had become absolutely essential to the material advance of the country¹. The canals had been given an opportunity to meet the increasing demands of commerce, and even those which were best situated had not done so, but had raised their charges and treated the demand with insolence². It had never been the function of government to protect such injustice at the expense of the public good.

To recapitulate: the chief arguments advanced in favour of the railways were their speed and cheapness of carriage as contrasted with the canals, and the insufficiency of water carriage to serve the necessary purposes of the rapidly growing trade and industry of the country; the fact that they did provide good investments in some cases was not one of the primary inducements to their formation³. Additional facilities for the carriage of goods were essential, a *sine qua non* for the material advance of the country's interests. Some of the canals had not been improved at all, others very little, since their construction;

tells us that among all classes of society so universal was the antagonism to railways, from a fear that they would be injurious to vested interests, that gentle and simple with equal complacency viewed the constitution of tribunals which necessarily sympathised in a very high degree with the prevailing prejudice. See also Parkes, *Claim of the Subscribers to the Birmingham and Liverpool Railroad*, pp. iv-v, 3-4, 63-66, 72-73.

¹ *Gentleman's Magazine*, xcvi. Pt. 1, pp. 199-200.

² See Sandars' pamphlet on the *Liverpool and Manchester Railway*, pp. 3-9.

³ *Gentleman's Magazine*, xcvi. Pt. 1, pp. 199-200; *Remarks upon Pamphlet by "Investigator" on the Proposed Birmingham and London Railway*, pp. 10-12, 24 ff.; *Brit. Mus.* 8223. c. 10 (70), 'Prospectus of Kentish Railway Company'; *Brit. Mus.* 8223. c. 10 (148), 'Prospectus of the Surrey, Sussex, Hants, Wilts, and Somerset Rail-Road Company'; 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' pp. 13-14, giving the prospectus (dated May 10, 1830) of the two companies, the Liverpool and Birmingham Railway Company and the Birmingham and Liverpool Railway Company, whose interests were identical for the construction of a railway between these two cities; *ibid.*, p. 65, giving the announcement of the Directors of the London and Birmingham Railway, 1833, and showing that the railway would more than double the speed of the stage coach, that the cost of passenger travel would be less than half that by coach, and that merchandise would be carried for only two-thirds of what was formerly paid on the canals. See also *ibid.*, p. 74, 'Statement of the Case of the Liverpool and Birmingham Railway Bill (1831),' and pp. 139-40, 159-60, 169-70, 176, which give other prospectuses of railways; also *Railway Times*, v, pp. 639, 711, 973.

and this in the face of an incessant demand from industrial and commercial interests. In some cases, where the trade was heavy, navigation companies had refused to incur the extra expense of maintaining a sufficient number of barges to provide for emergencies, but had made only meagre provision for even the usual requirements¹. Then, too, on some canals the charges had been raised by the exorbitant demands of the proprietors², until this increased cost, along with the inadequacy of the service³, led to the promotion of railway enterprise. Private interests and individual advantage had already too long dominated in matters of transportation; necessity required added equipment for, and new life imparted to, the service; the public must not be sacrificed to the individual benefit; and the railway system was the result of the operation of these imperative calls for the national advance along this line.

It will be fitting at this point to consider the nature of the opposition which was encountered by the railways in their efforts to become established along the highways of trade. In the first place, opposition arose from many of the landowners, who stubbornly resisted the encroachment upon their domains of these black monsters, the locomotive engines, with their trailing clouds of smoke, disfiguring the landscape, destroying the privacy and seclusion of their estates, and causing a great decrease in the value of their lands. As a rule, the landlords thought much more of the peacefulness of their own estates and mansions than of the public good; and the mental picture of a railway with its tail of smoke curling across the country, blackening everything even to the fleeces of wool on the sheep, reckless of the aesthetic rural conditions and of the security of individual or public property, was to them the symbol of all that was disagreeable, vulgarizing and mercenary⁴. The introduction of such "infernal machines," as the

¹ Sanders on the *Liverpool and Manchester Railway*, p. 16.

² *Ibid.*; Cumming, *Rail and Tram Roads*, p. 33; *Gentleman's Magazine*, xciv, Pt. 1, pp. 415-17; 'Prospectus of the Birmingham and Liverpool Railroad Company.'

³ On account of delays on the waterways from Liverpool to Manchester, more time had sometimes been consumed in the carriage of goods that short distance than in the transatlantic voyage (*Gentleman's Magazine*, xciv, Pt. 2, p. 556).

⁴ See letter from "No Railer at the Present System," in Aris's *Birmingham Gazette*, Jan. 10, 1825 p. 1, acknowledging that railroads were superior to the canals in the matter of speed, but opposing them chiefly from the aesthetic standpoint; he would not like to see the country disfigured by the clouds of smoke. His letter ends by saying: "Do, good Mr Editor, lend your potent aid, at the commencement of the coming year, to avert this mass of evils, and help by advice, by entreaty, by warnings, by ridicule, by anything, to thwart the designs of these iron-hearted speculators, who would take from the people of this free country all hopes of another

locomotives were sometimes called, must be stoutly resisted. The destruction of the unity of the farm by having part of it cut off from the homestead; the dividing of closes that were convenient in form and size into "ill-shaped fragments;" the formation of deep cuttings across the hills and of large embankments across the low lands, thus preventing the natural flow and drainage of water; the inconvenience and danger to the public on account of the railway crossing the highways on the same level; these, along with the declaration that there was no necessity for greater speed of travelling nor facilities for conveyance, added pretext upon pretext for the opposition of the landholding classes¹. Others were aroused to hostility lest a projected railway might pass through their fox-covers, or in some other way interfere

merry Christmas. If we must be slaves let it not be to iron-masters—let us open our eyes before the accumulation of smoke renders it impossible for us to see, and let us, above all things, beware lest Rail-roads, like party, prove 'the madness of many for the gain of few.' " A similar letter is found in *ibid.*, Jan. 17, 1825, p. 2, from one who subscribes himself as "Common Sense." See also *Hansard's Parliamentary Debates*, N.S., xii (1825), pp. 845-9; *ibid.*, xv (1826), p. 89 et seq.; Booth, *Liverpool and Manchester Railway*, p. 31 et seq.; *Brit. Mus. T.* 137 t (18), pp. 5-9; *The Times*, May 4, 1824, p. 2 and Mar. 5, 1825, p. 5, on the "Tees and Weardale Railroad;" *ibid.*, Nov. 18, 1830, p. 3, letter from "A Landowner;" *ibid.*, July 17, 1832, p. 3. As an example of utter lack of sense in the treatment of such a subject, perhaps the letter of George Jones in *The Times*, May 3, 1834, p. 6, stands unrivalled. See also his petition against the London and Southampton Railway, in *Hampshire Advertiser*, Mar. 22, 1834, p. 2. A farmer in Northamptonshire refused his assent to the proposed London and Birmingham Railway on the ground that the smoke would injure the fleeces of his sheep (*Birmingham Journal*, Jan. 29, 1831, p. 2). As to the landlords' opposition to the Stockton and Darlington Railway, see Jeans, *Jubilee Memorial of the Railway System*, pp. 28, 29, 32. A writer, signing himself "Ebenezer," evidently a Quaker, in a letter to the *Leeds Intelligencer*, Jan. 13, 1825, p. 3, while admitting that the engines on the rail were much faster than the canal barges, expresses the evil connected with the railway as follows: "On the very line of this railway, I have built a comfortable house: it enjoys a pleasing view of the country. Now judge, my friend, of my mortification, whilst I am sitting comfortably at breakfast with my family, enjoying the purity of the summer air, in a moment my dwelling, once consecrated to peace and retirement, is filled with dense smoke or foetid gas; my homely, though cleanly, table covered with dirt; and the features of my wife and family almost obscured by a polluted atmosphere. Nothing is heard but the clanking iron, the blasphemous song, or the appalling curses of the directors of these infernal machines." This was not the sentiment of one but of a multitude, and references could be added at great length. See also *Leeds Intelligencer*, Mar. 4, 1830, p. 3, and Mar. 11, 1830, p. 3, on the Leeds and Selby Railway; *Sheffield Iris*, Mar. 3, 1835, p. 2, and Sept. 22, 1835, p. 4, on a landlord's objection to the proposed Sheffield and Rotherham Railway; *Birmingham Journal*, Mar. 11, 1826, p. 1; *Manchester Courier*, Feb. 4, 1832, p. 3, on the London and Birmingham Railway.

¹ *Birmingham Journal*, Jan. 22, 1831, p. 1, on the London and Birmingham Railway.

with their amusement of hunting; and the great landholders were not to be expected to make any concession, or to be coerced into anything, even although their estates would thereby become more valuable and great benefit result to the public¹. Many were averse because it seemed to them that a railway, with its force of men who were by no means scrupulous of others' property and property-rights, would be an unmitigated evil; for it would permit the passage along the line of men of the worst class who would be ready to cause much annoyance to landowners on account of the nuisances which they would commit upon private property adjacent to the railway. Vast sums of money were required at first, under the plea of "compensation," to buy off the opposition of property holders and to pay for the strips of land that were necessary for these public enterprises; and when it was found that the money would be forthcoming for this purpose, some impecunious peers enriched themselves by demanding exorbitant prices for their land, under the specious pretence of injury to their estates². "Any amount that could by any means be squeezed from the funds of a railway company under the name of compensation, public opinion decided to

¹ Jems, *Jubilee Memorial of the Railway System*, p. 32; *Sheffield Iris*, Sept. 22, 1835, p. 4.

² Jeaffreson, *Life of Robert Stephenson*, 1, chap. ix, tells about the opposition to railways and shows that "in some cases enormous sums of money were paid for the acres of obstinate landowners" (p. 180). See also, *Remarks upon Pauphlet by "Investigator" on the Proposed Birmingham and London Railway*, p. 6; 'Great Western Railway. Evidence on the London and Birmingham Railway Bill,' pp. 12, 14, 34-37; *Railway and Canal Cases*, 1, pp. 326 ff., 347 ff., 416 ff., 462 ff., show how often it was necessary to buy off the opposition of landowners. Parkes, *Claims of the Subscribers to the Birmingham and Liverpool Railroad*, p. vi, shows that certain landowners were incited by the canal companies to oppose railways. See also *ibid.*, p. 70. Jeaffreson, *op. cit.*, 1, pp. 268-70, gives us an instance: "An impoverished nobleman, owning a house and park of the value of £30,000, in a county through which one of the earliest railways was carried, for a small strip of his park, occupied by the railway, which ran quite beyond the sight range of his windows, obtained no less a sum than £30,000—or the entire value of the estate which the line was supposed only to depreciate. A few years afterwards this same peer sold another corner of the same park for another line for a second £30,000, and when he had thus extracted from two companies £60,000 as compensation for damage done to his estate, the original property was greatly augmented in value by the lines which, it was represented, would inflict upon it serious injury." He tells us that similar cases were of constant occurrence; and far from rousing public indignation, they met with public approval. The way in which compensation for lands was determined is fully set forth in *Parl. Papers*, 1845 (420), x, 417, 'Report of Select Committee of the House of Lords on Compensation for Lands taken for or injured by Railways;' see especially the evidence of Messrs Dunelm, Clutton, Driver and Cramp. They show the way in which "extravagant sums," often far greater than the lands were worth, were paid in order to get rid of opposition.

be legally and honourably acquired¹." Later, when the public benefits of the railway were known, this was changed; and those who had protested against this means of carriage became strong supporters of it². Parliament went even so far as to pass a resolution excluding from the committee sitting on any railway bill any member who either held land through which the line was to run or was otherwise commercially interested in the rejection or passing of the bill³.

Other great opponents of the railways were the canal companies, which in some instances had become strongly entrenched in the commercial life and activities of the kingdom. Their hostility was naturally to be looked for where the railway was to be constructed parallel to the canal, for in that case it was possible that the revenue of the canal company would be decreased on account of the railway competition⁴. The motives of opposition were sometimes concealed or thinly veiled; but underneath them all there was the one pervading object, namely, to keep the monetary returns from the canals as high as possible. Sometimes it was said that the railway could not carry heavy goods as

¹ Jeaffreson, *op. cit.*, i, pp. 269-70. As compensation for "severance" of his estate, a proprietor, after requiring that bridges should be built at so many points along the line that the "severance" would practically cease to exist, would demand two, three, or four thousand pounds, in addition to the extortionate price already paid for the land actually given up to the line. It was useless for the agents of the railway company to show that this "severance" was merely an imaginary grievance, which effected no real injury to the estate. Refusing to see it in this light, the owner remained steady in his demand and gained his "severance" compensation. Having thus sold a strip of land at four, five, or six times its value, as recompense for a purely imaginary damage, the owner would then candidly avow that this severance caused him so little discomfort, that he could do with only half or quarter of the stipulated bridges, and that, for a further sum, he would free the company from the obligation to build the unnecessary bridges. In these early days railway companies were powerless to resist such extortions. They had to buy the goodwill of the community by hard cash. See also *The Economist*, *Weekly Commercial Times*, and *Bankers' Gazette*, 1845, p. 758.

² In 1844, Mr Croker wrote: "I know persons who were adverse to railroads, and who would now give £500 a mile to have them nearer their residences." (*Croker Papers*, III, p. 25.) Mr Earle, before the Committee on the London and Birmingham Railway Bill, testified that he would no longer oppose any railway, as he had determinedly opposed the construction of the Liverpool and Manchester Railway ('Great Western Railway. Evidence on the London and Birmingham Railway Bill,' p. 12). Other great estate-owners had also changed front in this way (*ibid.*, pp. 34-37).

³ Jeaffreson, *op. cit.*, i, p. 271.

⁴ Teisserene, *Études sur les voies de communication*, pp. 21, 31; Whishaw, *Analysis of Railways*, p. 164, showing that the Manchester and Leeds Railway was opposed by the Rochdale Canal, Calder and Hebble and Aire and Calder Navigations until restrictive clauses in their favour were inserted in the railway Act; *Leeds Intelligencer*, Mar. 11, 1830, p. 3, Jan. 23, 1836, p. 3, and April 23, 1836, p. 3.

economically as the canals could¹; in other cases the canal companies declared that there was not enough traffic to warrant the additional facilities of carriage². The commissioners of river navigations opposed railways that would probably take away some of their traffic, for the same reasons as they opposed the construction of canals parallel to or out of the river over which they had control, namely, that the river would rapidly run up on account of disuse and, therefore, the lands and towns along the river would be materially injured and in danger of inundation; that the tolls from the traffic remaining on the river would not be sufficient to defray the interest of the debt and expenses of maintenance; and that the value of adjacent estates and of the mercantile property connected with the river and its trade would seriously decline³. Perhaps the canals and canal carriers were the most indefatigable of all the opponents of the railway. They would inevitably lose more than most other interested parties by the entrance of this new and effective rival into a realm which they had thought was pre-empted by themselves; and in proportion to their probable loss was their effort to save themselves from the impending disaster⁴.

But if the freight carriers by water were vigorous in their animosity to railways, we should expect that the coaching establishments would also be hostile to them, because of invading their field for the conveyance of passengers. And, of course, ranged with the coach proprietors we should expect to find others whose interests were closely bound up with the prosperity of the coaching and the carrying trade on the roads. Whether it is because our information along this line is not so complete, or because there was less capital embarked in road carriage than in canal carriage—from whatever cause, we do not find the same volume of complaint and the same keenness of antagonism from the representatives of the carriers along the highways that we find from those interested in the waterways. It would be wholly unnatural for those large concerns that had from 700 to 1300 horses, or even those which had a much smaller business, to allow their enterprise to be disintegrated without making efforts to save it; but while they petitioned Parliament to care for their interests, they did not, apparently, endeavour to arouse such a storm of opposition as did the canal forces. It must not be understood,

¹ *A Few General Observations on the Principal Railways*, pp. ix, x. 9.

² *Leeds Intelligencer*, Mar. 4, 1830, p. 3, Mar. 11, 1830, p. 3, and Mar. 18, 1830, p. 3; *Sheffield Iris*, April 7, 1835, p. 4, on the Sheffield and Rotherham Railway Bill.

³ See, for example, Felix Farley's *Bristol Journal*, Feb. 22, 1834, p. 1, and Mar. 15, 1834, p. 1.

⁴ See also *Railway Chronicle*, Sept. 20, 1845, pp. 1299-1300; *Sheffield Iris*, April 7, 1835, p. 4, and June 2, 1835, p. 2; *Manchester Guardian*, April 2, 1831, p. 3, on Manchester and Leeds Railway Bill.

however, that their claims upon public consideration were not strongly presented; but, in seeking favourable opinion they did not stir up disaffection among other classes of the community in order to secure their co-operation. The character of their opposition, in trying to uphold their own stability and permanence, is well exemplified by a petition to the House of Lords from coach proprietors, post-masters and waggon-masters on the lines of road between London, Worcester, Hereford and Gloucester, asking for protection of their interest by the rejection of all applications for railways in general, and, particularly, for the Liverpool and Birmingham, and Birmingham and London railways¹.

Of a similar nature to the foregoing was the opposition of trustees of turnpike roads and of those who had loaned them money on the security of the tolls. They were averse to the building of a railway which would take traffic from that highway and thereby reduce the amount of toll that would be collected at the gates; for if the tolls were to become lessened, the security for the money loaned would be correspondingly lessened², while the revenues for the maintenance of the road and the payment of interest on the debt would be depleted. When it was known in advance that a railway was to be constructed which would probably have this effect upon a certain turnpike, very few persons were ready to bid for the gates at the time they were put up at auction; and, reasoning from analogy with those cases where railways had already made themselves felt, the few bidders who did come forward would not assume the risk of taking the gates except at greatly reduced rentals. When trustees found such difficulties in the financing of their roads after the completion of a railway, it is little wonder that they objected to the introduction of the latter knowing that their difficulties would increase with the passage of the years.

Some towns rejected the boon that was offered them, and opposed the railways so strongly that they would not allow the company to build their line within the city limits. For instance, to satisfy the people of Northampton and to meet their objections, the London and Birmingham Railway Company carried their roadway a considerable distance from the town, and built their works and shops at Wolverton, instead of, as originally intended, at Northampton³. The town of

¹ *Hampshire Advertiser and Salisbury Guardian*, May 11, 1833, p. 2; see also *Proceedings of the Great Western Railway Company*, p. 10.

² *Brit. Mus. T.* 1371 (18), p. 14; 'Great Western Railway. Evidence on the London and Birmingham Railway Bill,' p. 15, evidence of Joseph Pease; *Birmingham Journal*, Feb. 12, 1831, p. 2, on the London and Birmingham Railway; Cundy, *Observations on Railways*, p. 15.

³ Stretton, *History of the London and Birmingham Railway*, p. 1. See also Markham and Cox, *Northampton Borough Records*, II, pp. 543-4.

Maidstone in Kent assailed the South Eastern Railway so vigorously that the Dover line was carried far away from them¹. Owing to representation from Windsor, a clause was inserted in the Great Western Railway Act forbidding any station at that important town². It was not till after repeated applications that a branch of the Great Western was allowed to be constructed to Oxford³; and then the authorities of the university had a clause inserted by which the station at Oxford was to be erected at a spot as remote as possible from the colleges⁴. Perhaps the opposition of Oxford University and of Eton College was the most vehement that the Great Western Railway encountered. The latter institution refused to allow the railway to come within three miles of the school; and in the railway Act Eton College obtained the insertion of a clause forbidding the erection of a station at Slough and requiring the company to provide policemen to patrol the line for a certain distance on each side of Slough so as to safeguard the Eton boys from danger. But although the Act forbade the building of a station at Slough, yet the railway trains, from the very first, stopped there to set down and take up passengers, and as an office the company used two rooms in an adjoining public-house. On account of this supposed breach of the law, the Eton College officials entered suit against the railway company; but it was shown that the latter had observed the terms of the Act of incorporation and consequently the suit was dismissed⁵.

Local jealousies of one kind and another aroused opposition to railways that were highly advantageous from the point of view of public benefit. Farmers near a large centre of population were found to object to the construction of a railway back from that centre into the more distant country, lest their monopoly in a lucrative market would thereby be broken up, because produce grown at a much greater distance from that market could come into competition with that grown in the nearer areas. As an illustration of this, we note that the

¹ *Railway Times*, ix, p. 961.

² Shaen, *Review of Railways and Railway Legislation*, p. 29.

³ *Ibid.*, p. 29.

⁴ Sekon, *History of the Great Western Railway*, p. 8.

⁵ *Railway and Canal Cases*, i, pp. 200-10, gives this case in full. See also Sekon, *History of the Great Western Railway*, pp. 6-8; Markham and Cox, *Northampton Borough Records*, ii, pp. 543-4; Felix Farley's *Bristol Journal*, Mar. 15, 1834, p. 4. The Great Western Railway was a rival scheme of the London and Southampton Railway; and the latter joined with Eton College and with many landowners in opposing the Great Western (F: y, *A Royal Road*, p. 20). Brit. Mus. 8235. bb. 87 (1), 'Speech of Counsel on the 30th May, 1848, before a Select Committee of the House of Commons, on behalf of the Head, Lower and Assistant Masters of Eton against the Great Western Railway Extension from Slough to Windsor,' shows how strong was Eton's opposition to the railway coming within easy access to that college.

Great Western Railway was opposed by the Middlesex, Berkshire and Buckinghamshire farmers because they feared that London would be able by this means to get food supplies from a distance at cheaper prices than those at which they had been accustomed to selling¹. Of the same nature, apparently, was the opposition to the proposed Tees and Weardale Railway, in 1824, the opponents of the line asserting that the outlet for North Durham coal by the rivers Tyne and Wear was sufficient, while its advocates desired additional facilities of outlet by the river Tees². Some were averse to railways because they feared that thereby trade would be transferred from one place to another. For example, the contemplated Great Western Railway stirred up some of the people of Bristol because of their alarm lest a large part of the trade then transacted at that city should be afterward centred at London. If the products which were brought into Bristol from Ireland were to be taken to London immediately upon their arrival at the quay, it was thought that the mercantile interests of the former city would be injuriously affected; and if the shipping and the West India trade should subsequently locate at London, instead of remaining at Bristol, this western emporium of commerce would be sacrificed and the "ancient and once-flourishing city of the splendid name" would probably be dismantled³. Sometimes the owners of coal mines at a certain place opposed the introduction of a railway that would enable other coal mines to compete with theirs, and this local monopolistic spirit characterized much of the antagonism that railway promoters realized⁴.

¹ *Proceedings of the Great Western Railway Company*, pp. 7, 13. We observed the same objection to the extension of the turnpike system from London to the remote parts of the kingdom. See *Railway Times*, vi, p. 242, article entitled "Railways and the Agricultural Interests," showing that the prices formerly received by the farmers of Southall and Per vale, co. Middlesex, for their cattle when sold in the London market had been forced down by reason of the great numbers of cattle and sheep that had been brought by the Great Western Railway from the West of England to London. But, of course, there were compensating advantages that the farmers enjoyed, even if they had forgotten them.

² *The Times*, May 4, 1824, p. 2.

³ *Bristol Mercury*, Feb. 16, 1833, p. 2, and Mar. 2, 1833, p. 2, letters from "Scrutator." It seems strange that this man should have been showing how Bristol would decline after the railway was constructed, when another man, signing himself "A Burgess," was, at the same time, writing a series of thirty letters on the trade of Bristol, showing the causes which had brought about its decline and the means necessary for its revival (*Bristol Mercury*, Feb. 2, 1833, p. 2; Feb. 9, 1833, p. 2; Feb. 16, 1833, p. 2; Feb. 23, 1833, p. 2; etc.).

⁴ *Manchester Guardian*, Feb. 26, 1831, p. 3, concerning the Oldham Railway; *Sheffield Iris*, Oct. 7, 1834, p. 1, prospectus of the proposed railway from Sheffield to Rotherham; *ibid.*, Mar. 3^d, 1835, p. 2, editorial on the Sheffield and Rotherham

Upon the other forms of, or reasons for, opposition to railways we shall dwell but briefly. Some turned against them as enterprises in which money would be sunk without any adequate return, considering them as a new and dangerous form of speculation¹. It was contended that the actual amount invested in them would greatly exceed the estimates that had been made for the purpose of inducing capital to embark therein¹, and hence there would soon be financial embarrassment when interest could not be paid on the great investment. Moreover, the absorption of the national capital to such a vast extent would divert it from more legitimate channels; and the fact that railways were not regarded by some as legitimate enterprises would seem to have been chiefly due to branding the whole system with the same characteristics that had been displayed in the case of some crude and other dishonest ventures². When many plans were being formed for railways, it was inevitable that some ill-devised and delusive schemes were encouraged, which ended in the ruin or injury of those concerned in them; and also some dealers in shares who profited in one case but lost in another used unworthy means of accrediting or disparaging particular undertakings. Thus, no matter how good and substantial the enterprise, it might be given a wrong character, at least for a time, and in this way be subjected to popular condemnation.

Lulway; *ibid.*, April 7, 1835, p. 2, on the Sheffield and Rotherham Railway; *ibid.*, Sept. 15, 1835, p. 4, letter from W. Ibbotson. See also *The Times*, June 17, 1836, p. 3.

¹ *Aris's Birmingham Gazette*, Oct. 4, 1824, p. 3, letter signed "Common Sense;" *Remarks upon Pamphlet by "Investigator" on the Proposed Birmingham and London Railway*, pp. 4, 6; *Parkes, Claim of the Subscribers to the Birmingham and Liverpool Railroad*, pp. 3-4, 64-67. Vallance, *Sinking Capital in Railways*, pp. 6-23, warned against investing in railways the £30,000,000 which at that time (1825) it was proposed to lay out upon them. His opinion was that it was doubtful whether the railway could travel with safety at more than six miles an hour (p. 18), i.e., about half the rate of the coach (p. 30); that, at that rate, the railway could not travel regularly and uniformly from the beginning to the end of the journey (pp. 19-20); and that, because it had to carry so much coal and water, the locomotive would not be able to do its work at the least possible expense. Since railway operation was therefore defective in all these essentials, the people should beware of sinking capital in this new mode of transit.

² *Herepath's Railway Magazine*, N.S., III, pp. 24-27, "On Railways as Investments." This writer says that it was very obvious that the greater number of capitalists were not friendly to railways and generally stood aloof until the profit of the work was known. The great fundholders and the landed proprietors, with few exceptions, hung back from enterprises which were ultimately very successful; while the commercial classes, who were accustomed to tracing out results from the operation of certain principles, were the men who had been chiefly responsible for the development of national improvements.

Railways were at times prevented from, or delayed in, obtaining legislative sanction on account of the political expedients that were resorted to. Not infrequently the House of Lords blocked measures that had passed the House of Commons after careful inquiry and close scrutiny. Some members of a committee to which a particular bill had been referred, were known to absent themselves from all hearings upon the bill because they either had no interest in or were opposed to it, and to walk into the committee room just before the time for the decision in order to give their vote adversely¹. In other cases, some of the supporters of a bill, from motives of delicacy, abstained from attending at all and this left the measure in the hands of an opposing majority, so that after all the expense of time and money involved in hearing witnesses and paying parliamentary agents, the measure was foredoomed to rejection. With the committees upon private bills constituted as they were, it was not always the best line that secured favourable consideration: but that line was likely to be carried which could exert the greatest influence in commanding public attention and obtaining the predominance in the committee².

Some very trivial reasons were occasionally given for the opposition that was manifested to railway projects. Sometimes they were opposed for the same reason that stage coaches in early days were opposed, namely, because they would induce people to go flying about the country, instead of attending to their work at home³. Some were afraid that the velocity at which the trains would travel would occasion great accidents and the suggestion was made that it might be desirable to establish every five or six miles along the line what would be practically well-equipped hospitals to take care of the injured⁴. At other times railway bills failed to pass because of insignificant breaches of the Standing Orders when the measure was brought before the committee⁵. Even where a noble landowner knew that the projected railway would not injure, but rather immensely benefit, his property, he still opposed it, without being able to assign any valid reason for

¹ *Sheffield Iris*, Sept. 22, 1835, p. 4, letter from W. Ibbotson.

² *Parl. Papers*, 1836 (0.96), xx1, 235, 'Minutes of Evidence before the Select Committee on Railway Bills,' evidence of James Walker, C.E., Q. 178.

³ Fay, *A Royal Road*, pp. 23-24, gives some of the contemporary statements; for example, one of the great canal proprietors said: "I foresee what the effect will be—it will set all the world a-gadding. Twenty miles an hour! why, you will not be able to keep an apprentice boy at work... Grave plodding citizens will be flying about like comets."

⁴ *Leeds Intelligencer*, Jan. 13, 1825, p. 3, letter on "Railways."

⁵ Stuenkel, *Review of Railways and Railway Legislation*, pp. 36-40. He cites his cases from the parliamentary reports.

this decision¹. In fact, until the railways had fully demonstrated their utility there was active opposition to every scheme that was brought forward; railways, apparently, were treated as nuisances and every impediment was thrown in their way to cause the promoters to desist from such activity². We do not wonder, however, at the rooted prejudice to the railways, when such a great engineer as Thomas Telford was strongly opposed to them³.

Among those who took a prominent part in the discussion in favour of railways were George Stephenson and his son Robert, Nicholas Wood (who was intimately associated with George Stephenson), William James and Thomas Gray. Perhaps the last-named, more than any other, kept this subject before the public, not only by his contributions to the current press, but by a work of considerable magnitude on what he called a "general iron railway"⁴. His mind was full of this one idea, and he gave it expression on all occasions. The locomotive engine was sure to supersede all other kinds of conveyance, and even to do away with the necessity of horses. He would, therefore, leave the turnpike roads as they were, and perfect steam railways as a system more in keeping with the time and with the increasing traffic of a commercial nation⁵. And, as for canals, he deplored the fact of engineers still wasting, as he thought, their time and the public money in these delusive speculations⁶. He warned the public against subscribing to canal schemes, "for the time is fast approaching when railways must, from their manifest superiority in every respect, supersede the necessity both of canals and turnpike-roads, so far as the general commerce of the

¹ *Sheffield Iris*, Sept. 22, 1835, p. 4, letter of W. Ibbotson.

² *Observations on the Comparative Merits of Navigations and Railroads*, pp. 43 ff.; Shaen, op. cit., pp. 29-30.

³ *Autobiography of Sir John Rennie*, p. 244.

⁴ The complete title is *Observations on a General Iron Railway, or Land Steam Conveyance; to supersede the Necessity of Horses in all Public Vehicles; showing its vast Superiority in every respect, over all the present Pitiful Methods of Conveyance by Turnpike Roads, Canals, and Coasting Traders. Containing every Species of Information relative to Rail-roads and Loco-motive Engines*. The first edition was published in 1821 and the fifth in 1825.

⁵ See letter of T. Gray in *Gentleman's Magazine*, xciv, Pt. 2, pp. 313-16; also Gray, *General Iron Railway*, pp. vii, xx-xxi, 2, 6, etc. He speaks of the many complaints as to the state of the roads and of the impossibility of finding an effectual remedy: of the accumulating debt on the turnpike roads, as shown by their annual statements; of the waste in trying to keep them up, for they had "nothing, save folly and extravagance, to recommend them." He favoured the "general introduction of mechanic power, so as completely to supersede the necessity of horse power in all public waggons, stage and mail-coaches, and post-chaises" (p. xi).

⁶ *Gentleman's Magazine*, xciv, Pt. 2, pp. 313-16.

country is concerned¹." The expense of making a canal and canal boats, the expense of men's wages, of horses' keep, etc., he thought, must render the transport of merchandise much dearer by canal than by an improved railway which combined economy of time and of labour.

Gray's scheme is an interesting one. He would have the railway system undertaken as a national work; for unless the nation took up the matter it would not be carried out on proper principles². He would have a national board appointed to introduce the most simple and general principle of uniform connexion throughout the country; there should be facility of national communication by having uniformity of rails and vehicles and provision should be made for the easy interchange of traffic. The central feature of his plan was to have a general iron railway centring at London, with one main trunk line running from London to Edinburgh and another trunk line from London to Falmouth³. From these, branches should be constructed to run to all the important places in the kingdom, so that London might be connected with all the industrial and commercial centres. By having these roads laid out in straight lines and on perfect levels, the distances between the chief places would be greatly reduced and thus the time and the cost of carriage and travelling would be much lessened⁴. On these great through routes there should be different roadways for trains going to and those departing from London; and as London was approached these should be increased in number⁵.

By such a plan, Gray thought to see extended into every part of the country the advantages which would lead to permanent prosperity; and so confident was he of the ultimate triumph of the steam railway, that he used every possible endeavour to secure its accomplishment. In 1820 and 1821 he submitted two addresses to His Majesty's Ministers

¹ *Gentleman's Magazine*, xciv, Pt. 2, pp. 313-16. He says: "Were canal proprietors sensible how much their respective shares would be improved in value, by converting all the canals into rail-ways, there would not, perhaps, in the space of ten or twenty years, remain a single canal in the country." (Gray, *General Iron Railway*, p. 9.)

² Letter of T. Gray on "Railway Advantages," in *Gentleman's Magazine*, xcvi, Pt. 1, pp. 126-8; also *ibid.*, xcvi, Pt. 2, pp. 310-12.

³ *Gentleman's Magazine*, xcvi, Pt. 1, p. 205. For his general plan for the railways of Great Britain, see his diagram in *General Iron Railway*.

⁴ *Gentleman's Magazine*, xcvi, Pt. 1, p. 205; also *ibid.*, xcvi, Pt. 1, pp. 126-8; Gray, *General Iron Railway*, p. 10.

⁵ Gray, *General Iron Railway*, p. 12. He says: "In order to establish a general iron railway, it will be necessary to lay down two or three railways for the ascending and an equal number for the descending vehicles. In the immediate neighbourhood of London, the traffic might demand six railways." With the constantly increasing traffic between Liverpool and Manchester, he would lay down between these two places also six lines. Similarly for other towns, according to their importance.

of State, showing the great national importance of his scheme; and again, in 1822, he urged its importance upon them by giving a detailed account of its advantages¹. In 1823 he renewed his petition to the Ministers of State and asked for the appointment of a Select Committee of the House of Commons to investigate his plan². He likewise petitioned the Board of Agriculture and tried to show them that the many important advantages which his proposed system of railways would afford to the public must overcome every prejudice and finally prevail over every other means of conveyance³. In a petition to the Lord Mayor and Corporation of the city of London, he reiterated the advantages that would result from the adoption of this new system of carriage; and asked them, in the interests of the whole country, to favour the establishment of railways⁴. But, whatever the reason may have been, Gray's national railway project was not taken seriously, for nothing was done towards its accomplishment⁵.

The name of William James seems to have been given a place secondary in importance to that of Thomas Gray and the two Stephensons; and yet he was among the earliest, if not *the* earliest, of the originators and promoters of the system of passenger transit on railways. It appears that, as early as 1799, he was engaged in laying out plans for railways, some details of which he gives in his memoranda⁶. This work was continued at least down to 1808 when his diary ends; and during that time he surveyed and completed many sections of railroad that were to be used for the conveyance of coal to navigable waterways⁷. In a paper addressed to the Grand Surrey Canal Company,

¹ Gray, *General Iron Railway*, pp. xvii-xviii.

² *Ibid.*, p. xix.

³ *Ibid.*, pp. xx-xxi.

⁴ *Ibid.*, pp. xxi-xxiii. He shows that by the railway the people of London might be regularly supplied with coal on comparatively reasonable terms, instead of "suffering under abominable extortion," under the existing conditions.

⁵ Anyone who will read Gray's book through will find some things which are visionary and even the more serious part of the book contains much that would antagonize the public and turn them away from the writer of it. In the *Railway Record*, II, pp. 401, 562, 595, 628, 658, 692, there are a series of articles dealing with "The Railway System and its Author," giving the chief facts in connexion with the work of Thomas Gray for the introduction of railways into England. He was at that time (1845) in destitute circumstances; and there was an agitation in favour of raising a sum of money that would put him beyond the necessity of hard manual work in those days of his old age. See also Wilson, *The Railway System and its Author, Thomas Gray, now of Exeter. A Letter to the Right Honourable Sir Robert Peel, Bart.* This was an appeal to Peel, by a friend of Gray's, that the latter might be relieved, and that his name might have the honourable place it deserved among England's great men in connexion with the railways.

⁶ P., *The Two James's and Two Stephensons*, p. 18; *Mining Journal*, Dec. 5, 1857, in which is found James's diary down to 1808.

⁷ *Ibid.*

he spoke of himself as an experienced engineer, "in railroads especially;" and other expressions of similar import are given in this same document¹. But the most remarkable part of his diary refers to his plan for the formation of a general railroad company, with a capital of £1,000,000, "to take lands for ever to form railroads," and to fulfil other designated purposes². We need not here follow his career and the testimony which was borne to his accomplishments; it will be sufficient to say that his wide experience and his ability were recognized at that time, but we have been unable to ascertain why his work has been overshadowed by that of his compeers³.

At this formative stage in the history of railways it was to be expected that a considerable variety of plans would be suggested for their construction and operation; they were an entirely new feature in the industrial and commercial world, and those who were most interested in them were groping their way in the endeavour to ascertain the conditions of the greatest economy for this new instrument of conveyance. It will, therefore, not be amiss to note some of the proposals that were made, with the intention of securing this object, in the early years of the railway development. Before the success of the locomotive engine had been fully assured, the use of the inclined plane on the coal-carrying railways was, as we have seen, a feature of common occurrence; and even after the tractive power of steam had been demonstrated there were still some roads which were planned by engineers of repute, partly as inclined planes to be worked by stationary engines and partly level to be worked by locomotive engines⁴. Instead of steam power, it was

¹ P., *The Two James's and Two Stephensons*, p. 22. For instance, he says in that paper: "...and that the said railroads and all person or persons, and their servants, carriages, and cattle passing thereon, shall be under the control and management of the said William James and his co-partners...."

² *Ibid.*, p. 23; also his diary referred to above.

³ For the rest of his work, and his connexion with George Stephenson, see *ibid.*, pp. 23-105. He advocated the possibility of attaining on railways a speed of twenty or thirty miles per hour—contrary to the opinions of George Stephenson and Nicholas Wood, who thought that railway travelling could never exceed eight or ten miles an hour (pp. 40 ff.). Even Robert Stephenson acknowledged that it was not his father, but William James, who was the "Father of Railways" (*ibid.*, p. 105). See also *Autobiography of Sir John Rennie*, pp. 234-6.

⁴ The Cromford and High Peak Railway, from the Cromford Canal to the Peak Forest Canal in Derbyshire, was made to rise by inclined planes to the summit level of one thousand feet above the former canal and then descend seven hundred and sixty feet to the latter canal. The rough country there made it necessary to propose the construction of both level parts and inclined planes, on the former of which locomotive engines were to be used and on the latter stationary engines (*Manchester Gazette*, Nov. 13, 1824, p. 3). On the Stockton and Darlington Railway they had both levels and inclined planes and both kinds of engine. They also used horse-power

not infrequently planned to use horse power, either on the incline or on the level¹. As late as 1829, when the Leeds and Selby Railway was in prospect, it was decided to make the operation of the line possible by either horse power or locomotive engines, or to permit the company to use locomotive carriages if this were thought desirable². George Stephenson, who had surveyed that line in 1825, had recommended for part of the line three inclined planes which could be worked by horse power or stationary engines, and for the remainder of it level reaches upon which locomotive engines could be employed. But in 1829, after Stephenson's suggestions had been rejected by the committee that had the work in charge, James Walker, who had also come into great prominence as a railway engineer, was asked to re-survey the line; and his opinion was decidedly in favour of the uniform system without inclined planes. Under these circumstances each shipper could utilize the line most favourably; and he calculated the strength of the rails, so that although at first horses would, in all probability, be the principal power used, yet locomotive engines might be used then or at a later time³. With accumulated experience of the results secured on railways, it became evident that for all ordinary purposes, where there would probably be traffic in both directions, the more nearly the line approximated to a perfect level the more economically could it be operated and the more efficient would be its service.

Another suggestion that seemed to find some favour was that railways might very acceptably be laid down at the sides of the ordinary highways and might be worked by either steam or horse-power. By this plan, the cost of the roadway would be greatly reduced, for the utilization of the land at the sides of the public roads for such a public purpose would not call for the enormous expenditures that were made by existing railways for the right of eminent domain. The carrying of

(Jeans, *Jubilee Memorial of the Railway System*, pp. 33-35, 43, 53-54). See also Walker and Rastrick, *Liverpool and Manchester Railway. Report to the Directors on the Comparative Merits of Locomotive and Fixed Engines*, pp. 3, 4, showing that there were inclined planes and stationary engines on other colliery roads, such as those of the Hetton Colliery and the Brinton and Shields. See also Wood, *Practical Treatise on Railroads* (1825), pp. 93-123, and *A Few General Observations on the Principal Railways*, pp. ix, 19-20, showing that in 1838, on the Stockton and Darlington and on the Leicester and Swannington, there were both self-acting and stationary-engine inclined planes, and these abrupt inclines were great drawbacks on all railways.

¹ Walker and Rastrick, *op. cit.*, p. 49. Rastrick here shows the great advantage of the locomotive over horse-power.

² *Leeds Intelligencer*, Nov. 5, 1829, p. 3, on the Leeds and Selby Railway.

³ Maetrick, *History of the Hull Railways*, pp. 18-32, gives Walker's report to the committee of the proposed Leeds and Selby Railway Company.

railways along the course of the highways would not cause the dislocation of the usual currents of trade: the inns along the roads would not suffer, the various establishments that had grown up as links in the customary trade circulation would not be endangered, the diverse interests that had grown up around the system of road carriage would not be threatened with annihilation, and consequently the change from the old régime to the new would be accomplished with as little adverse effect as possible. So hopeful were some in regard to the application of this method that a writer in 1829 observed that "it is therefore nothing problematical to expect in the course of the next ten years to see railways by the roadsides extending from London, Liverpool, Hull, Edinburgh," etc.¹ He asserted that by having railroads laid down on the high road from London to Liverpool, the mails drawn by a light locomotive engine might go this distance, 204 miles, easily in twelve hours, carrying twice their usual number of passengers and at much lower cost². Another, in 1833, considered horse-power more economical than steam, and he would have this applied on tram or railways, constructed as nearly as possible along the sides of the turnpike roads³. This suggestion was not the product of visionary minds, for even such a competent engineer as Fairbairn advocated the plan⁴. In addition to securing the advantages already mentioned, of reducing the cost of construction and perpetuating the existing trade routes with all their appointments for commercial purposes, railways located in this way would cause no invasion of estates, against which there was much complaint at that time. The decreased cost of construction would result in lower freight rates; and the increased traffic along the roads would ensure the receipt of tolls sufficient to repay the debts upon the various turnpike trusts. If the railways were built and owned by the state, as was suggested by Fairbairn, all revenues therefrom would accrue to the state. We see, therefore, that there were several reasons why this would appeal to the public; but when we remember that the locomotive engine works most economically on long lines of straight road we can see one physical reason why this method was not adopted⁵. The fact, too, that some

¹ *The Times*, Oct. 19, 1829, p. 3, on "Locomotive Carriages."

² *The Times*, Oct. 19, 1829, p. 3.

³ *Bristol Mercury*, Oct. 5, 1833, p. 4, letter from "A Well Wisher," on the comparative advantages of horse and steam-power on railways.

⁴ Henry Fairbairn's *Treatise on the Political Economy of Railroads* (1836).

⁵ *Ibid.* He gives a full description of this plan and the benefits that would result from it. In his chap. iv, he shows that steam-power is too expensive for use in conveying merchandise; horse-power is best for that purpose. This sounds grotesque in view of the present circumstances. Many other of his statements are ludicrous; for instance, he says that all the great navigable rivers, like the Shannon,

apparently impractical conceptions were associated with this scheme, must have militated against its serious consideration.

Another plan for the improvement of railways has the name of Henry R. Palmer associated with it¹. He proposed that where substances were likely to get on the rails, as was customary when they were so close to the surface of the ground, the rails should be elevated; but to elevate two lines of rail would cost too much, and, therefore, he would endeavour to arrange the form of a carriage so that it would travel upon a single line of rail without overturning. His method was to have the carriage so constructed that the two parts of it would balance upon the rail, irrespective of whether the number of passengers or the amount of freight were the same in each compartment². A line of railway on this suspension principle was constructed for practical purposes of demonstration at Chesham, in Hertfordshire; apparently, it did its work successfully and answered the design in every respect³, but it was intended more to exemplify the principle upon which it worked than to actually engage in the general carriage of all kinds of traffic. Why it was not employed as a regular means of conveyance, we have not the means of determining, although it was probably because of mechanical defects; and from that time onward all efforts at securing a workable monorail system were unsuccessful, until within the last few years when the gyroscope seems to have exhibited its practicability for the carriage of passengers at a high rate of speed.

We must now return from this digression as to the attitude of the public at this early time toward the railways, and the consideration of some of the proposals for securing their greatest effectiveness, to resume the historical development of the network of lines which was soon spread over the country. Through the discussion which was going on among engineers and the public generally, it was becoming evident that, not only from a mechanical standpoint⁴, but also economically, the railway

Mississippi, St Lawrence, Thames, etc., will now be deserted for land conveyance, when his system is put into effect. See his chapters vi and viii for such ethereal projects.

¹ Palmer, *Description of a Railway on a New Principle*.

² The details of the plan may be found in the work last referred to.

³ A full description of this railway and its method of operation is very clearly given in *The Times*, June 27, 1825, p. 3.

⁴ On the relative mechanical advantages of railways, canals and turnpike roads, especially the two former, see Sylvester's *Report on Railroads*; MacLaren, *Railways as compared with Canals and Common Roads*, p. 58 et seq.; Tredgold on *Railroads*; Nicholas Wood, *Practical Treatise on Railroads*; and contrast these with Gordon, *Observations on Railways and Turnpike Roads*, pp. 4-11, who thought that the mechanical advantage of an edge railway was small when compared with a good turnpike road. Of these mechanical features we shall not treat here.

was to largely supersede both the canal and the highway as a means for the facilitation of the carriage of goods and passengers. Besides, the success of the coal-roads, and especially of the Stockton and Darlington, on which locomotive engines were being used with admirable results, made widely known the benefits to be obtained from the new means of locomotion. But we must not suppose that the success of the Stockton and Darlington was the reason for the construction of the other roads which were opened a few years afterward; on the contrary, at least two of the most important roads were projected before the Stockton and Darlington line was opened, namely, the Liverpool and Manchester and the Liverpool and Birmingham. As we have already seen, the chief reason why the railways came into existence was because of the need of more adequate facilities for conveyance than the canals could give. The enormous profits which some canals were making were also an inducement for railways to come in and secure a share of these benefits¹, and the success of existing railroads, giving additional encouragement to the projectors of new lines, had an important effect in initiating these enterprises along routes where they were much needed.

What we have just said applies with special force to the transportation conditions and requirements between Liverpool and Manchester. Under the stimulus of the Industrial Revolution, which assumed its greatest prominence in the cotton industry of Lancashire, villages had grown into towns and towns into large cities. Since the year 1760 Manchester and Salford, which are separated by only a small river, and which are considered as one, had probably increased in population at least eight-fold before 1830². The increase in the amount and value of

¹ The great profits of the navigations between Liverpool and Manchester are considered when we come to take up the necessity for the Liverpool and Manchester Railway. Regarding the profits of the Bridgewater Canal, see also Parkes, *Claim of the Subscribers*, p. 24. As to the amount of the profits of the Birmingham, Grand Trunk and other canal companies, see Parkes, *op. cit.*, pp. 16-20, 24, 43-44, 61. See also the examples given in 'Prospectus of the Birmingham and Liverpool Rail Road Company.' In *Aris's Birmingham Gazette*, Dec. 13, 1824, p. 1, a letter from F. Finch regarding the proposed Birmingham and Liverpool Railway speaks of the "inordinate profits" that the canals had enjoyed long enough.

² Sandars' pamphlet on the *Liverpool and Manchester Railway* gives us the following figures for the population of Manchester and Salford:

in 1757 -	19,837 (estimated)
1773 -	27,246 (estimated)
1821 =	133,788 (census figures)
1824 =	163,888 (estimated).

Booth's figures were:

in 1760 about	22,000)	Booth, <i>Liverpool and Manchester Railway</i> , p. 6.
„ 1824 „	150,000)	

the cotton manufactured there had been very great, amounting to fifty per cent. in the eight years following the close of the Napoleonic war¹. So great had been the change, that, while in 1814 there was not one power loom in Manchester, in 1824 there were nearly 30,000 of them². Manchester had become the focus of a large manufacturing population, from which large quantities of cotton goods were sent to Liverpool and thence to all parts of the world. Liverpool also was rapidly attaining commercial importance and as a seaport was second only to London. Her population had almost doubled between 1800 and 1825³; and her colonial and foreign trade had been making great progress, as is shown by the tonnage and customs statistics⁴. Foreign produce of all kinds

¹ The following figures show this fact:

Year	Cotton manufactured at Manchester	
	(a) Quantity	(b) Value
1815	110,000,000 lbs.	£7,487,562.
1823	160,000,000 lbs.	£10,875,000.

² Booth, *Liverpool and Manchester Railway*, p. 6. In 1790 there was only one steam-engine in use in Manchester while in 1824 there were over two hundred.

³ Sandars gives the following figures for the population of Liverpool:

in 1720 = 11,833 (estimated)	
.. 1760 = 25,787 (estimated). Same figure given by [Corry], <i>History of Liverpool</i> , p. 119.	
.. 1801 = 77,708 (census)	
.. 1811 = 94,376 (census)	
.. 1821 = 118,972 (census)	
.. 1824 = 135,000 (estimated).	

⁴ On the imports, exports and shipping of Liverpool, see Brit. Doc. 1825 (182), ii, 409, and 1825 (206), ii, 413.

According to Sandars (p. 44), the statistics of tonnage and dock duties at Liverpool were as follows:

Year	No. of ships	Tonnage	Dock duties		
			£	s.	d.
1752	—	—	1,776	8	2
1760	1,245	—	2,330	6	7
1770	2,073	—	4,142	17	2
1780	2,261	—	3,528	7	9
1790	4,223	—	10,037	6	2½
1800	4,746	450,060	23,379	13	6
1805	4,618	463,482	33,364	13	1
1815	6,440	709,849	76,915	8	8
1822	8,136	892,902	102,403	17	4
1824	10,001	1,180,914	150,911	11	6

From these figures it is evident that the tonnage of this port had much more than doubled between 1800 and 1824, while the dock duties in 1824 were almost six times as much as in 1800. Sandars gives these figures for each year, but his figures

passed daily from Liverpool to Manchester and manufactured goods went from Manchester to Liverpool, whence they reached the world's markets. The amount of this interchange of commodities between these two cities was conservatively estimated at 1000 tons a day and it was constantly increasing¹. This great advance in population and in industry meant a greatly increased demand in the facilities for handling both in-coming and out-going freight.

How had this increasing demand for carrying facilities been met by the existing transportation agencies? The cost of carriage by land was 40s. per ton, which was so high as to be almost prohibitory for all goods except those of the finest quality and highest value. In reality, land carriage was more largely concerned with the carrying of passengers than of goods, although, on account of delays by water carriage, it frequently occurred that waggons and carts had to be resorted to for taking cotton up to Manchester and manufactured goods back to Liverpool². This was done in the face of a freight rate that was three times that on the canal, in order to secure speedy and certain delivery of goods that were required for immediate shipment from Liverpool³. But the carriage of most of the heavy goods was done by the navigation companies, which felt themselves secure in the possession of a monopoly that they had long enjoyed to the public detriment. To the consideration of this monopoly we now turn our attention in order that we may see how their work had been carried on.

By various devices, both the Mersey and Irwell (or "Old Quay") Navigation Company and the Bridgewater Canal Trustees had contrived to raise their rates above what they were legally allowed to charge⁴.

for the earlier years do not exactly correspond with those of Enfield, *Essay towards History of Liverpool*, pp. 67-69.

In 1770 the customs receipts at the port of Liverpool were £231,994. 12s. 5d. In 1822 they were £1,591,123, and in 1823, £1,808,402, which shows how rapidly they were increasing. (In addition to above references, see Baines, *History of Liverpool*, p. 492.)

In 1784 there were eight bags of American cotton imported into Liverpool; in 1824 there were 409,670 bags. Of this, the great bulk went to Manchester (Booth, *Liverpool and Manchester Railway*, p. 5). In the footnote to pages 6 and 7, Booth shows the progress of the port of Liverpool from 1824 to 1830.

¹ Booth, *Liverpool and Manchester Railway*, p. 4; Sandars, *Liverpool and Manchester Railway*, p. 13; also 'Prospectus of the Liverpool and Manchester Railway Company,' as given in Booth, p. 11.

² Sandars, *op. cit.*, p. 17.

³ *Ibid.*, p. 17. He says that goods going from Manchester for immediate shipment from Liverpool, often paid £2 or £3 per ton for carriage.

⁴ Concerning the conditions of carriage by these two routes between Liverpool and Manchester, we shall follow Sandars, *Liverpool and Manchester Railway*, p. 4 et seq., in his description of their methods. His statements were uncontradicted, were based upon documentary evidence and bore the sanction of authority.

The Old Quay Navigation Company, by their Act of 1733, were allowed to levy a tonnage duty of 3*s.* 4*d.* per ton, but were not restricted as to the rate of charge for freight. They adhered faithfully to this rate of tonnage; but as they owned nearly all the warehouses in Manchester on the banks of their navigation they were able to make much more revenue by freight, since for the use of these warehouses they could charge what they pleased and without the warehouses the navigation would be useless. In this way they were able to put their charges up so high as to drive all the other carriers off the navigation, and thus almost monopolize the carrying trade on their route. It will be observed that, in increasing their charges, this company did not violate their own laws. But this cannot be said of the Bridgewater Trustees, who, apparently, transgressed in several ways the statutory authority under which they were expected to operate, as we shall now show. The proprietor of the Bridgewater Canal was bound by his Acts not to charge more than 2*s.* 6*d.* per ton for canal dues; and for this charge the Duke was required to provide, for all persons carrying goods on his canal, wharfage or warehouse room for a certain period of time. He also bound himself not to charge more than 6*s.* a ton (tonnage included) for any goods which he might carry by his own vessels¹. How was this fulfilled?

On the suggestion of Brindley, who surveyed the Trent and Mersey Canal, the Duke arranged with the Trent and Mersey Canal Company to unite the two canals at Preston Brook in order to facilitate the transfer of goods from one canal to the other; and His Grace contracted to cut the canal from there to Runcorn at his own expense. By this means the two canals would have a common outlet to the Mersey tideway and thus the communication would be more convenient and complete². In consideration of his expenses in making and maintaining the canal from Preston Brook to Runcorn and the necessary locks and other works to accompany the canal, the Duke was empowered to receive a tonnage duty of 6*d.* per ton on all goods destined to enter the Trent and Mersey Canal³. This sum was exacted by the Duke on *all* goods that were conveyed between Liverpool and Manchester, in addition to the 2*s.* 6*d.* allowed by his own Acts, although he would have had to bring his canal to Runcorn and charge no more than the 2*s.* 6*d.* if he had not arranged with the Trent and Mersey Canal Company. This made the tonnage duty between Liverpool and Manchester 3*s.*

¹ Acts 32 Geo. II, c. 2 (1759), sec. 29; 2 Geo. III, c. 11 (1761), sec. 11.

² Act 6 Geo. III, c. 96 (1765), sec. 84.

³ Trent and Mersey Canal Act, pp. 100-4; Act 6 Geo. III, c. 96 (1765), secs. 86-87.

But this was not all. His Grace bound himself to the Trent and Mersey Canal Company that if he ever found it necessary to make increased accommodation at Runcorn, the tonnage charge should still not be more than *5d.* He soon found it necessary to construct a large reservoir there into which vessels destined to enter his canal were admitted at tide time. He pretended to construct this for his own vessels, but he kindly permitted those of other carriers to enter on condition that they paid *1s.* per ton for the privilege, which was almost a necessity. This amount he collected on all goods passing along his own canal, as well as on those destined for places along the Trent and Mersey. This raised the tonnage to *4s.* per ton.

A third means of increasing this tonnage rate remains to be pointed out. When the Rochdale Canal Company obtained its Act for cutting a line from Rochdale to Manchester, the Duke of Bridgewater obtained permission to make the lock to connect his canal with the Rochdale; and for this he was empowered to levy *1s. 2d.* per ton on all goods which passed his lock, as indemnification for the loss which his warehouse property might sustain by this junction. In return for this payment he was bound to find warehouse room, gratis, for the goods for a certain limited time. Instead of this legal charge, he exacted the *1s. 2d.* per ton on all goods that were carried on his canal between Liverpool and Manchester, whether they passed the junction lock or not. In this way he managed to secure *5s. 2d.* per ton on all goods carried on his line, while the Legislature never intended him to have more than *2s. 6d.*

In addition to this unduly high charge, another extortion of the Bridgewater Trustees was that all goods which passed from Liverpool to Runcorn to enter the Trent and Mersey Canal had to pay about twice the amount of freight which they should have paid, owing to the fact that these Trustees had monopolized nearly the whole of the land and warehouses at Runcorn. They would not allow the goods to be landed at all without paying what they asked.

It is evident, therefore, that each of the existing navigations between these two great cities was acting so as to get the greatest possible amount from the service rendered; each was operating as a virtual monopoly. The Duke was strongly advised to buy the Mersey and Irwell Navigation at the price for which it was offered, about £10,000; but he was confident of the superiority of his canal and rejected the offer¹. But

¹ On his refusal, it was bought by some Manchester merchants and in the years preceding 1825 it was producing an average annual revenue of about £15,000; in other words, the yearly receipts were one and one-half times the total cost. *Brit. Mus.* 08.235. f. 77, 'Observations on the General Comparative Merits of Inland Communication by Navigations or Railroads,' pp. 6-7.

although the Duke declined to purchase this Old River Navigation, it seems that the two companies found it advantageous to share the monopoly, with each other. The alliance of their interests was effected by an agreement made in 1810; and in that year the two concerns publicly advertised that they had mutually agreed upon an advance of freight rates¹. The rates of 1810 were nearly three times those of 1795 and about one-third more than those of 1824². Of course, by the latter year it was becoming evident that there was the possibility of putting down a railway between these two places; and, apparently to placate those who wanted the railway, the navigation companies reduced their rates, but even the reduced rates were twice as much as those of 1795³. Until this possibility came before them there was an unqualified refusal to make any reduction⁴, and any objections made by shippers were met with insolence on the part of the navigation companies⁵.

Not only were the charges for transportation high, but the delays in the carriage of goods were often long and vexatious. These were occasioned, sometimes because of the entire stoppage of the waterways by frost or drought, and at other times by their being blocked up on account of the pressure of traffic. At times, storms and adverse winds prevented the navigation of the tideway of the Mersey, for it frequently occurred that when the wind blew very strong either south or north, the vessels could not move against it. Merchandise was often brought across the Atlantic to Liverpool in twenty-one days; while, owing to the various causes of delay above mentioned, goods were in some instances longer than this on their passage from Liverpool to Manchester⁶.

¹ Brit. Mus. 08,235. f. 77, 'Observations on the General Comparative Merits of ... Navigations or Railroads,' p. 7. The advertisement of this change is given in *Liverpool Advertiser*, Sept. 29, 1810. Each company gave public notice of the change of rates over the signature of its own agent and the two advertisements are exactly alike.

² Sandars, *op. cit.*, pp. 11-13.

³ *Ibid.*, p. 13. Their rates in that year (1824) were: on heavy goods, such as corn, 12s. 6d. per ton, and on light goods, like cotton, 15s. per ton.

⁴ See letter of Captain Bradshaw, who had charge of the Bridgewater Canal interests, in reply to a Memorial from the Corn Merchants of Liverpool asking for a reduction of freight. He refused to make any move toward such lowering of rates. Bradshaw's letter is given in full by Sandars, p. 12.

⁵ If the merchant complained of delay, he was told to do better if he could. If he objected to the rates, he was warned that if he did not pay promptly his goods might not be carried at all.

⁶ See 'Prospectus of the Liverpool and Manchester Railway,' as given in Booth, *op. cit.*, p. 13. In regard to this lack of carrying facilities and the delays, see also 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 14, and Brit. Mus. 08,235. f. 77, 'Observations on the General Comparative Merits of ... Navigations or Railroads,' p. 7.

Even the opponents of the railway did not deny that this had occasionally been the case¹. But the causes of delay were mostly of such a nature that the navigation companies were powerless to effect much change in them, for the forces of nature were beyond their control; and, therefore, in the complaints as to the inadequate service, more emphasis was laid upon the extortionate charges which were voluntarily imposed than upon the impediments which could not be avoided².

The results of this monopolistic policy pursued by the two navigations were highly satisfactory to them, but not to the public generally. For nearly half a century, the thirty-nine original proprietors of the Mersey and Irwell Navigation had been paid every other year the total amount of their investment³; and shares in that navigation company, the original cost of which was £70 each, had been sold in 1824 for £1250 each⁴. In the case of the Bridgewater Canal, the results were similar; and one who knew the financial position of that concern as fully as anyone could know it without being a trustee had good reason to believe that, since about 1800, the net income of this canal had averaged nearly £100,000 a year⁵. Remembering that the cost of this canal was £200,000 to £220,000, we see that, at the above rate, the whole cost of the undertaking would be repaid every two years or a little more. These statements are in accord with that made by another in 1826, who, speaking upon this point, said that because the canals had recently raised their rates they were then making more than 100 per cent. profit⁶.

¹ Booth, *op. cit.*, p. 16.

² It was "the enormous charge for the freight of goods" between Liverpool and Manchester that had "become quite insufferable" (Sandars, p. 3). Of course, some delays were directly traceable to the navigation companies, for it was a well-known fact, especially among corn and timber dealers, that great difficulty had been found in getting vessels or barges to convey these things to Manchester. Timber had frequently been detained in Liverpool a month for want of barges to carry it inland, and corn and other commodities had been delayed eight or ten days for lack of a vessel for their conveyance. This was a serious evil, for men would not go to a market from which they had such difficulty in getting their goods (Sandars, p. 16). The delays on the canals also made it possible for much pilfering of goods to be carried on. On this monopolistic policy, see also *Brit. Mus.* 08,235, f. 77, 'Observations on the General Comparative Merits of... Navigations or Railroads,' pp. 6-7; Aris's *Birmingham Gazette*, Dec. 13, 1824, p. 1, letter from F. Finch; P., *Letter to a Friend on the Comparative Merits of Canals and Railways*, pp. 29-30, speaking of the overgrown monopolies between Liverpool and Manchester.

³ Sandars, *op. cit.*, p. 21.

⁴ *Ibid.* p. 21; also 'Prospectus of the Liverpool and Manchester Railway,' as given in Booth, p. 12.

⁵ *Ibid.*, p. 21. The fact that no one ventured to deny what Sandars said seems to point pretty conclusively to the accuracy of it. See also Parkes, *op. cit.*, p. 24.

⁶ *Hansard's Parl. Debates*, xv (1826), p. 93.

From these facts, it is apparent that the monopolizing policy of the two navigation companies was, for the time being, highly advantageous to them, although their benefit was secured by means that were derogatory to the best interests of industry¹.

In the light of what we have here presented it is clear that a new line of conveyance was essential if adequate provision were to be made for the growing needs of that district. The proprietors of the navigations said that, by allowing time for increasing the number of their boats and the facilities for loading and unloading, they would be able to take care of the increase of trade; but this would not put an end to the delays or reduce the expenses of transport, against which there were such persistent complaints. Another canal was out of the question for the existing navigation had possession of all the water that was available; and it never seemed to occur to them that by lowering their rates they might perpetuate their business and also their profits². Canal navigation had failed to meet the conditions of an expanding trade and a developing industry; and therefore the only thing to do was to obtain parliamentary authority for laying down a railway, which would combine the requisites of speed³, economy⁴, and safety⁵.

In 1822 a project was formed for constructing a railway between these two cities, on which carriages driven by steam should carry both merchandise and passengers at the rate of ten miles per hour. The expenses of a survey were contributed, and in the autumn of that year

¹ It was not the desire of the Duke of Bridgewater that his canal should thus be used for the personal enrichment of the one individual who controlled it. On the contrary, his will (which gave R. H. Bradshaw the position of "superintendent" of the Duke's possessions) showed that he intended the canal for the public good, for it says that the almost unlimited authority conferred on the superintendent was "to the intent that the public may reap from the same those advantages which I hope and trust the plan adopted in this my will is calculated to produce for their benefit" (Brit. Mus. 10,815. c. 35, 'Will of the Duke of Bridgewater,' p. 50).

² Brit. Mus. 08,235. f. 77, 'Observations on the General Comparative Merits of . . . Navigations or Railroads,' p. 7.

³ In the passage from Liverpool to Manchester, goods going by canal took, on the average, about 20 hours (Sandars, p. 17). But by a railway it would not take more than one-sixth of that time. The railway would not be hindered by drought or frost, or any of the other impediments and dangers of water carriage. The railway would have extra carriages ready to meet any emergencies of business and thus prevent delay from that source.

⁴ The rates by the railway would be greatly reduced and competition would prevent their becoming exorbitant. Thus coal and other necessities would be procured cheaper than at present. Goods shipped by railway from either terminus for the other would not have to break bulk and be transhipped at the tideway.

⁵ When goods were sent by railway there would be no losses in the Mersey tideway due to storms. There would be no breaking open of packages and pillaging of contents if the goods were in the railway car (Sandars, p. 17).

William James completed the survey and suggested a line of road. Public notices were given of the intention to apply to Parliament for authority to execute this line: but, probably owing to the fear of opposition from the whole body of inland navigation proprietors throughout the kingdom and for other causes, the measure was not followed up¹. The enterprise, however, was not allowed to sleep; men were sent to investigate the Stockton and Darlington and other coal-roads in the north, especially near Newcastle and Sunderland, where both locomotive and stationary engines were in use for the conveyance of coal, and after their return it was decided to form a company for building a double railway between Liverpool and Manchester. The promoters were men of the highest standing and influence in these two cities. On Oct. 29, 1824, the company issued its prospectus, which detailed the reasons why the railway was desired and the benefits to be secured by it². In the early part of 1825 application was made to Parliament for an Act to authorize the construction of this road.

Strong opposition was aroused against this Bill. The proprietors of the three navigations which connected Liverpool and Manchester forgot their former jealousy and disagreements and made common cause against the proposed railway. Their chief argument was that of vested interests: that their canals had been brought into existence under the authority of a former Act of Parliament and that now Parliament could not consistently pass a Bill which would destroy that property³. But this pretext was taken away when it was shown that there was a great difference between superseding an old machine that had paid its owners thirty times over, and superseding one that had not paid its owners the amount of its first cost. As these navigations belonged to the first class, there could be nothing against their being displaced by more advanced means of carriage. In league with the navigation companies were the large landholders, like the Earls of Derby and Sefton, a part of whose estates would be crossed by the railroad. They opposed the railway because they believed the sanctity of their domains would be invaded and the privacy of their residences destroyed by thus bringing into their neighbourhood a public highway, with its varied traffic of coal, merchandise and passengers⁴. The canal companies that were interested in the traffic of this region issued circulars calling upon "every

¹ *Manchester Gazette*, Oct. 16, 1824, p. 3.

² The full text of the prospectus is given in Booth, *Liverpool and Manchester Railway*, p. 9 et seq. This first railway prospectus is an interesting document.

³ See report of the committee of the House of Commons on the Liverpool and Manchester Railway Bill, 1825, which gives full details as to the character of the opposition. See also Sanders, *op. cit.*, p. 21.

⁴ *Hansard's Parl. Debates*, N.S., XII, p. 848; Booth, *op. cit.*, p. 15.

canal and navigation company in the kingdom" to oppose to the utmost, and by a united effort, the establishment of railways wherever contemplated¹; and these must have had great influence when the cause was aided by Bradshaw, the superintendent of the Bridgewater Canal, whose authority was almost as good as law². So intense was this opposition of the canal interests that, in their opinion, it was impossible for a man to hold any of these railway shares and still be loyal to the canal company of whose shares he held any considerable amount³. The hostility of the estate-owners was also vigorous: they had used every means to prevent the making of a survey for the proposed railroad. They had blockaded their grounds on every side and had men employed to watch them. Bradshaw even fired guns through his grounds in the course of the night to prevent the surveyor coming on in the dark⁴. Both the navigation companies and the large landowners employed parliamentary representatives to work in their behalf, so as to put down such an intolerable innovation in established modes and vested rights⁵. The railway company likewise sent down a committee

¹ See postscript attached to the prospectus that was distributed to members of Parliament and others, as given verbatim in Baines, *History of Liverpool*, p. 603.

² According to Sandars (pp. 31, 32, 34) no bill could be brought forward in Parliament for a canal in any part of the kingdom but Bradshaw interfered to give full directions. He made the trade of the country tributary to him in all directions. Sandars, pp. 31-33, gives examples of this: "Every man, every Corporate Body, seems spell-bound the moment Mr Bradshaw interposes his authority."

³ At a meeting of delegates from different parts of the kingdom, to consult as to canal interests in general, one of the delegates was turned out because he had five shares in the railway. The fact that he held canal property of the value of £40,000 was no protection to him. Sandars, p. 34.

⁴ See letter of George Stephenson to Joseph Pease, dated Oct. 19, 1824, giving details of this opposition. This letter is reproduced in Jeans, *Jubilee Memorial of the Railway System*, pp. 55-56, to show that the railway promoters had "sad work with Lord Derby, Lord Sefton, and Bradshaw."

⁵ Of course, those members of Parliament who acted in this way were not acting in any judicial frame of mind, but as those who were biased in favour of their friends. Mr Creevey, who represented Lords Sefton and Derby, was a member of the parliamentary committee to deal with the Liverpool and Manchester Railway Bill: and the attitude of some is well exemplified in Mr Creevey's letters (Maxwell, *Creevey Papers*, II, pp. 87-88). Under date of Mar. 16, 1825, he writes: "...Sefton and I have come to the conclusion that our Ferguson is insane. He quite foamed at the mouth with rage in our Railway Committee in support of this infernal nuisance—the locomotive Monster, carrying 80 tons of goods, and navigated by a tail of smoke and sulphur, coming through every man's grounds between Manchester and Liverpool." On Mar. 25, 1825, he writes: "...I get daily more interested about this railroad—on its own grounds, to begin with, and the infernal, impudent, lying jobbing by its promoters." See also under dates of May 31 and June 1, of the same year.

to London to watch and aid the progress of the Bill through the House of Commons¹. After a contest of about three months, during which the necessity of additional means of conveyance was emphasized and thoroughly acceded to, some errors were discovered in the survey that had been made and this created so unfavourable an impression on the committee that the Bill was withdrawn². Before the next year an accurate survey had been made; the line of way was changed so as to be less objectionable to the Earls of Sefton and Derby; the Marquis of Stafford, representing the Bridgewater Canal, had been induced to subscribe for 1000 shares of stock in the railway; and a new prospectus was issued, explaining the causes of the former unsuccessful application, how these had been overcome, and the benefits that would accrue from the railway³. Early in 1826 the Bill was introduced a second time, and in that session it passed both Houses⁴. Various estimates are given as to the cost of obtaining the Act, varying from £40,000⁵ to £70,000⁶, but, of course, either of these estimates may be far from the actual amount. George Stephenson was then appointed resident engineer, and under his direction the work was pushed to completion as rapidly as possible.

Of the difficulties connected with the construction of the line we shall not speak⁷. The means adopted to overcome the immense bog called Chat Moss, which the railway crossed as if it were dry and firm land, when at any point a piece of metal would sink out of sight by its own weight, forms a chapter in engineering which is of great interest. But while we shall not discuss the physical and mechanical features connected with the formation of the road, there is one aspect of its development which we may profitably refer to, namely, the choice of motive power. The line was nearing completion at the end of the year 1828, but no agreement had been reached as to whether stationary or locomotive engines should be employed⁸. In order to settle this

¹ Booth, p. 14; Baines, *History of Liverpool*, p. 603.

² Booth, p. 18.

³ Booth, pp. 25-31, gives this prospectus also in full.

⁴ The new survey put the line so that it did not touch the Earl of Sefton's estate and crossed only a few detached fields of the Earl of Derby's estate. The opposition of the Bridgewater Navigation, the most powerful of the two direct routes, was disarmed by the Marquis of Stafford taking such a large interest in the railway (see second prospectus as given by Booth).

⁵ *Birmingham Journal*, May 27, 1826, p. 3.

⁶ *Ibid.*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway." Compare these estimates with that of Booth in the Appendix of his work.

⁷ On this aspect of the work, see Smiles, *Lives of the Engineers*, George Stephenson.

⁸ Chattaway, *Railways*, p. 2, tells us that even horse-power was considered.

important matter, two celebrated engineers, James Walker and John Urpeth Rastrick, were asked to investigate this question and report their results to the directors of the railway. They visited the important places where steam-engines were used, notably the Stockton and Darlington and other coal roads in the north; and afterward each made out his own report showing his conclusions, in which there was almost entire harmony between the two engineers. In their reports, they were agreed that, having regard for the present and prospective interests of the company, locomotive engines would be found the more satisfactory. These should travel at the rate of ten to fifteen miles per hour¹. In addition, they would employ two stationary engines upon the Rainhill and Sutton inclined planes to draw up the locomotive engines along with the carriages and goods. Their view, that on the line as a whole locomotive engines should be used, found acceptance with the directors; but the locomotive engines that had been used for some years in connexion with a few of the large collieries for the conveyance of coal were utterly unsuited to the requirements of passenger traffic. Knowing the vital importance of the character of the motive power, the directors offered a premium of £500 for the best locomotive adapted to the purposes of their line, two of the conditions being that it should be capable of drawing at least three times its own weight, at a speed of not less than ten miles per hour, and that it should consume its own smoke². Several competitors entered this contest, and in October, 1829, the various designers of the engines brought their locomotives for trial on the railway. On the first day, the engine made by Braithwaite and Erickson, of London, exceeded all others in speed; but when the competition had continued for some days, in order to have a good test of all the engines, the prize was finally awarded to George Stephenson's engine, the "Rocket"³. After the expiration of almost another year,

¹ Walker and Rastrick, *Liverpool and Manchester Railway, Report to the Directors on the Comparative Merits of Loco-motive and Fixed Engines, as a Moving Power*. Nicholas Wood thought that the locomotive engine ought not to travel more than eight miles an hour; but these two engineers believed it could go at the rate of ten miles per hour with perfect safety, provided it did not exceed eight tons gross weight, exclusive of the tender (*ibid.*, pp. 49, 76).

² Chattaway, *Railways*, p. 2. For the conditions of this competition, see Jeaffreson, *Life of Robert Stephenson*, 1, pp. 124-5. The Liverpool and Manchester Railway Act, 7 Geo. IV, c. 49, required the engine to "effectually consume its own smoke."

³ Full details of the trial of the engines are given in *The Times*, Oct. 8, 1829, p. 3; Oct. 9, 1829, p. 3; Oct. 12, 1829, p. 3; Oct. 16, 1829, p. 3; Oct. 24, 1829, p. 4; Oct. 31, 1829, p. 2. See also Smiles, *Life of George Stephenson*. These experiments, and others later, showed that the locomotive engine could easily attain a speed of 24 to 30 miles an hour. An account of this trial of the engines is given also in:

during which the construction of the roadway and its accessories proceeded toward completion, the line was formally opened with great élat and enthusiasm, on September 15, 1830¹.

With the Liverpool and Manchester line, the railway era really began. It was the first railway that was constructed for the express purpose of carrying passengers as well as freight; and no other power was ever used on it but that of locomotive engines. Up to this time, all others, except the Surrey Iron Railway, had contemplated the carriage of one commodity (usually coal, iron, or stone) and were operated as adjuncts to a colliery, quarry, or the like; while the Surrey Iron Railway employed only horse-power in the work of conveyance. The Liverpool and Manchester, on the contrary, was constructed for the public welfare, rather than for private profit, as we can readily judge by the fact that no person could subscribe for more than ten shares, and the profit on these would not aggregate very much for any individual². Indeed, under the Act of Parliament by which it was authorized³, the profits or dividends were limited to ten per cent.⁴; and the undertakers were so anxious to encourage industry and commerce that they declared they would be satisfied with even five per cent.⁵ It is very evident, then, that there was a wide difference between the Liverpool and Manchester Railway and any of those which had preceded it.

The immediate success of the Liverpool and Manchester Railway was the occasion of universal admiration and satisfaction. The rate

Liverpool Times, Oct. 13, 1829, p. 328, and Oct. 20, 1829, p. 333. The facts connected with this contest are also given in Jeaffreson, *Life of Robert Stephenson*, 1, chap. ix.

¹ A full account of the opening is given in *Liverpool Times*, Sept. 21, 1830, p. 298; *Manchester Guardian*, Sept. 18, 1830, p. 3; and Smiles' *Life of George Stephenson*. See also the history of the Liverpool and Manchester Railway written by Walker, pp. 42-48, for a description of the "Grand Opening of the Railway." The rejoicing of the day was saddened by the death of Mr Huskisson, M.P., which occurred because of an accident on the line. Booth, who was treasurer of the company, gives us an account of the construction of the line and the expenditures connected therewith in his second chapter. His third chapter is an account of the railway itself. His fourth chapter shows the mechanical principles applicable to railways, and how the directors finally decided to adopt the locomotive engine. In the Appendix he gives the details of the cost of the railway, which, including stations, warehouses, etc., amounted to £820,000.

² *Hansard's Parliamentary Debates*, N.S., xii (1825), p. 848; *The Times*, Mar. 3, 1825, p. 2, statement of Mr Huskisson in the debate in the House of Commons on this Bill.

³ Act 7 Geo. IV, c. 49.

⁴ See also *The Times*, Mar. 3, 1825, p. 2, and April 7, 1826, p. 2, statements of Mr Huskisson.

⁵ *The Times*, Mar. 3, 1825, p. 2.

of speed on passenger trains was twice that of the fastest stage coaches and the cost of travelling was reduced about one-half¹, while the amount of travelling increased fourfold². Under these circumstances many of the old stage coaches ran almost empty for a short time and several were immediately withdrawn. Soon all the stage coaches disappeared from regular service along this route and the railway absorbed all the passenger traffic³. The freight rates also were reduced by the railway by about one-third; and in order to enable the carriers on the navigations to meet this reduction the tolls on the Bridgewater Canal and on the Mersey and Irwell were reduced by about thirty per cent.⁴ The effect of the railway, therefore, was beneficial to the public by reducing overgrown monopolies within reasonable bounds, and it also stimulated these opulent canal companies to think of something else than their own pecuniary interests⁵. The value of land along the line of railway invariably increased, which was advantageous both to landowners and tenants, for the tenants had wider and better markets opened up to receive their produce and because of this enhancement of the value of the land the landowners could receive higher rents. This was observable also in cases where the railway company wanted to buy land in addition to that which they already held; their second purchase was invariably

¹ *Proceedings of the Great Western Railway Company*, p. 6; *Annual Register*, 1832, p. 445; 'Great Western Railway. Evidence on the London and Birmingham Railway Bill,' testimony of Henry Booth, p. 8. According to Mr Booth's statement, the fare between Liverpool and Manchester, by stage coach, had varied a good deal, but was about 10s. inside and 6s. outside. On the railway, first class fare was 5s. and second class 3s. 6d. The statement of a writer in the *Manchester Guardian*, Sept. 25, 1830, p. 2, makes the railway fares a little higher than those given by Booth, placing first class at 7s. and second class at 4s. On the reduction of rates see also 'Collection of Prospectuses, etc.,' p. 65, which is in close accord with Booth's assertion.

² Before the railway, there were about twenty coaches per day between Liverpool and Manchester. Supposing these to be full every trip, carrying eighteen passengers each and pursuing their daily rounds for three hundred days in the year, there would be 108,000 people carried between these places in the course of the year. But in the twelve months after the opening of the railway about 460,000 persons were carried between these two termini (*The Times*, Oct. 19, 1831, p. 4).

³ *Manchester Guardian*, Sept. 25, 1830, p. 2, on "Railway Coaches."

⁴ P., *Letter to a Friend, containing Observations on the Comparative Merits of Canals and Railways*, p. 12. The freight rate between Liverpool and Manchester was reduced from 15s. to 10s. The tolls on the Bridgewater Canal were reduced from 3s. 8d. to 2s. 8d., and on the Mersey and Irwell from 3s. 4d. to 2s. 4d. See also 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' pp. 13, 65.

⁵ P., *op. cit.*, pp. 29-30; *The Times*, April 7, 1826, p. 2. For canals which were paying one hundred per cent. every year or every two years there was need of some new factor to reduce their charges.

made at a higher price than that paid for the first¹. Not only did the public benefit from the railway, but the company itself also realized that the enterprise was a corporate success. In the first half of the year 1831 the net receipts were such that, after large expenditures for warehouses, carriages, etc., the company was able to declare a half-yearly dividend of £4. 10s. per share²; and the annual rate of dividend continued to range between eight and ten per cent. during the years following³. The value of the shares in the market may also be

¹ See evidence before the committee on the London and Birmingham Railway Bill, as summarised in *Birmingham Journal*, May 19, 1832, p. 3, e.g., evidence of Messrs Earle, Lee, Unsworth, Pense. See also *Proceedings of the Great Western Railway Company*, p. 6. The prospectus of the Liverpool and Birmingham Railway Company and the Birmingham and Liverpool Railway Company, whose interests were practically identical, showed that land which, from its vicinity to the Liverpool and Manchester Railway had been expected to deteriorate in value, and the owners of which had consequently claimed compensation, had, on the contrary, become more valuable than before. See especially the testimony of Mr Lee before the committee on the London and Birmingham Railway Bill, to the effect that some property along the line of the Liverpool and Manchester Railway had been sold for building purposes at three to five times the sum it would have brought before the establishment of the railway. The almost universal testimony of those who gave evidence before the committee on the London and Birmingham Railway Bill in 1832 was that lands along the route of the L. & M. Ry had increased in value. Even land formerly waste had been brought into cultivation and yielded a good rent. See also *Annual Register*, 1832, p. 445; 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 65; 'Great Western Railway. Evidence on the London and Birmingham Railway Bill,' pp. 34-37; and the notable case of increased land values given in *Railway Times*, IV, p. 215.

² The receipts from Jan. 1 to June 30, 1831, as given by the *Annual Register*, 1831, p. 169, were:

	£	s.	d.
From conveyance of passengers	43,600	7	5
" " merchandise	21,875	0	0
" " coal	218	16	2
Gross receipts	65,693	13	7
Expenses for repairs, salaries, etc.	35,379	0	0
Net receipts	30,314	13	7

The net receipts divided among 7012 shares allowed a dividend of £4. 10s. per share for the half year. (It will be noted that there is a slight error here in summing up the gross receipts.) See also Brit. Mus. 8235, cc. 12 (1), p. 2.

³ In 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 173, there is given an 'Extract of the Report of the Liverpool and Manchester Railway,' for the half year ending Dec. 31, 1833, with a comparison of the results for this six months with the results for previous half years since the railway began operation. The half-yearly dividend thus far had ranged from four to four and one-half per cent. This financial statement was also attached to the prospectus of the Great Western Railway, 1834 (*ibid.* p. 176). In Brit. Mus. 8235, cc. 12 (1), 'Reasons in favour of a Direct Line of Railroad from London to Manchester,' p. 2, we have a comparison

taken as an index of the measure of the success of the railway. Even before the experiments of October, 1829, to find the best engine for use on the line, the railway shares had been selling at a premium; but after that time their value rose very rapidly, until, within a month after the success of the locomotive engine had been demonstrated the shares were selling at £175 when the original value was only £100¹. So great was the demand for these shares, and so highly were they valued, that it was difficult to procure them on any terms. By 1832 the value of the shares had risen 100 per cent.², and by 1836 almost 200 per cent.³, above their original value. All the important railways that were taken up immediately after 1830 put forth the success of the Liverpool and Manchester Railway as an attestation and guarantee of the success of their own enterprises⁴.

But we must follow the finances of this company a little farther if we would obtain a correct idea as to its operations. Let it be said, first of all, that by its Act the company was limited in the payment of dividends to a maximum of ten per cent. a year; and it was the only railway company that was restricted in this way. As we have seen, the company early paid the full amount of the dividend that was allowed and continued to pay this for many years. When the company sought authority from Parliament to construct the road it was declared that £510,000 would be ample for all purposes⁵; and according to their Act of incorporation the capital was fixed at that amount. But it would appear that this amount proved insufficient to complete the road and its equipment, and by the Acts of 1829 and 1830 the company was allowed to increase its capital by the issuance of shares to the amount of £127,500 and £159,375 respectively, all of which was said to have

of the above receipts of 1831 with those of the year 1836, showing that the dividend in the latter year was ten per cent. In 1834 it was paying nine per cent. (*Proceedings of the Great Western Railway Company*, p. 52), and in 1842 it was paying ten per cent. (*Railways: Their Uses and Management*, p. 7).

¹ *The Liverpool Times*, Nov. 24, 1829, p. 376, informs us that before these experiments the shares were selling for £118 each, but at this date they were now selling for £75 premium, and could scarcely be had even at that price.

² *Proceedings of the Great Western Railway Company*, p. 52: also evidence on the London and Birmingham Railway Bill, 1832, testimony of Henry Booth. The shares in 1831 were selling for £196 (*Remarks upon Pamphlet by Investigator on the Proposed Birmingham and London Railway*, p. 4; 'Collection of Prospectuses, etc.,' p. 65).

³ *Gentleman's Magazine*, 1836, vi, p. 421. The Liverpool and Manchester shares, the par value of which was £100, were selling in 1836 for £280.

⁴ See prospectuses of the Birmingham and Liverpool, London and Birmingham, and Great Western railways.

⁵ See the company's prospectus, as given in Booth's history of the railway.

been expended and yet the works were not completed. Under subsequent Acts, they were allowed to raise by sale of shares or to obtain on loan a further sum amounting to £427,500, thus bringing the total capital up to £1,224,375, of which the share capital was £808,025 and the loan capital £416,350¹. In 1837 the company presented a bill to Parliament, stating that although the above amount had been spent "on or about the undertaking," its works had not yet been completed; and accordingly it was desired to obtain authority to borrow an additional sum of £400,000, which, if authorized, would raise the capital to £1,624,375. This extra amount was to be asked as a loan from the Government, that is, from the Exchequer Loan Commissioners, and in case the Government advanced the money it was to have the prior claim upon the revenues of the company². In the six years up to 1837, the company had paid in dividends £442,504. 7s. 6d.; but during the same time the amount obtained on loan and by the sale of shares was much in excess of this amount, and, therefore, the company would seem to be obtaining money from others to pay dividends, while all the time becoming more embarrassed³. But when seen in another light, these several accessions to capital presented facts which led to an entirely different conclusion. Their expenditure upon additional works was said to have brought additional revenue; so that after paying the interest on these increasing amounts obtained from creditors the company was still able to pay the maximum dividend of ten per cent.⁴ Instead, therefore, of the company becoming more hopelessly embarrassed financially, it was ostensibly getting upon a more secure foundation. We prefer to think that this was the explanation of the above-mentioned great increase of capital. But there is another way in which it can be, and was, accounted for, namely, as a device for overcoming the restriction of their profits to ten per cent. It was held by some that if Parliament had rigidly enforced this provision of the Act and steadfastly refused to allow the distribution of additional profits under any other guise, the company would have been compelled time and again to reduce the fares and charges to the public; but since this provision was not enforced the railway company, under the semblance of increasing the "public accommodation," created a pretext for the issuance of new shares, and thus extra profits were divided out in

¹ These facts appear in the Bill presented to Parliament in 1837, asking for further authority (*The Times*, May 9, 1837, p. 6, letter from "T. G."), and are confirmed by W. S. Moorsom, C.E., in *ibid.*, May 23, 1837, p. 6.

² *The Times*, May 9, 1837, p. 6, letter of "T. G."

³ *Ibid.*, May 9, 1837, p. 6. This was the contention of "T. G."

⁴ *Ibid.*, May 23, 1837, p. 6, letter of W. S. Moorsom giving quotations from the company's semi-annual financial statements.

the form of new stock¹. If this were the explanation of the great increase of capital from time to time, the road must have been sufficiently profitable to pay at least forty to fifty per cent. It seems to be more consonant with the facts to accept the first solution of this problem; for if the company's business were so flourishing that surplus profits could be divided out in this way, there would have been no need of applying to Parliament for a Government loan. And yet, in the face of these facts, several persons, by their publications, attempted to prove to the public that this railway was nothing but an unprofitable speculation².

We have now brought our subject down to the time of the initiation of the modern railway; but in order that we may consider in detail the effect of this new means of transportation we must see it in a more advanced stage of development, for it is impossible to form any correct estimate of its value and influence from a single example apart from a system. It will, therefore, be necessary for us to outline the history of railways to about the middle of the century in order to see the forces which were at work throughout this early period when the railway was attaining a position of importance as a public carrier.

During the third decade, when the railway had not yet demonstrated its great superiority, but was in the tentative evolutionary stage, and when the locomotive engine was still in the experimental period of its development, there was uncertainty and instability of the public mind concerning the utility of this newcomer in the field of transportation. Some expected that the railway would only add another means of conveyance to those already existing, in the same way as the introduction of canals had done sixty years before, but that every facility given to the carriage of materials, while adding to the general carrying trade, would cause no injury to canal property³. It seems, however,

¹ *The Times*, Oct. 1, 1846, p. 5, letter from "Cato."

² Gordon, *Treatise upon Elemental Locomotion*, 2nd ed., p. 225 et seq.; Gordon, *The Fitness of Turnpike Roads and Highways*, p. 28; Cort, *Railroad Impositions Detected, or Facts and Arguments to prove that the Liverpool and Manchester Railway has not paid One per cent. Nett Profit, etc.* These based their opinion upon the probability that nothing had been set aside for depreciation. See also *Remarks upon Pamphlet by Investigator on the Proposed Birmingham and London Railway*, p. 4. Grahame, *Treatise on Internal Intercourse and Communication* (1834), p. 159, in summing up his statistics and arguments regarding the Liverpool and Manchester Railway, said: "No one, who fairly considers these results, but must acknowledge that the whole is a failure, at least, as presently conducted. The expenses are so enormous, as completely to absorb every advantage of speed, and each year these expenses increase." He would have the road open to all, so that, upon payment of the tolls, anyone could use the road as freely as they did the turnpikes.

³ *Manchester Gazette*, Jan. 15, 1825, p. 3, editorial comment.

that there were few who regarded railways in this way. Many people foresaw in them very decided advantages, and, while fairly assured in their own minds that a new era was dawning in the transport service, they had not yet received complete proof that its successful establishment was at hand. But whatever were the prospects of the railways, whether favourable or unfavourable, there was a large amount of capital in the country seeking investment and this superabundance of capital introduced the rage for speculation¹, in which the railways shared. The years 1825 and 1826 seem to have been the climax of this speculative fever. All kinds of projects were promoted by men who were eager to take advantage of the circumstances of the time to reap large returns from credulous and unsophisticated prospective investors. Men were induced to believe that they had only to embark in one of these schemes to ensure themselves a life of affluence and ease; labour and care were to be at an end and the golden harvest would soon appear. In February, 1825, there were at least five railway companies and thirty dock companies, loan companies, insurance companies, and other kinds of undertaking, that were being floated². Railways were being planned to connect the most important mercantile and manufacturing towns in the kingdom, and the success of the Stockton and Darlington line gave added impetus to this movement³, notwithstanding the secret opposition which was very active on behalf of interested bodies for their own private good. This fever was instituted mostly for purely speculative purposes, in order that projectors and their attorneys and other assistants might profit to a large extent through trafficking in shares⁴. The latter were brought into the market at a premium and pushed to as high a price as possible; then they were unloaded upon unsuspecting and unfortunate individuals who were duped and left stranded "after the waters of delusion had ebbed away⁵." Of the great number of these schemes that were brought forward, but few ever came to completion; of the others, no vestige remained except in the disaster which

¹ Brit. Mus. 68,235. f. 77, 'Observations on the Comparative Merits of inland Navigations and Railroads,' pp. 8, 10.

² *County Chronicle and Weekly Advertiser*, Feb. 1, 1825, p. 2, gives a list of thirty-five such companies then afloat.

³ *The London Magazine*, 1, N.S. (1825), p. 33, on "Railways;" Grinling, *The History of the Great Northern Railway*, p. 4. Among these railways may be mentioned the London and Birmingham, the Great Northern from London to Cambridge, and the Liverpool and Birmingham. *Aris's Birmingham Gazette* for the year 1825 (note, for example, the issue of Jan. 31, 1825) shows a great many projects for railroads that were then occupying public attention.

⁴ *The Times*, July 17, 1832, p. 3, statement of Lord Wharncliffe; Mudge, *Observations on Railways*, p. 35.

⁵ Investigator, *Beware the Bubbles*, p. 10; Mudge, *op. cit.*, p. 35.

overtook those who had been deceived by the wiles of the mercenary speculators. How much capital was lost from legitimate productive industry we have no means of ascertaining; but if we were to receive the statements of contemporaries¹, and then make much allowance for exaggeration, we should still be required to believe that this panic assumed proportions of considerable magnitude. Fortunately, however, only a few of these projects which were brought forward were authorized by Act of Parliament to proceed to execution, for most of them were ventures of such a nature that their success could not be definitely foretold². But when the success of the Stockton and Darlington was assured the year 1826 saw the authorization of eighteen new railways, among them the Liverpool and Manchester.

Following the policy that had been pursued with great benefit to the country for three-quarters of a century, in allowing private enterprise to develop and manage inland communication, the Legislature considered each of the schemes brought forward according to its own merits; and for each one that met with approval a private Act was passed, which contained the entire statutory provisions applicable to the undertaking.

After the utility of the locomotive had been shown on the Stockton and Darlington line, and especially after the results of the trials of the locomotives on the Liverpool and Manchester, in the autumn of the year 1829, had been made known, interest was aroused anew in the prospects of railways. The vast range of possibility which opened up when it was seen that locomotive engines could travel at rates of speed from twenty-five to thirty miles an hour, seemed to fire the imagination of many. By this means, places then considerable distances apart would be brought very close to one another; the capitals of Scotland and Ireland would be within twenty-four hours' journey of London; facility in the communication of intelligence would enable the people in all corners of three kingdoms to keep in direct touch with the measures

¹ Investigator, *Beware the Bubbles*, p. 1, speaks of the "uncontrollable exercise of the spirit of speculation, which, in 1825 and 1826, brought about so fatal a crisis, involved so many in ruin," etc.; and again (p. 10) he refers to the "melancholy wrecks of men of important station." In Felix Farley's *Bristol Journal*, Oct. 5, 1833, p. 2, a letter from John Weedon speaks of the "rash and improvident speculations which led to the frightful commercial catastrophe of 1826." Mudge, *Observations on Railways*, p. 35, deplors allowing the "delusive and ruinous speculations" of 1825 to go on unchecked, and says that this "injury to the wealth and prosperity of the country" was felt for nearly ten years.

² On the details of this panic, see Francis, *History of the English Railway*. Jeaffreson, *Life of Robert Stephenson*, 1, pp. 272 et seq., shows the difference between the railway crises of 1825 and 1836 and the railway mania of 1844-6.

that were before the Government for consideration, and public opinion would acquire a strength and concentration that it never possessed before. By the rapidity and cheapness of travel, workers in any part of the country could readily go to any other part, and the inevitable consequence would be that sooner or later there would be only one rate of wages throughout the United Kingdom. The ease and celerity with which markets could be reached would cause land to be brought into cultivation that had hitherto been required to lie waste because of the expense of transporting the produce to a suitable market. By means of steam, it was thought, the produce of land twenty or thirty miles from the market would be brought to the place of sale in as short a time, and at as small a cost, as the produce of land five or six miles distant had been by waggon; and, therefore, while the consuming public would profit by this increased supply, the landlords would also derive advantage because of the increased value and rentals of their lands and the farmers would receive greater net returns from the sale of their surplus¹. With such vast national benefits as these and many others presented to an admiring world, it would have been strange, indeed, if there had not been an outburst of sentiment in favour of an expansion of railway construction; and the statement in 1829 that within ten or twenty years the whole country would be united by railways which would convey passengers and goods at twice the speed and one-third of the expense that then prevailed², was abundantly fulfilled in strict literalness of detail. With the accustomed tendency to exaggeration, people had been talking of travelling in the near future at fifty or sixty miles per hour³; but more conservative minds were counselling moderation. It was thought that the rate of thirty miles an hour of actual progress would be as great a velocity as would be compatible with safety. In any case, railway promoters should wait until the Liverpool and Manchester Railway was opened before making a survey, since a few months' operation of that line would teach many things of which people were then ignorant⁴. Even as late as 1831 there were some who, after the Liverpool and Manchester Railway had been in operation for a half year, still advised to go slowly in the further establishment of railways; it was said that the greater economy of this new means of carriage had

¹ See, for example, *Liverpool Times*, Nov. 17, 1829, p. 362, on "Future Changes." So great would be the advantages secured in the way of linking up closely the great towns of the kingdom, that the writer thought the country would become like Sir Thomas More's Utopia, where "*tota insula velut una familia est.*" He was particularly interested in the great benefits which would accrue to Liverpool in making it the most important port of England.

² *Ibid.*

³ *Birmingham Journal*, Dec. 5, 1829, p. 4, on "Steam Coaches and Locomotive Engines."

⁴ *Ibid.*, Dec. 12, 1829, p. 4, on "Steam Travelling" (editorial).

not yet been proved, and that experience alone would show whether railways could carry cheaper than canals¹. But, while urging the necessity of caution and the desirability of avoiding undue haste, it was felt that the locomotive on the rails was to be the coming means of transportation, and, therefore, consideration should be given to making the road as nearly level as possible and to preventing all chances of obstruction, so that the engines might develop the greatest power and the highest rate of speed².

The first lines that were actually constructed after the opening of the Liverpool and Manchester were in connexion with it, and chiefly in Lancashire. A branch was formed from Bolton to Leigh, and another from Leigh to Kenyon, where it formed a junction with the main line. Other branches were made from Newton, on the main line, to Wigan on the north and Warrington on the south, and still another from the main line, near St Helens, to Runcorn. It is not our purpose, however, to enter into details as to the filling in of the shorter lines; rather do we consider it as consonant with our object to describe the laying down of only the foundations of the railway system, and to the greater lines only shall we devote our attention.

Following the year 1824, an active campaign had been pursued to secure a railway between Liverpool and Birmingham. A large traffic was carried on along this route between the midland metropolis and the great port on the Irish Sea; yet the carrying facilities of these two places, like those of Liverpool and Manchester, were uncertain, expensive and totally inadequate to their necessities. We have already detailed the conditions which existed between the two latter places for the carriage of goods before the railway was constructed; but, according to the prospectus of the two companies which were desirous of having the railway between Liverpool and Birmingham, the conditions attending water carriage between these two cities were "infinitely worse" in regard to delays, charges and impediments³. It would almost seem as if this statement were exaggerated; and in order that the reader may see the relative conditions along the two routes we shall present a few facts concerning the conveyance of merchandise by the waterways between Liverpool and the Midlands⁴.

As in the case between Liverpool and Manchester, so also between

¹ *Birmingham Journal*, Mar. 5, 1831, p. 3, on "Railways"

² *Ibid.*, Dec. 12, 1829, p. 4.

³ 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' pp. 13-14, gives the prospectus in full. It is also given in *Birmingham Journal*, Mar. 11, 1826, p. 1, and in *Liverpool Times*, May 11, 1830, p. 149.

⁴ For the facts pertaining to water carriage between Liverpool and Birmingham, we shall refer much to Parkes, *Claim of the Subscribers to the Birmingham and Liverpool*

Liverpool and Birmingham, the canal companies constituted probably the strongest opposition to the construction of a railway. Their monopolistic policy was not to be overthrown without a struggle to save it. For many years the canals along this route had made inordinate profits: one of the canals connecting with Birmingham paid an annual dividend of £100 on the original cost of £140 per share, so that the annual profits divided among the shareholders closely approximated the first cost of the canal¹. It would appear that some canals profited still more largely from their trade, for we learn that one of them passing through this midland district paid an annual dividend of £140 upon an original share of £140, and the value of such shares had been increased from £140 to £3200; while another in the same district had paid an annual dividend of £160 upon the original shares of £200, and the shares had been enhanced in value until they had reached £4600 each². Impediments of one kind and another caused delays to the transit of merchandise; for example, all goods that arrived at Runcorn had taken three or four hours, and occasionally as many days, in the Mersey estuary; then at Runcorn every ton of goods had to be transhipped and the loaded barges had to be elevated through the locks to a height of seventy-five to ninety feet before they could proceed on their way; after that they set out along the canal for Birmingham, which they reached four to six days after leaving Liverpool³. Similar delays and barriers had to be endured by the finished products of the Midlands on their way to the port, whence they could be shipped to the great markets. In addition, the cost of conveyance along the canals, together with the great amount of compensation tolls imposed when

Railway. His statements were not contradicted, and may therefore be taken as accurate.

¹ Parkes, *Claim of the Subscribers*, pp. 19-20; West, *History of Warwickshire* (1830), p. 100.

² See Prospectus of the Birmingham and Liverpool Railroad Company. This statement was not controverted by any other evidence, not even before the parliamentary committee to which the Bill was referred, and it may therefore be considered as true. Had it been possible to contradict it, the denial would certainly have been made, since every effort was being used at this time to discredit the railways. See confirmation in Parkes, *op. cit.*, p. 24; also Aris's *Birmingham Gazette*, Dec. 13, 1824, p. 1, letter from F. Finch, in which he speaks of the "inordinate profits" which these canals had long enough enjoyed. Cumming, *Rail and Tram Roads* (1824), p. 47, evidently quotes from the Prospectus of the Birmingham and Liverpool Railroad Company. See also *Birmingham Journal*, Sept. 2, 1826, p. 1, Prospectus of the Proposed Railway from Birmingham to Wolverhampton.

³ Prospectus of the Liverpool and Birmingham Railway, as given in the *Liverpool Times*, May 11, 1830, p. 149. The delays, charges and impediments of the navigation were felt as early as 1771 by Brindley, who projected an aqueduct bridge over the Mersey as a remedy.

a barge passed from one canal into another, were serious obstacles to the development of traffic¹. But, despite these restrictions upon the system of transit in that part of the country, there had been a great increase in the amount of, and revenue from, the tonnage which centred in the Midlands²; so great in fact, that the existing facilities could not accommodate the traffic, and, therefore, there was a persistent demand for new means of conveyance. To rely upon water carriage for auxiliary facilities would be to invite disaster, and this for several reasons. In the first place, no more water was available for an extra canal throughout that section³; and even had there been abundance of water for an additional canal, there were circumstances that were decidedly opposed to the formation of such a waterway. The conveyance by canal, under the best conditions, was altogether too slow for the carriage of meat, butter and other agricultural produce, since these might be spoiled before they reached the market for which they were intended⁴; and the transport of manufactured commodities from the interior to the coast was frequently so uncertain that shippers sometimes suffered considerable loss through their inability to ship goods by a pre-arranged vessel. During the drought of summer and early autumn, the boats often had to go with a light load and wait their turns in passing the locks, so as to economize in the use of water⁵. Moreover, some of the castings and apparatus, then sent at great expense by land carriage, could not be sent by canal, because their size would not permit them to pass through canal locks, and, occasionally, because their weight exceeded the tonnage of a single barge⁶. The stoppages of traffic on the canals along this course were frequent and sometimes prolonged, for floods damaged the navigation works, repairs consumed much time, and frost was sometimes a still more serious barrier. All these suspensions deranged the accustomed production, distribution and consumption of products, and consequently the price, so that both producer and consumer suffered thereby⁷. Considerable delays occurred also from the lack of a sufficient number of boats to convey the accumulation

¹ Parkes, *op. cit.*, pp. 42-43.

² *Ibid.*, p. 44.

³ *Ibid.*, p. 45.

⁴ *Aris's Birmingham Gazette*, Feb. 2, 1829, p. 2, letter of "A Looker-On," says that the average speed of a boat passing along a canal, with a full load, and without the interruption of locks, was two and one-half miles per hour. In Mr Lee's letter (*ibid.*, Feb. 9, 1829, p. 1), replying to the foregoing, while he contradicts some things mentioned by "A Looker-On," he does not deny this statement as to the rate of speed. For further confirmation of this, see also *ibid.*, Dec. 17, 1827, p. 3, letter from Mr Lee containing some facts as to canal traffic rates.

⁵ Parkes, *op. cit.*, p. 47.

⁶ *Ibid.*, p. 45.

⁷ *Ibid.*, pp. 47-52.

of goods¹; and on various occasions goods had been in transit from four to six weeks². Because of these circumstances, namely, the vast increase of trade in the districts between Birmingham and Liverpool, the increasing importance of cheap and rapid transport, and the glaring fact that, although the profits of water carriage had increased beyond those of any other branch of enterprise, no reduction had been made in the charges of conveyance, the commercial and industrial classes proposed to construct a railway that would furnish adequate facilities to meet the enlarged needs of trade.

The first efforts toward securing such a line were made in the year 1824, when two companies were formed to undertake this work: one, the Liverpool and Birmingham Railway Company to construct the portion of the line from Liverpool, and the other the Birmingham and Liverpool Railway Company to construct the portion of the line from Birmingham. Their interests were identical, and they worked together to secure separate acts of incorporation and to frame regulations under which they could collaborate for their mutual good and the public advantage. Each company issued its prospectus in 1824, showing the existing conditions and the changes which would be effected should they be successful in securing parliamentary authorization to construct their line: and in this announcement they promised to carry "by day and night, at all times of the year, in periods of frost or of drought, at the rate of at least eight miles an hour," and at an expense "less by one-third, probably by one-half," than the existing rate by canal³. Immediately the opposition was aroused, led by those who were interested in maintaining the monstrous monopoly of the navigation interests; and owing to the hostility of the combined opponents, and to some inexplicable causes⁴, the railway companies were powerless to secure the passage of their Bill. The advantages to be obtained from the proposed railway, however, were too great to allow the project to permanently fail; and a quiet agitation was continued in its favour. The companies endeavoured to placate opposition and to solicit the concurrence of those whom they had been able to win over from their attitude of dissent⁵. Early in the year 1826, the Birmingham and Liverpool Railway Company issued an address and appeal to the public, explaining their motives and the principal grounds upon which

¹ Parkes, *op. cit.*, p. 53.

² *Ibid.*, p. 54.

³ Parkes, *op. cit.*, pp. 57-60, gives the prospectus.

⁴ *Birmingham Journal*, Dec. 12, 1829, p. 3.

⁵ See, for example, *Birmingham Journal*, Jan. 21, 1826, p. 3, showing that the railway companies sent representatives to attend at the meetings of the commissioners of the turnpike roads along and near the route, in order to get them to favour the railway. In this, they seemed to have poor results.

they based their case¹. They showed that because there was only one canal connecting Birmingham with Liverpool there was no competition in the conveyance of goods; hence the need of a railway to introduce that element in the life of trade. The distance between Birmingham and Liverpool by canal and the Mersey river was approximately 120 miles, but by the proposed railway it would be only ninety miles. Moreover, the time required by fly boats to follow this waterway between the two termini would be at least sixty hours, but by the proposed railway it would not exceed fifteen hours. The freight rate for merchandise would be reduced from 45s. per ton by the above waterway to not more than 30s. per ton on the rails. The stoppages on the canals, due to frost, drought and other causes, which occasioned great inconveniences and frequent losses to shippers, would be unknown with the railway; and the injury to corn, merchandise and other goods, on account of the leakage and sinking of boats, could not occur on the railway. In the previous session of Parliament the canal proprietors had strenuously denied that there was any need for additional means of conveyance; but in the session following there was a Bill before Parliament for a canal from Autherley to Nantwich, along the line of the intended railway, which was a virtual admission that there was need of greater accommodation for the public. This being granted, it was a question whether parliamentary sanction should be given to a railway or to a second canal. The railway line had been lately re-surveyed by Jessop and Rennie and the greatest care had been taken to render the route as satisfactory as possible to the largest number of the landed proprietors, although there were some whom they had not been able to conciliate. Having detailed some of the local advantages that would result from the railway, its promoters also showed its importance from the national point of view, as forming part of one great line of direct communication between London and Ireland, and they concluded by requesting Parliament and the public to consider it impartially and to obtain for the country the benefits it held out to agriculture, commerce, manufactures and the political security of the realm. This appeal was signed by Robert Peel, the chairman of the company, and doubtless carried much weight except with those who were personally interested in opposing the railway.

For some months we are unable to follow the company's history, but in August of that year (1826) there was held at Birmingham a general meeting of the subscribers to the railway, at which an unexpected turn was given to their affairs. Those present at this meeting, while fully satisfied regarding the advantages of a railway between Birmingham

¹ *Birmingham Journal*, Mar. 11, 1826, p. 1, gives this address in full.

and Liverpool, yet decided that, taking into consideration "the existing pecuniary embarrassments of the country," and the present difficulties in the way of obtaining an Act for a line upon the extensive scale originally proposed, it would be prudent to confine their efforts to the establishment of a railway between Birmingham and Wolverhampton, with such branches as might be thought necessary to the neighbouring towns and works. This line would not exceed fourteen miles in length and could be executed for £150,000; it would pass through the heart of the mining district of Staffordshire, and thus provide another means of supplying Birmingham, Wolverhampton and intermediate places with coal, iron, lime and other materials for their manufacturing industries. Those subscribers who preferred to retire rather than cooperate in this limited enterprise would be allowed to do so under reasonable terms, and those who wished to continue as subscribers would be retained, but in no case could a subscriber hold more than fifty shares of fifty pounds each¹. At the same meeting there was read a prospectus of this proposed shorter line of railway, showing the large population and business interests of this locality, the need of additional means of conveyance to compete with the monopolistic canals and reduce the freight charges, and the desirability of eliminating long-existing grievances². It would seem that this project did not materialize, probably on account of opposition that was aroused through party squabbling; for at a meeting of the subscribers to the undertaking in the early part of the year 1831 it was agreed, with only one dissenting voice, to suspend further prosecution of the work for a year³. Evidently they had not got much, if any, nearer to the execution of the proposed undertaking.

But although this partial enterprise was devoid of results, the earlier plan for a line between Birmingham and Liverpool had, in the meantime, been resumed. Toward the end of the year 1829, when the people had seen the probable, if not the positive, success of the Liverpool and Manchester Railway, a large and enthusiastic meeting of the wealthy merchants and manufacturers of Birmingham was held, to promote the construction of the line to Liverpool⁴. About the same time, a meeting was held in Liverpool, at which it was determined to form a company for constructing a railway from that city along the same course as that projected by the Birmingham people; and, in order to further this plan,

¹ *Birmingham Journal*, Sept. 2, 1826, p. 1, gives the exact words of the resolutions accepted at that general meeting.

² *Ibid.* The prospectus is here given verbatim.

³ *Ibid.*, Feb. 12, 1831, p. 2, on the "Wolverhampton and Birmingham Railroad."

⁴ *Ibid.*, Dec. 12, 1829, p. 3, on the "Birmingham and Liverpool Railway."

and to reduce the opposition as much as possible, the interests of the navigation companies were to be given attention. To remunerate canal proprietors for the losses which they would probably sustain from impending competition, extraordinary inducements and privileges were held out for them to become shareholders in the railway¹. Before the middle of the year 1830 this line had been surveyed by Stephenson and Rastrick on the same double-track plan as that of the Liverpool and Manchester²; and a new prospectus had been issued detailing the reasons for the proposed railway and the advantages which would be secured by it³. As in 1824, the work was to be carried out under the superintendence of two companies, one beginning at each end of the line; their interests were to be identical, in making application to Parliament for separate Acts of incorporation, in framing their laws and regulations, and in fixing their tolls, the object being to secure unity of design and harmony of operation. In the session of 1831 application was made to Parliament for a Bill to authorize the construction of this road; but after a little time it was decided not to proceed with the measure in that session of Parliament and consequently the Bill was withdrawn. But although the Bill for the whole line was withdrawn, the Birmingham committee resolved to apply for the part of the intended line between Birmingham and Wolverhampton. The House of Commons, however, refused to entertain their application under such circumstances and the committee abandoned, for the time being, their legislative activity⁴. In November of that year, the subscribers to the proposed Liverpool and Birmingham Railway met to consider a report from the committee which had been appointed to determine the best course to be pursued to further their object. This report showed what had already been done, the opposition encountered and the difficulties overcome; and recommended that, instead of beginning at Liverpool, the railway should join with the Warrington and Newton line at Warrington and proceed southward from there, thus forming a

¹ *Birmingham Journal*, Dec. 26, 1829, p. 2.

² *Ibid.*, June 5, 1830, p. 2; *Manchester Gazette*, June 5, 1830, p. 3. The line was to be 100 miles long.

³ *Liverpool Times*, May 11, 1830, p. 149, gives the prospectus in full. In brief, the advantages of the proposed railway, as given in the prospectus, were as follows: (1) avoiding the dangerous and uncertain navigation of the Mersey; (2) much greater speed in the carriage of goods; (3) reduction of the cost of carriage; (4) passengers would then be conveyed in one-half the time and at one-half the cost; (5) hence, great saving to the agricultural, commercial and manufacturing classes; (6) Ireland would be benefited by a wider market for her produce. The prospectus is also given in 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' pp. 13-14.

⁴ *Manchester Guardian*, July 16, 1831, p. 3.



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continuation of that short road. The committee also recommended that the line stop at Wolverhampton, instead of being carried all the way to Birmingham, in order to placate the strong opposition among the canal proprietors who were antagonistic to the formation of a railway between Wolverhampton and Birmingham; but a deputation from Birmingham showed that if this course were followed most of the subscribers of that city would withdraw their names¹. Early in 1832 the Liverpool and Birmingham Railway Company, with which the Birmingham and Liverpool Railway Company had consolidated², decided that the railway should commence at Warrington, where it would virtually join the Liverpool and Manchester, and terminate at Birmingham, the distance between these two cities being seventy-four miles³.

In the latter part of the year 1832, it was found expedient for these two consolidated companies to unite under one head, forming the Grand Junction Railway Company. This company revived the undertaking which had been previously postponed, and planned to connect Birmingham with Warrington, whence connexion would be secured through Newton with Liverpool and Manchester by means of the lines that were already in operation. The road was to be made through the mining and manufacturing sections of Warwickshire and Staffordshire, with branches finally to the Pottery districts; and the prospectus which the company issued expressed the conviction that the traffic would be sufficiently great to yield a net return of fifteen per cent. upon capital⁴. Application was made to Parliament for authority to give effect to the company's purposes⁵, and on May 3, 1833, the Grand Junction Railway Act received the sanction of the House of Lords⁶. In 1825, these two

¹ *Manchester Guardian*, Nov. 19, 1831, p. 3.

² *Birmingham Journal*, Dec. 10, 1831, p. 3. It would seem that the Birmingham and Liverpool Railway Company came in for some scathing censure, because that after acting as a self-constituted body and "fattening from the deep subscription purse," they had incurred expenses of about £17,000 in connexion with their three-fold application to Parliament, and yet had accomplished nothing. *Ibid.*, Dec. 24, 1831, p. 3, letter from "A Sufferer."

³ *Ibid.*, Jan. 14, 1832, p. 2; *Manchester Guardian*, Jan. 14, 1832, p. 2; *The Times*, Jan. 13, 1832, p. 4. It was expected that this road would pay a clear profit of about fourteen per cent. on the capital expended.

⁴ The Grand Junction Railway prospectus is given in full in the *Manchester Guardian*, Oct. 27, 1832, p. 1. It was dated Oct. 15, 1832. The estimated cost of the road between Birmingham and Warrington, 75 miles, was £1,000,000, which was thought to be in excess of the amount that would be actually needed. By using the Liverpool and Manchester and Warrington and Newton connexions, the distance between Liverpool and Birmingham would be 95 miles, and between Manchester and Birmingham 96 miles.

⁵ *Birmingham Journal*, Nov. 17, 1832, p. 1.

⁶ *Ibid.*, May 4, 1833, p. 3.

divisions, from Newton to Warrington and from Warrington to Birmingham, were incorporated into one line, thus forming continuous rail communication for over eighty miles. This was a very important road, not only because it was the longest line at that time, but because it brought the Midlands and the intervening commercial and manufacturing district into close connexion with Liverpool, the second largest port of the kingdom.

Contemporaneous with the efforts to secure a railway between Liverpool and Birmingham, there was corresponding activity to obtain rail connexion between Birmingham and London. The need of this was greatly felt at that time. The commercial and industrial classes were prevented from reaping the full reward of their activities, because of the impediments to the carriage of goods on the canals. The latter were frequently stopped, sometimes for considerable periods, on account of frost, drought, or the necessity of repairs¹; and at such times shippers, who had arranged to send goods on a particular vessel, were unable to fulfil their orders, while the shipowner also lost by being deprived of the revenue from this freight². Even if the canals were not stopped, the rates of conveyance were so slow that merchants lost orders because they could not get their goods in time to ship by a certain sailing. By "fly boats" on the canal, the fastest water conveyance of the time, it took four days to bring such products as glass from Birmingham to London³, and then there were losses to be borne on account of breakage and pilferage, which, on the great amount of traffic along that route, amounted to a large toll annually⁴. In addition to these barriers, the freight rates were so high that the monopoly of the canal companies had long been recompensed by a great profit on their capital⁵. Some commodities, such as linens, silks and others, for the carriage of which speed was a desideratum, had to be brought by coach and pay charges which were two, three, or four times as much

¹ 'London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Committee of the Lords on this Bill,' pp. 3, 8, 10, etc., evidence of Messrs Barry, Dillon, Moore. The latter, who was a Birmingham merchant, said that some of his goods had been delayed in transit on account of the canal being frozen from Dec. 24 till Feb. 20, and then part of the goods were rejected because out of time. Mr Barry had known the canals closed by frost for six or seven weeks.

² *Ibid.*, pp. 1, 2, 3, 4, 6, etc., evidence of Messrs Barry, Hemsley, Barnes, etc.

³ *Ibid.*, p. 4, evidence of Mr Hemsley; *Birmingham Journal*, Dec. 1, 1832, p. 3. "Advantages of a London and Birmingham Railway."

⁴ 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence before Lords Committee,' p. 5, evidence of Mr Hemsley; *Birmingham Journal*, Dec. 1, 1832, p. 3.

⁵ *Birmingham Journal*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway."

as canal carriage would have cost¹; and as the mercantile classes were conducting their business more and more from-hand-to-mouth, they were feeling the necessity of having some means by which rapidity of communication could be effected. If this could be secured they would be able to carry on their enterprises without having so much capital locked up in unproductive forms².

The necessity of a railway was felt also by the agricultural interests, especially the farmers. The supplying of the London market with vegetables, dairy produce, etc., from the country demanded accelerated transit; otherwise these perishable commodities could not be carried any great distance. To meet the requirements of that market for meat, cattle and sheep in vast numbers were taken from the country; but the road expenses connected with taking these animals on the hoof were considerable and the cattle were much injured by the long journey. At times they travelled till their feet were sore, and they had to be sold at the towns along the road for what they would bring. This was true also of the sheep. If the animals were slaughtered in the country and the meat carried to the metropolis, it would sometimes be spoiled before it reached its destination. So that, whether the one method or the other were adopted, it was uneconomical, for both the weight was lessened and the quality deteriorated³. But by means of a railway, animals, meat, dairy products, vegetables and all other necessaries of life could be sent to the London market and be received there almost as fresh as when they left the country; and, at the same time, the expense of reaching the metropolis and the loss or injury suffered on the way would be either lessened or prevented⁴.

While these classes were not being provided with suitable facilities for the transportation of their products, the inevitable tendency was to retard all the best interests of the community. Deficiencies in the means of conveyance reacted upon the cost of the goods and commodities to the consumers, and the burden which was felt by the producing classes pressed with equal or greater weight upon those who had to

¹ 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence before Lords Committee,' pp. 6, 7-8, 11, evidence of Messrs Barnes, Dillon and Westall.

² *Ibid.*, pp. 5, 12, evidence of Messrs Hemsley and Westall.

³ *Ibid.*, pp. 13-20, evidence of Messrs Warner, Whitworth, Sharp and Attenborough.

⁴ *Ibid.*, evidence of Messrs Warner and Attenborough. It was estimated that cattle going from Braybrooke to London, 80 miles, lost 10s. a head in walking that distance upon the common roads; and the cost of driving them that distance was about 7s. a head in summer and 8s. in winter. See also *Birmingham Journal*, Dec. 1, 1832, p. 3, "Advantages of a London and Birmingham Railway."

purchase these things. Not only was the expense of the carriage of freight unduly high, but the cost of travelling was also felt to be too great for the advantages in regard to speed and comfort that were offered by the coaches; and this barrier to trade, it was certain, would be removed by a railway, which would save both time and expense¹.

Perhaps the only interest to profit from the existing conditions was the body of canal proprietors, who reaped large returns from their high charges and impositions. The increasing traffic on the canals in this chain, especially on the Grand Junction and Oxford canals was not accompanied by any disposition on their part to reduce their rates; but they exacted all that they could lawfully charge and endeavoured to swell their receipts to the utmost extent².

During the railway fever of 1825, among many projects that were brought forward was one for the connecting of Birmingham and London by a railway; but this scheme, like several others, failed to materialize at that time³. It was revived in 1827, but without any success; and in 1829, when the results of the trials of the locomotive engines on the Liverpool and Manchester line had demonstrated the vast possibilities of mechanical traction, the plan was taken up with greater vigour. The possibility of a railway as a competitor of the canals induced those interested in the waterways to get together in 1827 and propose the formation of a new canal, to be called the London and Birmingham Canal, which, it was hoped, would render such great aid in the carriage of the traffic that there would be no need for a railway. It appears from contemporary evidence that the promoters of this canal, or one of their officials, notoriously falsified the subscription list; but there were other reasons also which helped to decide the issue against the proposed canal⁴, especially the necessity of increased speed in the

¹ 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence before Lords Committee,' pp. 22-24, evidence of Messrs Mason and Cheetham.

² Parkes, *Claim of the Subscribers*, pp. 42-43. Parkes gives (op. cit., p. 44) a table of the "Tonnage Receipts on the Grand Junction Canal" from 1795-1824, which shows that in little more than twenty years (1800-1823) there had been a more than tenfold increase in the tonnage receipts on this canal. See also 'Collection of Prospectuses, etc.,' p. 19, which gives the distance and tonnage rates on the canals between Birmingham and London.

³ Grinling, *History of the Great Northern Railway*, p. 1.

⁴ The agitation for this canal is given in Aris's *Birmingham Gazette*; see, for example, the issues of Dec. 17, 1827, and Feb. 2, 1829. 'Collection of Prospectuses, etc.,' pp. 31-33, gives the complete prospectus of this proposed canal. See also *Birmingham Journal*, Nov. 17, 1827, p. 1; Dec. 15, 1827, p. 3; Dec. 19, 1829, p. 2; Dec. 26, 1829, p. 2; April 10, 1830, p. 3. There was much fraud connected with this project, and the unabashed jobbing is shown also in *Parl. Papers*, 1830 (251), x, 719, 'Report from the Committee on the Birmingham and London Junction Canal Petitions.'

conveyance of both goods and passengers. But the agitation for the railway continued and its advocates used the results obtained from the locomotive tests on the Liverpool and Manchester, in October, 1829, as an inducement to secure support for this new enterprise. It was asserted that this railway would be of great national benefit for forwarding troops and military stores; that by it the manufactures of Birmingham and its neighbourhood would be conveyed to London in much less time and at less expense than by canal; that the agricultural produce of all the intervening section would be able, on account of the faster speed and reduced cost of conveyance, to find wider markets and better prices; that the coal of Staffordshire could be taken to satisfy the needs of the consumers at the metropolis and along the railway; and that the expense of maintaining the turnpike roads adjacent to the proposed railway would be almost all saved, amounting on the average to about £250 per mile annually¹. Throughout the year 1830 there was a deeper interest manifested in the project and this continued to intensify until application was made to Parliament to secure authority to carry out this enterprise.

It will be appropriate here to examine the nature of the opposition to the proposed railway, and, first, we shall consider that of the landed interest. The landlords feared that the railway would injure the property through which it would pass, by destroying the privacy and unity of the farms; that the closes which were now convenient in form and size might be divided into ill-shaped fragments; that the deep cuttings across the slopes of the hills might intercept the supply of water to the wells and grounds below; that the large embankments across the low lands would interfere with the natural drainage of the parts above them; and that, where the railway crossed the highways on the same level, it would be inconvenient and dangerous to the public. It was said that the existing means of land and water carriage were greater than had ever been required; that no necessity had been shown for accelerated communication; and that the absence of the support of the landowners was undeniable proof that the undertaking was unequalled for

¹ *Birmingham Journal*, Nov. 28, 1829, p. 3, letter from "T. B.," entitled "Observations on the Advantages of a Railway Communication between Birmingham and London." The writer shows that at a very moderate calculation the returns from passengers who now patronized the existing seventeen coaches each way daily between London and Birmingham, would be enough to pay large profits on the cost of the railway. As a matter of fact, his calculation of the cost of construction was much too low, being only about one-fifth of the actual cost. His figure for the expense of building the road was £963,000, whereas the actual cost was over £4,500,000. See *Herepath's Railway Magazine*, N.S., vi, pp. 16-17. On the advantages of this railway, see also *Birmingham Journal*, July 17, 1830, p. 3, on "Railroads."

by the wants or wishes of the country¹. The promoters of the railway answered these objections by an array of facts which, to an unbiased mind, should have been convincing. Regarding the plea that the privacy of the estates would be destroyed and the homesteads severed, the answer was made that privacy was one of the worst features of a farm; that a farm on a great public thoroughfare was worth much more than one in a country lane; and that the construction of bridges over and arches under the railway would give facility of communication between the divided portions of the farms. The objection that the railway cuttings would prevent the circulation of water to the lower grounds was answered by showing that, if the water collected in the ditches on each side of the railway, it could be drawn off and used for irrigation and that the railway would act as a drain to those lands that had too much water, and therefore would do for the farmer what he had long wanted but had not the money to do for himself. The claim that large embankments across the low lands would interfere with the natural drainage was met by the assertion that the railway would cross streams and watercourses by means of viaducts so as to leave these outlets as open as before. The supposed interference with traffic on the highways was shown to be without foundation, because the railway would pass either over or under all great thoroughfares and every precaution would be taken to protect the public from risk. The alleged sufficiency of the existing facilities of carriage provoked acrimonious reply: it was true that the roads and canals could convey more goods and passengers than had passed on them, and for the obvious reason that a narrow limit was imposed by the expense and delay in each case; but by lowering the charge of conveyance and by quickening the return on capital through increased speed and regularity the amount of the traffic would be greatly augmented. It was very clear that, when the canals were frozen, and the people, especially the labouring classes, of the Midlands could not get coal, there was much need of some additional means of conveyance. The wealth of some mineral districts was, to a great extent, excluded from the London markets on account of the heavy expense of canal transport. Moreover, every man's time was part of his capital: it made considerable difference whether a person had to spend six hours or twelve hours upon the road, for in the former case there was a greater use of time and less expense involved than in the latter. A few landowners might not be put to any inconvenience by reason of the slow and expensive transit of passengers and goods,

¹ *Birmingham Journal*, Jan. 22, 1831, p. 1, on the "London and Birmingham Railway;" *The Times*, Nov. 18, 1830, p. 3, letter from "A Landowner," concerning the London and Birmingham Railway.

but the public were the best judges as to the loss occasioned by the present impediments to everyday business. And, finally, the declaration that the absence of the support of the landowners was undeniable proof that the railway was uncalled for by the wants or wishes of the country, was of absolutely no validity. The wants of the country gentlemen were no index of the wants of the country generally. The fact that the Liverpool and Manchester line had benefited both landowners and tenants was conclusive evidence that corresponding benefits would accrue to the landed classes in this case¹.

The other great class that were opposed to the formation of the railway included the canal interests between the Midlands and London. It was indubitable that the railway would take part of the traffic which had been accustomed to going on the canals; and the revenues of the canal companies would probably be reduced, at least relatively if not absolutely. There was no doubt but that some of the canals along this route, like the Grand Junction and the Oxford, had remunerated their proprietors handsomely and it was but natural that they should seek to perpetuate these conditions of their own prosperity; but, on the other hand, the freight charges were high, and, judging from the results which had been attained by the Liverpool and Manchester Railway in reducing the rates along its line, there was every reason to believe that comparable results would be secured in this case. There was, apparently, no remedy for the injury which canal proprietors would sustain, unless they would join and make common cause with the railway company. Persevering hostility, conducted at great sacrifice of property, might delay the railway, but could not prevent it, since it was for the public benefit. The canal companies should not expect the progress of improvement to be halted to secure the continuance of their enjoyment of monopoly. They had remunerated their capital for a long time with immense profits; and they should not now complain at the introduction of a cheaper and faster means of conveyance². The Marquis of Stafford, the greatest canal proprietor in the world, had formerly opposed the Liverpool and Manchester Railway, but later he became convinced of its usefulness and in 1831 he owned 1000 shares of its stock³. But all the owners of canal shares were not so readily convinced

¹ *Birmingham Journal*, Jan. 22, 1831, p. 1, on the "London and Birmingham Railway;" *ibid.*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway."

² *Birmingham Journal*, Jan. 22, 1831, p. 1, on the "London and Birmingham Railway;" *ibid.*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway;" *ibid.*, Mar. 5, 1831, p. 3, "Public Meeting to Support Railways."

³ *Birmingham Journal*, Feb. 5, 1831, p. 3.

that the greater economy of railways had been proved. Because the Liverpool and Manchester Railway was considered as a brilliant success was no reason to conclude that experience would confirm this result in every other instance; and, partly in support of this vague hope of being able to compete with the railways, and partly in the expectation that Parliament would protect them from ruin, the canals offered strenuous resistance to the authorization of the railway¹.

The third class from which opposition was encountered by the railway included the coach proprietors, waggon masters and postmasters, the amount of whose business was likely to be seriously reduced by the new means of conveyance. Before the line had been put in operation between Liverpool and Manchester, there were about twenty-two regular coaches on that road; but, by the beginning of the year 1831, almost all these stage coaches had been laid aside, and soon the railway was carrying about three times as many passengers as had formerly patronized the coaches². This apparently inevitable decline of road carriage of passengers and goods induced the proprietors engaged in this business to resist the establishment of the new enterprise which was destined to destroy their means of support; but, probably because they were not backed by the large amount of wealth that was available for the landowners and the canal proprietors, their claims seem to have commanded but little public attention. An interesting case of such opposition, in 1833, comes to us in the form of a petition to the House of Lords from those who were carrying on these undertakings on the lines of road between London, Worcester, Hereford and Gloucester; they requested the Lords to protect their interests by rejecting all applications for railroads in general, and particularly the Liverpool and Birmingham and Birmingham and London railways³. It would be but natural that the owners of these vehicles along the same or parallel lines of road should oppose the formation of a railway which would take away their business; but why those should oppose it whose line of activity was more or less in the opposite direction, is by no means so clear.

In addition to neutralizing the arguments of their enemies, the railway company put forward some other strong reasons in favour of their

¹ *Birmingham Journal*, Mar. 5, 1831, p. 3, "On Railways."

² *Birmingham Journal*, Feb. 5, 1831, p. 2, letter from "A Railway Subscriber," on the London and Birmingham Railway; 'London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Committee of the Lords on this Bill,' evidence of Henry Booth (treasurer of the Liverpool and Manchester Railway Company), pp. 54-55.

³ *Hampshire Advertiser and Salisbury Guardian*, May 11, 1833, p. 2, "Coaches v. Railway."

project. As the landowners had profited from the construction of the Liverpool and Manchester line, and some who formerly were very active against that enterprise were now as strongly in favour of it, so it would be to the advantage of estate owners in this other section to have the midland metropolis connected with London. The hostility of the landlords was, therefore, ill-advised. Not only would the railway add to the value of their property, but the proximity of larger and better markets for farm produce would give the tenants higher prices for what they had to sell, and thus render them more prosperous. A few hours at the most would suffice to carry fattened animals from their pastures to Smithfield, without their losing in weight or being injured, as at present, by drovers. The railway would supply the metropolis market better, and with more facility and regularity, from a distance of eighty miles, than at present from the neighbouring districts; and the steady market would be a boon for agriculture, while providing steadier employment for labour. The expenditure of millions upon this work would lighten the burden of poor rates and prove beneficial to the country through which the railway would be carried¹. The passenger fares would be reduced from the coach fares of 4*d.* per mile inside and 2½*d.* per mile outside, to 2*d.* and 1½*d.* per mile respectively on the railway; and this would be the accompaniment of a rate of speed double that of the average speed of coaches. Corresponding reduction in the time and expense of the carriage of goods was anticipated². To placate the owners of coaching establishments, it was shown that, instead of there being less work for coaches, there would be more after the railway were put in operation. Doubtless, the construction of the railway would cause the coaches along that line to be set aside; but throughout a belt of many miles in width on each side of it, numerous cross coaches would be immediately established to meet the railway at important stations according to the convenience of passengers. For example, the many steamboats connecting London, Dover and Calais had increased, rather than diminished, the number of post-horses on the Dover road³; and evidence was given before a committee of the House of Commons to the effect that while, before the opening of the Liverpool and Manchester Railway, the coaching business on the main

¹ *Birmingham Journal*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway."

² *Birmingham Journal*, Jan. 22, 1831, p. 1, on the London and Birmingham Railway. According to this writer the carrying of goods by the fly vans was done at the rate of five miles per hour and at a cost of at least 9*d.* per ton per mile, while the railway would carry them at fifteen or more miles per hour.

³ *Birmingham Journal*, Feb. 5, 1831, p. 2, letter from "A Railway Subscriber," on the London and Birmingham Railway.

road between these two termini was carried on by 400 horses belonging to Liverpool proprietors and 400 to Manchester proprietors, after the opening of that line, although coaches soon ceased to run on the direct road, there was such a great increase on the cross roads that the proprietors at Manchester, by 1834, had 800 horses employed and the demand was still increasing¹. The safety, certainty and rapidity of conveyance were of themselves sufficient to recommend the railway in preference to any other means of carriage².

In 1830 a Bill was introduced into Parliament seeking authority to construct a railway between these two termini; but the strong opposition which was manifested against this measure, especially by several of the great landowners³ and the canal companies along the route⁴, but also by proprietors of coaching establishments and turnpike trustees⁵, caused the failure of the Bill to pass in the session of 1831-2. As was the case in the promotion of the railway from Birmingham to Liverpool, so also in this case, there was the existence of two separate companies which were later merged into one before the Act of Parliament was passed to sanction the undertaking⁶. The defeat in 1832 was made the occasion of greater earnestness and the supporters of this scheme got together to inquire into the reasons for their failure and to devise more effective measures for securing their ends. In addition to foes without, the company had to meet and harmonize internal dissension. Some of the subscribers to the undertaking had made their subscriptions and signed the contract deed, in 1830, on the assumption that this line would connect with the projected

¹ See summary of this evidence in *Hampshire Advertiser and Salisbury Guardian*, Mar. 29, 1834, p. 2.

² *Birmingham Journal*, Mar. 5, 1831, p. 3, "Public Meeting to Support Railways."

³ In addition to foregoing references, see also Brit. Mus. 1890, c. 9 (5). Stretton, *History of the London and Birmingham Railway*, shows the opposition of the Earl of Clarendon and the Earl of Essex.

⁴ In addition to previously-mentioned references, see *Remarks upon Pamphlet by Investigator on the Proposed Birmingham and London Railway*. "Investigator" evidently represented the canal interests and he had tried to show the evils that would be caused by the railway. See also Brit. Mns. T. 1371. (18), the writer of which was apparently a canal proprietor, since the pamphlet presents that side of the case. It was entitled, 'The Probable Effects of the London and Birmingham Railway.' Since it is impossible to get too clear a view of the way in which railways were regarded at the time of their introduction, the contents of this pamphlet are worthy of perusal.

⁵ *Birmingham Journal*, Feb. 12, 1831, p. 2, for example, shows the opposition of the trustees of the Dunchurch and Stonebridge road to the proposed railway.

⁶ *Birmingham Journal*, Sept. 21, 1833, p. 3, on "London and Birmingham Railway;" *Manchester Guardian*, April 7, 1832, p. 1, on "London and Birmingham Railway."

Liverpool and Birmingham Railway; but the latter had been abandoned, and, therefore, the whole situation was changed. It would seem, too, that the directors of the company that was formed by a union of the former two concerns had changed the plans for the railway and increased the estimated cost of the line without submitting these plans to a general meeting for approval. Many of the subscribers had requested the directors to publish a full and authentic report of the condition and prospects of the company, and afterward to convene a general meeting of the shareholders to take action as to what should be done; but all they had received was a circular giving a few loose details. Because of these conditions, those who were dissatisfied, including a number of the great landlords, sent a petition to the House of Commons requesting that they might be released from their obligations and not be considered as subscribers to the present undertaking¹. Earlier in the year 1832 there had been a meeting of the owners and occupiers of land along the proposed course of the railway, at which there appeared to be agreement among those present that the railway as planned would depreciate the value of their property, and they, therefore, decided to protest against the granting of an Act of Parliament². What was the outcome of this discord we need not trace; suffice it to say that by midsummer of that year the company issued its new prospectus, showing the public the advantages to be gained by this proposed railway, in opening up new sources of supplies of provisions for the metropolis, in facilitating and cheapening travel, in providing rapid and economical interchange of the great articles of consumption, and in connecting London with Liverpool and the great manufacturing sections of Lancashire and the Midlands³. Once more application was made to Parliament and Lord Wharncliffe, the chairman of the parliamentary committee to which this measure was submitted for examination and report, asserted that in his long experience in Parliament he had never seen a measure passed by either House that was supported by evidence of a more decisive character. But,

¹ This petition is given in full in *Manchester Guardian*, April 7, 1832, p. 1. It shows that the estimated expense of the railway was at first £1,500,000, but in 1832 it was £2,500,600.

² *Manchester Courier*, Feb. 4, 1832, p. 3, on "London and Birmingham Railway."

³ This announcement or prospectus is given in full in *Manchester Guardian*, July 7, 1832, p. 1, and also in 'Collection of Prospectuses, etc.,' p. 61. It refers to the great success of the Liverpool and Manchester Railway. This line would connect with that to be constructed from Birmingham to Liverpool, and through the port of Liverpool it would furnish rapid connexion between Ireland and London. See also Brit. Mus. 1890. c. 9 (5), and "Statement of the Case in support of the London and Birmingham Railway Bill," as given in 'Collection of Prospectuses, etc.,' p. 74.

notwithstanding this, the Bill was thrown out, owing chiefly to the opposition of the landowners, who feared that their estates would be prejudiced or injured by the railway. This failure had resulted after £32,000 had been expended on the application, but still the company was not deterred in their efforts. Subsequent changes were made in the line in order to avoid the properties of two of the nobility who had strongly opposed it and to keep at a considerable distance from the town of Northampton¹. With these alterations, the line was regarded favourably at the company's third application and the Act was passed in 1833. In 1837, the first section of the line was opened between London and Tring², but it was not until the following year that the whole line was opened³. By this railway and what were later its north-western connexions, there was established a complete communication from London to Birmingham and from Birmingham to Liverpool; but we must remember that, at this time, these were entirely separate roads, not working in harmony, and, therefore, there was no through rate nor through traffic.

A few facts regarding the finances of this railway may be appropriately given. In 1830, when the line was being agitated, it was computed that the amount paid by passengers and parcels conveyed by coaches between London and Birmingham exceeded £300,000 a year, and that paid for the carriage of goods between the same places exceeded £500,000 a year. The expense of building the railway upon the best possible plan was estimated not to exceed £1,500,000; so that one-fourth of the amount paid for the conveyance of passengers and goods would be ample remuneration on the capital to be spent on the construction of the railway⁴. But soon the plans were changed and the estimated cost was augmented, so that in the company's original Act of incorporation the capital was stated at £2,500,000. By later Acts, the company was empowered to raise a capital in shares and on loans amounting to £4,500,000; but by 1839 even this sum had been

¹ Stretton, *History of the London and Birmingham Railway*. The announcement of the directors of the railway in 1833 is given in 'Collection of Prospectuses, etc.,' p. 65. It showed the advantage of the railway in regard to safety, expedition and economy, and the benefits that would accrue to London and the public generally. The change of front of many landlords is apparent in the testimony that was given before the committee that had this Bill for consideration, and those who had formerly opposed railways were now favourable to them (see 'Great Western Railway. Evidence on the London and Birmingham Railway Bill,' especially the evidence of Mr Earle, Mr Joseph Pease, and Mr J. Moss).

² *The Times*, Oct. 21, 1837, p. 2, on the London and Birmingham Railway Company.

³ Stretton, *op. cit.*

⁴ *Brit. Mus.* 1890. c. 9 (5).

exceeded by £500,000 on account of calls and loans, and the company proposed to go to Parliament again for authority to raise another £1,000,000, making the total capital £5,500,000¹, for it was admitted that the road would cost at least that sum. These vast amounts in excess of the estimated expenditures for the road caused disappointment and called forth some sharp criticism; it was thought that the revenues of the company would not be sufficient to pay a reasonable return upon the great outlay². But when it was shown that a large part of this increased expenditure was for the construction of additional lines of railway, so that new sources of income, which had developed subsequently to the origin of the railway, might yield to the company a good return after paying the interest on the capital embarked in these accessories³, the sting was taken out of the adverse comment, and it was seen that the company was working with ultimate, rather than proximate, issues in view. The enormous amounts that were wasted in proceedings before Parliament and the extraordinary sums that were demanded to make complete settlement for their right of way will be apparent from the figures for this railway company, which show that the cost of obtaining the original Act of incorporation was £72,868. 18s. 10d., and the payments made for "land and compensation" were £622,507. 3s. 10d.⁴

When London had been connected with the great centres in the Midlands and the north-west, the next project of most importance was to secure connexion between the capital and Bristol, so as to give facility of access to the immense trade of the Severn valley. In reality, the agitation for this line did not wait even for the authorization of the London and Birmingham, but began after the success of the Liverpool and Manchester had been assured. Bristol had formerly been second only to London in its importance as a port, but Liverpool had risen into such prominence that it assumed the position which had been held so proudly by Bristol. As a consequence, the latter city had declined to third place, and its trade was languishing in the competition with its north-western competitor⁵. To some, it seemed as if this were

¹ *Herepath's Railway Magazine*, N.S., vi, pp. 16-17, letter of "A Friend to Railways and Truth," in regard to the London and Birmingham Railway.

² *Ibid.*, vi, pp. 17-18, 113-18, 235-6; *The Times*, May 9, 1837, p. 6.

³ *The Times*, May 23, 1837, p. 6, letter from W. S. Moorson.

⁴ *Brit. Mus.*, 1890, c. 9 (21), 'Plans, Prospectus, Reports, and Minutes of Evidence, in reference to the London and Birmingham Railway.'

⁵ A series of thirty letters from "A Burgess," relating to the trade of Bristol, showing the causes of its decline and the means by which its revival could be effected, appeared in the *Bristol Mercury*, beginning with the issue of Feb. 2, 1833, p. 2, and ending with that of Jan. 4, 1834, p. 4.

the acceptable time to restore the old commercial prosperity and prestige of this ancient city, and the railway question formed the nucleus of a conflict which helped to arouse Bristol from her lethargy. It will help us to understand the issue which confronted the people at this time if we look more closely at the conditions of transportation by land and water in 1832, when the problem as to the construction of a railway came into public attention.

The goods traffic along this route, especially the carriage of heavy commodities, was largely confined to the canals and connecting waterways, namely, the River Avon Navigation, from Bristol to Bath, the Kennet and Avon Canal and River Kennet Navigation, from Bath to Reading, and the Thames Navigation, from Reading to London. The delays and uncertainty of water carriage were becoming unbearable to the commercial interests, at a time when the mercantile practice was undergoing revision and the old system of keeping a large stock on hand was giving way to the method of keeping less stock but more frequently replenished. The average time occupied in the traffic by water from London to Bristol was from seven to ten days, but barges had been detained, on account of drought, flood, frost, or other stoppage, for weeks and even months on their journeys, and during these delays there was a great amount of pilferage carried on¹. Such interruptions on account of natural conditions occurred several times a year, and the time when the canals were not in working order was increased by the necessity of stopping them for repairs. The vast volume of complaint concerning these obstacles to trade was persistent, prolonged and almost universal². In the case of articles of constant consumption, such as coal, groceries and other food-stuffs, the hindrance of the

¹ *Proceedings of the Great Western Railway Company*, pp. 9, 28; 'Great Western Railway Bill. Minutes of Evidence before the Lords Committees,' evidence of Messrs Walker, Harley, Wilkins, Davis, Morris; Felix Farley's *Bristol Journal*, April 19, 1834, pp. 3, 4, evidence of Messrs Hire and Stone; *ibid.*, April 26, 1834, p. 2, evidence of Messrs Keys, Sheppard, Luscombe, Provis, Walker, Taylor, Moline, Wilson, Kendall, et alii.

² It will help us to realize the situation more fully if we give a few instances of what actually took place, as taken from the evidence before the committee on this railway Bill (Felix Farley's *Bristol Journal*, April 19, 1834, p. 3, and April 26, 1834, p. 2). Mr Hire, of Bristol, asserted that in one case several hogsheds of sugar were sent to him from London; but, instead of arriving in 13 days, they did not arrive for two months, so that he lost about £300 by this delay. Mr Davis, of Reading, in January, 1834, had his goods coming from London delayed a month all but two days, which prevented him from executing his orders and thus caused him great loss. His goods, especially tobacco and sugar, were much injured by exposure to moisture. Butter was injured in hot weather by these delays and on one occasion he was glad to sell £200 worth at half-price.

regular supply often produced most serious inconveniences; and it not infrequently happened that, by the stoppage of the canal, waggons had to be sent miles to procure necessaries from the barges which were unable to proceed on their voyages. This, of course, greatly increased the cost to the consumer, and, on such a necessary article as coal, was quite a burden¹. Another inconvenience on the Thames was that vessels were of large capacity and would not set out on their voyage up the river until they had a full load. A merchant might, therefore, have ten tons of goods to be sent as quickly as possible by water in fulfilment of an order; but if the vessel that was to carry these goods was of eighty tons burden, she would not start until her cargo was complete. This compelled the tradesman to wait for the goods². So absolutely uncertain was the conveyance that not even an approximate calculation could be formed by the most experienced traders as to when their goods would arrive at the point of destination³; and merchants and manufacturers frequently received or sent their goods all the way by land carriage at twice the cost, or more, rather than send them by the navigations and not know that they would be certain to reach their destination at the required time⁴. In addition to the uncertainty of the navigation, its expense and the injuries which the commodities were likely to sustain, there was much annoyance on account of the losses by pilferage, which were considerable under ordinary conditions, but were very heavy when delays occurred to cause the barges to stand still.

¹ *Proceedings of the Great Western Railway Company*, pp. 9, 28; 'Great Western Railway Bill. Minutes of Evidence before the Lords Committees,' evidence of Mr Davis; Felix Farley's *Bristol Journal*, April 26, 1834, p. 2, evidence before the committee on this railway Bill, given by Mr Ogden, Mr Ray, and others.

² *Proceedings of the Great Western Railway Company*, p. 28; 'Great Western Railway Bill. Minutes of Evidence before the Lords Committees,' evidence of Mr Davis, p. 396.

³ Felix Farley's *Bristol Journal*, April 19, 1834, p. 4, "Committee on the Great Western Railway Bill," statement of Mr Harrison. Sometimes on the Thames there would not be more than two "flash days" a week, and often barges were stranded on the shallows and could not move (*ibid.*, April 28, 1834, p. 2, evidence of Robert Ray and others).

⁴ Evidence of Messrs Walker, Stone, Shepherd, Provis, Ogden, Wilson, Harris, Mills, Davis, Pearman, et alii, given to Committee on the Great Western Railway Bill; also 'Great Western Railway Bill. Minutes of Evidence before the Lords Committees,' evidence of Mr Wilkins, Mr Marling, Mr Morris, and Mr Venables. Saxony wools, which were brought into the eastern ports of England, were carried west principally by waggons to avoid the delay on the canal. Woollen goods manufactured in the west of England were sent to London by waggon paying 5s. per cwt., or sometimes by coach at 1d. per lb., rather than by canal barge at 2s. 9d. per cwt. The goods were too valuable to risk sending them by canal, with the necessary transshipment, for they would become crushed and often wet before they were delivered.

The passenger traffic, too, was not carried on as expeditiously as was desired, and the gross abuses, the inconveniences and the cost connected with coaching were impediments for which no adequate remedy had been devised. The insecurity of life had been the cause of continual complaint, and, as we have seen, measures had been taken to prevent the perpetual recurrence of those things which endangered the lives of travellers, but still the evils went on without serious check. Twenty-two coaches went up and down every day, and there were also four mail coaches a day, two up and two down. The great number of passengers who were carried by the coaches may be readily calculated from their returns, which showed that the average number of passengers by a four-horse coach was nine, by the mails five, and by a pair-horse coach six¹. The average time taken by the stage coaches from London to Bristol, including stoppages, was fourteen hours, and by the mail thirteen hours. This was an average rate of speed of about nine miles per hour. But those who knew the speed attained on the Liverpool and Manchester Railway were eager to see the same twenty to twenty-five miles per hour accomplished on the way between Bristol and London, particularly when it could be secured at lower cost and with greater safety and comfort than by the coaches.

The above-mentioned reasons were by no means all that were adduced in support of the plan for a railway along this course. Much emphasis was laid upon the fact that Bristol, being the natural entrepôt for Ireland, Wales and the West of England, would attract the trade from these sections, and their products could then be sent to London on a shorter haul and at a cheaper rate than if they were sent via Liverpool. In this way the metropolis would be furnished with quantities of food supplies from Ireland, with which Bristol had regular communication, and these could be greatly increased. Fish, also, instead of coming from the north, could be supplied in great abundance from that island². The immense quantities of coal and iron in South

¹ Felix Farley's *Bristol Journal*, May 3, 1834, p. 2, evidence of Thomas Cooper, coachmaster at Bath and Bristol, before the Committee of the House of Commons on the Great Western Railway Bill. See the returns of the passenger traffic as given by the records of the Stamp Office, a table of which is given in 'Great Western Railway Bill. Minutes of Evidence before the Lords Committees,' evidence of R. J. Venables, p. 416. The same table is inserted in the *Proceedings of the Great Western Railway Company*, and in the evidence given before the committee of the House of Commons on this Bill.

² Felix Farley's *Bristol Journal*, April 19, 1834, p. 4, "Committee on the Great Western Railway Bill," statement of Mr Harrison; *ibid.*, Sept. 28, 1833, p. 3, on the Great Western Railway; *ibid.*, Oct. 5, 1833, p. 2, letter from John Weedon, on the Great Western Railway.

Wales, with which Bristol had immediate connexion, and in the vicinity of the city of Bristol, would provide fuel for the increasing demands of London and the intervening places, at a reduced cost that would soon greatly increase the consumption of that commodity and the revenue to be derived from it¹. The agricultural interests were appealed to by the possibility of opening up wider markets for their surplus produce, thus tending toward higher prices for everything they had to sell, and by the inevitable enhancement of the value of their lands should the railway be put into operation. For these claims they had the utmost justification from the results which had accrued along the two lines which were already carrying on their work as general carriers, namely, the Stockton and Darlington and the Liverpool and Manchester. The farmer could get supplies of manure from greater distances and at a cheaper rate than before, so that the land would be brought into a higher state of cultivation, and the fertility of the soil improved. By the greater productiveness of the land and the better marketing facilities the rental value of the land would be increased, and consequently both owner and occupier would receive the benefit². Farmers would also be able to send their cattle, sheep, etc., to the London markets at diminished expense, and at the same time the better means of conveyance would prevent any deterioration in the quality of the meat. This would make it possible for the butcher to pay the farmer higher prices for this meat supply, and to give the consumer a better quality of product. Encouragement was also given that, when the heavy road traffic had been transferred to the rails, the highways would be greatly improved and their maintenance would not involve such a heavy burden of expense. Lastly, the construction of such a great public work would give employment to a large number of men, and this would be a significant relief at the time when the pressure of distress was severely felt and the obligation of poor rates was being increasingly realized³.

Now, let us consider the nature of the opposition which was aroused against this scheme. As in the case of the other railways which were authorized before this, so in the case of the Great Western, the opposition of the landlords and of the inland waterway interests was the most powerful. On Nov. 19 and Dec. 9, 1833, there were

¹ Felix Farley's *Bristol Journal*, Nov. 17, 1832, p. 3, "Railway from Bristol to London;" *ibid.*, Oct. 12, 1833, p. 3, editorial under the caption "Great Western Railway."

² Felix Farley's *Bristol Journal*, April 26, 1834, p. 2, evidence of Mr Geo. W. Hall and Mr Joseph Pease, before the Commons Committee on the Great Western Railway Bill; also *ibid.*, May 3, 1834, p. 2, evidence of Thomas Pearman and others.

³ *Bristol Mercury*, Aug. 18, 1832, p. 3, letter from "Ignotus."

meetings of noblemen and gentlemen, owners and occupiers of lands through or near which it was proposed to make this railway, declaring that no ease of public utility had been made out to justify or palliate such an uncalled-for encroachment upon the rights of private property; and that the projected railway would be repugnant to the feelings and injurious to the interests of the landed classes. They decided in each case to enter into a subscription and appoint a committee who were to see that all possible legal measures were taken to counteract the activity of the promoters of the railway, and were to bring pressure upon their members of Parliament to induce the latter to oppose the sanctioning of such a baneful innovation¹. But it must not be inferred from what we have said that all the landowners were opposed, for there were some who were sufficiently open-minded and public-spirited to see that their own personal predilections should be subordinated to the general good; and there were others, whose property would not be crossed by the railway, who were convinced that the proximity of that convenience would be of great value in the marketing of their products². In the inland counties there were some who recognized that in sending their products to London by railway at a lower expense they would come into competition with the south of Ireland, which would also be afforded great inducement to place its products on the same market; and if the market were thus taken away from the home producer the agriculture of these southern counties would suffer³. On the other hand, there were certain who could foresee that, with the lowering of the prices of food supplies, there would be a greater demand for them on account of greater consumption, and, consequently, there was little fear that Irish competition would be injurious to English interests. It is clear, however, that landlord opposition was active in preventing the favourable consideration of the Great Western Railway Bill.

The animosity of the waterway interests was likewise vigorous.

¹ Felix Farley's *Bristol Journal*, Feb. 22, 1834, p. 1, gives the resolutions which were adopted at each of these meetings. *Ibid.*, Mar. 15, 1834, p. 4, "Proceedings in the House of Commons on the Great Western Railway Bill," showed many petitions for the measure, and some against, with very strong opposition from the landowners. Countess Berkeley petitioned against the Bill and said that her residence would be uninhabitable if the line marked out by the company was selected.

² Felix Farley's *Bristol Journal*, May 31, 1834, p. 3, evidence of Lord Kensington on the Great Western Railway Bill.

³ Felix Farley's *Bristol Journal*, Oct. 5, 1833, p. 2, letter from John Weedon. Middlesex landowners and farmers opposed it because they thought it would bring produce to London from a distance as cheaply as they could send it there, and thus destroy their monopoly in that market. Buckinghamshire and Berkshire farmers opposed it because they feared Irish competition. (*Proceedings of the Great Western Railway Company*, pp. 10-11.)

The Kennet and Avon Canal Company and the Commissioners of the River Thames Navigation were loud in their denunciation of a scheme which would take away their trade and nullify all that they had endeavoured to do. The canal company, through its special committee, unanimously resolved to oppose the railway¹. They thought, from what they had already seen in other instances, that most of the traffic would leave the canal and go on the rails; that, therefore, the money invested in the canal would be largely lost, and, as a result, great numbers who were depending upon this undertaking for their income would be deprived of their maintenance². But it was shown to them that the opposition evoked against other railways had been powerless to stem the tide of progress; that the principle of public good must prevail over that of private advantage, here as well as in the other cases, by the construction of a superior means of conveyance; and that the canal company should not blind themselves to the evidence of experience and throw away their money in useless legal contests³. The general committee of the Thames Navigation formed a more potent antagonist to the proposed railway than was the Kennet and Avon Canal Company, because they represented also the great majority of the owners of land adjacent to the river. In order to prevent the authorization of the railway, they endeavoured to enlist "the active assistance of the various interests, threatened by this widely destructive speculation with inevitable ruin⁴." They sought to rouse public support to their side, by showing that the great body of commissioners, acting gratuitously, had, by judicious expenditure of over £250,000, made that navigation one of the most perfect in the kingdom; that anything which would lessen the amount of tolls they received would prevent the meeting of their obligations to their creditors and the maintenance of the navigation; and that, if the proposed railway were constructed, the river would fall into disuse and become silted up, the floods would increase in height and duration, many towns on the river would have their trade injured, and the lands along the river would deteriorate in value. The wide range and the nature of their appeal included the bondholders, whose security would be endangered by the railway; the landholder, the value of whose property would be affected; the great trading towns along the river, whose commercial prosperity was threatened; the owners of mills, wharfs, and other mercantile establishments, whose trade would be

¹ Felix Farley's *Bristol Journal*, Mar. 1, 1834, p. 2, letter from "Aequus."

² *Bristol Mercury*, Mar. 2, 1833, p. 2, letter from "Scrutator."

³ Felix Farley's *Bristol Journal*, Mar. 1, 1834, p. 2, letter entitled "Canals versus Railways."

⁴ *Ibid.*, Feb. 22, 1834, p. 1, "Thames and Isis Navigation in opposition to Great Western Railway."

annihilated; and the owners of old locks whose revenues would be destroyed. To those who presided over, and those who were educated at, Eton College and Oxford University, appeal was made by the sanctity of their present trust and their former recollections and associations; and, lastly, it was requested that all those who resided upon the banks of this river, whether attracted there by its beauty, its salubrity, or its utility, would lend their aid to prevent the sanction of Parliament being given to "so useless a scheme" as that of the Great Western Railway¹. With the great influence which the inland navigation companies exerted, it is little wonder that they were called the "fourth estate of the realm²."

Of the vehement opposition of the authorities of Eton College and the University of Oxford, we have already spoken in a former connexion. It was not until after repeated applications had been made that a branch line of the railway was sanctioned to Oxford, and then it was stipulated that the station should be built as far away from the city as it could conveniently be placed³. In the Act as first passed, there was also a clause forbidding the erection of any station at the important town of Windsor⁴.

While we have been impressed by the fact that the commercial classes, generally, were strongly in favour of the railway, we note in this case, what we have not observed in any of the foregoing, that some of the mercantile elements were averse to this railway. Some feared lest Bristol might become merely a way station between London and Wales and Ireland, and as such would be overshadowed by the metropolis to such an extent that it would cease to grow. Moreover, since there was always a prejudice in favour of the London market, the rapid transit by rail would enable purchasers in South Wales and the west of England to go directly to London for their supplies, and thereby Bristol's importance as a great entrepôt would probably decline⁵. It would seem as if there were not a few people in Bristol who shared this apprehension that the railway, if constructed, might transfer part of the Bristol trade to London, and that the shipping and West India trade might also leave Bristol and follow the domestic trade to the metropolis⁶.

Of the other sources of opposition we shall merely mention a few; and of these the most important was the rivalry of other railways which

¹ Felix Farley's *Bristol Journal*, Feb. 22, 1834, p. 1, "Thames and Isis Navigation in opposition to Great Western Railway."

² *Manchester Gazette*, Jan. 15, 1825, p. 3, "Effect of Competition."

³ Shaen, *Review of Railways and Railway Legislation*, p. 29; Sekon, *History of the Great Western Railway*, p. 8.

⁴ Shaen, *op. cit.*, p. 29.

⁵ Felix Farley's *Bristol Journal*, Jan. 19, 1833, p. 4, letter from "S. T. C."

⁶ *Bristol Mercury*, Mar. 2, 1833, p. 2, letter from "Scrutator."

were projected at the time the Great Western was seeking incorporation, such as the line from Windsor to London¹, the London and Southampton, and several others. Some trustees of turnpike roads did not favour the railway, on the ground that their revenues would be depleted because of the transference of the traffic from the roads to the rails². Of a similar character was the opposition of the town of Maidenhead, on the plea that all the existing traffic which paid toll on the bridge over the Thames at that place would be diverted to the railway³. As in other instances, coachmasters and the representatives of the carrying trade on the highways presented feeble resistance to the movement in favour of the railway. But it would seem, from the records of the time, that one of the greatest factors with which the advocates of the line had to reckon was the inactivity of Bristol and its people to rouse themselves for the accomplishment of a great future good. We have not found the manifestation of any such shiggish, self-satisfied spirit in the promotion of any other line. The Bristolians of that day, unlike those of the present, seemed to be in favour of the quiet enjoyment of the old, rather than of the reaching out after the new; they seemed to be rejoicing in the peaceful returns from their investments, rather than utilizing their wealth in channels which might greatly aid in restoring their former commercial ascendancy⁴. While the probability of good returns from the railway was inducing capitalists in Liverpool, Manchester, Birmingham, and other important towns in the north to subscribe largely for its shares, the wealthy classes in Bristol were, apparently, indifferent to the opportunity before them. Even after all the facts had been gathered and made public, and it had been conclusively proved before the parliamentary committee that the road would well repay the subscribers, it was with much difficulty and persuasion that they could be induced to support the railway by taking stock in it⁵.

¹ *The Times*, Jan. 13, 1834, p. 3, and Jan. 20, 1834, p. 3.

² Felix Farley's *Bristol Journal*, Mar. 15, 1834, p. 4; "Proceedings in the House of Commons on the Great Western Railway Bill;" *ibid.*, Mar. 15, 1834, p. 1, report of the meeting at Reading, statements of Mr Harris and Mr Law.

³ *Proceedings of the Great Western Railway Company*, pp. 10-11.

⁴ Felix Farley's *Bristol Journal*, Nov. 16, 1833, p. 4, letter from "R. R.;" *ibid.*, Sept. 28, 1833, p. 3, on "Great Western Railway;" *Bristol Mercury*, June 30, 1832, p. 4, letter from John Ham; *ibid.*, Aug. 11, 1832, p. 3, address of "G. R. C." to rouse the Bristolians from their apathy; *ibid.*, Sept. 1, 1832, p. 2, emphasizing the same thing, and bemoaning the curse of "party spirit;" *ibid.*, Sept. 29, 1832, p. 2, letter from "A Well-Wisher."

⁵ Felix Farley's *Bristol Journal*, Oct. 11, 1834, p. 3, letter from "R. R.;" *ibid.*, Oct. 18, 1834, p. 4, and Nov. 8, 1834, p. 2, letters from Thomas Motley, "Good Speed," and E. Jones, urging the necessity of support.

After more than a year had been spent by a committee of citizens of Bristol in an elaborate investigation of the prospects for the railway and in ascertaining minute and accurate information regarding the sources of revenue and the amount of the returns from each source, and after the survey by two engineers had shown that the line was very favourable¹, the matter was brought before the public with the object of enlisting popular support. Subscriptions did not come in very rapidly, so that the company did not secure enough money to warrant their applying to Parliament for permission to construct the complete line between Bristol and London; but in the latter part of 1833 they gave notice that they intended to make application in the ensuing session for authority to construct the two end sections of the line, that from London to Reading, with a branch to Windsor, and that between Bath and Bristol². It was thought that the company was acting wisely in their determination to secure the two ends of their line, first, because if they had applied to Parliament for the whole line, and if for any cause they had failed to obtain their Act, it was highly probable, they thought, that the Windsor Railway Company might obtain the Act they sought, to enable them to build a railway from Windsor to London. In that event, the most profitable part of the whole undertaking would have been lost to the Great Western Railway and the latter would have been at the mercy of its fortunate rival as to the terms of transit on that part of the line. The Bill was read in Parliament for the first time on Feb. 26, 1834³, and with the great support given it by London merchants it passed rapidly from stage to stage. At its second reading the vote stood 182 for and 92 against the measure, and the advantages of the railway as a national undertaking were becoming firmly established⁴. After a debate of fifty-seven days in the committee of the House of Commons, during which there was strenuous exertion by the contending parties—the one to preserve monopoly, the other to throw open the resources of the kingdom for the general benefit

¹ Felix Farley's *Bristol Journal*, Aug. 3, 1833, p. 4, gives the report of this committee. It is evident from the report that all possible care was taken to secure facts that could be relied upon and to avoid any kind of exaggeration or false security.

² *Ibid.*, Nov. 2, 1833, p. 2, Great Western Railway Notice. The committee of promoters decided that for the completion of the whole line £3,000,000 would be needed; but they could not raise this amount in the two months that were left; and the Standing Orders of the House of Lords required that four-fifths of the proposed capital should be actually subscribed before any railway Bill could be read a third time. Hence the decision to get the two most important parts of the line first (*Proceedings of the Great Western Railway Company*, p. 7).

³ Felix Farley's *Bristol Journal*, Mar. 1, 1834, p. 3.

⁴ *Ibid.*, Mar. 15, 1834, p. 3.

—the Bill went to the House of Lords, but that body threw it out without even a hearing¹. The reason for this failure was probably the fact that there was no security given for the completion of the whole line between these terminal sections². A great public dinner was held by the opposition to celebrate the defeat, to secure which they had diligently and systematically arrayed all possible influence against the measure³. But the promoters of the railway set to work more vigorously than before to obtain the necessary amount of subscription to enable them to apply at the next session for authority to construct the whole line. The facts regarding the need and the advantage of such a railway were kept before the public, a new prospectus was issued⁴, opposition was allayed in some cases by seeing the real situation in a new light; and in the session of 1835, despite much hostility which could not be placated, the Great Western Railway Act was passed. The road was opened in 1839–41.

In 1824 began the agitation for a railway to connect Newcastle and Carlisle, but it was not until 1829 that this line was authorized, and not before 1835 was it all open for traffic⁵. In 1834, the London and Southampton Railway Act was passed, with almost unanimous support, and the line was opened in 1838–40⁶. In 1825 the surveys for a railway between Leeds and Hull had been made and the work begun; but in 1826 the work was stopped on account of commercial difficulties, and also because of the increased water accommodation due to the opening of the new port of Goole, while at the same time many wanted, first of all, to know what would be the success of the railways then being formed before they should go on with additional construction⁷. In 1829 it was thought wise to construct only the part of the line between Leeds and Selby in the hope that the possible use of steam tugs on the

¹ Shaen, *Review of Railways and Railway Legislation*, p. 29.

² *Proceedings of the Great Western Railway Company*, p. 7.

³ For particular instances, see Felix Farley's *Bristol Journal*, Mar. 15, 1834, p. 3, editorial.

⁴ 'Collection of Prospectuses, Maps, etc.,' p. 176, gives this prospectus in full (1834).

⁵ Cumming, *Rail and Tram Roads*, p. 33.

⁶ It would seem that few landowners petitioned against the formation of this railway (*Hampshire Advertiser and Salisbury Guardian*, Mar. 22, 1834, p. 2, petition of George Jones to the House of Commons) and that the amount of opposition to it was very insignificant. See the summary of the evidence upon this Bill as given in *ibid.*, Mar. 29, 1834, p. 2; also Fay, *A Royal Road: being the History of the London and South Western Railway*, pp. 1–28. Yet, notwithstanding the slight opposition, the cost of obtaining the Act was £31,000 (*ibid.*, p. 17).

⁷ *Leeds Intelligencer*, Feb. 3, 1825, p. 3, on "Leeds and Hull Railway;" *ibid.*, Feb. 10, 1825, p. 3; *ibid.*, Jan. 29, 1829, p. 3, on "Railroad from Leeds to Hull."

river from Selby to Hull might furnish an acceptable continuation of the railway service. The subscribers to the original undertaking were organized as the Leeds and Selby Railroad Company and application was made to Parliament for an Act to carry out their purpose. It was decided to make the railway available for either horse-power or locomotive engines, or, if thought desirable, to enable the company to use locomotive carriages¹. The Act was passed in 1830², and the work completed in 1834. It was the current testimony that, during the first year of operation, the increased speed and reduced expense had brought about an almost ninefold increase in the number of passengers travelling between these two centres³. In all probability, it was this rapidity, cheapness and safety of railway carriage, in contrast to the delay, uncertainty and danger of river navigation, that led to the design of a railway between Selby and Hull in 1835⁴, but as there was an insufficient response for subscriptions to the latter railway at this time, the project could not be brought before Parliament for another year, and so the Act was not passed for the Hull and Selby Railway until 1836⁵.

Although direct rail connexion was thus secured between the manufacturing section of Yorkshire and the port of Hull, there was need of extending these facilities through the industrial sections of Yorkshire and Lancashire, so as to join this great seaport on the east with Manchester and Liverpool on the western sea. The authorization of the Leeds and Selby line was the signal for activity looking toward the junction of Leeds with the large centres of Lancashire. Here, two different routes were suggested: one following the general direction of the Leeds and Liverpool Canal, and the other a more southerly course,

¹ *Leeds Intelligencer*, Jan. 29, 1829, p. 3; *ibid.*, Mar. 26, 1829, p. 3; *ibid.*, Nov. 5, 1829, p. 3. See report of James Walker, the engineer, concerning this line, as given in Macturk, *History of Railways into Hull*, pp. 18-32. He was decidedly in favour of the uniform line, without inclined planes, because the public could then, upon payment of the tolls, freely use the line to convey their own goods in either direction, and because there would be greater simplicity and certainty in its operation.

² *Leeds Intelligencer*, May 20, 1830, p. 3. Opposition was encountered from the Marchioness of Hertford and other landowners on the ground of the railway's interference with private property (*ibid.*, Mar. 11, 1830, p. 3; April 1, 1830, p. 2; and May 13, 1830, p. 3). The Aire and Calder Navigation Company at first opposed it, but afterwards withdrew their opposition (*ibid.*, Mar. 18, 1830, p. 3; April 1, 1830, p. 2; and May 13, 1830, p. 3). Slight opposition was also made by the watermen along the river and by the captains and owners of vessels there (*ibid.*, Mar. 4, 1830, p. 3).

³ *Sheffield Iris*, Sept. 29, 1835, p. 3, on Leeds and Selby Railway.

⁴ Macturk, *op. cit.*, pp. 42-46, gives the prospectus of this railway, showing the reasons for its proposed construction.

⁵ *Ibid.*, p. 46.

from Manchester to Leeds. In the case of the proposed Liverpool and Leeds railway there were alternative routes suggested, but either of them would take the line through a region of productive industry of manufacturing and mining, and through a series of flourishing towns. So in, it did the railway appear that along its route some of the occupiers of land and the workers of the mines offered to pay an increase of rent in the event of its being established¹. Application was made in 1831 for an Act to permit the construction of this railway but it was denied. The promoters, however, immediately set to work to remove the obstacles which had caused their defeat. In the agitation for the other railway between Manchester and Leeds, which also actively began in 1830 by a survey of the line², there seemed to be more vigour than in the case of its rival. The citizens of both Manchester and Liverpool, as well as those of Leeds, were eager to see the line constructed³; and a report or prospectus of the undertaking was issued, detailing the necessity for the line and the objects to be secured by it⁴. The chief purposes to be served were the accelerating and cheapening of the transport of passengers and commodities and the opening up of wider markets for the productions of the section through which it passed. In 1831 the measure was first brought before Parliament; but the Rochdale Canal Company and other opposing interests gave evidence to show that the existing means of conveyance were ample for all the traffic of the country, and the Bill failed, or else was abandoned for that session because it was too late to get it through⁵. For five years the project

¹ *Manchester Guardian*, Dec. 11, 1830, p. 3, on "Liverpool and Leeds Railway." See also *ibid.*, Jan. 1, 1831, p. 4, letter from "W. N. R.;" *Liverpool Times*, Nov. 16, 1830, p. 365, letter from "Observer;" *ibid.*, Nov. 23, 1830, p. 373, letter from a correspondent; *Leeds Intelligencer*, Nov. 25, 1830, p. 3, on "Liverpool and Leeds Railway."

² *Manchester Guardian*, Sept. 18, 1830, p. 2, on Railways; *Leeds Intelligencer*, Sept. 23, 1830, p. 2. A company had been formed in 1825 for making this railway, but at that time of universal depression it was deemed advisable to postpone the measure (*Leeds Intelligencer*, Oct. 21, 1830, p. 2).

³ *Manchester Guardian*, Oct. 16, 1830, p. 2.

⁴ This report is given in *ibid.*, Jan. 29, 1831, p. 1. The delays and inadequacy of the canals along this route were so strongly felt, according to this report, that by far the largest proportion of the merchandise was, with some difficulty, conveyed over the mountainous district by waggons and carts, at great expense and with the squandering of much time. The average time taken by the stage coaches between Manchester and Leeds was seven to eight hours and the time required for the carriage of goods was about twenty-four hours. But by the proposed railway there would be considerable reduction of expense and the time required for the carriage of goods or passengers would be three to four hours.

⁵ *Manchester Guardian*, April 2, 1831, p. 3; *ibid.*, July 16, 1831, p. 3; *ibid.*, July 30, 1831, p. 3.

slumbered, and then the promoters, with more spirit than before, began a campaign which, in spite of the opposition of the Aire and Calder Navigation, secured favourable consideration by Parliament and the passage of the Act authorizing the construction of the railway¹. Another line connecting two important centres in this northern manufacturing area was the Manchester and Sheffield. An Act had early been obtained to make a railway here²; but, apparently, it was designed as a purely speculative scheme, and when the shares would not bring a premium in the money market the whole thing was given up. But in 1835 the project was revived by those who were vitally interested in securing better facilities of carriage³. At that time the only means of conveyance between these places was by waggon over a rough country, and the time occupied in performing the journey was about forty hours. There was neither existing nor prospective water carriage, so that nearly all the traffic would go by the railway, if constructed⁴. No opposition was encountered from the landowners along the route, nor from any other interests; its advantages were indubitable; and the Act was passed for giving effect to the line in 1836⁵.

It is not our purpose to give a complete account of each railway that was formed; and we have traced in sufficient detail a few of the most important of the early undertakings, in order to see the various influences pro and con which were operative in laying down these roads. Many of the other lines are equally instructive, but we cannot follow their history here⁶. Among the railways for which surveys were made during the railway fever of 1825, was one from London to

¹ *Leeds Intelligencer*, Jan. 23, 1836, p. 3; *ibid.*, April 23, 1836, p. 3.

² *Manchester Guardian*, Aug. 28, 1830, p. 2. The construction of the railway appeared to be considered as certain at that time.

³ *Sheffield Iris*, Oct. 13, 1835, p. 3, and Jan. 5, 1836, p. 3, on the Sheffield and Manchester Railway. When the measure was given up in 1830, there seemed to be nothing more done about it until 1832, when at a meeting of the subscribers the whole undertaking was discussed. Some regarded it as useless and impracticable, and wanted it abandoned. Others thought nothing further should be done about it for three years. Finally, it was agreed that those who were friendly to it should try to take up the shares of the dissentients and if they were unsuccessful the concern should be abandoned. Evidently they were unable to meet the last condition.

⁴ See prospectus as given in *Sheffield Iris*, May 10, 1836, p. 2; also *The Times*, Oct. 28, 1837, p. 3, report of first general meeting of the Sheffield and Manchester Railway.

⁵ *Sheffield Iris*, Oct. 10, 1836, p. 2.

⁶ We would mention, among the shorter lines, the Sheffield and Rotherham Railway, the history of which is intensely interesting. The necessity of this line for the industrial development of Sheffield and its environs, the antagonism of a strong but unserviceable navigation monopoly, the hostility of the landlords, two of whom were implacable, are detailed in the columns of the *Sheffield Iris*, especially the following issues: July 29, 1834, p. 2; Oct. 7, 1834, p. 1; Oct. 14, 1834, p. 3;

Cambridge. In 1827 the survey was extended north through Lincoln to York, but by that time the fever had stopped and nothing further was then done toward constructing this railway. In 1833 this Great Northern Railway line was again surveyed from London, via Cambridge, Lincoln and Gainsborough, to York, with several branches; but before the building of the road was authorized many years intervened, during which George Hudson, the "Railway Napoleon," was manipulating the railways of England through his control over the North Midland and the York and North Midland lines. It was not until the year 1845 that an Act was passed to construct the Great Northern from London to a little north of Doncaster¹. In 1834, the prospectus was issued for the Eastern Counties Railway, which was to run from London, via Colchester, to Norwich and Yarmouth², and very glowing accounts were given of the great things which were to be accomplished by this railway. It was sanctioned by an Act passed in 1836; and at the company's first general meeting in that year, the Chairman showed what an "ample return" the stockholders would receive on their capital, and that the enterprise rested on "the broad and stable basis of national utility." But his optimism was eclipsed by the extravagant statements of some of the shareholders who thought that a dividend of at least twenty-two per cent. would be paid, and that this railway and other similar undertakings would provide such a social amelioration as to almost banish misery from the earth. But the perfidy of the Eastern Counties Railway Company, which, instead of building the road through to Yarmouth, stopped short at Colchester, and wanted to leave to another company the construction of the rest of the line, which would not pay so well but which would afterwards be used as a feeder for their more important part of the road, is a chapter upon which we shall not enter³. Notwithstanding the troublous days of its early history, the Eastern Counties Railway became an important

Mar. 17, 1835, p. 2; Mar. 31, 1835, pp. 2, 3, 4; April 7, 1835, pp. 2, 4; June 2, 1835, p. 2. *Ibid.*, Sept. 15, 1835, p. 4, and Sept. 22, 1835, p. 4, gives a letter from W. Ibbotson which is very important.

¹ Probably the best account of this railway is Grinling, *History of the Great Northern Railway*, which gives much detail also of Hudson's career. Aeworth, *The Railways of England*, ch. v, may also be consulted. On Hudson's career, see also *Railway Times* vi, pp. 1058, 1084, 1095-6, 1122, 1312-13; vii, pp. 62, 131, 173-4, 327-8; viii, p. 2127.

² Grinling, *op. cit.*, p. 2. An earlier project had been brought forward during the railway fever of 1826, for the construction of a line from Norwich to London; but it was apparently intended to be a speculative venture and not to materialize (*The Times*, April 8, 1826, p. 3, letter from "A Shareholder").

³ On the Eastern Counties Railway see Aeworth, *The Railways of England*, ch. x. Concerning the administrative fraud and financial corruption which made the name

constituent in the Great Eastern, when this latter, in 1862, was formed by the amalgamation of five small lines.

Two other lines running out of London remain to be mentioned. From early days, Brighton had been noted as a fashionable resort, and along the three branches of this road there was a perpetual succession of coaches, each one vying with the others in speed and comfort. Along these lines of travel, too, large sums of money had been spent in cutting off curves, reducing or cutting through hills, and straightening, shortening and improving the road to the greatest extent, so that the numerous coaches which travelled it at all times of the day might not be impeded in their journeys. As soon as railways had demonstrated their many points of superiority over former means of communication, there was a movement for a line between London and Brighton, to provide for the constantly increasing passenger traffic which was overtaxing the coaches. The Bill was brought into the House of Commons in the early part of the year 1836, and ere long there were no fewer than five lines seeking authority to connect these termini, each line being the result of a survey by a different engineer. Then began the parliamentary contest, in which immense sums were spent, varying from £16,500 for the least expensive, to £72,000 for the most expensive. The fortunate line was completed and in operation before the critical period of 1843¹. The movement for the railway between London and Dover, afterwards called the London and South Eastern, also began in the early months of 1836². This road would be beneficial to the farmers, as, for example, in the quick conveyance of their stock to market; it would enable traders to carry on business with much less capital when they had easy access to London; and it would facilitate and encourage the passenger traffic between London and the Continent³. Authority was granted to construct the line, and it was in active use before the middle of the next decade⁴. With the completion of the above-mentioned lines, the chief arteries from the metropolis to the

of this railway a by-word for treachery and deceit, see *Railway Times*, iv, pp. 63-64, and *Heccepath's Railway Magazine*, N.S., iii, pp. 92-94, letter from "A Suffering Shareholder."

¹ *Railways as they Really Are: or Facts for the Serious Consideration of Railway Proprietors*. No. 1, London, Brighton and South Coast Railway. This gives the history and finances of this company in brief form, using almost exclusively the parliamentary documents, and citing minutely the referenees. The writer exposes the fraud practised by the company upon the public, showing the way in which the dividends paid were added to capital, etc. See also Aeworth, *The Railways of England*, ch. viii.

² *The Times*, Mar. 16, 1833, p. 7.

³ *Ibid.*

⁴ Consult Aeworth, *The Railways of England*, ch. ix, for some interesting details not of an economic character.

different parts of the kingdom were laid down in outline. It is beyond the scope of this work to enter into the minutiae of the construction of the railway net; we merely wish to present its general features in a series of great roads leading out from London¹, with transverse roads where they were most required².

The railway fever of 1825-6, as already noted, brought forward many projects which never materialized, and others which took form at a later time. But when the success of the Liverpool and Manchester was demonstrated, there were many who were eager to embark their capital in similar enterprises with the object of reaping corresponding rewards from analogous public services. Public attention was centred upon railways, and with the prospects that were held out by sanguine investors many were induced to put their earnings or capital where they would secure the largest returns. Since there was a disposition to readily devote funds to these particular channels, there came to be a prevailing mania in regard to railroads. Schemes were brought forward which were mere speculations, undertaken for purposes of individual profit and without any thought that they would ever be carried through to completion. Every day new companies were announced, some of them very visionary and destined to end in ruin to those who put their money into them; but as the prices of the shares were advanced, speculation became rampant, and this in turn reacted to push the prices of shares still higher. Railway lines were planned along routes which could barely support a coach. Newspapers contained numerous prospectuses; and, on the basis of the statements made in these, millions were subscribed with eagerness and zeal. Railway Bills were coming before Parliament in great numbers, and in 1836 alone there were presented fifty-seven petitions involving an estimated outlay of over twenty-eight million pounds³. Many of these Bills were, of course, left without any action having been taken upon them. The great number of enterprises that were sanctioned during

¹ For full statistics as to railway construction up to 1844, see Brit. Doc., 1844 (318), xi, 17, Appendix No. 2, pp. 4-5; also 'Report of Royal Commission of 1867,' pp. xxxiii-xxxiv. For descriptions of the various lines, see Francis, *History of the English Railway*, 1, chs. vii-ix, also Smiles, *Lives of the Engineers*, III, pp. 346-96.

² Such as the Newcastle and Carlisle, Manchester and Leeds, Leeds and Selby, Hull and Selby, Manchester and Sheffield, Leeds and Liverpool, Whitstable and Canterbury, etc.

³ *Sheffield Iris*, Mar. 22, 1836, p. 3, on "Railways." See also, in regard to this mania, *ibid.*, Oct. 13, 1835, p. 3, on "Railway Speculations;" *The Times*, Feb. 13, 1836, p. 3, April 1, 1836 p. 3, and June 17, 1836, p. 3; Whishaw, *Analysis of Railways*, p. v; Grinling, *History of the Great Northern Railway*, p. 3; *Leeds Intelligencer*, Oct. 31, 1835, p. 4.

this mania, from 1835 to 1837, absorbed so much money that in the years from 1838 to 1844 very few new lines were authorized¹.

By the middle of this fourth decade of the century, it was obvious that railroads were no longer to be regarded as mere private enterprises, but as great public concerns, forming a new but most material element in the development of commerce, national wealth and national resources. Since they were in future to constitute the regular and established nodes of communication between the different parts of the kingdom, and by their more rapid speed the value of time would be relatively enhanced, it became a matter of expediency that the lines should be planned according to some well-devised system, and that care be taken not to sacrifice public good to private advantage. If no supervision were to be exercised over the formation of these lines, they would be constructed in the same piecemeal fashion as the canal network, in consequence of which local and individual, rather than national and public, benefit would be considered. The railway mania of 1835-7 seems to have brought the issue more prominently before those who were looking beyond the temporary adjustment; and to them it was clear that to leave the railways to speculators, to be decided according to their judgment and interest, would be the greatest folly. The lines should be made to dovetail into one another; and to have such a preconceived plan as a basis of action for the Legislature in sanctioning these undertakings, the country ought to be thoroughly examined and studied as to its needs and obstacles. One prime essential was that there should be ready communication between the capital and all parts of the kingdom; London was regarded as the heart from which, by the system of arteries and veins, the life of the whole organism should be maintained. How such a system was to be established and adjusted gave rise to differences of opinion. Some were agreed that the best plan would be to have a survey of the country made under the direction of a Government commission, with a view to laying down the great trunk lines in the most favourable situations, from which branches might be made according to the wants of different sections. In this way the country would avoid the evils of the parliamentary committee system of handling these Bills, under which it was not the best line, but the line whose personnel could exert the greatest influence in the committee, that received the recognition

¹ Jeans, *Jubilee Memorial of the Railway System*, p. 141, says that up to and including 1836, Parliament had sanctioned 34 lines of railway, of a length of 994 miles, at an estimated cost of £17,525,000; and that in 1837 there were fourteen new companies incorporated, with power to construct 464 miles of railway at a cost of £8,087,000. Teisserene, *Études sur les voies de communication*, p. 19, says that in 1838-41 only 200 kilometres were authorized.

sought¹. Another advocated that each of the great towns, like Manchester, Birmingham, Sheffield, etc., should, as far as possible, have its own direct railway connecting with London, so as to maintain the natural healthy condition of direct communication between the heart and the extremities². It will be noted that this movement in the direction of systematization and correlation in the railway structure of the country was in harmony with the plan of Thomas Gray, more than ten years before, to have a consistent and effective development of the railway facilities: but in neither case did the proposals meet with favourable action from Parliament³, and lines continued to be treated as separate entities without regard to any organized relations with others.

Railway enterprise was something wholly new in the history of the world, and Parliament did not know what legislative principles to adopt so as not to stifle their development, but at the same time to safeguard the public interests. As *laissez-faire* doctrines were so predominant in every other aspect of the national life, and had proved to be productive of good in the case of the canals, the same policy was adopted at first regarding the railways. Each project was considered on its own merits; the conditions in that particular locality were expected to be carefully investigated by a parliamentary committee in regard to the need for the proposed line; and by the Act that was passed the railway company was allowed to charge a certain specified maximum of rates for different classes of goods, but otherwise it could conduct its business as it thought best⁴. This was the only restriction imposed upon the company in the operation of its road, for it was thought that other matters would be regulated by competition. The aim of the Legislature, at the outset, was to maintain the same freedom on the railways as on the old roads.

It was the avowed purpose, in the construction of the railway lines, that they should be open for the public use, on the payment of the tolls. This was enacted by Parliament to prevent monopoly, that is, to prevent the railway companies from getting exclusive control over

¹ *Parl. Papers*, 1836 (0.96), xx1, 235, 'Minutes of Evidence before Select Committee on Railway Bills,' evidence of James Walker, C.E., Q. 177-212; Mudge, *Observations on Railways*, pp. 30-67.

² *Brit. Mus.* 8235, cc. 12 (1), 'Reasons in favour of a Direct Line of Railroad from London to Manchester,' pp. 1-5.

³ On this whole subject, in addition to the above references, see also *The Imperial Railway of Great Britain*, by M. A., and *Hansard's Parliamentary Debates*, 1836, xxxiv, pp. 984-8.

⁴ This maximum of rates was practically inoperative, for the companies found it convenient to lower their rates, in most cases, below this maximum.

the conveyance of passengers and goods along their respective lines; and even railway proprietors said that they wanted no monopoly: that they were merely toll-takers, and that it was neither their wish nor their interest to undertake the work of a public carrier upon their own lines¹. It was expected that merchants and others would put their own carriages on the line, and either furnish their own horse or steam-power, or pay the railway company for the use of their power. Even after the introduction of steam-power this system in part prevailed in the case of goods traffic; for we find that in 1838 "engines belonging to different parties, coach proprietors, and others," were running upon the Liverpool and Manchester line², and so closely associated was the railway with the ordinary highways, in the public mind, that a select committee of the House of Commons, in 1837-8, recommended that the right enjoyed by private persons of running their own engines and trains upon any railway, should be extended to the Post Office³.

This system, of having divided responsibility on the same line, was not found to work well. In the first place, there was great danger in the running of rival trains over the same rails, on account of the struggle for the most efficient use of the railway facilities. In the second place, no provision had been made to ensure, for private trains and engines, access to stations, watering places and other equipment along the line. In the third place, the rate of toll limited by Act of Parliament was almost always so high as to make it impossible for other parties than the railway company to work at a profit, even if

¹ 'Report on Railway Communication,' 1837-8, Q. 428, 495.

² 'Report of Select Committee on Railroads, 1837-8, Minutes of Evidence,' p. 133. See also 'Report of James Walker to the Committee of the Proposed Leeds and Selby Railway Company,' given in Maclure, *History of the Hull Railways*, pp. 18-32.

³ Brit. Doc. 1837-8 (257), xvi, 341, 'Report of Select Committee on Railroads,' p. iv. The Post Office had already been forced to put the mail on the Manchester and Birmingham Railway, because, since the introduction of the railway, the passenger traffic had left the mail coaches for a more speedy and economical conveyance, and therefore there was no one who was willing to contract for carrying the mail by mail coaches (*ibid.*, 'Minutes of Evidence,' p. 1).

The reason why it was recommended that the Post Office should run its own cars, was because the railways carrying the mails were often late and usually very irregular (*ibid.*, 'Minutes of Evidence,' pp. 12-17, 61-62). In 1837 the Post Office had entered into agreement with the Grand Junction Railway to carry the mails regularly between Birmingham and Liverpool and Manchester. The regularity, however, was often affected by temporary imperfections in the machinery, breaking down of waggons, taking too heavy traffic, station delays, etc. (*ibid.*, 'Minutes of Evidence,' p. 98).

the other obstacles were removed¹. Then, too, great difficulty arose from the fact that private parties were not willing to build engines and carriages under such regulations as were necessary to work well on the road². Soon it became evident to the railway companies that, with due regard to the efficiency of their line and to the public convenience and safety, they could not allow rival parties to run engines and carriages on the same line; and it was eventually acknowledged that these lines of communication must be placed under undivided control and authority. Accordingly, a Parliamentary Committee of 1839 urged the necessity of prohibiting, as far as locomotive power was concerned, the rivalry of competing parties on the same line of railway³; and the Committee of 1840 decided that railway companies using locomotive power possessed a practical monopoly for the conveyance of passengers, and that under existing circumstances this monopoly was inseparable from the nature of their business⁴. It became imperative, therefore, that each railway company should take over the working of its own line. This difference between railway and other kinds of business was early recognized: that competition of rival interests on the same railway line is impracticable, and that the railway company is in essence a monopoly⁵.

But although the practice of traders or independent carriers running their own trains fell early into disuse, the theory of the railways being public highways is found in all the early Acts, and even in a great part of the modern railway legislation⁶. This privilege is preserved, indeed, to the present time, since it is conferred by the Railways Clauses

¹ 'Fifth Report of Select Committee of 1844 on Railways,' Appendix 2, p. 22.

² Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railway Communication.'

³ 'Second Report of the Committee of 1839 on Railways;' also 'Third Report of Select Committee on Railway Communication,' 1840.

⁴ Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railway Communication,' under heading "The Conveyance of Passengers by Railway."

⁵ As we have seen, this fact was fully recognized at least as early as 1839 (v. 'Second Report of Select Committee on Railways,' 1839).

As owners of the roads, railway companies were not intended by Parliament to have any monopoly or preferential use of the means of communication on their lines; on the contrary, provision was made in all or most of the Acts of incorporation, to enable all persons to use the road on payment of certain tolls to the company, under such regulations as the company might make to secure the proper and convenient use of the railway. But when railways began to be worked on a large scale with locomotive power, it was found that the necessities of the case demanded the non-recognition of this Parliamentary safeguard.

⁶ See remarks of Wills, J., in *Hall vs. London and Brighton Railway Company*, 90, in 15 Queen's Bench Decisions, p. 536.

Consolidation Act of 1845¹; but the right is one to which it would be impossible to give practical effect, except in a very limited way. Almost the only remaining trace of the theory is found in the "running powers" exercised by one company over the lines of another; but these are usually arranged by agreement or by special statutory provision in each case.

Each railway Act, therefore, provided for the use of the railway by the public, subject to the company's approval of the engines and carriages to be used on it and to the payment of tolls not to exceed the maximum amounts stipulated in the Act. These tolls, in the case of animals and passengers, were on a mileage basis, and in the case of minerals and goods on a tonnage basis. The latter, of course, were divided into different classes², according to the nature, bulk and value of the articles and their liability to damage. These tolls were payable merely for the right of passage along the railway. But after 1833 it became the practice to insert in railway Acts a clause allowing the company to charge for supplying the traction power also³. Here, then, were two tolls, the "road toll," for the use of the roadway, and the "locomotive toll," paid when the company supplied haulage.

It was not long before the companies took a third step. In two or three cases railway companies were required by their Acts to be carriers⁴, but these were very exceptional. It soon became necessary for railways to provide the whole equipment of rolling stock and a staff of officials for doing the carrying themselves, and from 1833-40 we find, in consequence, that the railway Acts contained not only toll clauses, but another clause authorizing the company, "if they shall think proper," not only to provide engines for use by other persons, but also to use and employ them themselves, in carrying the goods and passengers that might require that service performed⁵. The charges authorized by the Acts of that period, therefore, as pertaining to goods, fall into three classes: first, the road toll, for the use of the roadway; second, the locomotive toll (without any specified limit) for the use of the engine; third, a "reasonable charge" for conveyance, in addition to the above tolls, when the company provided everything

¹ 8 Vict., c. 20, sec. 92.

² The classification of goods for the railway traffic was borrowed directly from that of the canal Acts.

³ v. *Great Western Railway Act, 1835, sec. 166.*

⁴ *Liverpool and Manchester Railway Act, 1827 (7 Geo. IV, c. 49, sec. 138); Newport and Pentypool Railway Act, 1845 (8 & 9 Vict., c. 159, sec. 128); Monmouthshire Railway and Canal Act, 1852 (15 & 16 Vict., c. 126, sec. 128).*

⁵ Sec. for instance, the *Great Western Railway Act, of 1835 (5 & 6 W. IV, c. 107, sec. 167).*

and conveyed the traffic along their line. All three of these charges were paid by those who were engaged as carriers on the railways¹. The reason for these payments is probably to be found in the traffic conditions of the railways at that time. As to the road-bed, the company had the monopoly and therefore Parliament thought best to limit and fix the rates of toll that might be taken for its use: but in regard to the other two charges, it was expected that they would be determined by competition, since the carriers might legally employ their own engines and do their own carrying.

But experience soon taught that competitive carriers on the same line were an anomaly; that the work of conveyance had to be undertaken by the company; and from 1841 on, further restrictions were placed upon the charges of the new companies that were authorized. A new form of clause began to prevail by which an increased toll, of *specified* amount, was authorized when the company had to provide the rolling stock and power and also had to do the actual work of carrying. Under this form of Act, which includes most of the railway Acts from 1841-4, the charges were: first, the road tolls, which even in early Acts had been of *fixed* amount: second, increased tolls of *fixed* amount for the use of the company's carriages; and, third, a *fixed* additional charge for locomotive power². The fixing of the charges for rolling stock probably shows that Parliament recognized the futility of trying to regulate these charges by competition. It may be noted that neither railway company nor independent carrier was allowed to charge more than the aggregate of these three tolls; for a clause in each Act provided that "neither the company nor any other person using the railway as a carrier shall demand or take a greater amount of toll, or make any greater charge, for the carriage of passengers or goods than the company are by this Act authorized to demand³."

When conveyance by the railway company had become the usual mode, another change was introduced, in the "Maximum Rates Clause," which limited a company's total charge for conveyance to *something less* than the aggregate of the three tolls; in other words, if the company

¹ These three features of the charges that railways were allowed to make may be noted in the Acts of several large railway companies, e.g., Grand Junction Railway Act, 1833 (3 W. IV, c. 34); London and Birmingham Railway Act, 1833 (3 W. IV, c. 36); Great Western Railway Act, 1835 (5 & 6 W. IV, c. 107); Bristol and Exeter Railway Act, 1836 (6 & 7 W. IV, c. 36).

² This form of charging clause may be seen in the Oxford Railway Act, 1843 (6 Viet., c. 10, secs. 281, 284); the Warwick and Leamington Union Railway Act, 1842 (5 Viet., c. 81); the Yarmouth and Norwich Railway Act, 1842 (5 Viet., c. 82).

³ See Oxford Railway Act, 1843 (6 Viet., c. 10, sec. 288).

had the advantage, as conveyers of traffic, of performing all three services, they were to be content with something less than the aggregate of the three sums which, as toll-takers, they were authorized to charge for each service separately. This gives us for the present-day railway Acts two sets of charging clauses: first, the toll clauses, including the three charges spoken of above, and, second, the maximum rates clause, limiting the total charge for carrying¹. The maximum rates clause insured to the public cheap conveyance, while the toll clauses protected the companies against rival conveyers on their own lines, whether private carriers or other railway companies with running powers, by enabling them to levy tolls upon persons using the railway to such an amount as would prevent competition².

When the railway companies had taken over the working of their lines and undivided control was accorded to each over its own line, competition became active between the different railways, and also between the railway companies and the canal companies, in the same territory. The natural effect of this competition was to cause the rates of carriage to be put down, sometimes to ruinously low figures, and when this could not be continued any longer, working agreements were entered into or amalgamations effected, without any Parliamentary sanction³. Under these private arrangements, made for the mutual profit of the formerly competing companies, a higher scale of tolls and charges was usually established, sometimes in excess of even the original rates⁴. As soon as Parliament was aware that secret agreements were being made, it endeavoured to encourage those companies that wished to consolidate

¹ The earliest Act in which this Maximum Rates Clause was inserted was probably the Kendal and Windermere Railway Act, 1845 (8 & 9 Viet., c. 32).

² In regard to these statutory provisions of railway Acts, see Butterworth, *Railway Rates and Traffic*, p. 3 et seq.

³ Brit. Doc. 1846 (200), xii, 85, 'First Report of Select Committee on Railways and Canals Amalgamations.' This called attention to the legislative amalgamations, and also to the fact that some important lines of railway, originally formed by independent companies, and which had not proposed any legislative amalgamation, were at that time practically under the same control and management; and so long as these parties felt it to be their interest to combine, all the evils to be feared from amalgamation might be produced by private arrangements between them. *Ibid.*, 'Minutes of Evidence,' p. 7, shows a list of the railways and canals that proposed amalgamation at this time.

⁴ Brit. Doc. 1846 (275), xiii, 93, 'Second Report of Select Committee on Railways and Canals Amalgamations;' also 'Fifth Report of the Select Committee on Railways, 1844, Minutes of Evidence,' p. 200 et seq. Evidence showed that several railway lines had formed working agreements, and had raised their charges to keep up dividends as high as eight to eleven per cent. See also Brit. Doc. 1872 (364), xiii, I, 'Minutes of Evidence,' p. 332.

to come forward and obtain an Act authorizing this, for, by so doing, some method of general superintendence and control might be adopted, so that competition among lines might not be obliterated. In some cases, amalgamations had been sanctioned by Parliament from the first¹.

While the most competent witnesses favoured amalgamation of competing lines, either of railways or canals, where competition might be destructive, they almost invariably favoured also the amalgamation of closely related lines which were not rivals. It was recognized that where two roads competed for the same traffic they had everything to gain and nothing to lose by amalgamation, or by an arrangement under which the traffic was divided. But the interests of the public must also be looked after, as well as those of the railways and canals. As early as the panic year of 1836, when so many railway bills were being brought before Parliament, attention was called again and again to the fact that railway competition could not be relied upon to ensure the protection of the public from unjust charges². The railway was essentially monopolistic, and even if another railway were formed as a rival it would be to their ultimate advantage to make some understanding to work together, and thus the possibility of competition would be further removed than ever. But there were a few who saw that it was not economical, nor would it prove effective, to construct two or three lines along a certain route, with the object of securing competition, when one company could carry all the traffic that was likely to be offered³. Even for the purpose of making competition effective, this would be a flagrant waste of capital; and the Legislature ought to prevent unnecessary waste of funds by seeing that lines were built only for necessities. But this cry for protection of the public, at the time of the panic, was different from that which came a few years later, after railways became more aggressive and formed closer working relations with one another. At the earlier time it was more spasmodic and individual; at the later time it was prolonged, profoundly and universally felt, and officially recognized. As early

¹ Brit. Doc. 1846 (200), xii, 85, 'First Report on Railways and Canals Amalgamations.'

² *The Times*, June 17, 1836, p. 3, statement of the Duke of Wellington; *ibid.*, June 22, 1836, p. 4, editorial, showing how the various concerns established to provide water for the city of London and its suburbs had finally combined and parcelled out the city for their own profit. This is also referred to by Mr Morrison in *ibid.*, June 22, 1836, p. 4. See also *Hansard's Parliamentary Debates*, 1836, xxxiii, pp. 977-94, and xxxiv, pp. 1-4.

³ *The Times*, June 17, 1836, p. 3, statement of the Duke of Wellington; Whishaw, *Analysis of Railways*, p. v.

as 1844, Parliament was strongly urged to retain within its power sufficient authority to curb the railways, should these tend to unduly increase their influence. It was impossible to foresee what turn affairs might take in the following years, and the public must be protected should the railways try to deal illiberally¹. In the reports of various committees with reference to the railways and canals, we are impressed by the fact that the advantage to the public from competition between these two instrumentalities was fully recognized; but how to maintain that competition for the future was a subject which was constantly pressing for attention, and yet wholly unsolved². They recognized that it would not be a wise policy to always refuse to sanction the amalgamation of railways and canals, for this was frequently for the public good; and the most fruitful suggestion they could make was that a searching inquiry should be made into the merits of each case, and that Parliament should permit only those amalgamations which could be effected without prejudice to the public³. In the light of

¹ Brit. Doc. 1844 (166), xi, 5, 'Third Report of Select Committee on Railways;' also the 'Fifth Report of Select Committee on Railways,' 1844, p. 82. The same caution was urged by the Board of Trade in the following year, v. Brit. Doc. 1845 (279), xxxix, 153, 'Report of the Railway Department of the Board of Trade on the Proposed Amalgamations of Railways.' They say: "If these extensive powers are to be granted to private companies, it becomes most important that they should be so controlled as to secure the public, so far as possible, from any abuse which might arise under this irresponsible authority." Then, after showing the complications that had recently arisen in railway operation, and the advantages to some railway companies of amalgamating with others, they say: "Accordingly we suggest for the consideration of Parliament that general and unlimited powers of granting or accepting a sale or lease of a railway or canal by another railway or canal company, or of otherwise merging the independence of one company in another, should not be allowed to be inserted in any Bill; and that when such powers are applied for in any specific instance, they should only be granted after a full consideration of the probable results as regards the interests of the public as well as of the parties."

² Brit. Doc. 1844 (166), xi, 5, 'Third Report of Select Committee on Railways;' 1845 (279), xxxix, 153, 'Report of the Railway Department of the Board of Trade,' pp. 3-4; also 1846 (275), xiii, 93, 'Second Report of Select Committee on Railways and Canals Amalgamations;' etc. In the latter we find it stated that, "There are now few parts of the country which have not derived material advantage from the competition between railways and canals. It is obviously important that Parliament should not sanction lightly any arrangements which would tend to deprive the public of this advantage; and it has been a subject of consideration with your Committee whether, in order to maintain future competition, it might not be the duty of Parliament to refuse its assent to all bills limiting the interests of the railways and canals."

³ Brit. Doc. 1846 (275), xiii, 93, 'Second Report of the Select Committee on Railways and Canals Amalgamations,' under heading "Conclusion." This Committee recommended that, since the system of railways and canals had become so complicated, some department of the Executive Government should be given full supervision over them, with power to enforce such regulations as were indispensable

these facts, it is clear that in the various investigations of the railways and canals at that time, the interests of the people as a whole were regarded as paramount; and if these were not conserved it was not because they were not urged upon Parliament, but chiefly because of the lack of knowledge in that body of how to deal with the situation¹.

While Parliament, without experience as a guide, was busy examining the conditions under which railways were operating and endeavouring to secure adequate legislation for their proper regulation as agents of the public service, the companies themselves were active in maturing plans for working agreements or consolidations. These were at first among lines that might be connected into a longer line of communication, and afterwards with parallel and competing roads. Experience showed that lines of short length were generally worked at great disadvantage; and the saving of expense that would result from the consolidation of establishments was another reason why amalgamation was sought by those companies that wanted to add to their pecuniary prosperity². For this reason, the amalgamation of short independent links or branches, and of unprofitable lines, with others of larger extent and in more prosperous circumstances, was eagerly sought from purely economical considerations. Another, and even more important, factor was that the full development of traffic upon a system of railways often depended very materially upon the existence of a uniform system of management and unity of interest over a considerable extent of line³. In regard to passengers also, serious inconveniences often resulted from the conflict of interests and lack of uniformity of system among independent companies. The more

for the interest of the public. See also Brit. Doc. 1845 (279), xxxix, 153, 'Report of the Railway Department of the Board of Trade on Proposed Amalgamations of Railways,' p. 4.

¹ Even as early as 1840 (v. Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railways'), a Committee of Parliament recommended that an authority be appointed to watch the carrying systems practised on different lines of railway, with a view to obtaining the best system "for the public welfare." See also the references under footnote 2, p. 579; Brit. Doc. 1844 (166), xi, 5, 'Third Report of Select Committee on Railways;' also 'Fifth Report' of same year, 'Minutes of Evidence,' p. 82; *The Economist, Weekly Commercial Times, and Bankers' Gazette*, 1845, p. 1078, letter from Lawrence Heyworth, urging Parliament to insist that railways be undertaken on such principles of economy as to secure the greatest possible benefits to the public.

² Brit. Doc. 1845 (279) xxxix, 153, 'Report of Railway Department of Board of Trade on Proposed Railway Amalgamations.' It was to put an end to the costly warfare of the London and Birmingham, the Grand Junction, and the Manchester and Birmingham, that they were amalgamated to form the London and North Western.

³ *Ibid.*, pp. 2-3, gives an example of this.

obvious of these evils were those in which attempts were made, by companies holding one portion of a great line of communication, to extort an undue charge by compelling passengers who had arrived at a terminus of one road in second or third-class carriages, either to wait, or to proceed on the adjoining road in carriages of a more expensive class¹. Even first-class passengers were often subjected to delay and inconvenience in changing carriages and luggage upon a journey, owing to the same cause². From such conditions, it would naturally be assumed that the more complete the unity of interest and management throughout the more satisfactory and efficient would be the arrangements for traffic that had to pass over more than one line. It was these considerations of inter-railway operating economy, then, that led to the early working arrangements and consolidations³.

These began at an early stage in the history of the railways. By 1844, a number of Bills were being introduced into Parliament to secure authority for consolidating certain lines, but we may be certain that this was by no means the beginning of such things⁴. Private working agreements were, doubtless, in existence for several years before this; for the railways had increased their power so much that in that year a Committee of Parliament urged upon the House the necessity of seeing that the railways did not unduly extend their influence by destroying competition⁵. If there had not been such working agreements in force, there would have been no need for the strong appeal that was thus made to the Government, for there would have been no "illiberal" dealings of the railways toward the public to be guarded against. But we are not left in doubt upon this subject, for the evidence of witnesses is too conclusive to be discredited⁶.

¹ See 'Fifth Report of Select Committee on Railways, 1844,' Appendix 2, pp. 20-21. Here is given a good account of the "Nullity of Parliamentary Provisions for the Protection of the Public," and several "Instances of inconvenience to the public from the existence of so many independent railway companies."

² *Ibid.*, pp. 20-21; *Brit. Doc.* 1845 (279), xxxix, 153, 'Report of Railway Department of the Board of Trade on Proposed Railway Amalgamations,' p. 3.

³ These, of course, were not the only reasons why railways sought consolidation. For instance, the Liverpool and Manchester wanted amalgamation with the Grand Junction Railway so that the two companies together might provide sufficient means to make their station commodious (*v. Brit. Doc.* 1846 (275), xiii, 93, 'Second Report of the Select Committee on Railways and Canals Amalgamations,' p. 18).

⁴ 'Fifth Report of Select Committee on Railways, 1844, Minutes of Evidence,' p. 82, where one witness said: "Now is the time for Parliament to protect the public, when these Amalgamation Bills are being brought in."

⁵ *Brit. Doc.* 1844 (166), xi, 5, 'Third Report of Select Committee on Railways.' This Report is very explicit upon this point.

⁶ 'Fifth Report of the Select Committee on Railways, 1844, Minutes of Evidence,' p. 81. Here we are told that the London and Birmingham, and Birmingham and

Whether we call these arrangements railway pools or not may be simply a matter of nomenclature; but the fact is that before 1844 there were quite a number of such agreements for division of traffic, or for adjustment and maintenance of rates. In addition to the amalgamations that were in force before 1845, many others were proposed in that year¹; and in 1846 there seems to have been a great number of such proposed mergers². While many of these were not in that year sanctioned by Parliament, yet a considerable extent of both railways and canals came into the control of the powerful railway companies³;

Derby railways contemplated amalgamation, and they were to be amalgamated with the North Midland Company. It would seem, therefore, as if working arrangements must have been in force for these roads before this, else such an extensive amalgamation would not have been projected, without knowing the benefits that would accrue from it. Further, the Birmingham and Derby and the Midland railways, after running a short time, made an arrangement that the Midland Company should take all passengers coming by certain trains by the North Midland line to London, and that the Birmingham and Derby should take all the passengers coming by other lines. This agreement was broken and the two companies quarrelled, so that they carried for almost nothing. Then a second agreement was made (in 1847, p. 82).

The Bolton and Preston and the North Union railways which were competing lines for traffic between Preston and Manchester, after a short contest, amalgamated, and in 1844 were applying to Parliament for this amalgamation to be confirmed.

The York and North Midland Railway and the Leeds and Selby Railway were competing lines for part of the traffic between Leeds and York and Hull. But the Leeds and Selby had been leased to, and later bought by, the York and North Midland Company (*ibid.*, p. 83). See also the arrangement of the Manchester and Leeds Railway Company with the Calder and Hebble Navigation (*ibid.*, p. 140). Other agreements are mentioned on p. 169 et seq., pp. 384, 488; see also pp. 20-21 of Appendix No. 2 to this 'Fifth Report of the Select Committee on Railways, 1844.'

On pp. 20-21 of Appendix No. 2 of this 'Fifth Report of the Select Committee on Railways, 1844,' we learn that this movement of amalgamation or consolidation had "made rapid progress of late," and seven instances of this are there given.

¹ For these, see *Brit. Doc.* 1845 (279), xxxix, 153, 'Report of Railway Department of Board of Trade,' p. 4.

² *Brit. Doc.* 1846 (275), xiii, 93, 'Second Report of Select Committee on Railways and Canals Amalgamations, Minutes of Evidence,' p. 3, shows proposed amalgamations among existing railways, as stated in the titles of the Bills; pp. 3-6 show proposed amalgamations of "new with existing railway companies," about 105 of which sought power to lease or sell to some other railway; p. 7 shows a list of the railways and canals that proposed amalgamation. Some of these amalgamations were for filling up of old canals and building new railways instead, and often these railways were to be united with other railways.

³ For the canals and navigations acquired by the railway companies by amalgamation, purchase, or lease, from 1846-72, see *Brit. Doc.* 1872 (364), xiii, 1, Part II, pp. 755-6. This is given in Appendix 9. See *ibid.*, pp. 966-71 (Appendix T), for 'Returns from Each Railway Company of the Names, Number, and Extent of the Canals and Navigations under their Control, and How Held.' This does not give the railway amalgamation that had occurred.

and we may be certain that much of the amalgamation that failed to obtain the consent of Parliament became effective by secret agreements between the companies interested¹.

When the time came that railways were allowed to take over canals, and to consolidate with other railways for the formation of great systems, we have a new epoch in the history of railway transportation. Instead of small, detached roads, having poor, if any, connexions with the next adjoining roads, long lines were formed and worked with a degree of economy and efficiency that was hitherto unknown. The times of arrival and departure of trains, instead of being a matter of caprice, and not made to suit the public convenience, were made to dovetail into a general scheme that grew to meet the needs of the public. Lines already constructed, by getting together, could save in the number of officers that were necessary to man them. The public also gained, because by uniting their interests the railways were better managed, their finances were put in better condition, and by thus putting an end to the wastes of competition the roads were able to deal more liberally with the public in the way of supplying conveniences².

The completion of these great systems was not effected until after the railway mania of 1844-6 had done its work, and to that subject we must now give brief consideration. What was the cause of this third and greatest railway mania, we may be unable to determine, but it seems pretty certain that it was not brought on by the universal success of the railways which were then in existence. From the list of important railways which was published in 1841, we see that only eight out of twenty-two had their shares selling in the market above cost, while many were selling for prices that were much lower than the paid-up values of the shares³. The more probable cause was speculation.

¹ Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills. Minutes of Evidence,' p. 187, where we are told that there were vast amounts of amalgamation that were not sanctioned by Parliament.

President Hadley, in his excellent work on *Railroad Transportation*, p. 159, after mentioning that the early history of English railway pools is obscure, says: "They first assumed importance some thirty years ago," which would make it about 1855. We have shown in the foregoing that there were many working agreements before 1844, under which there was division of traffic among the lines interested; and from a careful study of this period, I would place the time when they became important at least ten years earlier than the date given by President Hadley. The editor of the *Railway Times* characterized the year 1843 as the "year of amalgamation," and said that amalgamation was the order of the day (*Railway Times*, vi, pp. 1128, 1387).

² Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills. Minutes of Evidence,' p. 1.

³ *Railway Times*, iv (1841), p. 107, gives statistics of the more important railways. Those whose shares were selling above cost were the Liverpool and Manchester.

The work of such a man as George Hudson, who rose from a position of obscurity until he could command the policy of several railroads, simply because of his gambling in railway shares and his ability to exercise undue influence over railway directors, was, doubtless, an incentive to others to try the same method of piling up wealth¹. The names he received as the "Railway King" and the "Railway Napoleon" are typical of his shrewd, grasping policy, his work as a stock-jobber, and his ability to lord it over railway officials for his own material ends. Others were, doubtless, imitating his example; and the rage for speculation was fostered by the weekly reports and circulars of the many brokers. In the latter part of the year 1844 railway projects were numerous, money was abundant, and its investment in railways was encouraged by the prospects of profit held out by scheming designers as bait to the unwary². The editor of the most important railway journal of the time informs us that the fashionable phrase regarding the numerous railway undertakings that were daily making their appearance, was to say that a railway fever was raging³; and the editor of the *London Times* was urged to raise his voice in warning against the mania which was then spreading rapidly over the land, and which promised a severe financial crisis that would shake the country⁴. By November 1844, a list of projected lines involving the aggregate capital of £563,203,000 was published, but many of these were abandoned⁵. The rage for shares continued and increased in intensity in 1845, until it infected all classes from peer to peasant and from private individual to government officials⁶. The press was full of

Grand Junction, London and Birmingham, Great Western, Birmingham and Gloucester, London and South Western, Manchester and Leeds, and the York and North Midland.

¹ For his career, see the files of the *Railway Times*, vi (1843), pp. 1058, 1084, 1095-6, 1122, 1312-13; vii (1844), pp. 62, 131, 173-4, 327-8 (in which he is called the "Prince of Premium Hunters"), etc. Also the great detail given by Grinling, *History of the Great Northern Railway*.

² Brit. Mus. 1396. g. 21, 'Railways and the Board of Trade,' p. 7.

³ *Railway Times*, vii (1844), p. 485.

⁴ *The Times*, Nov. 20, 1844, p. 7, letter from "John Trot."

⁵ Jeans, *Jubilee Memorial of the Railway System*, p. 142, quoting from Spaekman's published list.

⁶ Brit. Mus. 1396. e. 22 (4), 'Ruminations on Railways,' No. 1, on "Railway Speculation," discussed the mania with sanity. The writer said (p. 6): "Such is the delirium in the share market, that many an honest, industrious tradesman withdraws from his more sober pursuits behind the counter, and dubs himself that delver into the mines of Golconda, a share-broker." In subsequent pages he goes on to describe how vehement was the fever for railroads. See also Brit. Mus. 8235. d. 27, 'Railways and Shareholders,' p. 3.

railway prospectuses¹; and a large amount of the shares were in the hands of persons who were holding them, not for investment, but merely for speculation². Share jobbing was rife³. Even such journals as the *Railway Times* and *The Economist* were encouraging this vast expenditure of money and declaring that railway securities would constitute important means of investing capital⁴. On the other hand, the editor of the *London Times* was giving words of warning to the public against the time when blind confidence would be displaced by doubt and when the inevitable collapse would come⁵. All kinds of fraudulent methods were employed to delude the public and secure their funds⁶. The significance of the mania may be judged by the fact that, during the three years 1844-6, Parliament sanctioned Bills for the construction of 8470 miles of railway, which was just about three times the mileage then constructed; and the amount of capital required for them, £180,138,901, was so great that the further growth of the railway system was checked for some years⁷. The financial panic which followed the railway mania, and which was probably in large measure due to the locking up of so much money in these temporarily

¹ See, for example, the *Railway Times*, *The Economist*, *The Times*, in their advertising columns.

² *The Times*, Aug. 9, 1845, p. 6, on "Railway Speculation."

³ *Ibid.*, July 11, 1845, p. 5; July 12, 1845, p. 5; July 14, 1845, p. 5; July 21, 1845, p. 7; July 25, 1845, p. 8; etc.

⁴ *The Economist*, 1845, p. 1013; *Railway Times*, vii, p. 485.

⁵ *The Times*, Aug. 9, 1845, p. 6. It is interesting to contrast the editorial opinion of the *Railway Times* in 1844, when it was said that there was "neither fever nor lunacy in forming new railway schemes without end" (vii, p. 485), with that in 1845, when his verdict was that those embarking in new railway schemes ought to exercise more caution (viii, Pt. 1, p. 569).

⁶ *Railway Times*, viii, Pt. 1, p. 1013, letter from "Expositor;" 'Railways as they Really Are,' No. 1, on the 'London, Brighton and South Coast Railway,' which exposes the frauds of this company, also Nos. II and VII; Brit. Mus. 8235. d. 27, 'Railways and Shareholders,' pp. 3-4; *The Times*, Oct. 18, 1845, p. 5, editorial; *ibid.*, Oct. 23, 1845, p. 7, letter on "Railway Speculation." This subject was continued in *ibid.*, Oct. 25, 1845, p. 4; Oct. 27, 1845, p. 4; Nov. 8, 1845, p. 4; Nov. 14, 1845, p. 4; Dec. 2, 1845, p. 4; in which the editor wrote strongly against the tide of speculation that was flooding the country. See also Brit. Mus. 1396. c. 22 (4), 'Ruminations on Railways,' No. II, 'The Railway Board of Trade,' and Brit. Mus. 1396. g. 21, 'Railways and the Board of Trade,' 3rd ed., pp. 20-28, showing the evils that attended the work of this body.

⁷ Jeans, *op. cit.*, p. 142. In the year 1846 alone the length of railway authorized was almost double the total length of line authorized up to the end of 1843. Brit. Doc. 1854-5 [1965], XLVIII, 1, 'Report of the Railway Department of the Board of Trade' for 1854, p. xi. The amount of money authorized to be raised for the railways that were sanctioned in 1846 was £132,617,368; for those of 1847, £39,460,128; for those of 1848, £15,274,237; for those of 1849, £3,911,331 (*ibid.*, p. vii).

unproductive enterprises, was severely felt in the spring of the year 1847, but we shall avoid any further reference to that subject. One outcome of the mania to which we may here allude was the great number of suits that were brought before the courts; some of these were instituted by railway companies against shareholders, because the latter refused to pay up the calls that were made upon them in connexion with their subscriptions; others were brought by individuals to recover deposits of money that they had advanced for the construction of railways which had not materialized. Some suits were started as a consequence of the winding up of undertakings that had proved abortive; and others were due to a variety of causes, which we need not enumerate¹.

We have already noted that up to and including the year 1843 there had been considerable amalgamation of railways²; in fact, it was asserted in 1843 that "amalgamation is the order of the day³." But after the cessation of the mania in 1846 there was a still greater agitation for amalgamation⁴. With the great amount of construction and reorganization which took place immediately following the mania, the weaker roads found it necessary to ally with the stronger, not only to reduce the expenses of management and operation, but to produce peaceful relations among the companies. Beginning with this epoch-making time in the history of the railways, a vast amount of consolidation was effected⁵, and the railways, instead of being left as independent units, were gradually becoming organized into a system which was beginning to take on its permanent form⁶. We may say that, by 1850, ✓

¹ *Railway and Canal Cases*, Vols. iv and v, give many of these.

² *Railway Times*, Vol. vi, gives much material on this subject, in addition to what we have already given.

³ *Ibid.*, vi, p. 1128.

⁴ *Ibid.*, ix, p. 316.

⁵ Brit. Doc. 1847-8 (510), LXIII, 449, gives very complete returns of all existing railway amalgamations in Great Britain and Ireland, accompanying which is a map showing the amalgamation of railways that had taken place.

⁶ The tendency in 1844 for railways to consolidate into a few great systems was becoming daily more manifest. The results that had already been realized showed conclusively that the probability was that the principal lines would be grouped into six or eight leading divisions. For the consolidations that had been made by 1844, see Brit. Doc. 1844 (318), xi, 17. 'Fifth Report of Select Committee on Railways,' Appendix No. 2, p. 21. For the probable results of the tendency toward amalgamation, see *ibid.*, Appendix No. 2, p. 21.

The leading systems, as developed in outline, by 1844 were as follows:

First. The Great North Western artery, extending for 238½ miles in a direct line from London to Lancaster and connecting Birmingham, Manchester, Liverpool, and the manufacturing districts of Lancashire with the metropolis.

Second. The Great Midland and North Eastern system, beginning at Darlington, passing through York, within a few miles of Leeds and Sheffield, through Derby

the present-day grouping of lines into the great arteries of communication had been effected; and the changes since then have been the filling in of the network.

In connexion with the subject of amalgamation, there are one or two other features which require mention. The earlier railways had been formed by companies owning comparatively short lines; for example, the line from London to Liverpool belonged to three companies; and great loss of time and inconvenience arose from the want of unity of management and from disputes between the companies. Therefore, partly for economy of management, and partly for the convenience of the traffic, some of these companies whose lines formed links in a through route obtained powers to amalgamate. But as time went on a further increase in the number of railways led to competition of rival lines at many more points. This resulted in further amalgamation and buying up of rivals. Thus, amalgamation, which at first was a question of economy of management and public convenience, became later a matter of offensive and

and Leicester, and meeting the Great North Western artery at Rugby. The length of this line was 201½ miles, and it was soon to be extended to Newcastle.

Third. The Great Western system, from London to Bath, Bristol and Exeter. This when completed would give 194½ miles in a continuous line.

Fourth. The great transverse system, formed by the Liverpool and Manchester, the Manchester and Leeds, the Leeds and Selby, and the Hull and Selby railways, connecting the two leading ports of the east and west coasts, by a line of communication 132 miles long, and passing through the heart of the great manufacturing districts of Lancashire and Yorkshire.

Fifth. The South Western system, from London to Southampton and Portsmouth.

Sixth. The South Eastern system, consisting of the Dover and Brighton Railways, which diverged from a common trunk a little south of Croydon.

Seventh. The Eastern Counties system, intended to have connected Norwich and the Eastern counties with the metropolis, but only finished at that time from London to Colchester, 51 miles.

Eighth. The Northern and Eastern system, intended to connect London with York by a line passing through Cambridge and Lincoln, and completed for only 32 miles out of London.

Among the minor and subsidiary lines may be mentioned:

First. The Newcastle and Carlisle Railway, connecting the North Eastern and North Western arteries.

Second. The Birmingham and Gloucester, Bristol and Gloucester, and Cheltenham and Great Western railways, connecting the North Western and Great Western arteries.

Third. The Birmingham and Derby Railway, connecting the Midland and the North Western arteries.

(v. Brit. Doc. 1844 (318), xi, 17, 'Report of Railway Department of Board of Trade,' Appendix No. 2, p. 6.)

defensive policy, to enable the companies to fight one another more successfully.

The benefits from amalgamation were so apparent that many could foresee its continuance until all the railways of the country were united under the control of a few large corporations. Some went even further than that, and advocated a general amalgamation of all the railways, not only from the standpoint of economy of operation, but to prevent a great deal of the jobbing and indiscretion that existed in some boards of directors¹. As early as 1846 a scheme was proposed for merging the shares of all railway companies into one common stock, under the management of a general proprietary board²; and this idea so occupied public attention that in 1852 the issue was investigated by a committee of Parliament³. That committee, however, reported adversely upon the plan, and it was never attempted. Another proposed solution of the railway problem, after the principle of monopoly had been recognized, was that certain districts should be assigned to particular railway companies, and that in those districts each should be protected from competition, in exchange for certain advantages that they were to give the public⁴. No definite plan was brought forward to carry this into execution and its futility soon became evident.

Another factor tending to the harmonious operation of railways, after the principle of amalgamation had been quite largely followed out, was the establishment in 1847 of the Railway Clearing House. In the earlier period of railways, the rolling stock of one company did not generally pass from one line to another and the inconvenience and expense due to change of vehicles or transshipment were very great. But when the railway system had been developed to a considerable extent, it was necessary for the companies to have a mutual understanding in regard to the sending of traffic over one another's lines. For this purpose, the chief railway companies formed from among themselves an association, with a central office in London, to regulate certain questions of interchange of traffic as between the several companies, and to adjust the accounts arising out of the united action of the companies: to settle disputes as to the division of, and to

¹ Brit. Doc. 1846 (489), xiii, 217, 'Report of Select Committee of House of Lords on Railways,' evidence of Mr W. Cubitt, p. 101, Q. 898; also 1852-3 (736), xxxviii, 447, 'Minutes of Evidence,' p. 32.

² *Ibid.*

³ Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills.' It shows that such a general amalgamation would be undesirable, and why.

⁴ This view was taken by Gladstone's Committee of 1844 and by Lord Dalhousie's Railway Commission of 1845. See also Brit. Doc. 1852-3 (170), xxxviii, 5, 'Second Report of Select Committee on Railway and Canal Bills, Minutes of Evidence,' p. 30.

apportion the receipts from, the traffic that might pass over more than one line, under agreements made by the several companies; and to keep the records of the movements of waggons and carriages when these might pass off the lines of the company to which they belonged, to the lines of other companies. This Railway Clearing House was a purely voluntary association at first, but in 1850 it was incorporated by Act of Parliament and had become a very important feature in preserving amicable relations among the various roads.

The width of gauge was another important problem which came up for consideration in 1846. When the Great Western Railway was constructed, the engineer, I. K. Brunel, constructed the road with the rails seven feet apart, while other roads generally had the rails only four feet eight and one-half inches apart¹. This diversity of gauge was a serious barrier to interchange of traffic, and in the above year, before the Committee of the House of Lords, railway engineers and others were in perfect agreement that the width of gauge should be uniform². The settlement of this was important on account of the enormous number of lines that were then in progress and in prospect. In the session of 1846 the Gauge Act was passed, which enacted that unless it should be otherwise specified in the special Acts all future railways in Great Britain should be constructed upon the gauge of four feet eight and one-half inches, with the exceptions of railways forming branches of the Great Western, or those situated in the counties of Somerset, Dorset, Devon and Cornwall³.

In a former connexion we spoke of the advantages which were anticipated from the development of railways, and we have referred to some of the results which were actually obtained in the cases of the Stockton and Darlington and the Liverpool and Manchester railways. A few words more as to the benefits that were definitely conferred by railways may not be out of place. Of course, the greatest results came

¹ There were also mixed gauge lines, that is, roads with part of one gauge and part of another. In 1854, out of a total of 6114 miles of railway in England, there were 206 miles of mixed gauge, 647 miles of broad gauge, and 5261 miles of narrow gauge (i.e., 4 ft. 8½ in.). See Brit. Doc. 1854-5 [1965], XLVIII, 1, 'Report of Railway Department of Board of Trade' for 1854, p. xii.

² Brit. Doc. 1846 (489), XIII, 217, 'Report of Select Committee of the House of Lords on Railways, Minutes of Evidence,' pp. 106-7. See also Brit. Doc. 1846 (353), XXXVIII, 371, 'Copy of Minute of the Lords of the Committee of the Privy Council for Trade, on the Report of the Commissioners for inquiring into the Gauge of Railways, June 6, 1846.' This has some good things on the subject of gauge.

³ Brit. Doc. 1854 (139), LXII, 441, 'Report of the Board of Trade to the General Committee on Railway and Canal Bills, on the Railway Bills of 1854,' p. 26; also Brit. Doc. 1867 [3844], XXXVIII, 1, 'Report of the Royal Commission on the Railways of the United Kingdom,' Part I. p. xv.

through the development of traffic, consequent upon the reduced cost and the increased speed of conveyance. Before the Stockton and Darlington was constructed, the number of passengers travelling between these two places was scarcely sufficient to pay for the running of a coach three or four times a week¹. Between 1825 and 1832, when there were separate coaches running on the line, belonging to different individuals, the average number of passengers did not exceed 520 per week; so that the growth of the passenger traffic was slow but steady². After that, the company took over the passenger business and so greatly increased the comfort and speed of their trains that, according to the statement of F. W. Cundy, a celebrated engineer, in 1834, 600 passengers per day were frequently conveyed along this line, where, formerly, by the coach, there were not more than ten passengers per day³. On the Liverpool and Manchester railway, in 1832, according to the evidence of the treasurer of the company, there were almost three times as many passengers conveyed as had been carried by the twenty-two regular coaches before the railway was opened⁴. In the case of the Leeds and Selby line, the number of passengers who travelled between these places during the first year of the operation of the railway increased, we are informed, from about 400 to about 3500 per week⁵. It is difficult to believe that there could have been as much as a nine-fold increase here in that short time, and yet we must remember that Leeds was flourishing as an industrial centre and Selby as a shipping centre. Perhaps some of this increase may have been merely experimental, indicative of the popular curiosity to try this new agency of travel, and may not have represented anything like as great a gain in the substantial, permanent, increase of the business. But if passenger traffic increased so much there was a corresponding gain in the freight traffic and many a place was galvanized into new life by the advent of the railway. For example, during the first quarter of the nineteenth century the port of Stockton seemed to be subject to a gradual decline, but after the railway was built to connect with that port there was almost immediate reversal to a condition of steady progress. At the Tees ports the number of ships which cleared outwards in 1830 were three British ships of 262 tons and four foreign ships of 318 tons; but in 1841

¹ Jeans, *op. cit.*, p. 79.

² *Ibid.*, p. 86. The details are given in pp. 85-86. See also *Birmingham Journal*, July 8, 1826, p. 2.

³ *Sheffield Iris*, Oct. 14, 1834, p. 3.

⁴ 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence given before the Committee of the Lords,' evidence of Henry Booth, pp. 53-55.

⁵ *Sheffield Iris*, Sept. 29, 1835, p. 3, editorial comment on the Leeds and Selby Railway.

there were 454 British ships of 80,139 tons and 596 foreign ships of 44,392 tons¹. The export figures for the coal trade are also instructive, since this railway was designed to tap the great coalfield behind Darlington. The total shipments of coal from Stockton, both coastwise and foreign, amounted to 1224 tons in 1822; 10,754 tons in 1826; 66,051 tons in 1828; 704,781 tons in 1835; and 1,500,374 tons in 1840². Of course, it is possible that the railway was not the only cause of the great development of this traffic; but the fact that the great upward trend synchronized with the opening of the railway furnishes a strong presumption that the railway was the chief cause of this development. The Liverpool and Manchester, in addition to saving cotton manufacturers and others large amounts on the conveyance of goods³, and increasing greatly the amount of business carried on in this locality, increased also the value and the extent of the traffic of the Leeds and Liverpool Canal, although the latter, fearing injury to their property, had opposed the railway at a very large expense⁴. The influence of the Manchester and Birmingham and the London and Birmingham lines in the development of traffic along that route was such that, in 1846, these lines were regarded as no longer capable of handling the immense amount of freight that was offered to them; and the manufacturers of both Manchester and Birmingham wanted to see a direct line constructed to connect them with London⁵. The great development of industry and agriculture which gave rise to the above-mentioned increase of traffic was one of the accompaniments of the railways.

Another of the immediate effects of the railway was the enhanced value that was given to land adjacent to it. The fact that by this means good markets could be brought nearer to the farmer made the land more valuable; and since the cultivator could secure a larger net return from

¹ Jeans, *op. cit.*, pp. 173-4, gives the statistics for each intervening year.

² *Ibid.*, pp. 174-5. *Ibid.*, p. 176, gives comparative statistics of coal exports from Newcastle, Sunderland and Stockton, in the period before 1850, showing the extremely rapid growth of the exports from Stockton from 1821 to 1850, as compared with the exports from the other two ports.

³ See evidence of many witnesses on the London and Birmingham Railway Bill before both Commons and Lords, 1832.

⁴ 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence given before the Committee of the Lords,' evidence of James Forster, p. 44.

⁵ Brit. Mus. 8235, cc. 12 (1), 'Reasons in favour of a Direct Line of Railroad from London to Manchester,' pp. 8-11. The writer of this pamphlet says: "The trains are now frequently of such vast size as to render it impossible for the Company to keep time. These facts can be abundantly established, even by the testimony of their own admissions and declarations."

it he could pay a larger amount for his use of the land¹. Land which formerly had been of little or no value, such as Chat Moss along the Liverpool and Manchester line, soon became veritable garden spots, and the proximity to large consuming centres, effected by the railway, made the land valuable for gardening and other agricultural purposes². Its value for building and industrial purposes also was soon recognized, and if the railway company, after its line was constructed, wished to purchase more land adjoining what they already had, they had to pay twice to five times as much for this subsequent purchase as for the first³. When land was advertised as being for sale or to let, if it were at all possible the advertisement would stipulate that the railway either passed through the estate or near to it, for under these conditions a higher price would be paid⁴. After railways had been carrying on their work for a few years, and it became known that they had paid at times large sums for the real estate they required, the contemplated formation of railways in different parts was the signal to put up the price of land. In some instances exorbitant prices were asked by landowners, and, as the railway companies were not willing to accede to these prices, juries were summoned to assess the value and decide between the two parties. In these cases the almost invariable result was that the jury assessed the value of the land at a lower figure than that offered by the railway

¹ *Manchester Guardian*, Dec. 11, 1830, p. 3, showing that occupiers of land and mines volunteered to pay higher rentals if the railway were put within easy reach of them. *The Times*, Sept. 4, 1835, p. 2. This was also in accord with the testimony of Mr Pease, a director of the Stockton and Darlington Railway, who said that not only had the value of his land along the line been increased, but his rentals had likewise increased, and that amid falling prices (*The Times*, Feb. 13, 1836, p. 3).

² *Birmingham Journal*, May 19, 1832, p. 3, evidence of Messrs Moss, Earle, Lee and Pease; *Sheffield Iris*, Oct. 7, 1834, p. 1; Cundy, *Observations on Railways*, 2nd ed., pp. 11-15, 17-24.

³ *Sheffield Iris*, Oct. 7, 1834, p. 1. Mr J. Moss, Deputy Chairman of the Liverpool and Manchester Railway Company, said that for the first eight miles outside of Liverpool his company paid 5s. 8d. a yard for the land they needed; but land all around the railway was sold before 1832 at 22s. a yard. The company also bought land at another part of their line for 7s. a yard, but in 1831, when more was wanted, 10s. 8d. a yard had to be paid. At another part of the line the company's subsequent purchase of land had to be made at double the price of the original purchase. Thomas Lee's testimony was that after the construction of the railway, land had been sold for building purposes at from three to five times the sum it would have brought before the establishment of the railway (*Birmingham Journal*, May 19, 1832, p. 3, evidence of Messrs Moss and Lee).

⁴ London and Birmingham Railway Bill. Evidence before the Lords Committee, p. 46, evidence of Joseph Pease; *Birmingham Journal*, May 19, 1832, p. 3, evidence of Messrs Moss, Earle and Pease.

company¹. What we wish to impress is that either the prospective or the actual construction of a railway was accompanied by a movement toward higher prices for the land in the circumjacent territory.

Of the other immediate benefits secured by railways, we might enumerate a long list. Sometimes they conferred public benefits by reducing overgrown monopolies within reasonable bounds, as was done by the Liverpool and Manchester Railway when it entered the contest against the three navigation companies that operated between these two cities². Sometimes they stimulated the more opulent canal companies to make improvements in their canals and thus contribute to the public welfare instead of dividing among the proprietors the enormous profits that had been made by some of them³. They created an immediate and great demand for labour and thereby eased the burden of the labourers and of the community; they furnished in some cases good investments for English capital, and thus kept these funds within the country for the development of the kingdom, rather than having them seek employment in foreign countries. But why need we go any further, for the history of the remainder of the nineteenth century is the record, in fact, of the achievement of the railway.

With all the benefits which accrued from the construction of railways, there were also some evils which were a natural accompaniment of such a great change. In the first place, in railway initiation there were features which were decidedly objectionable. Some lines were formed for no other purpose than pure speculation; their promoters wanted to influence the market in such a way that the prices of their shares would reach a high figure, and then they would unload their holdings upon others who were innocent of the game that was being played. Values were given to shares purely on account of market manipulation, without any reference to the intrinsic value of the property upon which they were based, for in not a few instances they

¹ *The Times*, Oct. 28, 1837, p. 3, gives a number of instances to show the relation of railways to the price of land. For example, in Bath a gentleman claimed £6780 for land taken by the Great Western Railway Company; the company offered him £4500 merely to save litigation, but this would not satisfy him, and the jury awarded him only £4223. Under similar circumstances, Lord Mauvers, in Bath, on his claim of £9000, received from the company an offer of £4500; but the jury awarded him only £3375. Many other cases are given in this reference. On five claims of £16,067, the jury gave only £2053. 7s.

² The same outcome was the result of the Grand Junction and of the London and Birmingham Railway competition with the canals.

³ P., *A Letter to a Friend, containing Observations on the Comparative Merits of Canals and Railways*, pp. 12-13, 29-30. Examples are given to confirm this fact.

had no material basis at all¹. In other cases railways were projected, not with any idea of construction, but to induce existing railways to buy them off rather than have to meet the threatened competition². Wilful misstatements of fact, in order to induce the public to come forward and invest in these undertakings, were not at all uncommon; and mere probable estimates were put forth with an assumption of confidence and reliability of accuracy that were intended to deceive the unwary³. In some cases, impecunious individuals were able to reap considerable fortunes by bringing forward schemes for railways and having wealthy landowners along the proposed line pay large sums to cause the promoters to desist from what they regarded as a possible disfigurement of their estates. When we remember that many schemes projected at the times of the three manias were unworthy of being entertained, but were started for gambling purposes, we can faintly discern the expense and magnitude of such an evil⁴. Sometimes subscription lists were swollen by using the names of persons who had never given their consent, especially of those who would be influential in inducing others to signify their allegiance to the proposed scheme; and this moral turpitude must have been quite prevalent since there was the passage of an Act in 1844 for punishment of this offence⁵.

¹ *Sheffield Iris*, Oct. 13, 1835, p. 3, on "Railway Speculations," showing that the Manchester and Sheffield Railway, as first planned by some Liverpool people, was got up for this purpose, and that this view was probably present in the minds of those who went in for the North Midland Railway. See also Whishaw, *Analysis of Railways*, p. v, who speaks of these schemes as noxious weeds to be eradicated; Investigator (pseud.), *Beware the Bubbles!!!*, 2nd ed., pp. 1, 8; *Herepath's Railway Magazine*, N.S., 1 pp. 32-35, where the editor shows up these fraudulent methods that he had known; *ibid.*, 1 pp. 72-78, letter of "Detector;" *The Times*, Oct. 18, 1845, p. 5, editorial; Morrison, *Defects of English Railway Legislation* (1846), p. 5.

² See editorial in *The Times*, April 8, 1826, p. 3, expressing deep regret at the spirit of speculation that had broken out among all ranks; also, on same page, letter from "A Shareholder" of the Norfolk, Suffolk and Essex Rail-Road Company, showing this nefarious scheme to have been only on paper, and not intended to be realized.

³ *Herepath's Railway Magazine*, N.S., 1, pp. 72-78, letter of "Detector," concerning the South Eastern and Dover Railway; *ibid.*, 1, pp. 114-17, false statements from the promoters of the Cheltenham, Oxford and Tring Railway, which they did not attempt to deny.

⁴ Martin, *Railways*, p. 33, quoting from 'Report of Parliamentary Committee on Railway Acts Enactments,' Aug. 25, 1816. See also letter in *Morning Chronicle*, Nov. 17, 1818, on the results of competition.

⁵ *The Times*, Oct. 18, 1845, p. 5, editorial; *Hansard's Parliamentary Debates*, 1837, xxxvi pp. 855-63. See Act 7 & 8 Vict., c. 110, sec. 65, which punished this offence by a fine not exceeding £10. Compare the padding of the subscription list of the proposed London and Birmingham Canal, as given in *Parl. Papers*, 1830 (251), x, 719.

The construction of too many lines along certain routes was another initial detriment. Following the accustomed policy, Parliament, thinking that competition would be desirable also in railways, sanctioned many competing lines, which swallowed up capital and seemed to waste the national wealth. It was not foreseen that competition, instead of causing low rates, might operate just the reverse. While this employment of the country's capital did produce results which were immediately injurious, it is open to question whether this supposed excess has not, in the long run, been of substantial benefit to the country. But even with all this expenditure, it seems clear that it was not always the best line, but the one which could command the greatest influence in Parliament, that secured recognition¹; and this opened the way for political corruption and jobbing.

In the second place, in railway finance there were some things which were not for private welfare or public good. The enormous sums paid by the railway companies for lands and for compensation constituted a heavy preliminary obligation. An investigation of this matter in 1845 showed that landowners frequently obtained for their lands a much larger amount than the land was really worth; and a landowner who was a member of Parliament, and who would otherwise be likely to oppose the Bill in Parliament, was sometimes given a higher price for his land than another who could not wield that influence. The companies recognized that it was often better to spend money in this way and stop opposition at the beginning, than to pay the higher expense of getting Bills through Parliament in the face of such opposition. In some cases, extravagant sums were paid in order to get rid of opposition, not only from landlords², but from rival railway companies and other interests³. These expenses, along with the legal fees that

¹ *Parl. Papers, 1836 (0,96)*, xxi, 235, 'Minutes of Evidence before Select Committee on Railway Bills,' evidence of James Walker, C.E., Q. 178.

² *Parl. Papers, 1845 (420)*, x, 417, 'Report of Select Committee of the House of Lords on Compensation for Lands taken for or injured by Railways,' evidence of John Duncan, John Clutton, Edward Driver and John Cramp. Q. 289 shows that the gentleman who bought the land for the London and Brighton line testified that he paid fully ten times what the land was worth, simply to get rid of opposition.

³ Young, *Steam on Common Roads*, pp. 67-68. Shaen *Review of Railways and Railway Legislation*, pp. 36-40, cites cases from the parliamentary reports showing that large sums had to be squandered to buy off opposition to certain Bills. *Ibid.*, pp. 43-46, shows how much time and money was wasted before railway committees of Parliament. Chattaway, *Railways*, pp. 23-24, said that "the sums paid by many of the railway companies for land and compensation are almost fabulous;" and as he was an official of the North British Railway, he should have known the facts. He referred to one property valued at £5000 that had been sold to a railway company for £120,000. See also Marshall, *Railway Legislation*, p. 39.

had to be paid for competent solicitors who were experienced in the work of guiding measures through Parliament, and which were also excessive and sometimes extortionate¹, made the cost of obtaining an Act of Parliament very burdensome. Another element in the situation that was to be deprecated was that rival roads endeavoured to outdo each other in the fineness of their equipment; and engineers, anxious to make a name for themselves, put into the construction of bridges and other works a large amount of money, which added to the aesthetic value, but not to the traffic value of the road. By these and other means the costs of the railways were often increased two or three times as much as the original estimate².

Moreover, there was much financial manipulation that was derogatory to the welfare of the companies. When the shareholders elected their directors to look after the affairs of the company, they allowed them, in too many cases, to have full authority over the property and policy of the company, without keeping any oversight of the way in which the directors fulfilled the trust that was reposed in them. If one or two of the directors were particularly aggressive they sometimes got too large a share of the control of the railway, and used it for their personal interests rather than for the benefit of the owners of the

¹ Young, *op. cit.*, pp. 70-71. He gives statistics as to these costs in particular cases. In one instance the expense was £146,000, and then the Bill was defeated; in another the solicitor's fee was £240,000. See also Fay, *A Royal Road*, pp. 14, 17. Chattaway, *Railways*, p. 23 says that the parliamentary and legal expenses of the Great Northern were £2400 per mile or a total of £683,053; of the Cornwall, £129,147; of the Eastern Union, £242,385; of the South Western, £279,500; and of the Shropshire Union, £111,855. It is impossible for me to know how much confidence to place in the reliability of these figures. His figures for the London and South Western are widely different from those given in Fay, *A Royal Road*, p. 17, where the cost of obtaining the Act is given as £31,000. Fay was a traffic official of the railway. Pratt, *History of Inland Transport and Communication in England*, pp. 255-6, among other figures, gives £41,467 for the London and South Western, but he is quoting from Porter's *Progress of the Nation*, and Porter gives no authority for his statement, but says that his figures do not include the same items of expense in each case. It was, doubtless, true that many of the companies did not know exactly how much these expenses were, but, in any case, they were high; and the wide differences here noted may be explained by the inclusion of different elements of cost in each case. See also Martin, *Railways, Past, Present and Prospective*, p. 32; *The Times*, Nov. 16, 1848, which shows that at a meeting of the shareholders of the Liverpool, Manchester and Newcastle Junction Railway, to dissolve the company, it was shown that they had already spent £100,000 in law expenses.

² Marshall, *Railway Legislation*, p. 29; Chattaway, *Railways*, p. 24; *Herepath's Railway Magazine*, N.S., III, pp. 92-91, letter from "A Suffering Shareholder," to the shareholders of the Eastern Counties Railway; *The Times*, May 9, 1837, p. 6, letter from "T. G." on "Railways;" "A Few General Observations on the Principal Railways..." p. vi.

property¹. Wasteful expenditures were allowed to go on unnoticed and without any accounting on the part of the officials². The most reckless extravagance had, in many instances, been shown, not alone in the actual construction of the main lines, but in the formation of secondary lines at a cost that was unjustifiably high: and while all this was going on, shareholders remained singularly apathetic and only a small fraction of the total proprietary of a railway even attended the annual meeting of their company³. Sometimes a series of transactions were carried through that were injurious to the revenues of the railways, such as leases, purchases and other contracts that were paid for at too high a price⁴. Some railways sacrificed other considerations of great importance to the payment of dividends, and revenues which should have been put back into the property, or used for the liquidation of

¹ As in the case of George Hudson and the York and North Midland Railway. Hudson had bought shares in the Hull and Selby Railway to the amount of £35,646, and immediately sold these shares to the York and North Midland Railway Company for £38,842, thus netting himself £3196. He was able to do this because of the influence he had acquired over the directors of the York and North Midland. At a later time, after an investigation of the affairs of the York and North Midland by a committee of its directors, these shares were given back to Hudson, and he was required to pay back to the company the amount he had received through the sale of the shares ('York and North Midland Railway, First Report of the Committee of Investigation (1849),' pp. 6-7; *ibid.*, 'Second Report,' p. 3, in which this committee reported that Hudson had become "almost sole and absolute manager" of the railroad, and that he had "abused the confidence which was placed in him, by wielding the power he obtained to forward his own interest." He had "lost his better judgement and moral rectitude when left with the entire control." See also *Railway Times*, iv, p. 85; *ibid.*, v, p. 1268; *ibid.*, v, pp. 1309 (letter of Charles Penfold), 1315-16; and *ibid.*, vi, pp. 83, 84.

² Marshall, *Railway Legislation*, 2nd ed., p. 15; *Herepath's Railway Magazine*, N.S., III, pp. 92-94, letter from "A Suffering Shareholder;" *Railway Times*, iv, p. 38, in which the editor says, in regard to railway management, that "extravagance is the rule, economy the exception." See also *ibid.*, iv, pp. 38, 39, 42, 43, 61 et seq. ('Proceedings of the Meeting of the Manchester and Birmingham Railway Extension'); *ibid.*, v, p. 1268.

³ *Railway Times*, iv, pp. 13, 14, 38, 87 (editorial on the "necessity of observing the most rigid economy in the future management of railways"); *ibid.*, v, p. 1220; Marshall, *Railway Legislation*, p. 18, said that the extraordinary disclosures of the affairs of some of the English companies had created so much suspicion among shareholders, that nothing short of a searching inquiry into the condition of every company would allay the prevailing alarm.

⁴ Handyside, *Review of the Manchester, Sheffield and Lincolnshire Railway*, pp. 5-26. For example, this railway, he says, bought for £21,000 the Dearne and Dove Navigation, which cost but £6000; and the Don Navigation which cost £15,000 they bought for £450,000. He gives many other examples. See also Chattaway, *Railways*, pp. 25-26, showing that branch lines which were intended to be feeders to the main line had often sucked the company dry, through guarantees, leases, etc.

debt, were used for paying dividends of six, seven, or eight per cent. Had the directors furnished full statements of their affairs, there would have been sufficient light thrown upon the condition of the companies' affairs that it would be seen that dividends were not warranted. The payment of dividends out of capital; the charging of other expenditures improperly to capital, rather than to revenue; the neglect to provide properly for repairs, depreciation, renewals of permanent way and other essentials of good financing; these and similar methods enabled companies to pay good dividends and thus have their shares command a high price in the share market¹. In one instance, at least, and probably in several others, the accounts were manipulated and falsified by those who were in charge of the road; one station agent was securing large amounts of money, through representing it as wages to be paid to the men; false statements were made wittingly; a general manager whose delusive methods and irregularities were known by the directors was kept at his post because he was capable; and all these things were going on while shareholders were ignorant or indifferent, more usually the former, in regard to their property². It was not until well on in the fifth decade of the century that public opinion began to be aroused to really see what had been taking place; and the owners of the various properties were urged to take active interest thenceforward in the management of the companies' affairs, and to put in directors who would administer their trust for the public well-being³. Closely connected with the foregoing were the wide fluctuations in the prices of railway shares, by which some became wealthy and others impoverished. Many causes may be assigned for this, but the more important were the instability of the whole system of railways, the lack of

¹ Marshall, *Railway Legislation*, pp. 12-16. With the kind of statements that were issued, it was frequently impossible to know how much had been spent on rolling stock, how much on permanent way, how much on stations, etc. Langley, *The Dangers of the North British Railway Policy*, 2nd ed., pp. 5-6, shows that the North British admitted in their reports that they were sacrificing other considerations, like the upkeep of rolling stock and permanent way, to the payment of dividends. In contrast with this, the North Eastern spent large sums on maintenance. See also 'Railways as they Really Are: or Facts for the Serious Consideration of Railway Proprietors,' Nos. 1 and II.

² A good illustration is furnished by the case of the York and North Midland under Hudson's régime (v. 'York and North Midland Railway, Report of the Committee of Investigation,' first, second and third reports). This was, apparently, a one-man power, and the results of the investigation were terribly damaging to Hudson.

³ *Ibid.*; Marshall, *Railway Legislation*, pp. 19-20; *The Times*, Jan. 16, 1843, p. 5; *ibid.*, Jan. 23, 1843, p. 3, report of the committee on the Midland Counties Railway Company; *ibid.*, Feb. 20, 1843, p. 5.

of adequate reports as to the condition of the various companies, the decisions of the Railway Department of the Board of Trade, which, after 1844, had to sanction every new railway project before it was authorized by Parliament, and the gambling spirit which was prevalent in the early years of the establishment of railways¹.

In the third place, there were some phases of railway operation which were objectionable from the standpoint of the companies and of the public. In the internal organization of the companies, there was for more than twenty years an imperfect definition of the authority of the various officials, so that responsibility for errors could not be fixed; reports were not rendered to the higher officials frequently enough for their guidance; there was lack of discipline in carrying out regulations and orders; the desire for economy went so far that the road was under-manned, or else the repairs and alterations were deficient in amount or defective in the quality of materials used; and in cases of accident or irregularity there was a lack of individual responsibility, since the heads of departments did not know to whom to look for instructions². Competition brought some of the railways almost to the verge of ruin and entailed much loss to those whose funds were invested in these enterprises³; and even after different lines had entered into working agreements with one another, these agreements became so intricate and chaotic that constant disputes were inevitable. Nothing was more common than to see a company eagerly seeking authority to make a branch which could only bring it loss, but which, it was feared, would cause still greater loss if it fell into the hands of a rival⁴. In some cases the companies ran a greater number of trains than the traffic warranted, or carried traffic, for the time being, at unremunerative rates in order to take it away from their rivals. The time-tables show that, on the great routes, passenger trains moved about as regularly as the coaches had done formerly on the roads, the aim being to provide such conveniences of travel as would take the trade from the coaches. This excess of accommodation was neither warranted by public necessities nor remunerative to the railways, and through the

¹ On the subject of price fluctuations of railway shares, see Marshall, *Railway Legislation*, pp. 10-12, 34-36; Brit. Mus. 1396. g. 21, 'Railways and the Board of Trade,' 3rd ed., pp. 24-40; *The Times*, Jan. 16, 1843, p. 5, giving a table of the fluctuations of railway shares during the year 1842, which showed wide variations of prices.

² McDonnell, *Railway Management*, pp. 1-23.

³ Cotterill, *The Past, Present and Future Position of the London and North Western, and Great Western Railway Companies*, p. 31; Civis (pseud.), *The Railway Question*, p. 11.

⁴ *Ibid.*, p. 11.

formation of working agreements of one kind or another they gradually learned to reduce the unnecessary expenditure incurred in this way¹. At first, too, there was the desire on the part of the companies to cater more carefully to the first-class passengers and to neglect to some extent the third-class passengers. The former were provided with good coaches; their trains were run at good speed, with as few delays as possible, and with the best connexions. On the other hand, the third-class passengers were poorly provided with coach accommodation; during the early years, the third-class coaches were open to all changes of weather; they were attached close to the engine, and the smoke and cinders from the engine were a source of great annoyance to the passengers; these cars were not run nearly as often as those of the higher classes along the same line and they were run at inconvenient hours; they were subjected to frequent and sometimes long delays, and it was aggravating for these passengers to lie on sidings while the first-class trains went speeding by. Not uncommonly the third and second-class passengers reached a junction point and then found that they would either have to stay there for some time or else pay the higher fares in order to proceed immediately in first-class coaches to their destination². It would seem as if the object of the railway companies was to compel passengers to give up third-class and go first-class; for even second-class passengers received but meagre consideration on some lines. That the monopoly of the railway company was used to the detriment of the public is evident from the current testimony of the time³, and from the fact that Parliament was desirous of having working agreements, amalgamations, leases, etc., sanctioned by the authority of the legislature and subject to their jurisdiction and control. Many were in favour of giving up the principle of competition

¹ Marshall, *Railway Legislation*, pp. 15, 50-51.

² In addition to the references given on this subject when we were considering railway amalgamations and working agreements, see Galt, *Railway Reform* (1844), pp. 14-18; *ibid.* (1865), pp. xvii, 34-35; Brit. Mus. 8235.c. 72, 'Railway Management,' pp. 8-9; Young, *Steam on Common Roads*, pp. 71-84, showing the discomforts and indignities of third-class passengers; *The Times*, Nov. 3, 1837, p. 5, letter from "A Passenger;" *ibid.*, Sept. 22, 1843, p. 6, letter from "A Second-class Traveller;" *ibid.*, July 2, 1844, p. 6, letter from "A Commercial Man;" also other letters to the same effect in *ibid.*, Aug. 22, 1844, p. 6; Aug. 27, 1844, p. 6; Aug. 28, 1844, p. 6; Sept. 26, 1844, p. 7. In *ibid.*, Sept. 20, 1844, p. 6, a letter from J. L. Ramsden, F.R.S., who held a great number of shares in the London and South Western, showed how little attention was paid to second and third-class passengers on his line.

³ Galt, *Railway Reform* (1865), pp. 34-36. On the abuse of railway monopoly, see also *Parl. Papers*, 1857-8 (0.77), xv, 11, 'Minutes of Evidence taken before the Select Committee on the Manchester, Sheffield and Lincolnshire, and Great Northern Railway Companies.'

as applied to railways and of having agreements entered into wherever possible; but after seeing the early results of monopoly those who advocated working agreements did so because they wanted to see greater unity of action, greater economy and improved accommodation, under some parliamentary supervision which would guard the public interests¹. These, and other accompaniments of the extension of the railways, together with the political effects in securing what was called a "Railroad Parliament," were certainly fraught with a power for evil²; and yet many of them were iniputable to the newness of the system, to the universal ignorance of its tendencies, and to the wonderful suddenness of its growth. Looked at from the distant point of view which the present affords, we can see that these evils were but incidents in the rapid expansion that was taking place.

From the foregoing, it is not difficult to decide why many railways were unprofitable enterprises, so far as their owners were concerned. With the payment of very high charges in order to secure the act of incorporation, and often exorbitant prices for land and compensation, followed by the great extravagance in the management of the companies' funds; the costly construction and equipment which greatly exceeded the needs of traffic; the extraction of funds by dishonest officials, and the expenditures for ostentation rather than utility—these, and the disastrous results of early competition, must have proved to be a burden, for some of the railways, that was hard to endure. For example, we learn that the Manchester, Sheffield and Lincolnshire Railway, during the first fourteen years of its activity, scarcely paid a fraction of a dividend on the amount of the original stock³. Even some of the main lines paid but low rates of interest upon the capital expended, for, in addition to the above-mentioned disabilities, they frequently had, in self defence, to link up with themselves certain branch lines of railway or canal, which, instead of being feeders to the

¹ Marshall, *Railway Legislation*, pp. 52-60; Galt, *Railway Reform* (1865), p. 36, showing that, under existing conditions, occasionally one company paid another a large sum of money if the latter would refrain from competition. Civis (psend.), *The Railway Question*, pp. 15-17, said that there was a feeling gaining ground that the roads of the country were properly the dominion of the state; and that to secure harmony of interests for the public good, the companies should admit a more regular and extensive exercise of state control.

² Whitmore, *Letter to Lord John Russell on Railways* (1847), pp. 9-10. We have not given a full account of all the evils that accompanied this period of great advance, but have mentioned the most significant of them. Some others were almost entirely imaginary (P., *Descant on Railroads*); and others still were more or less unsubstantial (Jeans, *op. cit.*, Ch. xii). See also Gordon, *Observations on Railway Monopolies*, pp. 1-55.

³ Handyside, *Review of the Manchester, Sheffield and Lincolnshire Railway*, p. 4.

main lines, proved rather to be suckers, withdrawing funds from the treasury of the main lines in order to pay interest to the claimants upon the branch lines¹. Among the early railways in the north of England, there seems to have been quite a number that paid either no dividend at all or else but a very small return, and many of these were in the very centre of the industrial and mining section, especially in the county of Durham². A writer, with intimate knowledge of the railways, has given us in 1854 the dividends paid by the fifty-nine railway companies of England and Wales for the first half of that year; and working this out upon the annual basis, we find that, of this number, fifteen paid no dividend, thirty-four paid dividends from less than one per cent. to less than five per cent., five paid dividends of five to six per cent. inclusive, and five paid dividends of seven to ten per cent. inclusive³. There is no reason to suppose that the year 1854 was anything but an ordinary year, for by that time the country had recovered from the mania of 1844-6 and was again going on its normal way. With forty-nine out of fifty-nine railways, or eighty-three per cent., paying less than five per cent. per annum, it would appear that the number of companies which secured reasonable remuneration on invested capital was small in comparison with the number of those which fell below the reasonable minimum. But although many of the railways were not profitable to their owners in yielding large financial returns they may still have been beneficial to the public in providing for the necessities and conveniences of traffic.

When considering the subject of roads, we noted the fact that, before 1830, the consolidation that had taken place in the turnpike trusts was not the consolidation of those which formed continuous lines of road, but of those that were found in particular counties, or parts of counties, such as those in the vicinity of London or Bristol. But in the case of canals, the small amount of consolidation that had taken place was the merging of those which were parts of a continuous line of navigation⁴. The amalgamation of the railways followed closely the type of that of the canals, not of the roads, by the formation of

¹ Young, *Steam on Common Roads*, p. 67; Galt, *Railway Reform* (1865), p. 36; Civis (pseud.), *The Railway Question*, p. 11.

² Jeans, *op. cit.*, p. 171, mentions some of them.

³ Chattaway, *op. cit.*, p. 20. Here, also, he gives the average dividends that were paid during the period 1850-4.

⁴ Such as the consolidation of the Birmingham and Bilston Canal with the Birmingham and Tamworth, in 1783; the Trent and Mersey with the Oxford and Coventry canals, in 1785; the Chester and Ellesmere canals, in 1813; the Grand Junction and Regent's canals, in 1819; and the North Wilts Canal with the Berks and Wilts, in 1821.

adjoining railway lines into great through routes. Why should the roads have been different in this respect from the canals and railways? The answer would seem to lie in the fact that the control was different. The canals and railways were in the hands of private companies, which, under their several Acts, were given authority to construct and operate their transportation facilities in the several counties or districts through which they passed; but the turnpikes were under the authority of the Justices of the counties, and it would have been almost impossible to get several successive counties to work harmoniously in the proper maintenance of great through roads, such as that from London to Holyhead, or that from London to York.

From the foregoing outline of the railway systems of England we are impressed by the similarity of their position with that of the ancient Roman roads, and also with that of the turnpike and canal systems which played so important a rôle. It was because of this juxtaposition of the turnpikes, canals and railways that the subject of competition between them assumed so conspicuous a place in the public mind, and to this we now turn.

CHAPTER VIII

EFFECTS OF STEAM UPON ROAD TRANSPORTATION

FOLLOWING, probably, the example of the coach proprietors, who provided for both outside and inside passengers, the railway companies which undertook the conveyance of passengers provided two, and often three, different kinds of accommodation, at different prices¹. The first-class were covered carriages, intended only for the well-to-do; the third-class carriages were at first open and exposed to all the changes of the atmosphere, and were for the poor; while the second-class accommodation was intermediate in quality and cost, and was for the great middle class. The people who were expected to travel third-class were those who belonged to the working group; and it was thought that by providing this cheap means of conveyance the poor would be able to live out in the country where they could have agriculture or gardening as a by-employment, and have also better sanitary conditions, while they could go to and from their work every day. In making any comparison, therefore, between railway and stage coach charges, we must keep in mind this difference between first, second, and third-class rates on the railway, and must draw our analogies between first-class rate and inside coach fare, and between second and third-class rates and outside coach fare.

Before the opening of the great trunk lines, about 1838-40, the coach fares on some roads were very high², while on others they were kept moderate by the influence of the competition of several coaches³.

¹ Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 2, pp. 12-13, showing that some railways rejected altogether or limited the third-class accommodation.

² See Appendix 7.

³ See the great number of coaches licensed to run in 1837 between London and other important places in the kingdom, as given in 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 80. Between London and Birmingham, for example, there were 122 journeys weekly and 1098 passengers carried; between London and Liverpool there were 68 journeys weekly and 612 passengers carried; between London and Manchester there were 119 journeys weekly and 1071 passengers carried; etc. Of course these coaches were not all engaged in competition; for all those which were under one management would not be rivals among themselves.

In our discussion of the cost of travel by coach during this period we found that, as a general thing, the inside fare was from two and one-half to four pence per mile; and more commonly the latter would come nearer to the actual truth than the former. This figure seems to be slightly lower than that given by one of the great coach proprietors, who said that before the introduction of railways the fares were about four and one-half pence per mile inside and two and one-half pence per mile outside¹. But the Committee of 1844, in speaking of this, said that upon most of the leading roads, where competition was effective, this rate of four and one-half pence per mile was somewhat higher than was customary. Probably, therefore, the coach rate which was prevalent on the great roads was three and one-half pence to four pence per mile, or in some cases a little more. The fares adopted by the leading railway companies were about three pence per mile for first-class passengers, two pence per mile for second-class, and one to one and one-half pence per mile for third-class². These, it will be observed, were but little lower than the coach fares, probably just enough to be an additional inducement for passengers to travel by rail; but when we supplement the reduced rate by the combined incentives of greater comfort and speed³ of railway trains we can easily see why the railway would attract the passenger traffic away from the stage coaches.

After making the foregoing general statement, let us examine some particular instances of the results of this competition. In the investigation of 1844, as to the effect of railways on the interests of the poorer classes, we have some very definite information given as to the relative cost of travelling by canal, stage coach and railway. The cost of passage from Manchester to London, for an ordinary family consisting of two adults and three children, was, by canal boat £3. 14s., by coach

¹ Testimony of Mr Chaplin before the Committee of the House of Commons on Railways, 1838. See also Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 2, p. 9. Galt, *Railway Reform* (1865), p. 71, said that about 1830 the general average fares by mail coaches were 5d. per mile inside and 3d. per mile outside, and by the stage coaches 3d. per mile inside and 2d. per mile outside. But we have formerly shown that the facilities by mail coaches were not better than those of the stage coaches at that time, and, therefore, the fares by the former could not be much, if any, in excess of those by the latter means. It is clear from the evidence we have previously given that Galt's figures for stage coaches were too low.

² Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 2, pp. 10-11, gives table of fares on leading roads. The average fares charged per mile were, for first-class 2.727d., for second-class 1.745d., and for third-class 1.151d.

³ The average rate of travelling, stoppages included, on the principal passenger railways was about twenty-four miles per hour (*ibid.*, Appendix No. 2, p. 11).

£6. 2s., and by railway £4. 15s.¹ Thus, taking into consideration the necessary expenses incident to such a journey, we judge that travelling by railway cost only about three-fourths of that by coach. From London to Coventry, before the railway was opened, there was one stage waggon, charging nine shillings fare and taking thirty-six hours, and several stage coaches charging for outside fare seventeen shillings by night and twenty shillings by day, which took from ten to eleven hours; but in 1844, when the railway was in operation, there was no stage waggon on this route, and only one night stage coach, charging ten shillings and taking twelve hours, while by the railway the third-class fare was twelve shillings and the time occupied six and one-half hours². That is, the introduction of the railway brought a reduction of the fare and of the time required for this journey amounting to almost one-half. When we consider the greater expense for fees and meals when travelling by the stage coach, the cost of travelling by the latter vehicle must have been fully twice as much as by the railway. Again, before the establishment of the Liverpool and Manchester railway the coaches between these two places, at full capacity, could not carry more than 688 persons per day, and, on the average, probably

¹ The following figures were given in detail as to this journey (Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 4):

By Canal boat (Manchester to London).

	£	s.	d.
2 adults' passage, 14s. each	1	8	0
3 children's passage, 7s. each	1	1	0
Provisions, etc., for 5 days' passage, 5s. each	1	5	0
Total	3	14	0

By Coach, Manchester to London, 186 miles.

2 adults' passage, 30s. each	3	0	0
3 children's passage, 15s. each	2	5	0
Coachmen and Guard		7	0
Food, etc.		10	0
Total	6	2	0

By Railway, Manchester to London, 212 miles.

Third-class, Manchester to Birmingham,			
2 adults' passage, 11s. each	1	2	0
3 children's passage, 5s. 6d. each		16	6
Third-class, Birmingham to London,			
2 adults' passage, 14s. each	1	8	0
3 children's passage, 7s. each	1	1	0
Food, etc., 1s. 6d. each		7	6
Total	4	15	0

² Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Committee on Railways,' Appendix No. 4, p. 63.

carried not more than 450 or 500. The railway at its commencement carried an average of 1070 per day¹. The fare by coach varied according to the season and the amount of travel, but on the average it was ten shillings inside and five to six shillings outside; the fare by the railway in 1832 was 7s. shillings for first-class and three shillings and six pence for third-class². The time occupied in making the journey by coach was four hours; the time occupied by the railway was but one and three-fourths hour³. It is evident that here, too, the establishment of the railway reduced by one-half the cost and the time of travelling. Before the advent of the railway, the twenty-four-hour journey by coach between London and Liverpool cost £4. 4s., but, including the fees and the meals, the cost would approximate £5. After the railway had been opened some time, the cost by rail first-class was 37s. and second-class 27s.⁴, showing the expense of travelling by railway to have been less than half that by road. While, therefore, our general conclusion, above stated, that the railway fares, on the whole, were not much lower than those of the coaches, is probably close to accuracy, we must, nevertheless, realize that, in some instances, there had been a reduction of as much as fifty per cent. in these charges. Similar results were secured in the conveyance of commodities. For example, before the opening of the Great Western, the waggon rate from London to Oxford was £3 to £3. 10s. per ton; but the railway charged only 30s. per ton, which was practically one-half the former charge⁵. The latter rate included rail carriage from London to Steventon and then waggon carriage for ten miles between Steventon and Oxford. Had there been rail carriage all the way, so as to avoid the necessity of a waggon haul and its attendant loading and unloading, the cost would have been still less than that mentioned, and probably would not have exceeded 25s.⁶ Before the opening of the railway to

¹ In 1836 the average was 1200 daily. See *Advantages of the Progressive Formation of Railways*, p. 23; 'London and Birmingham Railway Bill. Extracts from Minutes of Evidence before Lords Committee,' evidence of Henry Booth, treasurer of this railway company, pp. 53-55.

² *Ibid.*

³ *Annual Register*, 1832, p. 445; also 'London and Birmingham Railway Bill. Extracts from the Minutes of Evidence before Lords Committee,' evidence of Henry Booth, pp. 53-55.

⁴ Shaen, *Review of Railways and Railway Legislation*, p. 32.

⁵ *Brit. Mus.* 8235. cc. 4 (1), 'Oxford and Didcot Railway Bill. Evidence taken before Commons Committee,' evidence of Mr Sadler, p. 3, and of Mr Sheard, p. 10.

⁶ *Ibid.*, evidence of Mr Clarke, p. 27. The evidence of Messrs Sadler, Sheard, Underhill and Clarke gives much detail by way of comparison of rail with road carriage, both as to passengers and goods, showing the decreased cost and reduced time by the former.

connect London and Manchester, the cost of carrying general goods by road was 70s. to 80s. per ton, but after the railway had been in operation for some time the charge by this faster conveyance was only 30s. to 40s.¹, or one-half the former charge. We must not be understood, however, as implying that railway rates in general were only one-half as much as those charged by waggon.

In like manner, the change in the amount of coaching and posting, after the coming of the railway, was almost immediate. Along the line of the Liverpool and Manchester Railway there had been each day twenty-two regular and seven occasional coaches for carrying passengers, but, within five months after the opening of the railway all these, with the exception of four, had disappeared. By 1832 all but one of these coaches had ceased running and that one was chiefly for carrying parcels². On the road from London to Birmingham, before the railway was opened, one of the chief London coach proprietors had nine coaches; but after the opening of that line this number was gradually reduced until in 1839 he was working only two coaches and had difficulty in keeping them on. The fares charged by coach were only one pound inside and twelve shillings outside; yet he got no inside passengers, because people could go by the railway for the same fare and they preferred that means of travelling³. The great number of coaches that travelled the road from London to the west of England was soon reduced after the railway was established in operation⁴; but it was not until after some years of rivalry, namely, about 1843, that

¹ Shaen, *op. cit.*, p. 33.

² *Birmingham Journal*, Feb. 5, 1831, p. 3, letter from "A Subscriber to the London and Birmingham Railway;" *ibid.*, May 19, 1832, p. 3, evidence on the London and Birmingham Railway Bill; *Annual Register*, 1832, p. 445. See also Shaw, *Liverpool's First Directory*, p. 19.

³ *Brit. Doc.* 1839 (295), ix, 369, 'Evidence of Mr Sherman,' p. 8. Others testified to like results. See also *Brit. Doc.* 1837 (456), xx, 291, 'Report of Committee on the Taxation of Internal Communication,' p. iv, and evidence of Messrs Horne (pp. 1-51), Gray (pp. 5-10), Fagg (p. 15), Wimberley (pp. 35-38), Kemplay (pp. 38-39), etc. Slugg, *Manchester Fifty Years Ago*, p. 221, says that scores of posting houses were ruined by the introduction of railways; but he was speaking from memory. Stretton, in his *History of the London and Birmingham Railway*, says that the result of the first run over this line was that the stage coach proprietors at once decided to raise their rates, and the following quotation appeared in several newspapers: "Coach Fare from Birmingham to London.—The coach proprietors on this line of road, aware that on even the partial opening of the London and Birmingham Railway, they may cry 'Othelo's occupation gone,' are making hay while sunshine is left them. The fare from Birmingham to London, which of late years has averaged from 18s. to 25s., has recently been trebled, the proprietors now modestly ask £3. 12s. fare from Birmingham to the metropolis."

⁴ To give some idea of the amount of coaching on certain roads at the time railways were introduced, we give the following statistics from the records of the

the last coach was driven off this road¹. Before the railways could cause the coaches to give up the struggle they had to reduce their charges to a point almost equal to the fares of the coach; and any slight excess of railway fares above that point was sufficient to bring back the coaches on some of the roads². If railway companies had charged as much as the law allowed, their lines would have been comparatively deserted in most cases, for they would have been used almost exclusively by the opulent classes; but by putting down their charges to an approximate equality with those of the coaches they diverted to the rail all through traffic and most of the local coaching business along lines of road which were near to and parallel with the railways³. The decrease in the amount of coaching was accompanied by a corresponding reduction in the amount of posting along these roads.

Stage Coach Office (v. *Proceedings of the Great Western Railway*, evidence of Mr Sutherland, p. 39).

The number of coaches licensed and the number of journeys performed along the main western highway, in 1834, before the Great Western Railway was built, were as follows:

Number of coaches	From	To	No. of journeys per week
6	London	Bath	40
20	"	Bristol	136
4	"	Cheltenham	24
3	"	Devonport	14
19	"	Exeter	81
1	"	Farrington	6
1	"	Great Marlow	12
6	"	Gloucester	38
1	"	High Wycombe	12
1	"	Hentley	12
1	"	Harlington	16
1	"	Maidenhead	12
4	"	Marlborough	6
10	"	Newbury	24
11	"	Oxford	62
3	"	Reading	80
5	"	Stroudwater	20
7	"	Tamton	24
7	"	Uxbridge	82
3	"	Windsor	96
3	"	Wallingford	24
1	"	Wantage	6

¹ Galt, *Railway Reform* (1844), p. 7; Brit. Mus. 8235. cc. 4 (1), 'Oxford and Didcot Railway Bill,' pp. 5-6.

² Galt, *Railway Reform* (1844), p. 7; Young, *Steam on Common Roads*, p. 84; *The Times*, Dec. 7, 1843, p. 6.

³ In *Railway Times*, v (1842), pp. 639-40, 711, 973, we find a comparison of travel by railways and coaches showing the vast change that had been effected by the

We must bear in mind that this was a period of transition, and like all other similar periods was fraught with disaster to those upon whom the burden rested most heavily. Perhaps the classes that suffered most were the proprietors of coaching establishments and the innkeepers along the great roads. The latter class found their inn and posting business rapidly declining¹; and the papers of the time contained the advertisements of whole coaching and carrying establishments that were selling out². Through many years the coach-masters had endeavoured to provide facilities for a greatly increasing amount of travel and had, in some cases, many hundreds of horses; but when the railway came and took the passenger traffic from these great roads we can easily understand that ruin seemed to stare them in the face³.

introduction of the railways. The last of the coaches between London and Cambridge made its final journey on Oct. 25, 1845 (*The Times*, Oct. 29, 1845, p. 5). The opening of the railway from Salisbury to Bishopstoke was the signal for the withdrawal of the coaches which went through Andover, which, but a few years before, numbered about forty daily (*The Times*, Mar. 12, 1847, p. 6).

¹ *The Times*, Dec. 14, 1843, p. 5, "Turnpike v. Railway."

² *The Times*, Sept. 28, 1837, p. 1, gives three such advertisements; *ibid.*, Oct. 21, 1837, p. 1, gives two advertisements; etc.

³ Some idea of the great traffic that centred in London may be gathered from a table (v. 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 80) showing the number of coaches licensed in 1837 to run between London and many other places, the number of passengers carried, and the weekly receipts from these licenses. From the table we take the following data to show the extent of the coaching business between London and the north:

Places	No. of journeys weekly	No. of passengers weekly
London to Birmingham	122	1098
„ Liverpool	68	612
„ Manchester	119	1071
„ Glasgow	14	70
„ Holyhead	14	70
„ Shrewsbury	40	360
„ Woodside	14	126
„ Worcester	51	459
„ Edinburgh	14	70
„ Halifax	28	252
„ Leeds	70	630
„ Leamington	12	96
„ Leicester	14	126
„ Newcastle-on-Tyne	28	252
„ Nottingham	28	252
„ York	14	126
„ Barton	12	96
„ Lincoln	18	162
„ Northampton	14	126
„ Aylesbury	38	304
„ Luton	18	180
„ Watford	14	140
„ Pinner	26	260

The traffic from London to the Eastern Counties is well represented by a diagram

This was particularly true, of course, concerning those in the great centres, notably London. It would be erroneous, however, to suppose that the decline or the disappearance of the country innkeepers on the important thoroughfares was due entirely to the advent of the railway; as a matter of fact, many of them were gradually eliminated before this time, on account of the necessity of the coaches making fewer stops as they developed greater and greater speed¹. Nor was the picture of the disappearance of the coaches entirely unrelieved by a brighter aspect. It is, doubtless, true that along the main roads, where they were in competition with the railways, the coaches were soon taken off; yet the increase of business brought by the railroads, not only at their stations but also on the country roads leading to the stations, caused a greater demand for the labour of horses in the carriage of passengers and goods². We have ample proof of this from the increase in the number of such vehicles that were licensed³. We may, therefore, say that a decrease of coach traffic along roads that were adjacent and more or less parallel to the railway, which meant almost annihilation to some proprietors of coaches, was only the forerunner of greater business of this kind when once the readjustment

in the Appendix to Vol. ix of the Brit. Doc. for 1839, showing the gradual diminution of the amount of passenger travel from London to the towns farther east:

The number of stage coaches from London to West Ham and Stratford was 62.

The number of stage coaches from West Ham and Stratford to Romford was 11 and 2 mails.

The number of stage coaches from Romford to Brentwood was 36 and 2 mails.

The number of stage coaches from Brentwood to Chelmsford was 32 and 2 mails.

Bearing in mind that some coach proprietors conducted the traffic on several of the chief roads where the density of travel was fully as great as the aforementioned, it is not hard to see what the sweeping away of all this business would mean to such establishments.

¹ *Herepath's Railway Magazine*, N.S., vi, p. 463, letter of Joseph Lockwood.

² Brit. Doc. 1839 (295), 78, 369, 'Report of Select Committee on Railroads;' also *ibid.*, Minutes of Evidence of Mr Macadam. Both of these references give us to understand that the increase on the lateral lines was not at all commensurate with the loss on the principal lines. This may have been the immediate effect in some cases, but it certainly was not the ulterior effect. On the increase in the number of horses and vehicles that were used on the cross roads tributary to the Liverpool and Manchester Railway, see Godwin, *Appeal to the Public on Railways*, p. 40; *Hampshire Advertiser and Salisbury Guardian*, Mar. 29, 1834, p. 2, evidence of Mr Langston, of Manchester; Felix Farley's *Bristol Journal*, April 19, 1834, p. 4, Committee on the Great Western Railway Bill. See also Brit. Mus. 8235. cc. 4 (1), 'Oxford and Didcot Railway Bill,' evidence of Mr Sadler, p. 6, and *Herepath's Railway Magazine*, N.S., vi, p. 461.

³ *Railway Times*, vi (1843), p. 443, statement of the Earl of Hardwicke, on the "Effect of Railways." He gives accurate statistics to substantiate this fact.

was effected¹. Mention must also be made of the fact that one of the largest coaching establishments in London, and we cannot say how many more, became an ally of the railway to act as collectors and distributors of goods at the terminus².

As a result, it was said, of the competition between the railways and the turnpike roads for the traffic of the country, which, in many cases, was accompanied by a great decrease or total decline of traffic on the turnpikes parallel with the railways, we find constant complaints from the turnpike trusts that their tolls were diminishing because of the diminution of posting and stage coach business³. It must be borne in mind that the trusts depended mainly upon the passenger traffic for their revenues. On account of this decrease of revenues, the debts of the trusts were constantly increasing, for it was the prevailing practice to convert the unpaid interest into principal, by the trustees giving interest-bearing bonds to cover the full amount. That there was a great increase in the debts of the trusts is beyond dispute⁴, as is also the fact that the debt was increased through the consolidation with it of interest that was in arrears⁵. The continuation of this practice, of

¹ This is well exemplified in the Earl of Hardwicke's statement in the preceding reference.

² *Railway Times*, iv (1841), p. 209, showing that the Grand Junction Railway Co. had employed Chaplin and Horne for some time as their agents in London to unload and deliver goods. It is probable that few of the coaching firms were fortunate enough to attach themselves to the railways in this way.

³ Brit. Doc. 1837 (456), xx, 291, Minutes of Evidence of Mr Hall. Also 1839 (295), ix, 369, 'Report of Select Committee on Railroads,' and Minutes of Evidence of Messrs Bicknell, Levy and Macadam. On the reduction of traffic and tolls on particular roads, see *Railway Times*, v (1842), pp. 18, 21; but on the roads as a whole the tolls had apparently increased (*ibid.*, vi, p. 443).

⁴ Brit. Doc. 1833 (24), xv, 409, 'Second Report of Select Committee on Turnpike Trusts.' The Committee "contemplate with alarm the results of the great and increasing debt on many roads." Statistics to prove this are given in *ibid.*, 'Minutes of Evidence,' pp. 174-5.

From Brit. Doc. 1836 (547), xix, 335, 'Report of Select Committee on Turnpike Tolls and Trusts,' we learn that the trusts' debts at that time amounted to nearly £9,000,000, and that the probability was that they would constantly increase as in the past. See also 'Report of Select Committee of 1839' on the influence of railways on turnpike trusts, Brit. Doc. 1839 (295), ix, 369, with evidence of Messrs Bicknell, Levy, and Macadam.

⁵ Brit. Doc. 1836 (547), xix, 335, 'Report of Select Committee on Turnpike Tolls and Trusts,' states that several trusts were at that time insolvent because the amount of interest due annually was more than the amount of the annual income. Also Brit. Doc. 1839 (295), ix, 369, 'Report of Select Committee on Railroads and Turnpike Trusts,' tells us that the debt then exceeded £9,000,000. Also *ibid.*, evidence of Sir Jas. Macadam, who said that this policy prevailed very generally throughout the trusts of the kingdom, where interest payments could not be made. He said this was the chief cause for the increase of the bonded debt for some years

course, increased both the principal and the interest of the debt. But when we come to consider the additional reasons why the trusts' revenues were insufficient to keep up their interest payments we meet with a problem which involves several other factors than that of railroad competition.

In a former chapter we have seen that, in the management of many of these trusts, the funds were squandered by injudicious expenditures and keeping up official parasites who were incapable of accomplishing anything for the good of the roads from which they drew their salaries. The same thing was, doubtless, still prevalent, although the accounts of the trusts did not show it¹. Then, too, the statute duty, or statute labour, was abolished in 1835², and also the composition in its place. This loss was estimated by Sir James Macadam, who had an intimate knowledge of the condition of the turnpikes, to amount to £200,000 a year³. But, notwithstanding the abolition of the statute labour, in the administration of which there was much fraud, the financial condition of many trusts became worse and worse⁴; and as a means toward obtaining economical and efficient management the consolidation of small trusts into larger trusts and of the larger trusts into unions of trusts was urged upon Parliament⁵. This suggestion, of course, came

before that. This was very acceptable to creditors, in that it gave them additional security by a bond for the payment of their interest. His statement was that he knew some roads upon which there were *sixty years' arrears of interest due*.

¹ Brit. Doc. 1836 (547), xix, 335, 'Report of Select Committee on Turnpike Tolls and Trusts.' The Committee put forth a plan that would be "useful in preventing any wasteful expenditure of funds in some trusts;" and although they do not expressly mention this form of extravagance, we are warranted, from what we have found hitherto, in saying that it still existed.

² Act 5 & 6 William IV, c. 50.

³ Brit. Doc. 1839 (295), ix, 369, 'Report of Select Committee on Railroads and Turnpikes;' also *ibid.*, evidence of Mr Macadam. See also Brit. Doc. 1837 (457), xx, 343, 'Minutes of Evidence,' p. 9 et seq.

⁴ Brit. Doc. 1839 (295), ix, 369, 'Report of Committee on Railways and Turnpikes,' and evidence of Sir James Macadam.

⁵ The evidence was nearly unanimous that such consolidations would be desirable from many points of view: It would save the amounts now spent in salaries to officers of small trusts; it would give cheaper road materials by purchasing them in larger quantities; it would abolish the competition for such materials that was common among small trusts; and it would obtain an improved system of management by merging the small trusts into large trusts.

But there were also objections raised to the consolidation of such interests. Some trusts were in good circumstances, and were opposed to allying with those that were in debt. Then, the creditors of those trusts that had given good security were averse to the adoption of any measure likely to lessen their security, by uniting the solvent trust, to which they had advanced money, with one or more that were financially embarrassed. See Brit. Doc. 1836 (547), xix, 335, 'Report of Select

from the good results which were secured by the consolidation of the metropolitan turnpike trusts. It is not within the present plan to follow out the subsequent history of these roads¹; but the point to be noted is that such recommendations were the outcome of the reduction of revenues which accrued to the trusts.

Again, the competition of steam vessels on the rivers, and, more important still, in the coasting trade, drew away traffic, and consequently revenues, from the turnpike trusts. Wherever there was a route for steam vessels near the coast, and a more or less parallel coaching route on the land, whether near to or somewhat distant from the shore, the vessels almost invariably took the greater part of the passenger traffic, especially during the warmer part of the year. This rivalry of the two means of conveyance was most noticeable along the east coast, and from London, around Kent, to the south-east coast. The preference that was shown by the public for the steam vessels was chiefly due to the fact that they were much more comfortable, and at the same time cheaper, than the coaches. For instance, a passenger

Committee on Turnpike Tolls and Trusts;’ also 1839 (295), ix, 369. ‘Report of Select Committee on Railroads and Turnpike Trusts.’

¹ A brief summary of the later history of the turnpike trusts will be *à propos* here. After 1830 many of the trusts were unable to maintain their roads in reasonable condition, and, according to the common law, the burden of maintenance devolved upon the parish. This liability was not enforced after the Highway Act of 1835, but in 1841 an effort was made, in Act 4 & 5 Viet., c. 59, to restore it, by authorizing the Justices to demand a payment out of the highway rates toward the repair of turnpike roads where the tolls were insufficient. In this way, the parish had a double burden to bear, the payment of the tolls and the cost of repairing the road; and, while ineffective to improve the finances of the trusts, this system aroused hostility. The “Rebecca Riots” in 1842-3 were the outcome; and the conditions in South Wales, where these riots were particularly vigorous, are told in the ‘Report of the Royal Commission of Inquiry of 1844.’ Finally, as a result of this inquiry, an Act was passed to put an end to the administration of the trustees in South Wales, by merging all the trusts under “County Roads Boards,” composed of Justices of the Peace. In England, no such centralization of control was possible, on account of the opposition of rival interests of one kind and another. But soon after the middle of the century there came to be a growing sentiment in favour of the abolition of the turnpikes and toll-gates. The committee of the House of Commons which, in 1864, investigated the subject reported that the tolls were “unequal in pressure, costly in collection, inconvenient to the public, and injurious as causing a serious impediment to intercourse and traffic,” and advocated the union of the trusts in some such way as had been carried out twenty years before in South Wales. Still the whole matter was left in abeyance, so far as any general public policy was concerned; but from this time onward successive committees of the House of Commons began the gradual dissolution of the trusts, and their administration was handed over to the highway districts, or to the highway parishes, in which they were located. By 1887 only 15 trusts remained; by 1890 these had been reduced to two; and in 1895 the toll system ceased.

could get by packet from London to Gravesend for 1s. 6d., and from Gravesend to Maidstone for 2s. 6d., making a total of 4s. from London to Maidstone; but the coaches charged 6s. for this distance¹. From London to Newcastle the fares by coach were £4. 10s. inside and £2. 5s. outside; while by steamer the fares, including provisions and all expenses, were only £3 for the best cabin and £2 for the fore cabin². Between London and Hull the fares by steamship were, for the best cabin £1. 1s. and for the fore cabin 15s.³; and the fares between Hull and York, at these rates, could not exceed 5s. and 4s. respectively; so that the steamer fares between London and York could not have been more than £1. 6s. and 19s. respectively. The coach fares, on the other hand, were £3. 5s. inside and £1. 14s. outside⁴. There was, therefore, a decided advantage in travelling, where possible, by steamer. From the point of view of the coach proprietors, one vital element in their higher rates was that they had to pay duties and taxes from which steam navigation was free on account of the sea being an open highway that required nothing for its maintenance⁵. It was recognized by the owners of coaches that they could not maintain their position in the face of this competition, and they were compelled to take off many of their coaches during the summer months, when the traffic was most

¹ Brit. Doc. 1837 (456), xx, 291, 'Report of Committee on the Taxation of Internal Communication,' evidence of Mr Horne; also 'Report,' p. v.

² Harris, *The Coaching Age*, p. 194.

³ Maeturk, *History of the Railways into Hull*, p. 11, advertisement of the "Enterprise" steamship. Harris, *The Coaching Age*, p. 194, gives the fares between London and York, not including expenses, as 8s. and 4s. 6d. for best cabin and fore cabin; but it is pretty certain that his figures are altogether too low, when we compare them with those which we have just given.

⁴ Harris, *The Coaching Age*, n. 194.

⁵ The conveyance of passengers by water was free of duty; but on making as close an approximation as possible to the truth, through a comparison of the rate of duty and the average number of passengers conveyed it was found that the duty paid by the stage coach was $\frac{3}{4}$ d. per passenger per mile (Brit. Doc. 1837 (456), xx, 291, 'Report of Committee'). On the road from London to Dover one coach proprietor had five coaches, on which he paid (in 1836) a mileage duty of £2273. 16s. 6d., from which his competitors by steam power were wholly free. The same conditions were found on the great north road (*ibid.*, evidence of Mr Horne). In Harris, *The Coaching Age*, p. 193, we are given a statement of the duties and other expenditures of the "Wellington" coach from London to Newcastle for a year, drawn up by one who was thoroughly familiar with the accounts, which shows that the taxes paid by this coach to the Government were £2568. 18s. 6d. The tolls paid were extra, over and above this amount, and were annually over £2500. From all of these expenses the vessels were free. Steamship proprietors had another advantage over coaches in being allowed to retail wines and spirits without paying an excise license (Brit. Doc. 1837 (456), xx, 291, 'Report of Committee on Taxation of Internal Communication,' p. v).

profitable, because there was not enough business for both rivals¹. In the case of passengers who wished to reach any of the places on or near the great north road it was more congenial to them to take the vessel to the nearest point on the coast, and then reach their inland destination by coach, than to take the coach all the way². Thus, people flocked to the steamboats and left the long coach roads wherever it was possible to do so conveniently. In some instances, the travelling on the lateral lines leading to these main roads was much increased, so that although steam navigation might interfere with the business on the roads that were parallel with it, it produced a considerable increase in the collateral trade³. Whether this increase of transverse trade made up immediately for the loss of trade on the longer through routes it is impossible for us to determine.

But, in addition to the effect on the revenues of the roads due to the abolition of statute labour (or composition therefor) and to the competition of steam navigation, it is certain that the railways directly attracted the traffic from the adjacent thoroughfares that were parallel with them. This reduction of road carriage, by diminishing the tolls on the turnpikes, made it more difficult for the trusts to pay their interest obligations and maintain the roads. As it is impossible to make general statements on this subject with great accuracy, it will serve our purpose better to note the results in particular instances in which the great roads are involved.

One of the clearest cases of the influence of the railway in curtailing the revenues of the roads was that of the line from London to Birmingham. This road was practically parallel with the London and Birmingham Railway, and was one of the best constructed and managed roads in England. The railway was fully opened in 1838, and the tolls received on the various road trusts between these two cities, for the half-year ending Mar. 29, 1839, amounted to £7899, which when doubled would make £15,798 as the approximate amount of the tolls

¹ Brit. Doc. 1837 (456), xx, 291, 'Report of Committee:' also evidence of Messrs Horne, Wheatley, Wimberley and Kemplay. These facts were evidenced by witnesses from almost every district of the kingdom. Baines, *History of Liverpool*, pp. 564-5, shows that when Bell put his first useful steer-boat on the Clyde, plying between Glasgow and Greenock, four coaches between these two places were immediately discontinued, on account of the transfer of the passenger travel to the vessel, although the ordinary speed of the vessel was only four to four and one-half miles an hour, and less than that when the wind and tide were unfavourable. Buchanan, *Practical Treatise on Propelling Vessels by Steam*, p. 13, says that in 1816, when he was writing, the vessels along the Clyde had largely superseded the coaches and that the steamers had greatly increased the amount of travelling.

² Brit. Doc. 1837 (456), xx, 291, evidence of Messrs Wimberley and Collins.

³ *Ibid.*, evidence of Mr Wimberley.

for the first year after the opening of the railway. The tolls for the year 1836, the last year before the opening of the railway¹, were £28,525. This shows a decrease of approximately £12,727 a year, or almost fifty per cent., on the tolls of 1836². This could not have been due to canal competition, for the road traffic was derived largely from passengers and parcels while the canal traffic was that of heavy articles. It is evident, therefore, that the decrease of the road tolls was a direct accompaniment of, and caused by, the operation of the railway. A similar result may be noted in connexion with the Liverpool and Manchester Railway, which was opened in the latter part of the year 1830. Soon after its operation began, an attempt was made to let the tolls at two bars near the Manchester end of the turnpike road which followed the same direction as this railway. The Eccles bar, which had been let in 1829 for £1575, and in 1830 for £1700, was offered for the next year at £800; and the Irlam bar which had brought in 1829 a rental of £1335 and in 1830 of £1300, was offered for £500; but because of the reduction of revenue anticipated or experienced as a result of the railway, no one was found who wanted to farm these tolls, even at the immense reduction for which they were offered³.

At a ganglion like London, where great roads converge, the effect of a railway would necessarily be felt with great intensity. We would also expect considerable reductions of the tolls on roads that were parallel to railways but at short distances removed on either side. Taking those trusts which were parallel and close to, but not adjoining,

¹ This railway was partly opened in 1837 and completely in 1838.

² Brit. Doc. 1839 (295), ix, 369, 'Minutes of Evidence,' p. 66. The details of this are as follows:

Turnpike Trusts between London and Birmingham	Tolls received for half-year ending Mar. 29, 1839	Tolls received in year 1836
Whetstone Trust	£2,207	£5,365
St Albans Trust	1,063	3,821
Dunstable Trust	720	2,770
Puddlehill Trust	656	2,525
Hoekliffe and Stratford Trust	735	3,507
Stratford and Dunchurch Trust	1,324	6,335
Dunchurch and Stonebridge Trust	466	1,707
Stonebridge and Birmingham Trust	728	2,495
∴ Tolls for half-year after the opening of the London and Birmingham railway were	7,899	
	2	
∴ Estimated toll for 1839 would be	£15,798	£28,525

³ *Manchester Guardian*, Feb. 12, 1831, p. 3.

the London and Birmingham Railway, we find that the tolls in 1839 were only from one-half to two-thirds of what they were in 1834¹; and, of course, those roads that were the more distant from the railway were less affected than those that were nearer². So great were the reductions of the tolls in some cases, and the uncertainty of their amount, that it was becoming increasingly difficult to get anyone to farm them³. Sir James Macadam, who was the General Superintendent of the Metropolitan Roads, after speaking in 1839 of other factors which had caused some roads to go from bad to worse⁴, added the significant statement: "The calamity of railways has also fallen upon us, which, of course, has aggravated the evil⁵." It must not be understood from what we have said, and from the instances we have adduced, that wherever the railway went the roads fell into decay. The reduction of turnpike revenues noted above was an inevitable concomitant of the introduction of such a novel and effective instrument of transport as the railway; and there is no doubt that in some cases the financial embarrassment

¹ The *British Almanac and Companion* for 1842, p. 119, gives us the following information regarding these roads:

Names of the Trusts	Amount of tolls	
	1834	1839
Metropolis Roads, North	£86,676	£77,944
St Albans and Barnet	3,472	1,896
Dunstable	2,680	1,011
Sparrows Herne	3,458	2,613
Hockliffe and Woburn	2,519	1,230
Holyhead Road, Hockliffe district ..	3,250	1,198
Old Stratford and Dunmureh	5,894	2,702
Northampton and Newport Pagnell ..	2,260	1,505
Market Harborough and Welford	3,847	2,562
Dunmureh and Stonebridge	1,525	1,027
Market Harborough and Loughborough ..	6,591	5,646
Stone, Stafford and Penkridge	1,536	901

² See above table. For other instances of similar reductions of tolls, see *Brit. Doc.* 1839 (295), ix, 369, evidence of Mr Levy and others; also *Railway Times*, v (1842), pp. 18, 21.

³ *Ibid.*

⁴ In a communication from the Grand Junction Canal Company to the Board of Trade, in 1846, as to the desirability of keeping the Regent's Canal open and free from railway control, as a means of outlet for the inland canals, there are these words: "Now it is at once admitted that if this new power [i.e., locomotives and railways] can prove itself competent to under-carry canals, the Proprietors of the latter cannot reasonably expect to be shielded, either by Parliament or by Her Majesty's Government, from the ruin which has already befallen a considerable portion of our macadamized roads, with the various establishments... which are dependent thereon." This would seem to be good (because disinterested) testimony in regard to the decline of some of the best constructed roads.

⁵ *Brit. Doc.* 1839 (295), ix, 369, evidence of Sir James Macadam.

of the trusts was directly traceable to the railway. But we have already shown that before the iron road came into active use there were other factors which were causing many of the trusts to be pecuniarily involved, and these, doubtless, still continued after the railway came into operation. If the railway did, along certain routes, exercise the most potent influence in effecting an immediate dislocation of business from the road to the rail, it is evident that this transfer would leave the roads subject to less injury, and therefore they would not need so much expended upon them for maintenance and repair. It would seem, then, that if some other things had not been detrimental to the finances of the roads, the railways alone would not have brought about all the evils that were attributed to them.

Having now considered the effect of the railways in causing a decrease of the traffic and revenue of many of the turnpike trusts, we next inquire as to the reasons why the railways attained the ascendancy over the stage coaches. In the light of past experience, we to-day can see many reasons why they should have gained the pre-eminence, such as, their greater speed and comfort, greater accommodation and cheaper rates, to say nothing of the mental stimulus from railway travel¹. But, beside these, at this early time there were some additional reasons for railway predominance which are not apparent to us to-day.

Railway companies had a much lighter burden of taxation than those who carried on the ordinary highways. In addition to the turnpike tolls, the chief taxes paid by regular stage coaches were: the license duty of five pounds (£5) on each coach kept to run, and one shilling on each supplementary license; the assessed tax on coachmen and guards, which was £1. 5s. for each²; the stage coach duty, which was levied on a graduated scale according to the number of passengers which the coach would carry, but irrespective of the number of passengers actually carried or the number of horses used; and, finally, the assessed tax on all draught horses³. The license tax had to

¹ See *Railway Times*, v (1842), pp. 639-40, 711, 973.

² Brit. Doc. 1837 (456), xx, 291, 'Report of Committee on Taxation of Internal Communication, Minutes of Evidence,' p. 3, Q. 31. Harris, *The Coaching Age*, p. 195, says that £5 was assessed for every coachman and guard.

³ Brit. Doc. 1837 (456), xx, 291, 'Report of Committee on Taxation of Internal Communication.' The stage coach, or passenger, duties were changed from time to time, but they were at best so burdensome that coach proprietors wanted them reduced to the minimum; and in order to accomplish this it was customary, with the approach of winter, to lessen the number for which the license was taken out at the Stamp Office. For example, a coach which was licensed to carry six inside and twelve outside during the summer when business was active might be licensed for the winter to carry only four inside and eight outside. In this way, the stage coach duty would be reduced about one penny a mile per single mile, or about thirty

be paid whether the coach were run only a few days or for the whole year, and the same regulation was enforced concerning the assessed taxes. The stage coach rates were paid each way by the coach proprietors, the lowest amount being for a coach with a capacity of four passengers, which paid one penny per mile each way¹; in other words, the lowest duty was one-fourth penny per passenger per mile. Beside the foregoing taxes, from which the railway company was exempted, the coaches had to pay a mileage duty, on the basis of the number of miles the coach travelled but without any reference to the number of passengers the coach was licensed to carry. Coach proprietors, in a few cases, bought their coaches outright; but in most instances they made an arrangement with the coach builder to pay him, for the use of the coaches that were required, a certain mileage rate, which varied from two to three pence per mile according to the contract they were able to make with the owner of the vehicles².

On the other hand, the taxation of the railway, as an operating agent, consisted merely of a mileage duty of one-half penny per mile on every four passengers, that is, one-eighth penny per passenger per mile³. It will be seen, therefore, that the mileage rate was the only one of the stage coach taxes that applied to railways, and it was only a small fraction of the amount charged on the coaches. But there was this further distinction to be carefully noted between the steam and the stage coaches, that while the railway was charged mileage rate

per cent., during the winter. It may be asked why a coach proprietor could not take out a license for a smaller number of passengers, paying therefore the lower duty, but carry the larger number of passengers on his coach. The answer is that penalties were heavy for the transgression of the law, and on the chief roads there were men who made their living by informing on persons who broke the law, since the informers got one-half of the penalty imposed on offenders. The number of passengers that a coach could carry had to be painted on it in a conspicuous place; and if a coach were found with more than its legal number of passengers the magistrate's fine made a considerable expense for the proprietor. See also Harris, *The Coaching Age*, pp. 196-8.

¹ These stage coach duties, as given in the schedule to Act 2 & 3 William IV, c. 120, were as follows:

For 4 passengers,	1d.	per mile a single mile.		
6	"	1½d.	"	"
9	"	2d.	"	"
12	"	2½d.	"	"
15	"	3d.	"	"
18	"	3½d.	"	"

² Harris, *The Coaching Age*, pp. 198-9.

³ Brit. Doc. 1837 (456), xx, 291, 'Report of Committee on Taxation of Internal Communication.' In 1842, this was changed to five per cent. of the receipts from passenger traffic.

only on the passengers actually conveyed, the stage coaches were charged their rate on the number of passengers which the coaches were licensed to carry, whether they were full or empty. This was a detriment to the stage coaches; for if one of them was capable of carrying twelve passengers, only an average of eight passengers could be counted on; and, therefore, in paying both ways, they paid duty for twenty-four passengers, but carried and received payment for only sixteen¹. Some advocated repealing the duties on stage coaches to enable them to compete with the railways, and a proposal had been made to take the tax off coaches running parallel with the railway, but neither of these was carried out². This manifest unfairness could not but prove prejudicial to the proprietors of stage coaches, many of whom expected that their business would be overwhelmed³. Some of them, however, saw clearly that, even if stage coaches were made free

¹ Brit. Doc. 1837 (456), xx, 291, evidence of Mr Horne. He handed in the following computation to exemplify the difference between railway and road carriage in the matter of mileage duty alone:

Coaches to Birmingham, say 108 miles.—	£ s. d.
If licensed for 15 passengers, say average 10, at 3d. a single mile,	
is per journey	1 7 0
Railway at ½d. per head, say 10 passengers, is per journey	11 3
Difference	15 9

The mileage duty, therefore, is 2s. 8½d. by coach, and 1s. 1½d. by railway, for each person actually carried.

Mr Horne	had 3	Birmingham and 3	Liverpool and Manchester	coaches.	
Mr Chaplin	.. 2	..	.. 7	..	..
Mr Sherman	.. 3	..	.. 3	..	..
Mr Gilbert	.. 1	..	.. 0	..	..
Mr Mountain	.. 1	..	.. 1	..	..
Mr Nelson	.. 0	..	.. 1	..	..
	10		15		

On 10 Birmingham coaches, the difference between railway and coach =	7 17 6
On 15 Liverpool and Manchester coaches, the difference between railway and coach =	23 12 6
On 6 coaches between Liverpool, Manchester and Birmingham, the difference between railway and coach =	4 14 6
Difference each way =	36 4 6
Difference for journey =	72 9 0

For a comparison of the mileage duties paid by stage and railway coaches, see also *Herepath's Railway Magazine*, N.S., v, pp. 532-3, the figures of which are all right, but the editorial comment on them contains statements that cannot be accepted.

² *Herepath's Railway Magazine*, N.S., vi, pp. 458-64; *Hansard's Parliamentary Debates*, xiv (1832), pp. 1300-2, statement of Lord Althorp.

³ Brit. Doc. 1837 (456), xx, 291, evidence of Mr Horne and Mr Gray.

of duty, they could not compete with the railways in the same direct line¹, on account of the many other advantages which the railway had.

Another thing which tended to defeat the coaches in their competition with the railways was that the latter were frequently permitted by the Treasury to compound for their taxes at a very low and perfectly illusory rate: a privilege that was uniformly refused to the proprietors of stage coaches². In the three years 1835-7 the railways which were compounding for their mileage rate paid, in all, £1519. 10s., whereas the amount of mileage duty which would have been paid if no composition had been entered into would have been £5727. 14s. 3d.; that is, they paid about one-fourth of the statutory duty³. With such favouritism or protection to the younger and progressive means of communication it was inevitable that the railways should soon dominate in the carriage of passengers.

Enough has been said to show the effects of the introduction of railways, in particular cases, upon the previously existing means for the conveyance of passengers, and upon the roads. But it requires to be emphasized that the particular cases must not be taken as exemplifying or attempting to prove that the foregoing results were universally found to follow the construction of railways. On the other hand, we have the statements of some that the revenues of certain trusts which

¹ Brit. Doc. 1837 (456), xx, 291, evidence of Messrs Horne, Gray and Collins.

² *Ibid.*, 'Report of Committee,' p. iii.

³ Brit. Doc. 1839 (517), x, 127, 'Appendix, No. 23,' pp. 406-7; also Brit. Doc. 1837 (456), xx, 291, 'Minutes of Evidence,' p. 23.

This fact is more fully exemplified if we take the individual cases of those railways which paid composition during the three years 1835-7, as follows:

Railways	Total amount of composition paid			Amount of mileage duty that would have been paid, if not compounding		
	£	s.	d.	£	s.	d.
Bolton and Leigh	30	0	0	877	4	2
Canterbury and Whitstable	51	0	0	239	8	9
Hartleyburn and Brampton	6	0	0	23	5	0
Leicester and Swannington	60	0	0	257	11	6
Newcastle and Carlisle	255	0	0	1294	3	7
North Union (Wigan and Preston) .	360	0	0	1112	7	10
St Helens and Runcorn Gap	25	0	0	99	9	3
Stanhope and Tyne	2	10	0	46	13	2
Stockton and Darlington	600	0	0	1301	5	11
Stratford and Moreton	20	0	0	51	13	8
Warrington and Newton	110	0	0	424	11	5
Total	1519	10	0	5727	14	3

were paralleled by railways had increased¹. Whatever may have been the immediate results upon the revenues of the turnpike trusts, it is almost certain that the roads did not suffer any permanent set-back, nor did the number of coaches decrease; on the contrary, the number of licenses for coaches increased because of the necessities that accompanied the great stimulus given to travel².

¹ Statements of Mr Pease and others before the Parliamentary Committee, as quoted in *Advantages of the Progressive Formation of Railways*, pp. 16-21; also *Proceedings of the Great Western Railway Company*, 'Minutes of Evidence,' p. 49.

² See *Railway Times*, vi (1843), p. 443, giving statistics to prove these statements.

CHAPTER IX

COMPETITION OF RAILWAYS AND CANALS

IN a former chapter we have described the manner in which the carrying trade was effected on the canals: for before 1815 the canal companies themselves were not authorized to carry, but this work was done by private carriers and regularly chartered companies, who placed their own barges on the canals and furnished the traction power, paying only the tolls demanded by each canal company. We have also outlined the changes that were made in the organization of the carrying trade on the railways: but as it was in connexion with this that the first great railway struggle was precipitated we venture, even at the possible risk of repetition, to consider the three chief systems of railway operation with reference to the way in which goods were transported.

The system adopted by the London and Birmingham Railway Company allowed the carriers who chose to avail themselves of the terms offered by the railway company the opportunity of sending goods to any amount, the waggons and the locomotive power being provided by the railway company¹. The carrier collected and delivered

¹ Brit. Doc. 1839 (517), x, 1, 'Second Report on Railways,' pp. viii-ix; also Brit. Doc. 1840 (437), xiii, 181, 'Fourth Report of Select Committee on Railway Communication, Minutes of Evidence,' p. 110, showing that the London and Birmingham Railway Company believed it was more advantageous to them to allow carriers to come on their line and pay the railway company tolls for the use of their road, than to be carriers themselves. The company thought that the public would also be better served, because the individual carrier who had charge of their goods would be more responsible. The railway company charged by weight only. They claimed all small parcels under 100 pounds, and transported them themselves (v. Brit. Doc. 1840 (437), xiii, 181, 'Minutes of Evidence,' p. 98). That the legislature intended to ensure the right of carriers to use the railways, upon payment of the tolls to the railway companies, is evident from the fact that every original railway Act, except that for the Liverpool and Manchester Railway, contained a clause to that effect. But since this right could not be exercised without great danger to the public, on account of the admission to the railway of steam-power that was not under the immediate control of the company, the provision was made in one of the later Acts of the London and Birmingham Railway Company that the latter should provide the carriers with both waggons and power at a fair and reasonable charge (*Railway Times*, iv, p. 366). See also Whitehead, *Railway Management*, 2nd ed., p. 6.

the goods, took all risks, and paid the tolls and haulage charges, which were so regulated as to yield good profits to the railway company and a reasonable return to the carriers. This arrangement could hardly be said to offer such competition as to secure the public against exorbitant charges, because the demand for carriage depended upon the terms and rates fixed by the company, and, consequently, the rivalry between the carriers was, in a great measure, restricted to the collection and delivery of the goods with which they were entrusted. This competition, therefore, afforded no guarantee that the service would be performed at the lowest remunerative charge. The profits of each carrier depended on the amount of his business, and this could only be maintained and increased by incessant attention to the wishes of his employers. This open system pursued by the London and Birmingham ceased when that line became merged with others in the London and North Western.

An entirely opposite system was that in force on the Liverpool and Manchester Railway. That company was required by its Act to undertake the carriage of any goods that might be brought to its representatives for conveyance along the line; and thus private carriers were excluded from a share in the goods traffic. The company was limited as to the amount of charge which it might demand for the carriage; but, in reality it did not charge the maximum rates specified in the Act. On the contrary, the rates were fixed with reference to the cost of water carriage between these places¹.

The third system was a combination of the other two, and was found in operation on the Grand Junction Railway, from Birmingham to Manchester and Liverpool. The company could not prevent any private carrier using their line, but, at the same time, they themselves undertook the carriage of goods, and therefore competed at every point with the private carriers². They retained for themselves the conveyance of all Birmingham and Lancashire goods coming from or going to London. Before admitting any carrier on their line, the railway

¹ Brit. Doc. 1839 (517), x, 1, 'Second Report on Railways,' pp. viii-ix. It would seem, however, that the Liverpool and Manchester, at a later date, found it wise to adopt a different plan from this which they had pursued for many years (*Railway Times*, vi, p. 152). This railway company was different from any other in that it was made a carrier by its Act of incorporation. The Stockton and Darlington, before that line was opened, had received application requesting the privilege of carriage by locomotive engine on its roadway, but had refused this; for the committee in charge, after careful inquiries, were convinced that the company's welfare would be best served by being the principal carriers on its own line. Jeans, *Jubilee Memorial of the Railway System*, p. 63.

² Brit. Doc. 1839 (517), x, 1, 'Second Report on Railways,' pp. viii-ix; also Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 2, pp. 22-23.

company bound him by agreement not to charge his patrons less for the carriage of goods than the rate demanded by the company for the same service¹. Hence, the public could derive little or no benefit from this kind of competition. Moreover, we can readily see that when many carriers were allowed on the one line of railway, using the same track, stations, terminal facilities and other equipment, much confusion and no little strife would ensue, not only among the carriers themselves but also between the railway company and the carriers, for the carriers were not always careful in their use of the appurtenances of the road. Then, when anything went wrong, or any injury was done, it was almost impossible for the company to know who had been the cause of the trouble. Besides, the safety and the convenience of passengers were endangered by the presence of so many rivals on the line. The jealousies and complaints that arose from such a confusion of interests on the same line had shown the railway company, as early as 1840, the necessity of excluding private carriers altogether, and undertaking all the carrying trade themselves².

The decision arrived at by the Grand Junction Railway Company was being reached by other railway companies also, as the only solution for the ills of the existing situation in regard to the goods traffic on railways³. In support of the contention that the railway companies should be the only carriers on their lines, it was urged that, as it was necessary for them to perform so much of the carriage as was equivalent

¹ See Brit. Doc. 1840 (437), xiii, 181, 'Minutes of Evidence,' pp. 88-89, for "Copy of an Agreement between the Grand Junction Railway Company and Messrs Robins & Co. (carriers) of Liverpool." The Grand Junction Railway Company charged by the parcels, and these could not be boxed together by putting small ones inside of large ones (*ibid.*, p. 98).

The Bolton and Leigh Railway, communicating with the Liverpool and Manchester, was let to a single carrier. The North Union Railway (from Wigan to Preston) professed to follow the example of the London and Birmingham, but up to 1839 only one carrier had established himself upon the line, and as he was the lessee of the Bolton and Leigh it was thought that his wealth and influence might exclude all other competition from these two lines. The Newcastle and Carlisle Railway Company was the only carrier on its line. The Stockton and Darlington was the principal carrier on this line; although there were also other parties, using horse-power, who were engaged in carrying goods. The Leeds and Selby Company was the sole carrier on that line. Brit. Doc. 1839 (517), x, 1, 'Second Report of Committee on Railways.'

² Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railway Communication.' See also *Railway and Canal Cases*, i, p. 592 et seq., Pickford et al. vs. The Grand Junction Railway Company. This case is fully discussed in Appendix 14.

³ *Railway and Canal Cases*, iii, p. 563 et seq., Parker vs. Great Western Railway Company (1844), shows that this railway company was following the Grand Junction in trying to exclude the carriers from their line.

to at least eighty per cent. of the whole cost, namely, the transport of the goods along the railway, the conditions were not such as to enable the public to benefit by the competition of private carriers, and the companies could perform the remaining twenty per cent. of the work more economically. Then, by the companies taking the carrying trade completely into their own hands, the shippers served by each line would be assured the advantage of uniformity of charge. Finally, it was said that, in order to bring railway conveyance fairly into competition with the old canal monopoly that existed in many cases, it was essential that the railway companies should become carriers, since the great private carrying firms were generally interested in continuing the canal¹.

On the other hand, it was asserted that it was neither so economical nor so convenient for the public that the railway company should step out of its legitimate sphere, by becoming collectors and distributors of goods; and that the competition of the private carriers, though confined to twenty per cent. of the total charge, was sure to reduce this portion of it to a minimum, and hence was worthy of a place in the public economy. Moreover, if the railway companies should become carriers, and the private carriers should be driven off the rails, the railways would then be in a position to combine with the canals and force the public to pay monopoly prices².

¹ Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' Appendix No. 2, also 'Minutes of Evidence,' Q. 3933-6. *Ibid.*, p. 290 et seq., gives much discussion as to whether it was best to have private carriers on the railway lines or to have the railways act as carriers on their own lines.

The last argument, of course, has no weight. The railway could compete with the canal, by its having passenger traffic to add to its income, while the canal had none; so that, in order to meet the canal monopoly, it was not necessary to drive the private carriers off the railway.

² Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways,' also 'Minutes of Evidence,' p. 290 et seq.

In the *Railway Times*, iv, p. 366, the editor of that journal in discussing the pamphlet of Henry Booth on the "Carrying Question," shows that Booth's arguments against admitting private carriers on the railway, though applicable to the Liverpool and Manchester Railway, did not bear upon the general question as it related to the vast and complicated interests over the whole kingdom. Then, when he had thus dismissed the consideration of that pamphlet, he reiterated his own views; and after showing that the carriers had a legal right to the use of the railways on payment of the tolls, he went on to exemplify how it was to the advantage of all parties that such competition should be encouraged. In addition to the reasons here suggested in the text, the editor says that the private carriers would compete also in the matter of attention and civility to the public, which was scarcely less important than the economy of charges; whereas the railway companies as carriers would show but slight moral responsibility. The carriers had also well-established collecting and distributing facilities in all the important towns and cities and were therefore prepared to look after the goods traffic at all places remote from the

There certainly was a good deal of weight in some of the arguments advanced on each side. The effect of railway companies becoming carriers was undoubtedly, in many cases, beneficial, and led to a material reduction of the existing charges¹; and, under certain circumstances, it might be as convenient for the public to employ the railway companies as carriers. This would be the case where the railway had a station at the point of destination of the shipment; for example, if a merchant in London were sending goods to Birmingham it would be just as convenient to have the railway take them there as to send them by a carrier on the canal, for as soon as they were unloaded at that railway station the Birmingham merchant would have no trouble in getting his goods. But, in regard to much of the traffic of the country, it would certainly be felt as an inconvenience to be obliged to employ a railway company as the sole carrier. For example, if goods were to be sent from London to some place near Birmingham, and they were given into the hands of a private carrier in London, they would be taken by him or his agent from the station at Birmingham, when they had reached there, and delivered to the consignee; but, if the railway company were the only carrier, the freight would be left at Birmingham until removed by the consignee. To cite the instance of Coventry: if goods were sent by private carrier from London to Coventry, they would, if suitable, be taken by him on the railway to Birmingham (there being no station at Coventry), and then carted back by the carrier for the seventeen miles to Coventry and there delivered at the consignee's door. Even this method of getting the goods to Coventry did not cost as much as to take them from London to Coventry by canal. But if the shipment were given to the railway company as the carrier it would be taken to Birmingham and left there to await the coming of the consignee or his agent who would ship the goods back to Coventry by road or by canal as seemed most

railway termini. He regarded it as in the interest of the railways as well as the public to continue the carriers on their lines. For further discussion of the carrying question, see Appendix 14.

¹ Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railways,' under heading H, "Carriage of Cattle and Goods by Railways."

Note what we have formerly said regarding the effect of the Liverpool and Manchester Railway in reducing the charges made by navigations between these places. Also Brit. Doc. 1840 (437), xiii, 181, 'Fourth Report on Railways, Minutes of Evidence,' pp. 82, 110 et seq.; and Brit. Doc. 1844 (318), xi, 17, 'Minutes of Evidence,' p. 76 et seq., where we learn that when the Leeds and Selby Railway Company opened their line and did their carrying the rates on the Aire and Calder Navigation were very materially reduced. See also *ibid.*, 'Minutes of Evidence,' p. 527 et seq.

desirable¹. The carriers who used both railway and canal conveniences carried the more valuable articles on the railway, and the cheaper freight, i.e., the more bulky and heavy commodities, by the canals, for the latter class generally did not require rapid transport. The private carriers who did nothing else than that work, and who had well-established facilities for the economical collection and distribution of traffic, asserted that it was not possible for the railway company to perform these services as acceptably and cheaply as themselves; but, of course, the railway company could develop just as good facilities if it were thought best to put the performance of these duties in their hands. There was another advantage in employing private carriers, in that they were responsible for the goods from the time they left the consignor until they reached the consignee; but the railway assumed no such responsibility².

As we have seen, it was the intention of Parliament that railways should be on the same footing as canals and that railway proprietors should have similar rights to those of canal proprietors, that is, receiving tolls, but not carrying at all³. When the matter was under public discussion many of the carriers said that the only thing to do was to carry out the intention of Parliament and preserve competition by excluding the railway companies from carrying on their own lines. Others were in favour of suppressing the private carriers and giving all the work into the hands of the railways⁴. Out of the mass of

¹ Brit. Doc. 1840 (437), xiii, 181, 'Fourth Report on Railways,' evidence of Messrs Tibbitts, Derham and Harnett (p. 24). The London and Birmingham Railway carried only through traffic.

² Brit. Doc. 1844 (318), xi, 17, 'Fifth Report on Railways, Minutes of Evidence,' Q. 2941. The personal relations of the private carriers with their patrons were a valued element in the conduct of business. Carriers allowed their customers from three to six months' credit; and permitted them to warehouse their goods, without charge, till they could conveniently send them to their destination. If any inconvenience were suffered and a complaint made to the carrier, the latter was always amenable and an answer was obtained. Even though this redress was sometimes tardy and not entirely satisfactory to the shipper, it was better than to be treated with indifference. On the contrary, it seems to have been the policy of the railways to be more overbearing. They required monthly settlements of bills. They did not allow goods to be left in their warehouses without the payment of storage charges. When complaints were made, the responsible railway official was so far removed from the complainant, and the company was so unresponsive, that unless the complainant had enough influence to enforce attention to his claim he could not depend upon receiving justice. Boyle, *Hope for the Canals*, pp. 17-18.

³ Brit. Doc. 1840 (299), xiii, 167, 'Third Report of Select Committee on Railways;' also Brit. Doc. 1840 (474), xiii, 189, 'Fifth Report on Railways, Minutes of Evidence,' p. 40, Q. 959; etc.

⁴ On this whole question, see Brit. Doc. 1840 (299), xiii, 167, 'Report and Evidence,' which deals very fully with it; also Brit. Doc. 1844 (318), xi, 17, 'Minutes of Evidence,' p. 106 et seq. See also Appendix 14.

conflicting testimony, the Parliamentary Committee of 1839 came to the conclusion that the intention of the Legislature in this respect could not be carried into effect in the way contemplated; for it was obvious that the payment of legal tolls was only a very small part of the arrangements that were necessary to open railroads to public competition, and the rest of the arrangements were wholly disadvantageous to the private carriers on the line. They decided that, upon grounds of safety and economy, there should be upon every railway one system of management, under one superintending authority, which should have the power of making and enforcing all regulations necessary to the proper conduct and maintenance of the traffic. Because of this, it was essential that the railway company should possess a complete control over their line of road, even though they should thereby acquire an entire monopoly of the means of conveyance¹.

We have entered thus fully into this subject because it is one of the pivotal points in the competition of railways and canals, and because it is interesting to see how early, after the introduction of railways, it was recognized and settled that they were unlike most other enterprises in being essentially monopolistic. Later reports from parliamentary and other public bodies reiterated and emphasized this characteristic feature, and also the need for some general supervision and control so that the public might derive the utmost benefit from this natural monopoly²; but into this latter phase, that of railway control, it is not our purpose to enter.

By what means did this monopoly power actually realize its monopoly, or, in other words, how did it drive the private carriers off the railway? In many cases the railway company gave no better terms to the carriers than to the occasional shipper, and so the carrying

¹ Brit. Doc. 1839 (517), x, 1, 'Second Report of Select Committee on Railways,' pp. vi-vii, xiii.

Another factor which contributed to the taking over of the carrying trade by the railway company was the systematic efforts of the carriers to secure advantage over the railway company by making false declarations as to the weights and descriptions of the goods that they loaded for carriage on the company's waggons. The London and North Western had to appoint a detective to see that their interests with reference to this were protected. In 1847, the next year after that company was formed, the system of toll carrying was abolished, and the railway company gradually began to carry directly for the public (v. Stevenson, *Fifty Years on the London and North Western Railway*, p. 17 et seq.). On this subject, see also *Railway Times*, iv, pp. 208-9, the affidavit of John Moss, and *ibid.*, vii, p. 217, on "Railway Companies and Railway Carriers." Refer also to Appendix 14.

² See, for instance, Brit. Doc. 1840 (299), xiii, 167; *ibid.* 1844 (166), xi, 5; *ibid.* 1845 (279), xxxix, 153; *ibid.* 1846 (200), xiii, 85.

trade became unremunerative¹. For example, the company charged the carriers for the mere transport of a certain weight of goods over the line, independently of the collection and distribution of these goods, the same rates as were charged the public for the carriage and the additional services of collection and distribution². This was sometimes put into effect against all the carriers on the line at once, and in other cases the carriers, one at a time, were compelled to suspend operations on account of the imposition of these practically prohibitive rates. Sometimes lower rates were quoted to some carriers than to others³, and in at least one case the railway company absolutely refused the use of its carriages to a certain carrier. It appeared that the company had made arrangements to carry goods for another firm of carriers only, by which that firm obtained a monopoly of the conveyance of goods along that line of road⁴. A few years later, when this railway company allied its interests with others in the formation of the London and North Western, the latter company adopted the policy of being themselves the exclusive carriers on their line; but they retained an arrangement with Chaplin and Horne, who were probably the largest carriers into and out of London, to collect and distribute in London the goods going from and coming to that city by this railway⁵. During the tentative stages of

¹ Brit. Doc. 1810 (437), xiii, 181, 'Fourth Report on Railways, Minutes of Evidence,' p. 37, Q. 918. This was done by the Grand Junction Railway Company, which was engaged in carrying on the London and Birmingham Railway, as well as on their own, and on the Liverpool and Manchester Railway.

² Brit. Doc. 1844 (318), xi, 17, 'Fifth Report of Select Committee on Railways, Minutes of Evidence,' pp. 138-9. Also Brit. Doc. 1852-3 (170), xxxviii, 5, 'Second Report on Railway and Canal Bills, Minutes of Evidence,' pp. 35-38, shows the means by which Kenworthy & Co., carriers, were driven off the canals and railways by the railway companies that got control of these canals.

³ Brit. Doc. 1844 (318), xi, 17, 'Fifth Report on Railways, Minutes of Evidence,' pp. 384 ff.; *ibid.* 1852-3 (170), xxxviii, 5, 'Second Report of Select Committee on Railway and Canal Bills, Minutes of Evidence' of Mr. Pixon.

⁴ Willmore, Wollaston and Hodges, *Reports of Cases argued and determined in the Court of Queen's Bench, and upon Writs of Error from that Court to the Exchequer Chamber, and in the Bail Court*, i, pp. 578 ff., *ex parte* Robins and others. Messrs Robins, general carriers, made application in 1838 for a mandamus to compel the London and Birmingham Railway Company to carry the goods of the applicants; but the Court decided that, under the Act of incorporation, the company could not be compelled to carry all goods sent for conveyance and the application was refused.

⁵ *Parl. Papers, 1857-8* (0.77), xv, 11, 'Minutes of Evidence taken before the Select Committee on the Manchester, Sheffield and Lincolnshire, and Great Northern Railway Companies Bill,' Q. 4683-4, 4901-16. Chaplin and Horne would not state exactly what their relation was with the London and North Western Railway. They had also close business relations with the London and South Western, and finally invested a considerable sum in that railway. Fay, *A Royal Road*, p. 28. It would

The development of the carrying trade, sometimes the railway company bought out the business of respectable carriers by payments that were much in excess of the real value; but even after the purchase was made some railways did not exclusively collect goods for themselves, but gave discounts and allowances for the collection and delivery of goods to and from the stations, and allowed a certain percentage for loading, unloading and invoicing, until it was discovered that frauds were being practised which tended to destroy the company's own carrying trade¹. Under these conditions the tendency was for the company to eliminate the carriers entirely. But amid the variety of causes tending to take traffic from the carriers and give it to the railways was the growing conviction among the commercial classes that, because the railway company did not have to pay tolls on its own line, and the cost of locomotive power to it would be no greater than if furnished to a private carrier, therefore the railway company could do the carrying cheaper than any private carrier; and if either were to be stopped they would prefer to see the company left as carrier². The railway company had so many advantages over any other carrier fulfilling this office along their line, that gradually it became the universal practice for them to do all this work, including the collection and distribution of the goods at their starting-point and destination³.

It must not be concluded from what we have said that railway companies (except as regards passengers) superseded the old carriers at once. It seems that Chaplin and Horne were retained for this service on condition that they would cease carrying on the canals. Boyle, *Hope for the Canals*, p. 5. See also Whitehead, *Railway Management*, p. 7.

¹ Nash, *Railway Carrying and Carriers' Loss*, p. 75; also *Railway Times*, iv, pp. 208-9, and *ibid.*, vii, p. 217.

² Brit. Doc. 1841 (318), xi, 17, 'Minutes of Evidence,' p. 527 et seq.; also Brit. Mus. 8235, b. 57 (1), 'The Carriers' Case considered,' pp. 8-9. This was especially the case with the Grand Junction Railway Company, whose highest rate for the lightest articles of merchandise, up to April 1844, had been 5s. a cwt., but after that was 4s. a cwt., from London to Liverpool. Other carriers charged up to 6s. and 7s. a cwt. Note the two examples given in footnote 3, p. 631. See also Brit. Doc. 1840 (437), xii, 181, 'Fourth Report on Railways, Minutes of Evidence,' p. 37.

This conviction, however, was long in being established, and we find strong opposition, up to the middle of the century, against the oppressive and unjust conduct of the railway companies toward the carriers. Petitions were sent in by large and influential bodies of traders against the monopolistic policy of the railways to defeat fair competition. See *Herepath's Railway and Commercial Journal*, xi, pp. 585, 599. Also Appendix 14.

³ In all probability it is because the railways at this early time took over all the work of the carriers that to-day the English railways, unlike those of the United States and some other countries, do the collecting and distributing of the goods carried on their lines. Because of this, there is no need for such secondary concerns as Express Companies which we find in the United States.

once. Few of the carriers tried the experiment of running their own trains along the railway, and these few, for reasons already given, were forced to give up; but for some years a considerable part of the carrying business remained in the hands of the old firms¹, who continued to collect goods from the public and to arrange for their safe delivery, employing the railway companies, which would give them access, to convey them along their lines. On certain railways, as we have already shown, this practice prevailed for some years exclusively; on others, from the first, the companies seem to have undertaken the business of general carriers for the public, as well as conveying for the carriers².

Now that we have considered the organization of the carrying trade on the canals and on the railways, we are able to appreciate more fully the effects of the competition which occurred between these two rivals. In an earlier chapter of this work it was shown that before the introduction of the railways many canals had put up their rates, until, with their monopoly, some of them were making enormous profits. This fact is attested by the high market value of some shares, and by the large dividends obtained by the shareholders of certain canals³. In some cases, as soon as a railway was threatened and action taken toward that end, the adjacent canal, which had been deaf to all complaints, found it desirable to reduce its tonnage rates and to think

¹ Pickford, Parker, Robins, Chaplin and Horne, etc. See the advertisement of Chaplin and Horne in *Railway Times*, vii (1844), p. 1447, showing that they forwarded goods by the various railways, "on their own account or as Agents of the Companies." Then they mentioned the different railway lines they used and the places in England to which they shipped.

² Brit. Doc. 1840 (299), xiii, 167, 'Third Report on Railways,' p. 3; *ibid.* 1844 (318), xi, 17, 'Fifth Report on Railways,' Appendix No. 2, p. 22; *ibid.* 1881 (374), xiii, 1, 'Report of Select Committee on Railway Rates and Fares, Minutes of Evidence,' p. 573.

³ These large profits are reflected in the prices of some of the canal companies' shares; for example, the Staffordshire and Worcestershire Canal shares (of the par value of £100) sold in 1810 for £735-50, and in 1829 for £810; the Grand Junction Canal shares sold in 1810 for £260-86, in 1825 for £330, and in 1828 for £315; the Trent and Mersey shares sold in June 1825 for £2150, in June 1828 for £3280, and in June 1829 for £3160. See the quotations of the share market in the *Gentleman's Magazine* for these various dates.

The rates of dividend paid are also a good indication of the profits reaped by some canals. In addition to those we have formerly noted, we may mention that in 1833:

The annual dividend of the Coventry Canal was	32 %
" " Oxford Canal was	34 %
" " Stafford and Worcester Canal was ..	34 %
" " Trent and Mersey Canal was	37 %
" " Erewash Canal was	47 %
" " Loughborough Canal was	134 %

(v. Martin, *Railways—Past, Present, and Prospective*, p. 27.)

of the necessity of making improvements in its waterway in order to maintain the traffic¹. But when a railway was actually constructed the first effect was to cause a reduction in the freight rates that had been in existence on the more or less parallel canals; and this cut in rates was almost immediate, for when the railway put a low rate into force the canals had to meet it or lose the traffic. With this diminution of freight rate, and the accompanying decrease of traffic due to a portion of the traffic being turned to the rails, it was inevitable that the railway should cause a decline in the revenues of the canals². The amount of

¹ Blewitt, *New Monmouthshire Railway*, pp. 11-15.

² Teisserene, *Voies de communication*, pp. 571-4, shows that, on account of the railway competition, the revenue of the Wilts and Berks Canal was reduced from 482,500 fr. in 1839 to 212,500 fr. in 1843, and the revenue of the Kennet and Avon Canal during the same period declined from 1,150,000 fr. to 800,000 fr. The opening of the London and Birmingham Railway in 1837-8 caused a reduction of the revenues of the Grand Junction Canal from 4,957,500 fr. in 1838 to 2,700,000 fr. in 1844, and a corresponding reduction in the case of the Coventry Canal. The effect of railway competition between Manchester and Leeds is seen by the fact that the gross revenue of the Rochdale Canal from bulky commodities declined from 1,473,250 fr. in 1840, when the railway was opened, to 680,000 fr. in 1841 and 435,000 fr. in 1844. These statistics are corroborated by those given in the Appendix to a statement issued on behalf of the Grand Canal Co. of Ireland, as printed in *The Times*, July 20, 1844, p. 6.

On the route from Manchester to Hull, 99 miles by canal, the rates per ton before and after the opening of the railway (1840) were as follows:

	Before			After		
For corn, flour, etc.	£1	4s.	0d.	£0	13s.	0d.
For cotton twist	1	12	6	1	0	0
For manufactured goods	2	5	0	1	4	0

Brit. Doc. 1845 (61), XXXIX, 293, p. 13. Because of railway competition, the Calder and Hebble Navigation, which was part of the through water-route between Manchester and Hull, reduced their dividend from 18% in 1848 to 8% in 1849. *Hercule's Railway and Commercial Journal*, XI (1849), p. 1241.

The effect of the opening of the Great Western Railway was also to reduce the charges of carriage on the Thames, as follows:

	Date	Cost by water	Cost by railway
London—Windsor	{ 1829	9s. per ton	—
	{ 1846	—	5½-6s. per ton
London—Reading	{ 1829	15s. per ton	—
	{ 1846	—	7-8s. per ton
London—Oxford	{ 1829	£1. 2s. per ton	—
	{ 1846	—	10-12½s. per ton

As soon as the Liverpool and Manchester Railway was opened, the former insolence of the navigations connecting these two cities was immediately abandoned, and under competition their rates had to be cut down. The rate on light goods carried on the canal was 15s. per ton; the railway reduced this to 10s. *Annual Register*, 1832, p. 445. See also Boyle, *Hope for the Canals*, pp. 5-6; Shaen, *Review of Railways and Railway Legislation*, pp. 33-34.

the reduction of the charge depended, of course, partly upon the conditions which prevailed before the railway came in; for if the canals had been charging unduly high rates the decrease was the greater, but if they had been contented with ample but not exorbitant profits the cut made in their rates was not so excessive. From these circumstances it will be seen that it is wholly impossible to make any explicit general statement that will be a close approximation to the truth; but from material collected elsewhere in this volume, we may say that, putting it at the minimum, the reduction in the rates was from one-third to one-half of the rates previously in effect on the navigations¹. On those waterways which were adjacent to the railways the reduction would, of course, be greater than on those more remote. On the basis of the diminution of the freight rates alone, however, we would not get an adequate conception of the influence of the railways, we must take into account also the entire change in the method of conducting business as a result of the more speedy conveyance. Orders given a long time in advance became more rare; retailers kept smaller stocks of goods; less capital was, therefore, tied up in unproductive forms; and, taking all things into consideration, there was probably a saving of at least seventy-five or eighty per cent. in the conduct of business.

The decreased revenues of the canals were reflected in the lower market values of some of the canal shares which had previously brought high prices; and the prices which ruled on the Exchange will be a corrective, if necessary, of the above-mentioned conclusion. For example, before the opening of the London and Birmingham Railway, the shares of the Grand Junction Canal were selling in 1833 for £250 and two or three years later for £303 to £330; but after the railway was in operation the shares of this canal fell to £155 in 1844, to £100 in 1846, and to £60 to £70 in 1853². These were on the par value of £100. By 1844 the shares of the Warwick and Birmingham Canal had fallen from £330 to £180, the shares of the Worcester and Birmingham from

¹ In Appendix 10 there have been brought together some tables which will illustrate the reduction of rates that was brought about by competition, and for detailed information the material there collated may for the present suffice. In making the general statement that railway competition caused a reduction of at least one-third to one-half of the previous navigation rates, we have endeavoured to keep well within the limits of accuracy, as revealed by the statistics given in Appendix 10. This conclusion is authenticated by the statement of a writer in the *Railway Times*, vii (1844), p. 217, who said that railways had caused a reduction of over 50 % in the cost of carriage of goods, and also by Teisserene, *op. cit.*, pp. 34-38, 571-4.

² Teisserene, *op. cit.*, pp. 34-35; Brit. Doc. 1852-3 (246), xxxviii, 175, 'Third Report on Railway and Canal Bills, Minutes of Evidence,' p. 14.



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£84 to £55, the Rochdale Canal shares from £150 to £61. 10s., and those of the Kennet and Avon Canal from £25 to £9 per share¹. We seem to be standing on firm ground, therefore, in saying that the revenues of canals which were parallel with railways were reduced from one-third to one-half. In some instances we see still greater changes; for instance, Coventry Canal shares, which at one time were as high as £1200, fell as low as £315²; and the shares of the Loughborough Canal, which before the opening of the railway sold as high as £1300 or £4400 each, had fallen to £1200 to £1500 in 1838, and to £180 to £200 in 1872³.

Usually, however, when competition between a railway and a chain of canals had gone on for a little time, so that the profits of each had been considerably decreased by the reduction in the charges for conveyance, the competing concerns made a working agreement, which put an end to the competitive efforts of the canals. In all cases, the railway company was the aggressive rival of the canals. Sometimes these agreements were made secretly; at other times they were initiated in secret but afterwards ratified by Parliament; and there were other instances where they were entered into at first by consent of Parliament. The nature of these arrangements varied in different cases; some were really pooling agreements, others were simply a tacit understanding in regard to rates, while many forms of leasing the canal tolls to the railway were also found⁴. These working agreements were first formed in

¹ *The Times*, July 20, 1844, p. 6. It would appear that the Rochdale Canal shares had been as high as five hundred guineas (£525). Brit. Doc. 1844 (318), xi, 17, 'Minutes of Evidence,' p. 488.

² *The Times*, July 20, 1844, p. 6.

³ Brit. Doc. 1872 (364), xiii, 1, 'Report of Committee on Railway Amalgamations, Minutes of Evidence' of Mr Alport, Q. 4348, and *A Few General Observations on Railways*, p. 20. See also Brit. Doc. 1844 (318), xi, 17, 'Fifth Report on Railways, Minutes of Evidence,' p. 76.

⁴ As examples of these early working agreements, we give the following:

The Manchester and Leeds Railway had for a long time been competing with the Calder and Hebble Navigation, both charging very low rates; then they made an agreement that the rates should be raised to a certain point, in consideration of which the railway company was to guarantee that the canal company's traffic should amount to a certain sum, and any excess beyond that sum was to be shared between them, the railway company having the right of putting inspectors on the canal to watch that the traffic that they had thus guaranteed was fairly conducted. This was done by consent of Parliament. Brit. Doc. 1844 (318), xi, 17, 'Fifth Report on Railways, Minutes of Evidence,' p. 110.

After the joining of Manchester and Leeds by railway, the canal route along this course came into conflict with a powerful rival. The railway company, however, had a difficulty to meet, in that they did not know what the canal charged. They said they charged certain rates, but they used to let 50 tons go as 20 tons. By the competition, the revenue of the canal was reduced from £70,000 to about £28,000 a year; and this induced the canal company to come to terms. In order to put a

the last years of the decade 1830-40, but they became much more numerous in the fifth decade, during and after the railway mania. Sometimes the entire length of a canal, or some important link in it, was leased to, or purchased by, or otherwise amalgamated with the railway which was its strong competitor. In some cases arrangements were made for the conversion of canals into railways; and the initiative for this sometimes came from the side of the railway and sometimes from the canal company. In certain instances the canal companies, in their opposition to railways, and with the concurrence of their engineers, promoted Bills to convert their canals into railways, or to construct lines of railway parallel to or in connexion with their waterways. But as it was to the advantage of the railways to bring all conveyance under their control, they considered it necessary to prevent canal companies from obtaining powers to make railways. On the other hand, the canal companies probably exaggerated the power of the railways to destroy their profits, and opposed the railways in order to get the latter to come to some favourable terms for the protection of the canal shareholders. At times a company organized to construct a railway found a canal which followed the direction of the line they had projected, and negotiated for the acquisition of it, in order to be able to utilize its channel, lands and other equipment to save money and economize time¹. In most cases, however, it was the canal

stop to such gross frauds and misrepresentation in regard to weights and rates, the Manchester and Leeds Railway Company, the Rochdale Canal Company, and the Calder and Hebble Navigation Company agreed that they should be fully informed of each other's rates, that these should not be changed without conference among themselves, and that the collection of dues should be more strictly attended to. Brit. Doc. 1844 (318), xi, 17, 'Minutes of Evidence,' p. 488.

In 1846, the London and North Western Railway Company made an agreement with the Birmingham Canal Company, consequent upon the following conditions: The Birmingham Canal Company were not only the owners of an important canal, but also of a good deal of adjacent land; and they were proposing to make a railway of their own very much in the course of the Stour Valley branch of the London and North Western Railway. That led to negotiations between the two concerns, and afterwards it was felt that if a railway were to be made and if the canal company were not to make it, but an independent company were to make it, the canal company ought to be guaranteed from loss. This guarantee was dated 1846, and assured four per cent. to the canal company if the canal did not earn that much. Brit. Doc. 1853 (252), xiii, 1, 'Minutes of Evidence' of Mr Evans, Q. 1493.

The North Staffordshire Railway, in applying for their Act, proposed to amalgamate with the Trent and Mersey Navigation. The railway company was to guarantee a certain percentage on the capital of the canal, on condition of their giving up the management of the canal to the railway company. Brit. Doc. 1846 (275), xiii, 93, 'Minutes of Evidence,' p. 57.

¹ On the whole subject of the conversion of canals into railways, see Teisserene, *Voies de communication*, pp. 29-30, 477-86. He gives examples of canal companies

companies, apparently, which were eager to have the railways take them over, either by purchase or by some form of working agreement.

By 1845 some of the possible evils of allowing railways to acquire too much control over canals had become evident: the railways had grown to be the predominant party in the contest, completely overshadowing most of the canals; and it was thought advisable that Parliament should give some encouragement to canals, as the weaker party in the competition. An Act was passed¹, therefore, in that year, giving to canals a similar power to that possessed by railway companies, of varying their tolls or of leasing their tolls to each other². By having this privilege canal companies might be enabled to work together and quote through rates on the long lines of canals—rates that would be less than the aggregate of the rates charged by each canal individually; or, one canal might take over the management of several adjoining canals, and, by reducing the rates of toll, make competition with the railways possible. This Act was passed for the purpose of obtaining “greater competition for the public advantage³.” In the Act passed in the same session to enable canal companies to become carriers of goods upon their canals, and to make working arrangements with, and to lease their canals to, other canal companies, we see the same object kept in view, namely, to place the canals more nearly on an equality with the railways, so as to permit even-handed competition⁴.

which were thinking of transforming their works into railways, and of railway companies that were planning to take over and utilize the equipment of canals. He shows that when the canal companies turned to the best engineers for guidance the advice given was usually favourable to the alteration of the canals into railways. See also the examples given in *Leeds Intelligencer*, Nov. 25, 1830, p. 3; *ibid.*, July 15, 1830, p. 4, and Oct. 7, 1830, p. 3; *ibid.*, Oct. 21, 1830, p. 3, letter from “A Constant Reader,” and note by editor; *ibid.*, Nov. 4, 1830, p. 3; *Railway Chronicle*, Aug. 30, 1845, p. 1115, editorial; *ibid.*, Aug. 2, 1845, pp. 931–2, on ‘Railway and Canal Amalgamation;’ *The Economist*, 1845, pp. 985, 994, 1015, and 1081. Sometimes canal proprietors were induced to convert their canals into railways because of lack of water to operate the canals. Sutcliffe, *Treatise on Canals*, p. 73. For other examples of railway companies becoming owners of canals, and for two instances of canals that were controlled, but not absolutely owned by railways, see *Report of Royal Commission on Canals and Waterways*, vii (1909), pp. 9–11.

¹ Act 8 & 9 Vict., c. 14.

² By the Railway Clauses Consolidation Act of 1845, railways were allowed to vary their rates, so as to work together with other railways in harmonious agreement, especially as to through rates.

³ Brit. Doc. 1852–3 (736), xxxviii. 447, ‘Fifth Report of Committee on Railway and Canal Bills, Minutes of Evidence,’ p. 69. Act 8 & 9 Vict., c. 14.

⁴ Act 8 & 9 Vict., c. 42. In 1840 a Bill had been introduced into the House for this same purpose, of allowing canal companies to be carriers and to make trallie arrangements with other canal companies. Brit. Doc. 1840 (405), 1, 237.

Canal companies were not commonly carriers before this time, although a few

How was this new legislation received by the railways? It was not long before the railway companies saw that the aim of the Canal Carriers' Act was to keep them from securing monopoly, by allowing the canals to collaborate and thus obtain harmonious action in the contest against their rival. But acute minds soon recognized also that this Act gave power to railway companies that had become owners of canals to obtain a control over other canals, without coming under the notice of Parliament; and under such a plan no opportunity would be afforded to Parliament of taking the course usually taken when sanctioning arrangements between railway companies, of investigating the terms of the proposed arrangement before confirming it, or of subjecting it to the approval of the Board of Trade. If a railway company could obtain a controlling interest in a canal it would then be entitled to rank as a canal or navigation company, and claim the privileges of traffic arrangements that were allowed by this Act¹. Accordingly, railways set to work to secure this standing, and thus make the statute that was intended for the benefit of their rivals, contribute to their own advancement. Having become in effect canal companies, through acquiring control over navigations, the railway companies were then

had been carriers for some time. The Bridgewater Trustees had been carriers on their canal, but, of course, it had been constructed and operated under the control of a private individual. The Trent and Mersey Canal Company had also been carrying for the public on their line. Other canal companies had been engaged in this carrying trade, but not under their own names. Even where the work was done by the canal company there were always other carriers who were doing the same work, upon payment of the tolls; and on the Bridgewater Canal a small part of the traffic was carried by the Trustees, while the larger part was taken by other carriers. Brit. Doc. 1844 (318). xi. 17, 'Fifth Report on Railways. Minutes of Evidence,' p. 169 et seq.; Brit. Doc. 1840 (437). xiii. 181, 'Fourth Report on Railways. Minutes of Evidence,' Q. 960. But it was a very rare thing that the canal companies did the actual work of carrying, either before or after the passage of the Act of 1845. As late as the year 1883, several witnesses advocated the carrying business being taken up by the canal companies, as well as by the private carriers; and it was said that at that time the system of carrying goods on the inland waterways was almost exclusively in the hands of the traffic senders, who put their own boats on the canals and paid the toll to the canal company (v. for example, Brit. Doc. 1883 (252), xiii. 1, evidence of Mr Lloyd, p. 23; also Brit. Doc. 1867 [3844], xxxviii. 1, evidence of Mr Wilson, Q. 10,021, p. 433).

¹ Brit. Doc. 1857-8 (411). xiv. 1, 'Report of Select Committee on Railway and Canal Legislation,' p. 40. The Act authorized the owners of canals and navigations to carry as common carriers on their own canals and navigations; to enter into arrangements with each other in the way that railway companies were authorized to do, so as to avoid the delays incident to a diversity of interests; to enter into agreements for the division and apportionment of tolls and charges; and to let the tolls and duties to be levied on any canal or navigation, or any railways or tramways belonging to them, to any other canal or navigation companies for a period not exceeding 21 years.

ready to enter into negotiations with other canal companies which were powerful rivals, and to make such agreements with them as would prevent their competing with the railways, so that the latter would have the whole field to themselves¹. In this way, the gentlemen of the railway managers or directors proved more than a match for the legislators, and the more powerful transportation rival was able to still further obtain the predominance. So great was the influence that might be acquired by railway companies which were in a position to make use of the powers conferred by the Act of 1845, that the Board of Trade suggested whether it might not be proper to place some restriction on the exercise by these companies of the power of entering into traffic arrangements with canal companies².

The impetus given to the amalgamation of railways and canals before the beginning of the railway mania continued in the following years, and in 1846 there were over 200 Bills presented to Parliament

¹ As an example of this strategy, we give some facts in the history of the Leeds and Liverpool Canal. Before the commencement of railway competition, the tolls on this canal for general merchandise varied from 1*d.* to 1½*d.* per ton per mile. To meet railway competition, the canal tolls were reduced to ¾*d.* to ½*d.* per ton per mile. As competitors for the traffic of the district traversed by this canal, there were three lines of railway, the London and North Western, the Midland, and the Lancashire and Yorkshire. These railways, having under authority of Parliament secured the property of certain navigations, and desiring to put down all competition for traffic in this district, engaged the Leeds and Liverpool Canal, in 1851, in consideration of an annuity of £41,860, to give up all competition and to practically close up their navigation by raising their tolls to a prohibitory figure, obtaining thereby for the united railways a complete monopoly of the traffic of that district. The arrangement was made to assume the appearance of a lease of the canal tolls, under the powers of the Act of 1845. The lease, however, was a fiction: the £41,860 yearly was paid, not as a rent, but in consideration of a rise in the canal tolls, which shut up the navigation and compelled the traffic to go by rail. While the canal was charging the aforementioned reduced rates, these three railways, together with the East Lancashire Railway, offered the Leeds and Liverpool Canal this annuity, the counter condition being an increase of all the canal tolls to 1½*d.* per ton per mile, which was an advance of 100% to 200% on the existing tolls. The canal accepted the annuity offered, but refused to allow the East Lancashire Railway to appear as a party to the transaction, since the latter did not have any canal whereby to legalize the agreement. The arrangement was therefore completed under the pretence of a lease of the Leeds and Liverpool Canal tolls, by the London and North Western Railway, as proprietors of the Huddersfield Canal, the Lancashire and Yorkshire Railway, as proprietors of the Bolton and Bury Canal, and the Midland Railway, as proprietors of the Ashby-de-la-Zouch Canal. The proportions in which the £41,860 was divided among the four railway companies were not publicly known. Brit. Doc. 1852-3 (736), xxxviii, 447. 'Fifth Report of Select Committee on Railway and Canal Bills, Minutes of Evidence' of Thomas Grahame, p. 69. For other instances, see Brit. Doc. 1857-8 (117), xxxi, 335, 'Report of Board of Trade on the Railway and Canal Bills of that Session,' p. 40.

² Brit. Doc. 1857-8 (117), xxxi, 335, p. 40.

containing provisions for uniting canals with railways¹. The committee that was appointed to look into this subject recognized the growing tendency to union and extension, with its advantages of harmonious management and its accompanying evils of monopoly; and they recommended the appointment of a department of the Government to provide more effective supervision of railways and canals². Still the amalgamations went on, with some effects that were detrimental to the public; and the committee of 1853, that was appointed to report on the railway and canal bills of that year, urged that working agreements between different companies, for the regulation of traffic and division of profits, should be sanctioned under proper conditions and for limited periods, but that amalgamation of companies should not be sanctioned except in special cases, where its object was to secure public benefit through economy of management³. They also recommended that the good results of such merging of interests should be retained, and the evils arising from them should be done away, by compelling every railway company to afford to the public, in regard to both goods and passengers, the full advantage of convenient interchange from one system to another⁴. Since competitors were able, in a great

¹ Brit. Doc. 1872 (364), xii, 1, 'Report of Select Committee on Railway Amalgamations,' under heading No. 8.

² Brit. Doc. 1846 (275), xii, 93, 'Second Report of Select Committee on Railways and Canals Amalgamations.'

The recommendations of this, the first committee on railways and canals amalgamations, are important, and we give them as follows:

(1) The imposition of a low scale of tolls and charges upon all parties to the amalgamation. In the case of canals, the scales of tolls were of much greater importance than in that of railways, for, in most instances, the public were the carriers upon the canals.

(2) Strict regulations should be made for keeping the canals in effectual repair and with a proper supply of water.

(3) The public must have the right of carrying passengers and goods on the canals.

(4) The privilege of making by-laws should be subjected to careful revision. By this means, many of the canal companies exercised much power and could prevent fair competition.

(5) Where a canal was converted into a railway, care should be taken that no district would be deprived of efficient means of communication.

³ Brit. Doc. 1852-3 (736), xxxvii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills,' pp. 20-21. If working agreements were entered into and found to be injurious, they could easily be dissolved at any time; whereas if amalgamations were allowed they would be permanent and could not be subsequently broken. Brit. Doc. 1865 (3), xlix, 219, p. 23.

⁴ Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills,' pp. 20-21. Running powers were generally discouraged on the score of danger, and were to be conceded only in cases where free transit

measure, to secure the benefits of combination by agreements with each other, without authority of Parliament, and there were many such private agreements¹, it became necessary for Parliament to adopt some means of protecting the public by compelling proper arrangements for traffic between the companies. For this reason, the Legislature acted in accordance with the recommendation of the above-mentioned committee, and in the following year passed the "Railway and Canal Traffic Act, 1854." This Act enunciated two principles: that every company should afford, both for passengers and goods, proper facilities for forwarding traffic, and that no preferences should be given². It was the first really important step in the direction of solving the difficulties that had arisen in connexion with the conduct of the traffic of railways whose interests were at variance with one another or with the interests of the public³. The Act also provided a summary remedy against

from one system to another could not be adequately ensured by other means (*ibid.*, pp. 20-21, No. 6). The Board of Trade in 1865 also opposed the granting of running powers, that is, conceding to one company power to pass over the lines of another company without the consent of the latter, on the ground of its being questionable from considerations of public safety (*ibid.*, p. 24; also 'Fourth Report of Select Committee of 1853,' p. 6).

¹ Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills,' p. 6. Here it is stated that such combinations of interests under private agreements were a matter of constant occurrence.

² Act 17 & 18 Vict., c. 31. Under this Act, "every railway company, canal company, and railway and canal company, shall afford all *reasonable* facilities for the receiving and forwarding and delivering of traffic upon and from the several railways and canals belonging to or worked by such companies respectively, and for the return of carriages, trucks, boats, and other vehicles, and no such company shall make or give any undue or unreasonable preference or advantage to or in favour of any particular person or company, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever." The rest of the Act gives provisions for its enforcement. Brit. Doc. 1854 (87), vi, 19; also Brit. Doc. 1854-5 [1965], xlviii, 1, 'Report of Railway Department of the Board of Trade for 1854,' pp. x, xi give the provisions of this Act.

The necessity for this Act may be further illustrated by the following instance: In 1853 there was a complaint sent to Parliament by the coal-owners in Lancashire, that the railway company did not provide locomotive power to meet their needs, and that their coal had been forwarded at the company's convenience, rather than their own. The company took higher class traffic, which paid higher rates, and left the coal, which paid lower rates. Then, too, the railway left the coal-owners' rolling stock and coal on sidings along the line, which required the maintenance of a larger amount of rolling stock. The complaint also alleged that there was much delay in sending back the empty waggons from London. Brit. Doc. 1852-3 (736), xxxviii, 447, 'Fifth Report of Select Committee on Railway and Canal Bills, Minutes of Evidence,' p. 4.

³ The Railway Department of the Board of Trade, in 1865, observed that the necessity there might formerly have been for allowing running powers were, to some extent, obviated by the passage of the Railway and Canal Traffic Act, 1854, and

railway companies for any violation of its enactments, by an application to the Court of Common Pleas¹; but despite this it remained for many years practically a dead letter.

As soon as the Traffic Act of 1854 had been passed, large numbers of Bills were laid before the House by railway companies, asking that authority be given to enter into various descriptions of agreements for working in connexion with other companies, or for forwarding or interchanging traffic with other companies. Out of a total number of 138 Bills introduced in 1854, seventy-five were for making working arrangements and this movement for working agreements increased in importance during subsequent years². Most of those that were authorized were for ten years, but the power of renewal at the expiration of that period was generally granted, subject, of course, to the approval of the Lords³. The reason why there were so many of these agreements consummated about this time was because the trunk lines had been laid out, and the many short lines that were being constructed had to be merged with them in order to acquire any stability of operation⁴. To have attempted to remain apart from one of the main lines would have been to invite ruinous competition from the other roads in the same district; and, on the other hand, it was for the public good that new lines, which were extensions of, or feeders to, existing lines, should form part of one or other of the great systems and thus facilitate intercommunication.

The amount of amalgamation that was effected between railways and canals we are unable to trace with minuteness through successive stages in the growth of the transportation system. Some had been accomplished before the railway mania of 1844-6; much more was

that they were necessary only where a company required to pass for a short distance over the line of another company to reach a station at which to deposit and receive traffic, or when such short piece of line was a link necessary for the completion of a special railway system. Brit. Doc. 1865 (3), XLIX, 219, p. 24.

¹ See also Brit. Doc. 1867 [3844], XXXVII, 1, 'Report of Royal Commission,' p. xxi.

² Out of 71 Bills introduced in the Session of 1858, there were 46 seeking sanction for working and traffic agreements. Brit. Doc. 1857-8 (117), XXXI, 335, 'General Report of the Board of Trade upon the Railway and Canal Bills of the Session of 1858,' p. 11.

³ Brit. Doc. 1854 (139), LXII, 441, 'Report of the Board of Trade on Railway Bills of 1854,' p. 1-t; also 1854-5 [1965], XLVIII, 1, 'Report of the Railway Department of the Board of Trade for 1854,' p. viii.

⁴ For the full text of the English and Scotch Traffic Agreement, among seven great railway companies, for apportioning the receipts from the Scotch traffic, see Brit. Doc. 1856 [2114], LIV, 1, 'Report of the Railway Department of the Board of Trade for 1855,' Appendix No. 4. Some other traffic agreements are given in *ibid.*, Appendix No. 5.

completed during those years; and the subjecting of canals to railway control went on more gradually subsequent to that time¹. By 1850 a considerable proportion of the canals had passed into the hands of the railway companies²; and by about 1865 that proportion had been increased, until nearly one-third of the total length of the canals and navigations of Great Britain had gone over to the railways³. From the report of 1872 we learn that there was a still greater extent of navigable waterways under railway control, amounting to about three-eighths of the whole⁴; and in 1883, in England and Wales alone, one-half of the total mileage of navigations had become allied with the railways and was no longer independent⁵.

¹ The statistics of such amalgamations from 1846 to 1852 are given in Brit. Doc. 1872 (364), xii, 1, pp. 755-6, and are found in Appendix 9.

² Brit. Doc. 1851 [1332], xxx, 1, 'Report of the Commissioners of Railways for the year 1850,' p. xix et seq.

³ Brit. Doc. 1867 [3844], xxxviii, 1, 'Report of the Royal Commission, Minutes of Evidence' of Mr Thomas Wilson, p. 428 et seq. Mr Wilson was hon. sec. of the Canal Association of Great Britain. The following summary is given (*ibid.*, Q. 9902-4):

Extent of navigations in England and Scotland, in 1865:	
109 canals, total length	2552 miles
49 improved rivers, total length	1339 ..
158 navigations, of a total length of	3891 ..
Of these 3891 miles of navigation,	
5 navigations have been converted into railways	68 miles
37 navigations have been amalgamated with railways	1026 ..
2 navigations were wholly or partly leased to railways and virtually amalgamated with them	177 ..
	Total 1271 ..

Therefore, about one-third of all the mileage of navigations had gone into railway hands.

The particulars in regard to this 1026 miles of amalgamated canals and the railway companies that had absorbed them are given in Brit. Doc. 1867 [3844], xxxviii, 1, 'Report of Royal Commission, Minutes of Evidence,' Q. 9906, pp. 428-9.

The extent to which the canals had passed under railway control, by 1872, is shown on the map given in Appendix R of the 'Report of the Select Committee (of 1872) on Railway Amalgamations,' Brit. Doc. 1872 (364), xii, 1.

⁴ Brit. Doc. 1872 (364), xiii, 1, 'Report of the Select Committee on Railway Amalgamations,' p. xx; also *ibid.*, pp. 755-6. We may take the total length of navigable waterways of Great Britain in 1872 to be the same as that of 1865, namely, 3891 miles. According to the returns of that year (1872), there were then 1544 miles of canal in Great Britain held by railway companies, of which 1300 miles were held in perpetuity and the remaining 244 miles under temporary tenure. Therefore, at that time, there was about three-eighths of the total length of canals under railway control.

⁵ Brit. Doc. 1883 (252), xiii, 1, 'Minutes of Evidence' of Mr Calcraft, Q. 3-6.

This subjecting of the inland waterways to the railways had its counterpart

We have already observed that the first effect of the introduction of a railway, as a competitor to a canal, was to cause the rates on the latter to be lowered; and by thus reducing the business and profits of the canal the railway company hoped to bring the canal proprietors to terms¹. But it sometimes occurred that a canal was able to maintain competition with the railway; and where this was the case, the railway was compelled to charge lower rates at competitive points, while it recouped itself by imposing higher rates at non-competitive points². On the passenger traffic the railways generally charged their maximum rates, because in that they had no competition; but on the goods traffic they charged much less than their maximum rates. In addition, the higher class goods, for conveying which the railways offered specially good facilities as compared with canals, were charged rates very much

in the railways obtaining a strong foothold in the external trade. By 1847 the London and South Western Railway Company had made a deed of settlement with a Steam Navigation and Packet Company connecting the channel ports with ports of the Continent, which gave the railway control of much of the trade between England and Europe. Brit. Doc. 1847 (164. iv), xxxi, 33 and 1847-8 (148 (30)), xxxi, 399, 'Reports of the Commissioners of Railways on the London and South Western Railway.' By 1858, the South Eastern Railway Company had obtained power to build, hire and work vessels for the purpose of affording communication between the ports of Folkestone, Dover, Hastings, Ramsgate, Margate, Rye, Whitstable, or Gravesend, and any port in France or Belgium. Brit. Doc. 1857-8 (117), xxxi, 335, 'General Report of Board of Trade upon the Railway and Canal Bills of that Session,' p. 37.

¹ See also Skey, *Report to the Committee of the Birmingham and Liverpool Junction Canal, on the Present State of the Competition between the Canal Carriers using that Line and the Grand Junction Railway Company*, p. 4. He shows how the railways lowered freight rates to a point which was disastrous to the canals, while at the same time keeping up their passenger rates, so that no individual canal carrier could long compete against a rival armed with such powers. Refer also to Boyle, *Hope for the Canals*, pp. 5-7, and Palmer, *British Canals*, pp. 19-20.

² In 1853 the rate on second class goods between Liverpool and Birmingham was 15s., but the rate between Manchester and Birmingham was 17s. 6d. The distance was about the same in both cases; but between Liverpool and Birmingham there was the competition between the canal and the railways [the Grand Junction Railway and the recently opened Shrewsbury line of railway], while between Manchester and Birmingham there was no such competition.

The following table of charges on the Midland Railway between Birmingham and intermediate places to Gloucester, and between Birmingham and several other points, will illustrate still more fully the difference in the railway rates where canal competition existed and where it did not.

Note that the charge between Birmingham and Gloucester, 53 miles, was 7s. 6d. per ton, whereas the charge between Birmingham and Cheltenham, 46 miles, was 10s. At Gloucester, the competition of the waterways kept down the rate, but at Cheltenham there was no such competition. Similarly in other cases. Note also that the rates on first and second class articles were the same to Bromsgrove and to Gloucester, although the distance in the former case was hardly one-third of that

higher than lower class goods, for which the canals could enter into fair competition with them¹.

After competition had proceeded to a certain length, and canals found it advisable to merge their interests with the railways, this step was usually accompanied by an increase of rates, especially on the more valuable goods², to a point higher than the competitive rates, and frequently higher than those which existed before competition became

in the latter (Brit. Doc. 1852-3 (246), xxxviii, 175, 'Third Report on Railway and Canal Bills,' p. 32).

Midland Railway rates between Birmingham and the following places:

	No. of miles	1st class		2nd class		3rd class		4th class		5th class		Smalls
		s.	d.									
Gloucester, in competition with Birmingham and Worcester Canal and Severn Navigation	53	7	6	8	4	12	6	20	6	40	0	9
Cheltenham, no competition	46	10	0	15	0	20	0	30	0	40	0	1 0
Droitwich } and } no competition	20	7	6	8	4	10	0	15	0	20	0	9
Bromsgrove }	15											
Worcester	26½	7	6	8	4	12	6	20	0	30	0	9
Hull, in competition with canals and Trent Navigation	134	20	0	20	0	25	0	30	0	40	0	1 3
Sheffield, no competition	86	20	0	25	0	35	0	40	0	60	0	1 0
York, no competition	129	26	8	30	0	33	4	40	0	60	0	1 6
Newcastle, in competition with navigations to Hull, and coasters to Newcastle	216	25	0	30	0	35	0	45	0	60	0	1 9

This same thing was observed by the Select Committee of 1872, from the testimony of several witnesses who appeared before that body. Brit. Doc. 1872 (364), xiii, 1, 'Report of Select Committee on Railway Amalgamations,' p. xxii; also 'Minutes of Evidence' of Messrs Nicks and Clegram, Q. 2919, 2987-8. See also *ibid.*, p. xxi, and 'Evidence' of Mr Wilson, p. 233 et seq.

¹ In 1853, from Birmingham to Liverpool and Manchester, the rate on the lowest class of goods was 11s. a ton, but on the highest class it was 30s. a ton. Brit. Doc. 1852-3 (246), xxxviii, 175, p. 32.

² This was done when the Manchester and Leeds Railway made an agreement with the Rochdale Canal and the Calder and Hebble Navigation. Brit. Doc. 1844 (318), xi, 17, 'Fifth Report on Railways, Minutes of Evidence,' p. 488. When the Birmingham Canal came under the control of the London and North Western Railway Company its tolls were raised; and the rate on iron going along that canal was 1½*d.* per ton per mile, while the rate on the Trent and Mersey, Bridgewater and Staffordshire and Worcestershire Canals was only ½*d.* per ton per mile. Brit. Doc. 1852-3 (170), xxxviii, 5, 'Second Report of Committee on Railway and Canal Bills,' p. 70.

...ative. In this way, independent canals began to find that their traffic was inconvenienced and injured by the high rates on the canals that were joined to railways, because by raising their rates to a point that was almost prohibitory to private carriers the railway-controlled canals not only drove the carriers off their own waterways but also materially aided in driving them off the independent canals. If carriers could not secure sufficiently favourable terms from all the canals to which they had to go, it was frequently useless for them to make any attempt at carrying; for to carry on a short stretch of canal, and then be compelled to transfer to a railway, or pay the high charges of the latter's canal, was wholly destructive of any advantages from water carriage¹. This increase of railway and canal rates was but another phase of the general policy of the railways to realize the utmost results from their monopoly, and to secure ample returns for losses sustained during what were sometimes prolonged periods of competitive rate cutting.

The policy of the railways in regard to the canals was, in all cases, to drive the traffic from the water to the rails. From the earliest days of the competitive period this tendency was manifested and its dangers recognized; but the problem was how to secure the canals from the interference and control of the railways, and to afford the former a good opportunity of testing their capabilities as a rival system². It would have been an easy matter for Parliament, had its members foreseen the outcome, to have passed legislation forbidding the railways doing anything that might prejudice canal interests, but that would not prevent *private* negotiations which looked toward a settlement of difficulties that would be acceptable to both the parties concerned. In contrast to this lack of knowledge on the part of the Legislature, there was the enterprise of the railway companies, which pursued their aim with steady and determined zeal. There were constant warnings given to Parliament against Bills which, if passed, would involve new or increased inducements to divert traffic from canals to railways; but in the face of these, the latter kept up the contest with their rivals.

¹ Brit. Doc. 1852-3 (246), xxxviii, 175, 'Third Report of Select Committee on Railway and Canal Bills,' evidence of Mr Mellish and Mr Loch, p. 26. The committee of 1872 reported that "Where Railway Companies amalgamate, or where Railway Companies acquire a navigation, the result is usually an increase of rates." Brit. Doc. 1872 (364), xiii, 1, 'Minutes of Evidence,' p. 332. See also Brit. Doc. 1881 (374), xiii, 1, 'Report of Select Committee on Railway Rates and Fares,' evidence of Mr Hingley, Q. 5489, 5659. In Appendix 11, we have brought together some tabular statements of freight rates, showing how much they were raised by the amalgamation of railways with canals.

² Brit. Doc. 1846 (275), xii, 93, 'Second Report of Select Committee on Railways and Canals Amalgamations.'

Sometimes canals were purchased or leased by the railways, frequently at a loss so far as the revenue from the waterways was concerned, and then their free use was forbidden to the public, through the imposition of prohibitory tolls¹. In other cases the railway companies used their passenger traffic as a means by which they could put down their freight rates and thus appeal to shippers, from the standpoint of economy, to patronize the railway. Then, when the canal companies or other carriers on the waterways had found it impossible to compete for traffic, and had sold their stock of horses, it would be hard for them ever again to get back their traffic, since the public had become accustomed to having their goods carried by the faster conveyance of the railway². In some instances, railways neglected or refused to repair the canals they held; and although the necessity for keeping them in good condition had been early shown to Parliament³, yet they

¹ Brit. Doc. 1881 (374), xiii, 1. 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Lloyd, Q. 10,181-2. In that year the Great Western had practically £1,000,000 invested in canals, and the net revenue was only £276 (in 1880). For some of these canals they had to pay rent charges of £8243, so that on the canals the company lost £7967; but this closing of the canals was to bring the traffic on to the rails. Some of these canals they were forced by Parliament to purchase when they obtained power to construct their railways (v. Brit. Doc. 1881 (374), xiii, 1. 'Minutes of Evidence,' Q. 13,720). See also Brit. Doc. 1846 (275), xiii, 93. 'Second Report of Committee on Railways and Canals Amalgamations, Evidence,' p. 47. The oppressive policy of the Birmingham Canal Navigation, controlled by the London and North Western Railway Company, was notorious (see example given in Brit. Doc. 1881 (374), xiii, 1. 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Spence).

As showing to what extent the Great Western Railway Company diverted the traffic from three of the most important of the canals of which it got control, note that on the Hereford and Gloucester Canal, in the thirty years following 1848, the gross receipts had decreased seventy per cent. During the same period, the receipts on the Stratford-upon-Avon Canal decreased seventy-seven per cent.; and in the same time the receipts of the Kennet and Avon Canal decreased eighty-seven per cent. That is, during that time, in the case of these three canals, seventy, seventy-seven and eighty-seven per cent. respectively of the traffic had been shunted on to the rails. Brit. Doc. 1881 (374), xiii, 1, evidence of Mr Spence.

The tolls on the Leeds and Liverpool Canal, during the time it was under the control of the London and North Western Railway, were the maximum rates, and were as much as the through freight rate on the railway. This, of course, prevented the use of the canal, and it was in reality closed up. Brit. Doc. 1872 (364), xiii, 1. 'Report of Select Committee on Railway Amalgamations,' Q. 5772.

² Brit. Doc. 1846 (275), xiii, 93. 'Second Report of Committee on Railways and Canals Amalgamations, Evidence,' p. 35; also 1852-3 (246), xxxviii, 175. 'Third Report of Committee on Railway and Canal Bills, Evidence,' p. 16.

³ Brit. Doc. 1846 (275), xiii, 93. 'Second Report of Committee on Railways and Canals Amalgamations; Recommendations of the Committee,' among others that "strict regulations should be made for maintaining the canals in an efficient state of repair, and for securing a proper supply of water."

were allowed to decline¹. Notwithstanding the passage of the Act of 1873, requiring railway-controlled canals to be kept open and navigable for the public without interruption and delay², and that Parliament in many cases tried to annex conditions to the amalgamation, compelling the companies to maintain the canals in an efficient working state³, many of these canals went from bad to worse; they became silted up, the locks became broken, and the navigation fell into disuse⁴. From what we have just said, we can easily see how the railways could draw to themselves the traffic formerly carried on competing canals, and leave the latter in a state of hopeless decay.

An examination of the English canals to-day reveals the fact that the amount of traffic carried on them, *tout ensemble*, is comparatively insignificant. By way of summary, we shall now note some reasons for their failure to compete successfully with the railways. To discuss this fully would require a more minute investigation of the policy and management of each than we have the space here to describe; and so we shall endeavour to give only the salient factors which bear upon the problem.

In the first place, the disjointed state of the canals prevented their being used to advantage. Very few of them had the same dimensions⁵. They were constructed usually as short independent canals, and not as long through routes. Their dimensions were made to accord partly with the amount of money that had been subscribed or contributed

¹ Brit. Doc. 1872 (364), xiii, 1, 'Report of Select Committee on Railway Amalgamations,' p. xxii; also *ibid.*, 'Minutes of Evidence' of Messrs Clegram (Q. 2936) and Lloyd (Q. 5041). See also Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence,' Q. 10,184-8; and Brit. Doc. 1883 (252), xiii, 1, 'Report of Select Committee on Canals, Evidence,' Q. 564, 630, 632-3.

² Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Lloyd, Q. 10,194.

³ Brit. Doc. 1872 (364), xiii, 1, 'Report of Select Committee on Railway Amalgamations,' p. xxii; also 'Evidence' of Mr Bartholomew, Q. 577c.

⁴ The Act of 1873 was not enforced, because it would have cost the public too much to enforce it on account of the legal complications involved. Brit. Doc. 1883 (252), xiii, 1, 'Report of Select Committee on Canals, Evidence' of Mr Lloyd, Q. 564. As to the manner in which that Act was evaded, see Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Spence, Q. 10,438 et seq.

⁵ See Brit. Doc. 1872 (364), xiii, 1, 'Report of Select Committee on Railway Amalgamations,' Part II, Appendix X, which gives in detail the dimensions of all the navigations. With depths of water varying from 4½ feet to 14½ feet, widths varying from 7 to 22 feet, and corresponding variations in length of locks, it would be difficult to get any boats that could be used to good effect on a through route. See also Palmer, *British Canals*, pp. 19, 22; Boyle, *Hope for the Canals*, pp. 29-30.

by the stockholders of the individual companies for the completion of their works, and partly with the difficulties that had to be overcome in the location of the canal, or the soil through which it had to pass. When a Bill was presented before Parliament, the proposed canal was considered solely on its own merits, and not in regard to any connexion that it might have in future with any other. Not only did the original dimensions of the canals show wide diversity, but changes were sometimes made in these, at times when improvements were subsequently carried out¹. Even on the same canal, there were sometimes differences in the size of the locks which had been constructed². This lack of uniform gauge was utterly destructive of any economy of operation. If a barge were required to go along a through route, its carrying-power and dimensions had to be limited to suit the smallest locks on the route. If one boat were not to be used throughout the course, there had to be frequent loading and unloading from one barge into another. Both these methods of carrying were wasteful: the former in the utilizing of the capacity of the boats and canals, and the latter in the employment of time and labour. So also, the canals with large locks often consumed a large portion of their water inefficiently without passing an effective cargo, while on the narrow canals the carriers were greatly restricted as to the weight they could take. These discrepancies of gauge were wholly subversive of the greatest usefulness of the canals³.

¹ Brit. Doc. 1883 (252), XIII, 1, 'Report of Select Committee on Canals, Minutes of Evidence,' p. 38, Q. 785-92.

On the Aire and Calder, for example, the locks were originally 60 feet \times 15 feet, with a depth of water of 3 feet 6 inches. Under the Act of 1776 the locks were made 66 feet \times 15 feet and the depth of water 5 feet. Under the Act of 1828, the locks were made 72 feet \times 18 feet and 7 feet depth of water. After 1860, the locks were made 215 feet \times 22 feet and 9 feet depth of water.

² Brit. Doc. 1883 (252), XIII, 1, 'Evidence' of Mr Bartholomew, Q. 804. On the Leeds and Liverpool Canal, the locks on the Yorkshire side were 66 feet \times 15 feet 2 inches, and were capable of admitting boats 60 feet \times 14 feet 6 inches; but on the Lancashire side the locks were 76 feet \times 15 feet 2 inches, and they would receive boats 70 feet \times 14 feet 6 inches.

On the canal route connecting the river Severn at Saul with the Thames at Abingdon, the Stroudwater Navigation gauge was 75 feet \times 15 feet, the Thames and Severn Canal gauge 75 feet \times 12 feet 6 inches, and the Wilts and Berks Canal gauge 80 feet \times 7 feet. The Thames alone had three gauges upon it, the gauge in every case being regulated by the size of the locks (*ibid.*, 'Evidence,' Q. 107).

³ Canals could not now be economically widened so as to make a uniform gauge, because of the fact that tunnels, stone bridges, etc., along the routes could not be widened except at vast expense. In one case, we are told, the canal runs under the houses in Manchester. This certainly could not be made wider. Brit. Doc. 1883 (252), XIII, 1, 'Report of Select Committee on Canals, Evidence,' Q. 1700-1. See also Boyle, *Hope for the Canals*, p. 23.

Another reason for the failure of the canals was the lack of unity of management, due to the great number of companies which controlled them. In 1883, between London and Liverpool there were three distinct routes: on the first there were nine different canals and navigations, on the second route also there were nine different companies, and on the third there were ten separate companies¹. From London to Bristol there were four routes: on the first, via the Kennet and Avon, there were three companies; on the second, via the Wilts and Berks Canal, there were five companies; on the third route, via the Stroudwater Canal, there were three companies; and on the fourth route, via the Warwick Canal, there were nine companies, and this was the only one in practical use². From Birmingham to Bristol there were three routes³. Between Hull and Liverpool there were four ways: on the first route, via the Leeds and Liverpool Canal, there were four separate companies; on the second, via the Rochdale Canal, there were seven companies; on the third, via the Huddersfield Canal, there were nine companies; and on the fourth route, via the Trent and Mersey Canal, there were at least five navigations⁴. If, in 1883, there was such lack of unity, it could not have been less, but, possibly, more diverse in the period before the middle of the century; and these conditions have not been improved since 1883⁵.

¹ Brit. Doc. 1883 (252). xiii. 1, 'Report of Select Committee on Canals, Evidence,' Q. 231.

² *Ibid.*, 'Evidence,' Q. 232.

³ *Ibid.*, 'Evidence,' Q. 233.

⁴ *Ibid.*, 'Evidence,' Q. 234. In all these cases, the navigable tideways, such as the Mersey, Severn, Ouse, Humber, etc., are included as separate jurisdictions. Compare *ibid.*, 'Evidence,' Q. 783-4.

⁵ The 'Final Report of the Royal Commission on Canals and Waterways, 1909,' vii. p. 16, gives a few illustrations of this diversified control. For example: "Taking Birmingham as a centre, we will assume that it is proposed to despatch thence three cargo boats, one to the port of London, one to that of Liverpool, and one to Hull, by the most direct routes. The boat which went to London would have to traverse some portion of the Birmingham Canal system, next 22 miles of the Warwick and Birmingham Canal, next 14 miles of the Warwick and Napton Canal, then 5 miles of the Oxford Canal, then either 93½ miles of the Grand Junction Canal to Brentford, and finally the Thames,—or else 100½ miles of the Grand Junction Canal to Paddington, and finally 8½ miles of the Regent's Canal to the Thames at Limehouse. All these waterways belong to different authorities. A cargo proceeding to the port of Liverpool would traverse first some part of the Birmingham Canal, then 2½ miles of the Birmingham and Warwick Junction Canal, then 17 miles of the Birmingham and Fazeley Canal, then 5½ miles of the Coventry Canal, then 60 miles of the Trent and Mersey Canal, and would then go, probably not without transshipment, by 12 miles of the Weaver Navigation and then by the Mersey to Liverpool, or, without going down the Weaver, proceed by the Trent and Mersey to its junction with the Bridgewater Canal at Preston Brook, and by that canal to the Manchester Ship

In connexion with this want of unity of management along all the great through routes, some of the canal companies, whose waterways formed central links in a longer chain, took advantage of their peculiar position to raise their rates so as to secure for themselves the largest possible return on their investment, even upon a small amount of traffic¹. When the different canals along a through route would not work in harmony, it was impossible to get a through rate that might enable the carrying to be conducted at a profit to all, for the other companies that were not so advantageously situated would be obliged to reduce their rates below a reasonable minimum if the amount of the through rate were to be made acceptable to the carrier. If the canal companies, therefore, would not adopt concerted action, there certainly could not be any fair competition with the railways². The jealousy that existed between adjoining canals during the time preceding and immediately succeeding the introduction of railways is well exemplified in the junction or bar tolls. They were a sort of protective system, originally granted to the existing canals, so that whenever any new canal formed a junction with them the older canal could charge the amount of the bar toll merely as a gratuity for allowing traffic to enter

Canal, and this to the Mersey; but as the narrow boat could not navigate the estuary, transhipment would be necessary. A cargo going to Hull would pass over some miles of the Birmingham Canal, 5½ miles of the Coventry Canal, 26 miles of the Trent and Mersey Canal, 9½ miles of the Trent Navigation, 2½ miles of the Nottingham Canal, 21 miles of the Trent Navigation, 4 miles of the Newark Navigation, 30 miles more of the Trent Navigation, 26 miles of the open Trent River, and then 18 miles of the Humber. Transhipment, probably at Nottingham, would be necessary." On this subject, for the earlier period before 1850, see Boyie, *Hope for the Canals*, pp. 23-24; Palmer, *British Canals*, pp. 19-23.

¹ Brit. Doc. 1846 (275), XIII, 93. 'Second Report on Railways and Canals Amalgamations,' p. iv. As a special instance of a canal taking advantage of its position to raise its rates, we may mention the Grand Junction Canal, which extends from Paddington to Braunston where it joins the Oxford Canal. The Grand Junction Canal was an important link between London and the great mining and manufacturing sections of Warwickshire, Cheshire, Staffordshire, etc. It was a monopoly without competitor; its exactions, excessive rates, discriminatory rates, and its supercilious conduct caused loud and general complaints even as late as 1836. Mercator, *Tonnage Rates on Grand Junction Canal*, pp. 8-24. The Oxford Canal had pursued a similar policy. See also Palmer, *British Canals*, p. 19.

² About 1847 the Aire and Calder Navigation offered to lease the Calder and Hebble Navigation at a guaranteed net dividend of sixteen per cent., but the offer was refused. This high rate of dividend was surely a tempting offer, and why it was rejected we do not know; but it was not more than two years before railway competition had caused such a decrease of the revenues of this navigation that they were able to divide but eight per cent., or one-half of the dividend that had been guaranteed by the Aire and Calder. *Herepath's Railway and Commercial Journal*, XI, p. 1241.

their canal at will¹. These bar and compensation tolls were sometimes so extraordinarily high that they alone amounted to a sufficient income to pay a large dividend on the canal capital². With such onerous charges upon the carriage of goods on the canals, it is no wonder that the through traffic declined and that the railways came to have the upper hand. Of course, when such canals passed into the control of the railways, these tolls were still continued; for it was the railway policy to divert all the trade from the canals to the rails, and this formed a useful auxiliary agency in the carrying out of this plan³.

¹ Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Lloyd, Q. 10,174. We must not confuse these bar tolls with the bars which were occasionally allowed to remain between two canals that almost formed a junction end to end. For example, by Act of 1791 for making the canal from near Worcester to Birmingham it was provided that this canal should not come within seven feet from the end of the Birmingham Canal without the consent of the proprietors of the Birmingham Canal in writing under their common seal. Up to 1815 this bar, of the width of seven feet, still remained to prevent any passage from one canal into the other or to prevent any waste of water out of one canal into the other. Over it bar all the traffic between the two canals had been conveyed out of boats upon one canal into boats upon the other. In that year, the Worcester and Birmingham Canal obtained the consent of Parliament to remove this bar, upon condition that the Birmingham Canal might not be injured in any way, and this canal agreed to the removal of the bar upon these conditions (*v. Case in Support of the Bill for removing the Bar between the Birmingham, and the Worcester and Birmingham Canals*, Birmingham Free Reference Library, No. 87,368). See also *Herepath's Railway Magazine*, N.S., iv, p. 373, address by "A Canal Proprietor."

² Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Lloyd, Q. 10,174-6. See also the examples given in Shaen, *Review of Railways and Railway Legislation*, p. 31.

The Oxford Canal Company, at the junction of this canal with the Warwick and Birmingham Canal at Napton, by authority of its Act, was allowed to take a toll of 2s. 9d. per ton upon coal, and 4s. 4d. per ton upon all other articles. This was not for any service rendered, but merely for allowing traffic to pass from the other canal into the Oxford. In the first twenty years from the opening of the Warwick and Birmingham Canal, the Oxford Canal received a quarter of a million in bar tolls at that junction, which was enough to pay a ten per cent. dividend on the entire cost of construction.

The Grand Junction was a still more extraordinary case. This canal joined the Oxford Canal, seven miles from the junction of the latter with the Warwick and Birmingham Canal at Napton, and here there was a compensation toll of 6d. a ton leviable on all coal turning towards Oxford, which, in reality, never went within seven miles of the Grand Junction Canal, and in which they never could have any possible interest. Mercator, *Tonnage Rates on Grand Junction Canal*, p. 24, says: "The trade of the country at the present day (1836) groans under the excessive imposts and complicated system of the Grand Junction Canal and the abominable tolls," called compensation tolls, paid to the Oxford Company.

³ That the railways took the full amount of these bar and compensation tolls on their canals, is evident from Brit. Doc. 1872 (364), xiii, 1, 'Report of Select Committee on Railway Amalgamations,' p. xxi; also 'Evidence' of Mr Lloyd,

The railway companies, seizing upon this diversity of management in the canals, purchased or leased the important links of through routes, raised the tolls on these divisions to the utmost limit allowed by law, and thus made it impossible for the companies that owned the remainder of the lines of canal and for the common carriers on a through route to maintain their traffic in competition with the railways. This was one of the earliest and most effective ways which the railways used for breaking up and paralyzing whole chains of waterways¹. The railway companies seldom, if ever, had possession of the whole of such a canal route, for that would require too much capital to be tied up in unproductive business, especially when the control of a few miles would answer the purpose they had in view just as effectively. But besides putting up the tolls on their canals, the railway companies, in some cases, contrary to statute, neglected or refused to keep their canals in repair².

Q. 5031-32; also Brit. Doc. 1881 (374), xiii, 1, 'Report of Select Committee on Railway Rates and Fares, Evidence,' Q. 10,180, 10,209-10. The independent canals abolished their bar tolls (*ibid.*, Q. 10,177).

¹ Brit. Doc. 1846 (275), xiii, 93, 'Second Report of Committee on Railways and Canals Amalgamations, Evidence,' p. 42; 1852-3 (170), xxxviii, 5, 'Second Report of Committee on Railway and Canal Bills, Evidence' of Mr Pixton; also Brit. Doc. 1872 (364), xiii, 1, 'Report of Committee on Railway Amalgamations,' pp. xxi-xxii. Mr Acworth, who is, doubtless, the greatest railway economist of England, in an article in the *Economic Journal*, June 1905, pp. 149-55, takes issue with the statement that railway companies "strangled" some of the canals which came into their possession or control. Whether we use the word "strangled" or not is a mere question of nomenclature; but it is undoubtedly true that when some of the important canal links came under railway dominance their day as free-acting agents ceased. From that time onward, their policy was dictated by the railway companies into whose hands they had passed. This will be evident to those who consult the references I have here given for this paragraph. See also Palmer, *British Canals*, pp. 76-77. We are perfectly willing to admit that in many cases the canals were desirous of selling out to the railways, and in doing this they were acting from the motive of self-interest. We may as well admit the application of the same legitimate principle on the part of railways, which negotiated for the taking over of certain canals in order to further their own economic interests.

² Brit. Doc. 1872 (364), xiii, 1, p. xxii; Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence' of Mr Lloyd, Q. 10,162. On the Stratford-upon-Avon Canal, owned by the Great Western Railway Company, Mr Lloyd said that a boat would make very good speed if it went one-and-a-quarter to one-and-a-half miles per hour; and similarly for the trade on the Hereford and Gloucester Canal, owned by the same Company. See also *London and Birmingham Railway Bill, Extracts from the Minutes of Evidence given before the Committee of the Lords on this Bill*, pp. 3, 10; Palmer, *British Canals*, p. 28. Many of the canals had remained in nearly the same condition as when they were first put into operation, their course was needlessly circuitous, their tunnels were small and inconvenient, they were inadequately supplied with water, and in the case of most companies no effort had been made to progressively improve the canals so as to keep them abreast of the development of the country and its expanding trade. Palmer, *op. cit.*,

and in other cases closed them at nights or stopped them for repairs just at the times when there would have been most traffic for conveyance¹. Notwithstanding the reiterated recommendation by successive Parliamentary committees that every means should be adopted for the maintenance of effective competition by the canals against the railways², the latter acquired possession of more and more of the strategic canal links, until the competition of the canals was stilled; or, in the words of Mr Conder, the canals were "struck with creeping paralysis with all those obstructions³." The Joint Select Committee of 1872, which investigated the railway and canal amalgamations, considered that "the most important method by which the railway companies have defeated the competition of canals has been the purchase of important links in the system of navigation and the discouragement of through traffic," and the great complaint against the railways still is that they tend to discourage traffic from going on the water routes⁴. Now it may be strictly true, although even this is open to question, that the railways did not acquire the canals with the deliberate intention of throwing obstacles in the way of their traffic development. It may not be just

¹ As much of the canal traffic was customarily carried at night, the railways would close their canals at night. Brit. Doc. 1872 (364), xiii, 1, 'Report of Committee on Railway Amalgamations,' p. xxii, also evidence of Mr Clegram, Q. 2936-8, and Mr Lloyd, Q. 5041. In other cases, there would be a failure of the water supply, or the necessity of stopping for repairs at certain seasons when the canal would have been most used, and this would go on for weeks at a time.

² See, for example, Brit. Doc. 1846 (275), xiii, 93, 'Second Report of Committee on Railways and Canals Amalgamations,' under heading "Conclusion;" Brit. Doc. 1872 (364), xiii, 1, 'Report of Committee on Railway Amalgamations,' p. xxiii, "Resolutions of the Committee."

³ Brit. Doc. 1883 (252), xiii, 1, 'Evidence before Select Committee on Canals,' p. 128, Q. 2447.

Mr Grierson, the General Manager of the Great Western Railway Company, in 1881, before a Committee of Parliament, testified that in many cases the railways were forced to purchase the canals; that his company were possessors of several canals which Parliament forced them to purchase when they obtained the Act giving them power to construct their railway (v. Brit. Doc. 1881 (374), xiii, 1, 'Report of Committee on Railway Rates and Fares, Evidence,' Q. 13,720). Mr Farrer, Secretary to the Board of Trade, also said that the purchase of certain canals was made compulsory, in consequence of the terms Parliament imposed upon the railway companies when applying for their Acts. Furthermore, the railway companies sometimes found it a matter of policy to buy off the opposition of the canal interests through the purchase of the canals. In the case of the Stratford-upon-Avon Canal, the committee would not allow the Bill to pass unless the railway company did absorb the canal (Brit. Doc. 1881 (374), xiii, 1, 'Evidence,' Q. 16,466-7, 16,488-9).

⁴ 'Final Report of Royal Commission on Canals and Waterways,' 1909, vii, p. 79, paragraph 381, and p. 77, paragraph 412.

to say with some that railway companies (except perhaps in a few instances) acquired canals in order to strangle them. But it certainly is true to say that railway companies which have, in various ways, come into possession of canals feel, in most cases, little desire to do more than their barest legal duty in maintaining them. There seems no doubt but that they favour what they consider to be by far their most important business, that of placing all possible traffic on their lines of railway¹. Where railway companies find it to their interest to maintain and improve their canals so as to promote trade on them they do so, though perhaps not always with successful results; but in the larger number of cases the railway companies seem to have neglected to promote, if not actually to have impeded by high tolls and otherwise, the traffic on the canals which they have acquired. The cases in which railway companies have a more or less strong interest in developing the trade upon canals which belong to them are exceptions to the rule². But we must not suppose that it was the railway-owned canals alone which were allowed to fall into partial or total decay; as a matter of fact, many of the independent canals were fully as bad as those which were controlled by railways³.

Along with the foregoing physical factors leading to the relative decline of the canal traffic, we must include another element which has been alluded to incidentally in several cases, namely, the fact that the canals were easily stopped or injured by frost, drought, and occasionally flood. This was one of the strong reasons put forward by the advocates of the railways, and there was ample justification for the desire to get rid of a system which entailed so much uncertainty and delay. To have goods stopped for weeks and sometimes months on account of the inability to navigate the canals, was subversive of all system in commercial life⁴. The business community was coming to depend more and more upon regularity in the transportation of commodities, and as the waterways could not assure this they were gradually abandoned in favour of an improved means of conveyance which could provide this desideratum.

¹ 'Final Report of Royal Commission on Canals and Waterways,' 1909, vii, p. 77.

² *Ibid.*, pp. 74-76.

³ Brit. Doc. 1883 (252), xiii, 1, 'Evidence before Select Committee on Canals,' Q. 1343.

⁴ *London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Committee of the Lords on this Bill*, pp. 3, 6, 9, 10; *Great Western Railway Bill. Minutes of Evidence taken before the Lords Committee to whom the Bill was committed*, pp. 7, 8, 11, 408; *Manchester Guardian*, Jan. 29, 1831, p. 1, Report of the Manchester and Leeds Railway; *Birmingham Journal*, Sept. 9, 1826, p. 3, and Mar. 5, 1831, p. 3, statement of E. T. Moore; *The Times*, Jan. 30, 1802, p. 3; May 16, 1826, p. 2; Nov. 7, 1826, p. 2.

The next adverse feature was the lack of tone and spirit in the system itself, and the failure, due partly to inability and partly to indifference, to adapt themselves to the changing circumstances of the times. Barges were started on their journeys, not at definite times, but whenever the carriers had enough cargo to warrant their putting their horses on the tow-path. The arrival and departure of boats took place at all hours, and the horse with his feeding can attached to his mouth sauntered listlessly on his way, while those in charge of the boats systematically pillaged the goods and made frequent stops at the public-houses along the canals where time was squandered in drinking. In addition to this lack of punctuality in the delivery of goods and the frequent losses and delays, there was much difficulty in procuring rates and general information, since these were not publicly announced. The uncertainty, partiality and inconsistency of the carriers' charges, because of their being made without reference to any fixed rule; the want of promptness in rectifying errors and settling claims; and the general looseness of system and absence of unanimity or understanding among the various departments of the canal companies, conspired to perpetuate complaints against the whole system. The great number of independent carriers engaged upon the canals multiplied the number of transhipments, for besides having to tranship at the termini of the various canals, a similar transfer had to be made at each commencement and termination of a carrier's stage. In this way a loose, disjointed and uneconomical method of forwarding goods was imposed upon the shipper, and the number of hands through which the goods passed added needlessly to the cost and often precluded the fixing of responsibility for injury or loss. Moreover, the carrier, instead of having his business divided naturally into three departments for attending to the receiving, the conveyance and the delivering of the goods, each of which should have been in charge of a separate official and all joined under the supervision of one general head, sometimes required one person to attend to two or more things, in different places, at the same time. While the man was doing his work in one capacity, such as attending to the loading or unloading of a barge, he must have been neglecting it in another, such as receiving goods and making out an invoice for them; and it is no wonder, therefore, that disputes arose in regard to goods that went astray or that were not delivered. This lack of method, of system, of business acumen, in the conduct of the carriers' affairs must have been a potent reason of the decay of canal traffic when railway activity began¹.

¹ Boyle, *Hope for the Canals*, pp. 19-29; Grahame, *Treatise on Internal Inter-course and Communication* (1834), pp. 28-29.

Another reason for the failure of the canals to successfully compete with the railways was that they were at a great disadvantage on account of being unable to carry passengers. The large revenues from passenger traffic enabled the railways to lower their charges for the carriage of freight to such an extent that the canals, in meeting these lower freight rates, failed to make sufficient profit, and were, therefore, compelled to relinquish their hold on the carrying trade, or else to amalgamate with the railways¹. The latter, by charging the maximum fares for passengers, could make the receipts from this traffic pay all the fixed charges of the road, and allow the goods to be carried at so low a charge that the canals could not meet this rate for any length of time. The hope early expressed, that the canals could compete with the railways in the carriage of heavy freight, was not long in being deposed from the public mind: and the railways assumed the place of carriers *par excellence*².

Finally, canal traffic declined because of a psychological reason. The discovery of railways as a means of transport, surpassing both in speed and economy any that were already in existence, so took the civilized world by surprise that the public were carried away with the thought of its possibilities. The canal traffic was carried on comparatively quietly and unseen, there was nothing fast about it. The sight of an occasional horse passing through the country, mounted or driven by a boy, and hauling an insignificant looking barge which was managed by one or two persons, excited no surprise on the part of anyone. In reality, most of the canal conveyance was effected at night, when it would be recognized by very few. On the other hand, the railway had an appearance of grandeur and ostentation that charmed the public. It seemed the embodiment of enterprise and boundless capabilities. The enormous trains conveyed across the country at a speed of twenty to thirty miles an hour contrasted strongly with even the best speed of the fly boats on the canals, going two and one-half to four miles an hour. The effectiveness of the engine and the substantial road-bed and rolling stock were all matters of wonder. The promptitude of train schedules was a radical reversal of the policy of the canal carriers, who, in the conduct of their business, had no schedule to which they adhered, but set out with their load whenever it was ready. When confronted with these

¹ Brit. Doc. 1846 (275), XIII, 93, 'Second Report of Committee on Railways and Canals Amalgamations,' p. iv; and 'Evidence' of Mr R. Scott, p. 60, Q. 555. See also Brit. Doc. 1852-3 (246), XXXVIII, 175, 'Third Report on Railway and Canal Bills, Evidence,' p. 32, Q. 1700.

² In treating of the effects of railway competition upon canals, we have touched upon the influence of the passenger traffic, but only slightly, because the central fact in that competition was the relation of the carriers of goods to the canals and the railways.

new conditions, the few who ventured to deprecate the total abandonment of all earlier means of transport, and especially those who advocated the retention and upkeep of waterways, found themselves a powerless minority. The reduction of freight rates elicited the support of the public, and writers for the railways industriously circulated the opinion that canals must ultimately give place to railways. As a result of these conditions the prices of canal shares went down¹. In the fascination that the railways exercised from the outset, the possibility of materially and effectively improving the waterways was lost sight of, while the economy which the former effected in the carriage of goods seemed so great as to lead to the idea that the limit of cheapness had been reached, and that it would be vain to suppose that the expense of carriage could be further reduced. Consequently any amount of money was placed at the disposal of railway schemes²; while the canals, occupying the background of the public consciousness, were easily let go because they were thought to be a declining property³. The railways lowered the rates of carriage on the canals to such an extent that the receipts and dividends of the canal proprietors were greatly reduced; and the business of the railways, both in passenger and freight traffic, was on such a gigantic scale that the canals thought it would not be long before they would be driven out of business unless they could make an alliance or agreement with their over-powering rivals. This attitude of many canal proprietors toward their property was in great contrast to the enterprise exhibited by those younger men, usually of the trading and industrial classes, who were actively pushing the construction of railways⁴. The former often gave up the battle with the railway companies in despair, and perhaps at too early a period, before they had learned what strength they really had and how largely the traffic of the country would increase⁵.

¹ Boyle, *Hope for the Canals*, pp. 5-6, 20; Palmer, *British Canals*, pp. 23, 25-26; Teisserenc, *Voies de communication*, pp. 23-30.

² Brit. Doc. 1883 (252), xii, 1, 'Evidence before Select Committee on Canals,' Appendix No. 18, pp. 257-61, statement of Lieutenant-General Rundall, R.E.

³ Brit. Doc. 1883 (252), xii, 1, 'Evidence' of Mr Colcraft, Q. 61-62.

⁴ *Ibid.*, 'Evidence' of Mr Abernethy, President of the Institution of Civil Engineers, Q. 1356-8.

⁵ Brit. Doc. 1872 (364), xii, 1, 'Report of Select Committee on Railway Amalgamations, Evidence,' Q. 5814.

In a recent work by Forbes and Ashford, entitled *Our Waterways*, p. 228, the authors say: "If, however, the canal companies must be regarded as in a great measure responsible for the rapid supersession of their undertakings by those of the railway companies, the predominant position of the latter is equally attributable to the failure of the Legislature to recognize the value of our waterways." From what we have already shown, when considering the subject of railways, it seems clear

We have thus outlined the chief elements which entered into the decline of the canals; but we must not assume that this decline was always immediate, nor that all of them shared alike in the process of decay which we have just traced. We have seen that the carrying trade on the canals was the chief feature which gave them vitality in resisting the encroachments of the railways; and that the driving of the carriers off the canals was among the first of the railway tactics. But, in a few cases, the carriers were not to be so easily disposed of; they made arrangements with the independent canals as to the rates that would assuredly remain in force for some time, and by securing favourable rates they were able to compete with the railways in the matter of local traffic. The through traffic, however, was dependent upon through rates, but as the railways had got control of the important canal links and had raised the tolls on these to a point that was usually prohibitory, the amount of goods carried on long through routes of waterway was comparatively insignificant. We can, therefore, say that, for long distances, the competition of the canal with the railway was

that this statement is at least greatly exaggerated, if not wholly unfounded. In the 'Report of the Royal Commission on Canals and Waterways,' 1879, vii, p. 82, a similar implication is given, although not in the extreme form just noted; for it says: "But waterways in this country are also at a disadvantage, due not to the nature of things, but to a state of things which, in our opinion, has been to some extent brought about by errors in legislation, and by neglect on the part of Government and the Legislature." We question even this mild statement of so high an authority. From a close examination of the reports of committees in the decade 1840-50, we see that they invariably recommended that the canal competition should be maintained, thus showing that they recognized the value of the canals, but they were at a loss how to accomplish this; and if those who had so fully investigated the subject could not devise some suitable means of regulation, can we wonder that nothing was done by Parliament as a whole? Then, Parliament was dominated by *laissez-faire* principles: it was under this régime that the canals had brought so many benefits to England, and it was but natural that the same policy should be allowed with the railways until it was clearly seen how to change it for the better. Even the Committee of 1844 in their 'Third Report,' Brit. Doc. 1844 (166), xi, 5, and the Committee of 1846 in their 'First and Second Reports,' 1846 (200), xiii, 85, and 1846 (275), xiii, 93, showed that great advantages had come from the competition of the railways with the canals; they said it was impossible for the Legislature to impose proper restrictions on the railway companies in this early stage; they showed that the public had derived great benefit from the cheaper carriage of goods, and urged that Parliament should not lightly sanction any arrangements that would tend to deprive the public of this advantage. See also Brit. Doc. 1851 [1332], xxx, 1, 'Report of the Commissioners of Railways for the year 1850,' p. xix, on "Railway Tolls," third paragraph. The fact would seem to be that Parliament did not know what course to pursue, other than that taken, to regulate this new power; so far as Parliament was concerned, it was lack of knowledge, rather than lack of good intention, that allowed the canal competition to go on as it did until its elimination was assured.

practically at an end by the middle of the century¹. For short distances, however, and especially where at least one terminus of the navigation communicates with the sea, canals have frequently held their own in competition with the railways², and have in some cases paid good dividends to their proprietors³. We are, therefore, forced to conclude, as we have already said, that the canals were probably handed over to the railways before their capabilities as a rival system were fully known.

Confronted with the fact that the railways were gradually abstracting the business from the canals, an occasional advocate ventured to devise a plan for keeping the waterways competing with their formidable antagonist. One who had at first regarded the railway between Liverpool and Manchester as invincible was led soon after to a different conclusion; and, provided competition were properly conducted, he thought it possible for the private and independent canal carriers to not only recover all the carrying business that they had lost, but also to draw to themselves the carriage of passengers and light goods, which the railway had taken from the coachmasters and carriers on the turnpike roads. In order to accomplish these results, he proposed to get improved vessels to fit the navigation, with almost four times the carrying capacity of those then in use, and employ steam haulage, so that, by the cooperation of the carriers and the navigation companies, the freight on goods between these cities might be made as low as, or lower than, the actual cost incurred by the railway in carrying these goods. To get the passenger trade, he would put packet boats on

¹ In Appendix 12 will be found one or two illustrations showing how the canals succeeded in holding their own against the railways.

Other examples of navigations which were successful in their competition against the railways were the Aire and Calder and the Weaver. These have been constantly improved, both as to the waterway and the equipment for handling the traffic, and are even now active competitors of the railway for the carrying trade of their respective sections. Brit. Doc. 1872 (364), xii, 1, 'Report of Select Committee on Railway Amalgamations, Evidence,' Q. 3598 et seq.; Brit. Doc. 1883 (252), xii, 1, 'Evidence before Select Committee on Canals,' evidence of Mr Bartholomew, Q. 776 et seq.

² Note, for instance, the Aire and Calder Navigation and the Weaver Navigation, above noted. See also Brit. Doc. 1872 (364), xii, 1, 'Evidence,' Q. 3604 et seq. Other examples are the Gloucester and Berkeley Canal, the Severn Navigation, the Regent's Canal, and the Birmingham Canal Navigations.

The Leeds and Liverpool Canal, after getting free from railway control in 1874, reduced its tolls by one-half and yet paid dividends of twenty-one per cent. Brit. Doc. 1883 (252), xii, 1, 'Evidence' of Mr Bartholomew, Q. 827-32; 'Final Report of Royal Commission on Canals and Waterways,' 1909, vii, p. 57.

³ Brit. Doc. 1872 (364), xii, 1, Appendix X, which gives full particulars of all the canals, including the dividends paid.

the canal, each drawn by two horses and suitably built so as to attain a speed of ten miles per hour, the practicability of which, he said, had been established by more than two years' experience on the Paisley Canal in Scotland. By furnishing such facilities at less than half the fares charged by the railway, the canals and their carriers would be again favoured with public support, and would be able to retain their place as public servants¹. The difficulties in trying to put such a plan into operation would have been insuperable at that time, on account of the fact that the various elements of the canal interest would not work together; neither do they operate in harmony to any extent even at the present day.

In 1841, after the Birmingham and Liverpool Junction Canal had lost half its tonnage and had been compelled to lower its rates by one-half, its secretary brought forward a method by which he hoped to save the remainder of the tonnage from also going to the railway. His plan had much in common with that mentioned above. It was realized that, even if the canal companies gave up charging the full amount of their tonnage rates, this would not begin to make up for the amount by which the railway had reduced its freight rates; and, consequently, the essential thing was to save in the expense of transit. To do this, he would fasten a train of six boats closely together, one following the other, and draw the train by three horses in order to increase the speed of conveyance. The fast or "fly" trade he would treat in like manner, since it was in this that the opposition was severely felt; and it was by concentrating the traffic in large quantities, through having the carriers work together to make up full cargoes rather than a large number of boats with only a partial cargo, that the cost of conveyance would be reduced. In order to prevent the railway company from continuing to use the passenger and parcel trade as a weapon against the canal, he would introduce on the latter fast packet boats, like those which had been in successful use on the Scotch canals, and, by granting decreased fares and rates, would take much of the passenger and light goods traffic from the railway². By disarming the railway of its most potent instruments of attack, it was hoped to place the canals on a more even footing with their adversary. But here too, as in the former

¹ Grahame, *A Letter to the Traders and Carriers on the Navigations connecting Liverpool and Manchester*, 2nd ed. (1834), pp. 6-36. A considerable amount of error is found in this pamphlet. See also his *Treatise on Internal Intercourse and Communication*, p. 159.

² Skey, *Report to the Committee of the Birmingham and Liverpool Junction Canal, on the Present State of the Competition between the Canal Carriers using that Line and the Grand Junction Railway Company*, pp. 9-23. See also O'Brien, *Prize Essay on Canals*, pp. 15-21.

case, the difficulty of getting the carriers to collaborate in carrying out such a plan would have been an almost insurmountable obstacle.

Another suggested method of enabling canals to withstand the opposition of the railways differed from the foregoing in detail, but fundamentally it involved the application of the same principle of pulling together. In the first place, systematic management should displace the existing confusion. Canal offices should be organized, where possible, with a responsible head for each branch of the work, the receiving, the transporting and the distributing, and each of these heads should be acting under the supervision of one higher up. In this way, all immediate causes of inefficiency and error would be abolished, so far as the internal management was concerned. Then the various carrying establishments should be brought into accord with one another so as to work upon an intelligible principle for the general good. The carriers alone could not work together in such a way as to adhere consistently to any comprehensive plan; and even if they could, the tendency would be toward a monopoly, from which the public interests would probably suffer. The canal companies had no authority to enforce general regulations among the carriers in regard to cooperation; and, moreover, they greatly needed a much closer understanding among themselves. It seemed, therefore, as if the owners and shippers of goods were the only parties which could establish some body that would harmonize all interests; and it was therefore proposed that these should unite and appoint an agent to act for them, one who would hand over their products for transportation to that carrier who offered the greatest advantages¹. The same barrier would have been found in any attempt to put this plan into effect as was noted in connexion with the other two suggested remedies, that is, the practical impossibility of securing sufficient united action to carry out such a contemplated project.

It would take too long to consider all the plans which have been brought forward to place the canals in a position to compete with railways and to be effective agents in the transportation of commodities. The Act of 1872, requiring railways to maintain their canals in working order, did something to arrest the decline of these waterways, although it was so meagrely obeyed that it had little constructive effect. In the last two decades of the century, partly as a result of the agitation for lower freight rates, further efforts were made to work out a solution of the canal problem and these appear to have culminated, for the time being, in the labours of the recent Royal Commission of 1906. After

¹ Boyle, *Hope for the Canals*, pp. 29-43. See also *Herepath's Railway Magazine*, N.S., iv, pp. 373-4, address by "A Canal Proprietor."

a thorough investigation of the entire subject, that body decided that if waterways, or certain main routes of waterways, were placed under a uniform administration and so improved as to provide the best system of mechanical traction, of transport, and of loading and unloading, the trade on these waterways would be largely increased, provided that carriage upon them were substantially cheaper than that by railway¹. They recommended that, as the first step in any comprehensive scheme of waterway development, it would be desirable to take in hand four main routes for amalgamation and gradual but continuous improvement, namely, those which radiate as trunk lines from Birmingham, the canal centre of the Midlands, to the estuaries of the Humber, Thames, Severn and Mersey, and which have been called "the Cross"². These would tap the great mineral and manufacturing sections of the kingdom and give direct outlet to the four great ports of Liverpool, Bristol, London and Hull. These four routes should be amalgamated under a single control and should be so improved as to permit the use of larger barges for carrying an immense volume of long-distance traffic which did not require the highest speed. Since private capital had not sufficient inducement to embark in this enterprise of improvement, the canals along "the Cross" should be taken over by the Government and paid for by the issuance of "waterway stock;" and the development of this four-branched water route should be effected by public funds. The final control of the system should be put in the hands of a Waterway Board, created by the Government³. There are so many reasons why the Government should not subsidize inland waterways, that we think the half-hearted recommendation of the Majority Report should be adopted and acted upon only after much more convincing argument has been adduced in favour of it⁴.

But, to return to the period before the middle of the nineteenth century: to all the other carrying agencies of that time it seemed as if the railway would inevitably abstract their business from them. They seemed to be waging an unequal contest with a powerful antagonist. The proprietors of coaches, waggons and vans realized at the outset that the increased speed and better facilities of the railway would soon take most of the traffic off the road, where the two systems came into

¹ 'Final Report of Royal Commission on Canals and Waterways,' 1909, vii, p. 84.

² *Ibid.*, vii, pp. 93-94, where the details are given, and pp. 188-9, where a summary of their recommendations is given.

³ *Ibid.*, vii, pp. 165-75.

⁴ *Ibid.*, vii, pp. 84-85, 174-5. In the *Traffic World* (Chicago), xii (1913), pp. 420-4, 449-53, I have dealt more fully with the present-day conditions and the recommendations of the Royal Commission of 1906, to which article the reader is referred for more detailed consideration of this question.

competition; and most of the canals likewise soon found that their day of prosperity and independence was hastening to its close. Closely connected with the conditions of the internal trade was the welfare of the coasting trade; and it would be strange indeed if this too were not influenced by the activity of the railways. We have formerly observed that, when the Oxford Canal, for example, was being agitated, and a Bill therefor was before Parliament, the eastern coasting trade petitioned against it on the ground that when the metropolis received coal by means of this and other internal water connexions, the amount of coal that came from the north to London by the sea route would be greatly decreased, and this, in turn, would be detrimental to the maritime interests of the kingdom. In the same way, it was thought by some that the development of the railways would be prejudicial to the well-being of the marine; and in 1846 memorials of the shipping interests of Sunderland, Shields and the Tyne were presented to the Treasury, requesting that efficient measures might be devised for preserving the coal coasting trade from ruin through the conveyance of this northern coal southward by railway. It was admitted that coal could be carried by railway from the Durham and Northumberland collieries to London at charges lower than those for which ships could be navigated; and representation was made that to jeopardize or destroy this northern marine, while developing the railways, would be contrary to the best good of the kingdom, and would, in effect, be crippling "the right arm of England's strength".¹ But it is evident that if railways were allowed to carry coal from the mines to the interior portions of the country, they could not be prevented from carrying it to London. The point which we wish to emphasize, as a concluding thought, is that, within the first twenty years of the railway era, this young giant had overshadowed all other systems of carrying, some of which had taken centuries for development.

¹ *Railway Chronicle*, April 25, 1846, pp. 418-19, and June 13, 1846, p. 582.

APPENDIX I

RIVER WEAVER NAVIGATION

At the end of the seventeenth century and in the first two decades of the eighteenth century, the salt industry of Cheshire was coming to occupy an important place. Before 1699, most of the coal that was used in the refining of the salt was brought from Staffordshire by land carriage, and the salt was taken, also by land carriage, to Frodsham Bridge near the mouth of the Weaver, and to Worcester and Bristol in the south, where it was loaded into vessels which carried it to other parts of England, to Ireland, and some to Northern Europe.

The cost of carriage of salt seems to have varied greatly at different times of the year, and in some cases excessive charges were made for this service. This is evident from the following letter contained in the Brit. Mus., Add. MSS. 36,914, p. 3:

"Sir, 'tis very observable how the rock-men have over-acted their part in conveying their rock (salt) from their pits...by giving excessive rates, as some days 20s. per ton to Frodsham Bridge—the like for seven miles has not been known—and other days their wages were so great that people were so blinded with it, that they neglected their necessary duties at home, in plowing, sowing, etc. This hurry and charge is...vain, and labour and money near lost, for by it, they too greedily presumed to have the advantage of the surplusage weight, but they are mikt, as you'll finde in the Act, for all salt...after the 15th day of May (1699) shall be weighed wherever its landed at 75 lbs. the bu., which is a subject of lament among themselves...."

The great demand for horses to carry salt to Frodsham Bridge and Worcester was supposed to be the reason why the horses with which strangers came to Droitwich and other salt towns were taken from their pastures, were used for carrying salt to Worcester, and were then found near this latter place when they had been unloaded. So often was this the case, that hotel landlords commonly advised their guests not to put their horses out in the pasture, but to keep them in the stables (v. Brit. Mus., Add. MSS. 36,914, p. 9).

On account of the difficulty in the matter of transportation of coal and salt, those manufacturers of salt which were more distant than others from the coal supplies and from the markets for the finished product found it difficult to compete with their rivals who enjoyed greater advantages than they in these respects. For example, the cost of coal at Northwich was greater than at Middlewich, because it had to be brought a longer distance by land carriage from the Staffordshire coal mines. On the other hand, those manufacturers who were nearer the supply of Staffordshire coal had a longer haul before they could bring their salt either to the Mersey or to the port of Worcester. A combination of the manufacturers had been

formed at Droitwich (v. Brit. Mus., Add. MSS. 36.914, p. 10), and probably also at Middlewich and Nantwich, to control the price of salt, and an attempt made by a private manufacturer to break up this monopoly had ended in failure. But a certain Mr Slyfford, and one or two associates, who owned salt deposits at Waddington Bridge on the Weaver, just below Northwich, saw that if they could get coal from Lancashire brought up the Weaver to their works, at a price that was lower than that for which their rivals could get it, and if they could have their finished product carried down from their works to Frodsham Bridge at a lower rate than their rivals, the trade in salt would be largely in their hands. For this reason, they proposed that the river carriage should be utilized rather than land carriage, and in order to make the Weaver, which in its original state was navigable only at high tides, an effective agent for their carrying business, a Bill was brought into Parliament asking authority to make this improvement.

Immediately the opposition was aroused. The other manufacturers said that if the Weaver were made navigable only to Northwich it would advance the interests of only three or four proprietors of salt and salt rock, and would certainly ruin the estates of several proprietors in other places, as at Middlewich, as well as some thousands of people adjacent, whose livelihood depended on the carrying of salt and coal (v. Brit. Mus., Add. MSS. 36.914, p. 10). The opposition of the carriers found vent in many petitions to Parliament, of which the following is a fair sample (v. *Ibid.*, p. 16):

"The Humble Petition of several Farmers & Freeholders in Bucklow Hundred in the County Palatine of Chester, in behalf of themselves and neighbors
Sheweth

That your petitioners having heard that there is a Bill presented to this Honorable House for making the River Weeever navigable some few miles, which Bill should it pass would extremely impoverish your Petitioners by depriving them of the Benefit they receive by carrying of coals to their own Houses at spare times in summer, and from thence to the Wickes in Winter, whereby they are the better enabled to pay their rents and provide for the comfortable support of their families.

Wherefore

Your petitioners make it their Humble Request that before the Bill be suffered to pass their objections against it may be heard from their Counsel or otherwise as this Honorable House shall be pleased to direct.

And your petitioners shall ever pray, etc."

Similar petitions to Parliament were sent by "the poorer sort of inhabitants of Bucklow Hundred" (*ibid.*, p. 18), "the poorer sort of inhabitants of Northwich" (*ibid.*, p. 18), "the poorer sort of inhabitants of Edesbury Hundred" (*ibid.*, p. 19), "the farmers and freeholders in Northwich Hundred" (*ibid.*, p. 20). These all presented the "ruin" which would ensue to the carriers should the Bill pass. But it is doubtful if these would have been effective in defeating the Bill, had not the "prominent landlords and gentlemen of rank" taken the matter up, among whom were Lord Gerard, Thomas Cholmondeley, G. Warburton, and Sir Willoughby Aston. These men were presenting a petition to Parliament against the proposed improvement, and in order to give it more weight they sent around the following letter to get signatures to be attached to the petition (*ibid.*, p. 20):

"Gentlemen

By intelligence from London and some practices in the country we find that the projectors concerning whom we have formerly troubled you, have renewed their design and prepared a Bill now ready to be presented in Parliament, for making

the River Weaver navigable from Frodsham Bridge towards Northwich. We think it needless to represent to you how injurious this Bill would prove to those who have lands lying near the river; and Destructive to the trade of this County, especially of Middlewich and Nantwich and all the adjacent salt works; since the easy import of coals from Lancashire to Northwich and export of their salt would certainly enable the proprietors there to undersell and ruin all the other salt works which are supplied with coals from Staffordshire or Wales; whereby about four thousand families, now subsisting by the land carriage of those coals, salt, and malt, would be utterly ruined and left to be maintained at the charges of their respective parishes; and the Rents of those lands which they inhabit, and of those near their Roads would be impaired. After which some few proprietors of Salt Rock and Brine in and near to Northwich (who alone can be enriched by this project) having engrossed the trade, would impose the price of salt at their own pleasure, and raise their fortunes on the ruin of the country. We have prepared a petition to be heard by our counsel against the said Bill; and if ye approve it, we desire your concurrence with us, believing your subscription will be as serviceable to the country, as obliging to

{	We send the like petition	Gentlemen
	to other hundreds for expedition,	Yr humble servants."
	intending to unite them all in one Roll.	(Here follow their names.)

Similar petitions were sent in by the "High Sheriff, Deputy Lieutenants, Justices of the Peace, Gentlemen, and other inhabitants of the County Palatine of Chester" (*ibid.*, p. 24); by "the Inhabitants of Warrington, in the County of Lancashire" (*ibid.*, p. 25), who protested because if the Bill should pass it "would subject the salt of Cheshire to a monopoly;" and by "several gentlemen and others in that part of Staffordshire adjacent to Cheshire," who said that if the Bill should pass, it "would ruin most of the salt works in Cheshire; it would also greatly impoverish that part of Staffordshire which the petitioners inhabit, by stopping the great vent of coals thence to the Wiches and by destroying that commerce and carriage whereby the farmers are enabled to pay the greater rents and many of the poorer people wholly subsisted" (*ibid.*, p. 28).

In *Brit. Mus., Add. MSS. 36,914*, p. 29, we have "A Short Account of a Design for making the river Weaver in the County of Chester Navigable, from Frodsham-Bridge to Winnington-Bridge, being about five or six Miles only." This is really a series of reasons *against* the project. It was intended for circulation among the members of the House of Commons, had the promoters proceeded in their purpose. Its substance follows:

This navigation is a design projected for engrossing the trade of selling salt and rock-salt into the hands of two persons only, whereby a great many families would be ruined and undone. As the trade now stands, all the proprietors of salt are upon equal terms throughout the whole county of Chester. (This, as we have already seen, was entirely wrong.)

Should the river Weaver be made navigable from Frodsham Bridge to Winnington Bridge, there will be the following evil consequences:

The two persons in this combination have salt works and rock salt adjoining Winnington Bridge where they intend to end the navigation. To there they can get coal cheap from Lancashire by water; hence, with no land carriage to trouble them, either for coal or salt, they will undersell all other salt works that have land carriage for both coal and salt. These two persons will drive out rivals, and therefore will be able to make their own prices for salt, "as formerly Northwitehe did, till the erection of new salt-works in the county reduced the price of salt from

above 4s. to 2s. 6d. per barrel.' Nothing but an abundance of salt will keep down its price.

The ruin of other salt works will be followed by additional evil results:

1. The collieries in Staffordshire and some in Wales will have their market reduced.
2. Those poor people who live by carriage of coal and salt must starve or be a charge on the parishes. The same thing will happen to those who now carry malt to the Wiches from Derbyshire and Nottinghamshire. The trade of malt for salt will be at an end by the destruction of the salt-works, which will effectually and speedily be accomplished, "should the monopolizing project of this self-ended navigation take effect."

3. Continual overflowing and spoiling of the meadow grounds, which cannot be avoided because the river banks are low, and the water will be raised in the river by means of locks. The grazing lands along the river will also be injured; and this will cause reduction of rents of these lower lands.

Many more mischiefs are so obvious, "that 'tis hoped this self-designed project shall never be countenanced by Parliament, to the great prejudice and injury of the publick, for the sake of a private interest." (The feeling against this navigation was very strong; and the fact that we find no petitions in favour of it would seem to indicate that it had a selfish end.)

In 1709, the question was revived apparently with more seriousness, and the people became alarmed at this pernicious self-ended project. Every man who had any influence with the members of Parliament used his position to show them, by letters, the terrible evils that would result from making the Weaver navigable. The great hostility against the Bill came from all sources; and the vigorous opposition to it may be gathered from the letters of 1709, given in *Brit. Mus., Add. MSS.* 36,914, pp. 34, 40-45.

This enterprise, though held off, could not be completely turned down, and by 1715 the promoters had "a great many friends" who were "very industrious" in behalf of the scheme. It had been so much talked about, that instead of losing ground it had gained increased support (*ibid.*, p. 54). A letter of May 16, 1715, shows the way in which the opponents of the Bill regarded it (*ibid.*, p. 40):

"I was in hopes this ruinous project had been so often battled that we might have lived secure from any further attempts of strangers to bring sure destruction upon so many poor families in this county, and so great damage to many other; but now to help forward their designs, they have got some assistants from Liverpool who no doubt have either our interest or their own very much at heart. . . ." Then the writer goes on to give reasons against the measure.

In that year, on June 14, the Bill was read the second time, but it was finally accorded the same treatment as in former years, and was in effect thrown out (*ibid.*, p. 58).

In order to make their case stronger, the promoters of this navigation were supposed to have ordered to Frodsham Bridge such great numbers of ships that it was impossible to get enough white salt and rock salt to give them a full load, without keeping them lying there for many weeks, and some for months (*ibid.*, p. 66). This would tend to show the need for vastly increased facilities for transport. But, however this might be, in accordance with another petition to them, the House of Commons, in January 1719, ordered a Bill to be brought in for making the Weaver navigable (*ibid.*, p. 68).

In carrying on their campaign in 1719, those who favoured the navigation issued a pamphlet showing the 'Reasons for Making the River Weaver in the County of Chester Navigable;' and demonstrating that it would be of "very considerable national advantage," as well as of local benefit (*ibid.*, pp. 86-90):

The pamphlet begins by giving some account of the trade of those parts that will be affected by making this river navigable. The salt trade is the most important of all.

The *mines of rock salt* which supply all the salt refineries erected in Ireland, and in several parts of Great Britain, viz., Cheshire, Lancashire, North and South Wales, Bristol, etc., lie about one-quarter mile from Northwich. And the *salt springs* and *salt works*, which supply Ireland, Wales and several counties of England, with great quantities of white salt, are at Northwich and within three or four miles of that town.

This white salt and rock salt is brought by land carriage to the ships at Frodsham Bridge, and is *mostly carried on horses' backs, by reason of the badness of the roads*. The ships usually come in fleets, and hence the men and horses kept for carrying this salt have sometimes more than they can do, and at other times have scarcely any work. This difficulty is tending to ruin the salt trade. This winter, some ships have lain there three months before they could get fully laden; and such a thing spoils the trade and will eventually drive away the trade entirely, if not prevented.

The best, and perhaps the only, expedient that can preserve the trade is to make the river Weaver navigable. This would make carriage considerably cheaper, and give greater dispatch to the shipping.

Other Advantages of this Navigation :

It would allow England and Ireland to get their salt at home, and thus save buying foreign salt. But it might also enable Cheshire to supply salt to the northern parts of Europe.

Opening this navigation would make a way for attaining a good share of this trade with Northern Europe. Hence it would benefit both the kingdom and the county of Chester.

It will create new employment for much shipping, breed a great many seamen, employ many of our poor, and bring in considerable sums annually to our kingdom.

It would necessitate fewer officers, and less charge and trouble of frequent weighing of the salt.

Then the pamphlet takes up what it calls some "weak but obstinate objections," namely:

1. That it would ruin the salt works at Middlewich and Nantwich.

This, if it were true, is not a reason why such a great public good should be declined, for fear of interfering with the private interests of a particular place or two. For by this navigation all those places that get salt from Cheshire would get it much cheaper than at present. But this will not ruin these two places, for as they are four miles nearer the coal supply of Staffordshire they will be able to get their coal cheaper, and this will offset the extra four miles of land carriage necessary in bringing their salt to Northwich.

2. That it will overflow and spoil the adjacent lands.

This is refuted by the experience of other rivers; such lands are less liable to be overflowed than before the navigation was made. But, on the other hand, the adjacent lands are increased in value, because of the power of overflowing them on occasions of great drought or dry seasons.

3. That it will take away the livelihood of those who were formerly maintained by land carriage.

But particular employment must give way to the public good. Then, too, these carriers, because of the uncertain arrival of ships, have only a sorry livelihood, notwithstanding the great prices they get for carriage. Their horses, etc., have to be kept, whether there is work or not. Their present business is precarious and they would make a better living by going into dairying. Moreover, the increased

trade brought by the navigation would give increased work for all classes of people.

By 1719 the opposition to the navigation had assumed a somewhat different character from what it had been shortly before. Formerly the question was, whether Northwich should be allowed the advantage of this navigation, by which that town might be enabled to undersell, and consequently to ruin, all the other salt works, with the trade depending upon them, and then impose its own price of salt upon the nation. But since the discovery of the rock salt, the projector of this design, being a proprietor of the rock, a considerable merchant, and naturally qualified for a great undertaking, might, by his rock salt, not only ruin all the brine trade of Northwich and the rest of Cheshire, and then impose his own price of salt upon the nation, but might also draw all the money in specie to himself at London. So that, by 1719, the question was, whether all the ancient Wiches and other brine salt works in Cheshire, and the trade depending on them, together with the landowners adjacent to the river, and the greater value of all the other lands in Cheshire by the coal carriage, should be destroyed for the interest of a few men, without any public advantage (*ibid.*, p. 95).

Other objections to the navigation were brought forward, as the project seemed nearer to obtaining Parliamentary sanction:

1. The boats would have to be towed up the river by horses, and as this country was enclosed landowners would be obliged to make gates at their own expense. The negligence of boatmen, in closing the gates would cause trouble in keeping each man's animals from his neighbour's fields. Hence there would arise quarrels, breaches of the peace, etc.

2. Several landowners had large estates along the river, "where their deer, sheep, rabbits, and other household provisions are kept." Boatmen were ill-disposed persons, and as they would be compelled to pass through the grounds of these estate owners they would feed their horses on the landowners' hay and corn, at times when they would be waiting for the violence of the tides or floods to subside, or when awaiting the raising of the water by the locks. Or the boatmen might steal their deer, sheep, wood, corn, fish, etc., and perhaps break open the houses of these gentlemen.

3. The farmers who lived along the river would not be able to use their fords to cross the river after it were made navigable, without wooden bridges that would obstruct the passage of the boats. Then, too, these bridges would be destroyed by the ice, as "often happens to the danger of the stone county bridges."

4. Higher than where the tides flowed, which was about three miles above Frodsham Bridge, the river was very narrow, full of roots of trees, and in many places, both above and where the tides flowed, so shallow that half the channel lay dry several months together in summer time when the tide was out, and in the other half the water would scarcely cover the stones in the rocky fords. This would prevent the river being made navigable, except at great expense. In cutting it *wider*, which would be made difficult by the roots of trees, there would be great loss and damage to the landowners, because some of their land would have to be used in making the towing paths also. In making it *deeper*, which could not be done but by cutting the bottom lower or by raising the water higher, there would be other difficulties; for if the river-bed were cut lower the rocky shallows must be cut at great expense, and the foundations of two stone county bridges across the river would be undermined; and if the water were raised higher, locks would have to be made, and these would cause the water to overflow the banks, especially in floods. They would also cause the water to be longer in passing off the ground, and thus this rich land would become bog or marsh land.

5. This navigation would take away the living of those who were then carriers by land. The landowners were accustomed to employ the tenants' teams in carrying, and so the tenants were enabled the better to pay their rents. If this carriage should cease, rents would fall, the tenants that have leases would be ruined, the landlords impoverished, the taxes on their lands would have to be abated, and hence the nation's revenue would be lessened. In reply to the question as to why these carriers could not turn to dairying, it was pointed out that some of them were very poor people, and kept or hired horses for the purpose of carrying.

6. Northwich would, by this navigation, get such an advantage over all other salt works that she would be able to dictate the price for salt. Against this, it was shown that the Justices of the Peace had power to fix the price of salt; to which it was answered that if this Northwich projector should ruin the other salt works he would then be able to set his own price for salt.

In Brit. Mus. 357. b. 9 (76), we are shown the desirability of the proposed navigation for the benefit of the salt trade of Cheshire, the opposition of Liverpool to the Bill, and the trouble with Mr Vernon, who had large salt works at Winsford. This difficulty is very clearly stated in Brit. Mus. 357. b. 9 (78), 'Reasons Humbly Offered by the Trustees of Richard Vernon. . . against the Bill for Repealing Act 7 Geo. I for making River Weaver Navigable.' Other 'Proposals Humbly Offered for making River Weaver Navigable from Frodsham Bridge to Northwich' are given in Brit. Mus. 357. b. 9 (75). In spite of the endless repetition of the above-mentioned objections (for which see also Brit. Mus., Add. MSS. 36.914, pp. 117-23), and the strong opposition encountered, the Bill passed into an Act in 1720, under which this river was made navigable for nearly twenty miles from its mouth, that is, to Winsford Bridge. By this Act, the £9000 subscribed to carry on and perfect the navigation could be increased by as much more, if necessary. In order to repay the cost of the improvement, a duty of 15*d.* per ton was to be taken on all goods carried on the river; and after payment of the cost the tonnage duty should be but 12*d.* per ton, the whole of which was to be applied for the public purposes of the county of Chester for ever. It was expected that, after the cost of the navigation had been defrayed, the county would get not less than £1500 a year (Brit. Mus. 357. b. 9 (72), 'Reasons Humbly Offered against Bill for Repealing Act 7 Geo. I for making River Weaver Navigable'). The merchants of Liverpool opposed this measure. Since the river was to be made navigable by three private undertakers at their own cost without any contribution from the county, it was thought unreasonable as well as unjust that the county should benefit financially from it, and that any money which would go to the county would be an overcharge on the navigation which would impede and burden trade (Brit. Mus. 357. b. 9 (73), 'Reasons Humbly Offered against allowing County of Chester any part of the Tonnage Duty for making River Weaver Navigable'). An agitation was, therefore, started to repeal the Act, but it was unsuccessful, and the work of canalization began in 1721. All revenues from tolls, in excess of the amount required to pay the cost of construction and maintenance, were to be devoted to repairing the roads and bridges of the county, and for any other purposes determined by the Justices.

In 1759 the administration of the Weaver was entrusted to a body of self-perpetuating trustees, under whom the navigation works were extended and improved and made more enduring. About 1807, the navigation was completed by a canal of four miles in length from Weston Point, where it joins the Mersey, to Sutton lock; this was intended as a surer course than the lower part of the Weaver, so that boats could enter or leave at all conditions of the tide. For further improvements, see *Ministère des travaux publics: Quatrième Congrès International de Navigation Intérieure, tenu à Manchester en 1890, Rapports des délégués français sur les travaux du congrès*, pp. 39-55. See also Hanshall, *History of Cheshire*, p. 84.

APPENDIX 2

SHAPLEIGH ON HIGHWAYS (1749)

He says (p. 4), "For, it must be granted, that there has been always, and now is, great reason to complain of the neglect of the repair of most roads within this kingdom; and that it has always been found by experience, that the many laws, which have hitherto been made concerning their repairs, have never met with the desired success. Hence there must be some fundamental error in these laws, and there is need of further regulation."

He thinks the fundamental defect is in permitting parishes, towns, etc., to be presented or indicted for not repairing their roads (p. 5).

(p. 6) His method is:

1. To prove that the presenting or indicting of parishes, towns, etc., for not repairing their public roads is generally found to be hard and injurious to particular persons; that it seldom, if ever, answers the intended design; and that it causes the laws relating to the surveyors of the highways to be greatly neglected. Consequently, both these prosecutions should be entirely done away by law.

2. To prove that the most just and most effectual way to have the public roads kept in good and sufficient repair is to oblige the surveyors to do their duty.

3. To offer some amendments and additions to existing laws, which will more easily and more effectually oblige the surveyors to perform their offices, and the parishioners to do their six days' work.

To prove the first.

Act 3 & 4 W. & M., c. 12, sec. 3, allows the surveyors to be men in mean circumstances, men who have no property in the parish chargeable to the repair of the highways; since their qualification is £10 per annum of real estate, or £100 personal estate. But by the same Act a tenant of £30 a year may be appointed surveyor. If none so qualified can be found, then the Act directs that the most responsible persons within the parish are to be chosen. Under such men persons for surveyors, it is not prudent nor safe for the rest of the parishioners to repair the roads, under their own directions, lest their officiousness should hereafter be used as an argument of their obligation to repair them in their own right.

And, as laws now are, the parishioners have no coercive power to oblige these men persons to discharge their official duties. Suppose the surveyor were too idle or obstinate to call out the parishioners to do their six days' work, or to oblige them to work honestly; would it not be unjust that the whole parish should be presented for neglect? The innocent would be punished with the guilty. Some parishioners, of course, would, and others would not, work voluntarily; hence the need of the surveyor to force them (p. 9).

It is unjust to punish the innocent with the guilty. But Shapleigh says that the innocent bear the burden of the surveyor's transgressions, while he goes free. (Evidently, therefore, the law which imposed a penalty upon neglect of either surveyor or parishioner to do his duty was found to be unenforced.) For in many places, especially in the Western counties, the landlords of such tenants as are at rack-rent pay the rates, taxes, etc., for the tenants; and hence no process that can issue upon any such presentment or indictment of the parish can in any way affect the surveyor's property.

(p. 10) But suppose, again, that the parish surveyors should contribute some small matter only out of their own property toward the parish levies, or should happen to be such tenants as have all their rates, taxes, etc., paid by their landlords, and live in a parish where one or two persons own most of the property; suppose also that the landlords live at a great distance from the parish, and that the surveyors should be prejudiced against the stewards of the landlords (which is quite probable from their insolence and imperiousness) and should refuse to do anything for repair of the parish roads; would it not be unjust that the innocent landlord should be punished by such expensive proceedings as presentments or indictments for an offence which he could neither remedy nor prevent? This is no mere supposition, but actual fact.

(p. 12) Take the common case; suppose the surveyors call out the parishioners to their statute duty, and only two or three of the best householders and landholders obey the call. Suppose that (because of the surveyors' laziness, unwillingness, or probably from bribery or corruption) the surveyors do not force the rest to come out to work, and thereby the parish is presented or indicted for not having its roads properly repaired; would it not be very unjust that those parishioners who have done the work required by law should still be punished ten or twenty times as much as the other householders, etc., who ought to have done their work, and as the surveyors who should have forced the work to be done?

(p. 13) This method is wholly inconsistent with justice and reason. As the law now stands, every person having an estate within the parish is liable to be punished for not repairing the highways; and yet the law has not given him proper or sufficient power to compel the surveyors and defaulters to do their duty and contribute their part towards the repair of the public roads. So that the law in this particular instance punished persons for not doing that which it was not in their power to do.

Next, to show that notwithstanding these presentments and indictments are too often made against parishes, towns, etc., for not repairing their roads, *yet such proceedings seldom, if ever, answer the end intended by them.*

The fact is shown by experience, for everyone observes that there are some parishes which have presentments or indictments almost perpetually hanging over their heads. This could not possibly be the case if these prosecutions were so effectual for the repair of the roads, as some persons erroneously insist upon. The fact is beyond power of contradiction.

(p. 15) From the nature and reason of such presentments and indictments, no good effect can possibly be expected from them, either to the public or to individuals (except lawyers and others who attend the courts of justice). For since the surveyors are mean persons, their payment toward the fine imposed on the parish is so small as to have very little effect upon them; especially if it be considered that they are sure to have the laying out of this money—which they often do, more to their own benefit than to the improvement of the roads.

(p. 16) Besides, the presentment or indictment specifies particular parts of the road (those that are worse than the rest) to be repaired. This does not effect a thorough reformation of *all* the roads of the parish.

(p. 17) Again, these prosecutions are often made against parishes, towns, etc., in the winter; and it costs the parish at that time of the year far more to repair its roads than if it were at a seasonable time of the year. If the road is complained of in the winter, and presented then, it has to be repaired then.

No result can be derived from such prosecutions, but the expensive repair of such places as happen just then to be out of repair; for these grievous prosecutions cannot reform the inclinations of the parishioners in general, nor make them more

willing for the future to repair their roads. The power of repairing rests with the surveyors; and, therefore, as the parishioners, before the prosecution, could not safely repair the roads without the concurrence of the surveyors, so neither can they do it after the prosecution is begun or ended. Can anyone think that such prosecutions will make the surveyors more diligent than they were before; when, as we have shown, they are seldom one penny out of pocket by all the presentments or indictments which the law can throw upon the parishioners, &c., for which they are surveyors? They would rather be pleased than displeas'd with such prosecutions.

(p. 19) "This argument, I must own, carries great weight with me against the allowance of any such prosecutions; and I verily believe that all considerate and disinterested persons must entertain the same opinion of it with myself."

But the vexation, oppression, expense and uselessness of these prosecutions are not the only reasons for laying them aside; Justices of the Peace would be more willing, earnest and ready to hear such complaints as are to be made against the surveyors and defaulters, and to enforce the laws against them, if they were restrained from exercising this favourite power of punishing all the parishioners promiscuously, by way of presentment, which most of them now are apt to think their safest and easiest remedy. Those interested would be more diligent in making such complaints of the surveyors and defaulters to the Justices of the Peace, in case they found they had no other redress; and the Justices, in turn, would be more ready to give an attentive ear to such complaints.

To prove the second, viz., that the best way to have the roads repaired effectively is to oblige surveyors to do their duty.

(p. 20) If the six days' work were done faithfully, it would be sufficient in most cases for repairing the public roads. Wherever it were otherwise, Acts 3 & 4 W. & M. and 1 Geo. 1 have given the General Sessions power to make a rate for that purpose, not exceeding 6*d.* in the pound for any year. If, then, the due execution of the above methods would effectually repair most of our public roads, whenever they are out of repair, it must always happen (unless in case of floods, great frosts, &c.) through the surveyors' default, or that of the parish, or of particular individuals in the parish. And the laws have given Justices of the Peace and surveyors power to punish delinquents.

(p. 22) Under Act 5 Eliz., c. 13, sec. 8, it is enacted that surveyors, under pain of 40*s.*, shall within one month after any person has omitted to do his statute duty, present the offence to the next Justice of the Peace, who shall certify that presentment at the next General Quarter Sessions, which Sessions shall immediately inquire of such default and assess such fine for it as they, or any two of them, shall think fit. With such authority, it is easy for Justices of the Peace to perform their duty; and when defaulters are found guilty, Act 2 & 3 P. & M., c. 8, inflicts a penalty on them that is double the value of their neglected labour. Under this Justices can safely net, for they are simply carrying out their duties in certifying the surveyors' presentment to the next General Quarter Sessions. The punishment is inflicted by the Court of Sessions upon the defaulter.

We have now shown that the laws have given power to the Justices of the Peace to punish defaulters for non-repair of roads, and the surveyors for neglecting to present such offenders. Act 5 Eliz., c. 13, has given the Justices an easy method of procedure.

Next, we show that *this method of punishing the surveyors for neglecting to present defaulters for omitting to do their six days' work is just and equitable and the most effectual to obtain the end desired.* For by this each delinquent is punished according to the assistance which he ought, but neglected, to give towards repair

of the roads. By this way of proceeding, the landowners and the rest of the parishioners are not all promiscuously punished, without making any distinction between those who either have obeyed or else were willing to obey the directions of the law, from those who either have neglected or else refused to observe its orders. By this way, the surveyors are not capable of triumphing, nor of benefiting themselves by their own neglect or open defiance of the law; but the innocent and faithful observers of the law are exempted from that punishment, which is, with a just and distinguishing hand, inflicted on each of the offenders with equality and prudent distinction.

(p. 26) But we have to show that this is not only the most just but also the most effectual way to obtain the desired end.

Since the law has appointed proper officers to take care of road repairing, that method must certainly be the most effectual which has the greatest power and influence, and is the most capable of compelling these officers to do their duty, and effectually care for and sufficiently repair the roads. But presentments affect very few of such surveyors; and in general such prosecutions are rather beneficial than otherwise to them. Whereas, on the other hand, by Act 5 Eliz., c. 13, they are liable to be punished 40s. for not presenting defaulters; and, by Act 1 Geo. I, they are, for most cases of neglect of duty, liable to pay £5. As this last method, therefore, is the most coercive, and indeed the only effectual one to force the surveyors to do their duty, I think there cannot be the least doubt but that it is by much the most effectual way to have the roads repaired and kept in repair. (Apparently, Shapleigh thought that the law which imposed the greatest punishment for neglect of duty was the most effectual for repairing the roads.)

Regarding the third—some amendments of and additions to the laws, in order the more effectually and easily to oblige surveyors to perform their duty, and the parishioners their six days' work.

(p. 28) We have said that Act 5 Eliz., c. 13, sec. 8, gives a safe and easy method for Justices of the Peace to proceed in punishing surveyors or parishioners for neglect of duty; yet it is not so easy for there are *later contradictions*. Act 22 Car. II, c. 12, sec. 9, says that complaint of defaulters to the public roads is to be made to the next Justices of the Peace, who are required, on the oath of one witness, to levy the penalties. By Act 22 Car. II, c. 12, sec. 12, the method authorized is the same as that of Act 5 Eliz., c. 13; and as Act 22 Car. II is later than Act 5 Eliz., and these two clauses seem diametrically opposite to each other, it is hard to tell which is the best and safest method to be followed. Justices are rather unwilling to proceed.

(p. 29) Again, by Act 3 & 4 W. & M., c. 12, sec. 9, all offences and neglects respecting the public roads are to be presented by the surveyor, on his oath, to the Justice of the Peace. But this Act does not direct what the Justice shall do with the presentment; it is inferred, however, that he ought to certify it to the next General Quarter Sessions, because in the second section of the Act it says that all former laws regarding the highways shall remain in effect. Besides (p. 30), Act 1 Geo. I is so worded that it may seem doubtful whether the directions given by the said former Acts, concerning these points, are not thereby repealed; and jurisdiction vested in the Special Sessions. Such vague laws weaken the hands of the Justices of the Peace, and because the Justices do not care to act under them the surveyors and defaulters often go unpunished.

(p. 32) To proceed on either of these statutes, however, is slow, for Special Sessions are only held every four months; but either method is preferable to presentments or indictments, for the latter are unjust and oppressive, as we have shown.

Then Shapleigh proceeds (p. 33 et seq.) to outline in full a law which he would

recommend to the Legislature, to take the place of the old laws, so as to be clear and easily executed, and to give his reasons for particular clauses in the wording of his proposed new law.

(p. 56) "The six days' work have hitherto in most parishes been so much neglected, and so slightly performed, that I believe very few parishes can truly say, from their own experience, that the six days' work, duly and properly attended to, and performed by all the parishioners liable by law, to work in the amendment of the highways with due care and diligence, are not sufficient." [This seems to be strong testimony of the adequacy of the statute duty, if satisfactorily performed, to effect the improvement of the roads: but it also shows how poorly this work must have been done when the roads were in such a bad state.]

(p. 60) In speaking of the imposition of the assessment of 6*d.* in the pound, as authorized by Acts 3 & 4 W. & M., c. 12, sec. 17, and 1 Geo. I, when the six days of statute labour were not sufficient to repair the roads, he says: "For such a rate does, in some parishes, raise by much too large a sum to be trusted in the hands of such persons as are generally chose surveyors." (The character of the surveyors, if they were at all like what is here implied, must have been such as would not command the respect and confidence of the parishioners.)

APPENDIX 3

HAWKINS ON THE LAWS OF HIGHWAYS (1763)

(p. ix) "But this the Public may be assured of, that every attempt to amend the Highway-Laws by additional or explanatory Acts, will produce great Confusion among those whose duty it is to execute them; and that nothing can remedy the evils at present complained of, but the consolidation into one Act of the most efficacious clauses contained in those now subsisting." (It was Hawkins' chief purpose to get a consolidation of such Acts into one general Act.)

(p. 2) "It is too obvious to need insisting on that very little of the concern which has of late been shown about the roads in general has been directed to those that lead from parish to parish, and are not the ordinary channels of conveyance to cities and towns of great trade. The invention of turnpikes is manifestly calculated for great roads, which, as they are made in favour of commerce, produce a revenue sufficient to keep them in repair; but the former have been left to the care of the surveyors of the highways in their respective parishes, subject to the direction and controul of the Justices of the Peace."

Since the framing of Act 2 & 3 P. & M., c. 8, and its successors under Elizabeth, coaches, chaises and post chaises had come in; and gentlemen who had these and drove on the road constantly got off with the same road work as the poor cottager who had no such thing. These were not included under the term "draught" of the Act, and hence these people were merely householders like the cottagers, so far as the statute labour was concerned. Hence there was great need for a change of the law.

(pp. 24-25) The statute 2 & 3 P. & M., c. 8, is also indefensible. A law without a sanction is but a dead letter, and this is the case with this statute. Suppose a farmer, who occupies a plough-land or keeps a draught, is required by the law to send a team to work six days on the highways, and that he is averse to this duty.

He does it only through fear of incurring the penalty. [Nelson, *Justice of Peace*, 6th ed., p. 332 n., says that a ploughland was formerly 100 acres, but at his time (1718) only 80 acres. By Act 7 & 8 W. III, c. 29, £50 per annum was a ploughland. See also Burn, *Justice of the Peace* (1755), i, p. 512.] But it may be to his interest to incur the penalty and not do his statute labour. For example, the labour of a cart, a team and a man is valued at 10s. a day in most places. He can get this if he lets them out to a neighbour. But if he sends his cart and team and two men to work on the roads, the labour of all will excuse him from the payment of no larger a sum. So if he lets out his team and incurs the forfeiture he saves the labour of one man. Hence the statute is pregnant with a motive for disobedience.

(p. 25-26) In like manner the day labourer may argue that if he must either actually perform or forfeit the price of six days' labour, it is as well to choose the latter as the former. This defect, it must be confessed, is owing solely to the diminution in the value of money since this statute was enacted. Taking Bishop Fleetwood as authority, he says:

"In 1514, not long before the statute was made, the wages of a labourer, from Easter to Michaelmas, except in harvest, were 3d. per day, and from Michaelmas to Easter, 3d. per day. The labour of a waggon, team, and two men, amounted to 2s. 8d. per day. But by the statute the penalty for default to send a team was 10s. and for default to send two men it was 1s. Therefore the penalty was 11s. for default in sending two men and a team. If these forfeitures be compared with the respective duties they were intended to enforce, we find them to be sufficiently penal at the time the statute was made. But this is not so now."

But it is urged that whether the person charged does actually perform or pay the price of his duty, the case is the same to the public; inasmuch as the forfeiture will purchase just as much labour and assistance as was originally required of him; and if that is done, it is nothing to the public what hands were employed in it. *But is it of no consequence to a state whether the laws are obeyed or not?*

(p. 27) Let us see how the law is observed in those few parishes where the people are disposed to yield obedience to the letter of it. *The days for doing statute duty have long been looked upon as holidays*, as a kind of recess from the accustomed labour, and have been devoted to idleness, and its concomitant indulgences of riot and drunkenness.

(p. 28) Further, those doing statute duty (which is to some extent voluntary) are less obedient to the directions of those whom the law has appointed to superintend it, than is consistent with the due discharge of their duty. The men are working at four or five different places in the parish and not under the oversight of an officer, and not executing a well thought out plan.

Again, even if a surveyor were a good judge of roads, and of how to make and repair them, he has only six days to carry out his plan, and even then some may refuse to do their statute duty. How is the way to be amended under these conditions?

Some will say, let the surveyor apply the forfeitures incurred by the several defaults in the hire of teams and men and go on with his work. Very true, but first he is to get them. In order to do this, he is to enter on a new work, viz., to bring the defaulters to justice. And first he is to make out a list of their names, which, when completed, is to be returned to the Sessions, which may possibly be held either in a week or in four months after the offence. The Justices upon this return, of course, issue summonses for the defaulters to show cause in a reasonable time why they will not pay; after this, if they do not comply, distress-warrants are issued, before the execution of which the wet weather sets in, and there is an end of road work for that year. The surveyor is then busied in making

up his accounts against the January Sessions, or perhaps in defending actions grounded on some irregularity in the notice, the due publication of which, or of the respective defaults, not one in fifty of them is ever prepared to prove. When January comes, his account is passed and he pays the balance to the new surveyor, who will have just the same difficulties to encounter as his predecessor.

(p. 30) Everyone knows that the highways shall be kept in repair by the several parishes of which they are part. Act 2 & 3 P. & M., c. 8, has established a form of proceeding by way of indictment against the parishioners, upon which, if the defendants are found guilty, they shall not be discharged by submitting to a fine, but a d restraint shall go *in infinitum* till they repair.

(p. 31) Act 5 Eliz., c. 13, prescribes another method of proceeding—in effect much the same as that of an indictment—which is by a presentment of the surveyors to the next Justice, who is to certify the same at the next General Sessions, and the Sessions is *immediately* to inquire of the defaulters. But, despite the word “immediately,” the general opinion on that clause of the statute is, that the certificate of the Justice in this case has not the effect of a presentment, but must be turned into an indictment, to which, by the Rules of Law, the offender may enter his traverse, and no trial can be had till the Sessions after.

Both these methods are objectionable. In the *first*, the law does not distinguish those who have done from those who have refused to do their statute work; but gives its judgment indiscriminately against the whole parish, and hence the innocent and the guilty are involved in the same punishment. By the *second*, there is not that expeditious justice which the statute gives reason to expect.

(p. 33) The delay and expense of these methods of proceeding are objections common to them both; and because of these reasons, as well as their inefficacy, they should either be abolished or so regulated as to be more effectual. Other complications have been introduced by Acts 22 Car. II, c. 12 (secs. 9 and 12) and 3 W. & M., c. 12 (sec. 9) in regard to what should be the mode of procedure for offences and neglects respecting the public roads.

(p. 34) Besides all this, Act 1 Geo. I, stat. 2, c. 52, is so worded that it seems doubtful whether all the authority given by former Acts as to these matters is not taken away, and the jurisdiction vested in the Special Sessions.

(p. 36) A surveyor, if he is a farmer, or engaged in some other like occupation, is very often ignorant of how the roads should be amended. What effects can we expect to follow from ignorance combined with authority on the one side (i.e., the surveyor) and invincible obstinacy on the other (i.e., the parishioners)?

(p. 37) *But the surveyors in general are not disposed to follow the law in executing their office.* One error they usually make is to consider the respective forfeitures for every day's default as a tax or rate: in consequence of which their practice is, as soon as they enter office, to assess (ex officio) every inhabitant a sum proportional to the labour required of him, which they proceed to collect as soon as possible—like the proper officers do the poor rates. But these several sums are not due until there has been a default to perform the statute labour. In this way the surveyor is open to an action at law for the sums thus collected from the parishioners; and, further, when the notice has been so negligently given, as that its publication cannot be proved by an uninterested witness (i.e., one not liable for statute work in the parish), who can swear to the reading of it by the Clerk, it is no blame if the parishioners do not go to the roads to work.

(p. 38) *Surveyors also are corrupt*, in commuting with parishioners for different amounts, receiving from some 5s., from others 4s., from others half-a-crown, etc., or what many of them like better, a bowl of punch. These things are punishable by a fine of £5, which the Justices in their Sessions have power to impose. Such

evils and many others of like nature are largely owing to the practice of electing tradesmen, and persons in a situation necessarily dependent and subject to influence, into parochial offices. Inferior inhabitants get the offices; while the gentlemen, perhaps from contempt of an employment which requires little more than to be able to write and keep a year's accounts, or for other reasons, sit by and see the public defrauded and the law evaded.

Then Hawkins quotes from Burn on *Justice* (under title "Highways") saying that "Most of the books are remarkably confused under this title, occasioned by a multiplicity of statutes standing unrepealed, and yet altered perhaps five or six times or oftener, by succeeding statutes." Later, Burn says that there is no uniformity of action among the surveyors, and because each has the roads under his charge for at most six days, and his successor has other schemes and notions, the roads are never the better. Hence, it is but natural that the *people have a picnic on statute labour days*. Why should they not, when their work would be to no purpose?

District surveyors, he thinks, should be appointed, with salaries, to lay out the roads and attend and direct the work, and see that it is well done. He thinks this could be done with half the present legal maximum assessment of 6*d.* in the pound.

Burn's objections are two in number: first, the multiplicity of the laws, and second, the ill direction of the power given by them. The latter objection can be overcome by giving that power to those who have no temptation to abuse it; but the first objection he considers very serious.

(p. 43) Existing statutes relating to the amendment and repair of the highways are not fewer than twelve in number, made at different times as need required, and abounding in clauses which legal skill cannot reconcile. Clauses in older statutes have been left unrepealed, though such clauses were altered and amended by subsequent Acts; different penalties have been inflicted for the same transgression by different statutes. Thus the highway laws have so accumulated as to be a subject of universal complaint.

(p. 47) Hawkins then pleads for modifying the highway laws so as to remove inconsistencies. He would reduce all into *one* law, so as to be effective and easy in execution. In making such a law the following points at least should be looked to:

1. The burden on the public should be proportional to their circumstances and abilities to bear it.
2. Those who use the highways most should pay most.
3. The tax on gentlemen of large personal estates, who keep coaches, chariots, etc., should be adjusted in a compound ratio of their wealth and the use they are supposed to make of the highways.
4. Surveyors should be persons of greater property than are usually appointed to that office.

(p. 52) The advantages from the use of broad wheels, he says, are so apparent that it is needless to insist on them; "this is certain, that by means of them the price of carriage from York to London has been reduced forty per cent." He acknowledges that they do not succeed so well on cross-roads as on the great roads, because the former are usually so narrow as to admit of only one track. These ways should be widened, and the use of broad wheels made universal.

(pp. 61-143) In these pages, he draws up a Bill to suit the ends he has in view; and if it were passed all the old laws would be repealed and their useful provisions alone embodied in the new law.

APPENDIX 4

ON LETTING THE TOLLS

USUALLY the tolls were farmed out, and not managed by the trustees of the road on which they were to be collected. Parliament laid down the conditions for letting the tolls, which included the following: "To prevent fraud or any undue preference in the letting thereof, the Trustees are hereby required to provide a Glass with so much sand in it as will run from One End of it to the other in One Minute; which Glass, at the Time of letting the said Tolls, shall be set upon a Table, and immediately after every Bidding the Glass shall be turned, and as soon as the Sand is run out it shall be turned again, and so for Three Times, unless some other Bidding intervenes: And if no other Person shall bid until the Sand shall have run through the Glass for Three Times, the last Bidder shall be the Farmer or Renter of the said Tolls" (Hills, *History of East Grinstead*, p. 158, quoting from Act 3 Geo. IV, c. 126, sec. 55).

When the term for which the tolls had previously been let was near its expiration, the trustees of the turnpike trust usually announced in the newspapers of that locality that they would meet at a certain place, on a certain date, to again let the tolls of the turnpike gates which they controlled. This gave notice to those who wanted to bid for them to appear at that time. The advertisement would read something like the following, which appeared in the *Shrewsbury Chronicle*, Feb. 20, 1773, p. 2:

Notice is hereby given that "at a meeting of the Trustees, to be held at the Guildhall (Shrewsbury), on Tuesday the 23rd instant... the Tolls arising on the Roads leading from Shrewsbury to Preston, Brockhurst, Shawbury, and Shreyhill, in the county of Salop, will be let to the best bidder, for the term of three years, commencing the second day of March next.

John Warren, Clerk to the Trustees."

It was the usual rule that the man to whom the tolls were leased had to pay for the first month in advance, as an evidence of good faith on his part (v. Act 3 Geo. IV, c. 126, sec. 56). But the following advertisement shows that this was not always required, if the lessee could give other satisfactory security. In the *Hereford Journal*, April 20, 1803, p. 1, we find:

"Hereford Turnpike Trust.

Notice is hereby given, that the next Meeting of the Trustees will be held, at the City-Arms Hotel, in the City of Hereford, on Tuesday, the Third day of May next, when the tolls arising from the several Turnpike-Gates belonging to this Trust will be Let by Auction to the best Bidder, who will be required to give security, to the satisfaction of the Trustees then present, for the performance of his or their contracts.

Particulars by applying to Mr. J. Coren, Clerk to the Trustees.

N.B. New Trustees will then be appointed.

Apr. 2, 1803."

Instead of leaving the notice in the above indefinite terms as to the price, it was common to stipulate what was the lowest amount for which the gates would be put up at auction (v. *Hereford Journal*, Dec. 4, 1805, p. 2; *Norfolk Chronicle and Norwich Gazette*, Aug. 27, 1814, p. 3); or else to give the amount for which they

were let the preceding year (v. *Newcastle Courant*, April 16, 1774, pp. 2, 3); or, in some cases, in addition to the gross revenue, to give the amount which the toll realized, clear of the expenses of collection, during the last year or term of years (v. *British Volunteer and Manchester Weekly Express*, April 27, 1822, p. 1; Felix Farley's *Bristol Journal*, Feb. 10, 1787, p. 3). It is evident that, by these means, the tolls would tend to progressively increase from year to year. Sometimes the lease would be made for only one year, or two years, or three years, or the trustees might give the lessee an option on this (v. *Newcastle Courant*, April 16, 1774, p. 3).

The method of letting the tolls, as told by one who had seen the process (v. Fowler, *Records of Old Times*, pp. 18-20), well illustrates why it was that the tolls did not continuously increase. The trustees, who were mostly country gentlemen of the district, gathered at the principal inn at the county town in considerable numbers. Usually the trustees gave a guinea for each gate let, to be expended in refreshments; and as there were generally six or eight gates, there would be that number of guineas spent among about forty or fifty "pikers," as they were called, who attended, but only about six or seven of these would be bidders and lessees; these were men of capital, who rarely collected their own tolls. Those who witnessed these meetings called them the "Whispering Society," as the company scattered about the inn yard in small groups were in full conclave, all in whispers; one would run off and whisper to another group and return again, when they would be approached by another envoy, while circulating rapidly among them was one of the *bona fide* bidders, evidently making terms with several threatening opponents and promising from one to five pounds to the recipient who kept from bidding. At the appointed time, a rish was made to the auction room, where the trustees, with their clerks, treasurers, surveyors and other officers were assembled. After the conditions were read the letting commenced, but it sometimes happened that the whispering had been so effective, that not a single offer was made, to the astonishment of the trustees, who had not seen the manoeuvres that had been going on in the yard for more than an hour. As no biddings were made, it was then announced that the upset price was (say) £200 for each gate, and that unless that sum were obtained the gates would be withdrawn and the trustees would put in their own collectors and farm the gates themselves. When the sum was announced, a general groan of horror went round, and the trustees were told that the offer was so outrageous it could not be listened to; that the last two years the gates had not produced more than £180 to £190, and that the lessees had lost all their wages and expenses, but if they would listen to reason a tenant could be found at £150. Suddenly some stranger to the "pikers," a decoy put up by the auctioneer, would bid £180, at which there would be a burst of indignation and outbreak of insulting by-play. By a continuous series of "card-playings," the bidders would keep down the prices of the gates to about the £200; and very often the former lessee who had declared that he had lost so much by taking the gates for the last two years, was anxious to again have them since they had really been profitable to him. All the whispering that had taken place beforehand represented an endeavour to buy off every dangerous opponent. Many persons came down from London and elsewhere, under pretence of taking the gates, who earned a sovereign or even £3, as payment for the day's work, from the lessee, who had probably held the gates for the past two or three years and was reluctant to lose them. Other evils connected with letting the tolls are given in Pagan, *Road Reform*, pp. 173-6, and by James and William Macadam in *Parl. Papers*, 1833 (703), xv, 409, pp. 497, 555.

The business of contracting to take leases of turnpikes was in many instances a very expensive one. The gentleman who took most of the gates in Buckinghamshire and some adjoining counties was a Mr Tongue, living at Manchester, and it was

estimated that he had over £50,000 annually embarked in gate holdings. He retained a regular staff of collectors, who moved about from one part of the country to another as his confidential servants (Fowler, *op. cit.*, pp. 18-20). Sometimes individuals, who were in the habit of hiring the tolls to a large amount, united into a company and leased a great number of gates, until they had from £100,000 to £200,000 a year embarked in this kind of investment. Because of this monopoly of tolls, it often happened that upon two parallel lines of road in the control of the same lessee, the one paying the lower toll would be sacrificed to the other paying the higher toll; *Parl. Papers*, 1833 (703), xv, 409, 'Second Report of the Lords Committee on Turnpike Returns,' p. 497; *Hansard's Parliamentary Debates*, 1835, xxix, pp. 1183-92.

APPENDIX 5

RATE OF TRAVELLING, 1750-1830

I HAVE endeavoured to bring together in the following statistical table only such data as are most authentic, and to indicate in each case the source of the information, so that it may be easily verified. It must not be thought that the matter here presented is absolutely accurate, for the writer makes no claim to such precision; as a matter of fact, it has been impossible to secure even correct distances between places, because we have no measurements of the roads which give us this information with guaranteed accuracy. Further, the changing and straightening of the roads, accompanied sometimes by slight changes in the coaching routes, would vitiate any series of mileage figures which we might have. These things I have taken into account in the computation of the mileage and it will be seen that the distance sometimes varies; for between two places the length of the road differed, according to the route taken and the straightness or crookedness of the road. The same difficulties appear with reference to time, for a day at one part of the year or with one person, did not mean the same as at another part of the year or with another person; for example, days in summer were long, while the days in winter were short. It was not until the coaches were timed by hours and minutes that we get accuracy in this particular. In some instances, the length of time required to perform a journey included the time spent at nights in the inns along the route; but we have no knowledge of how much time was thus consumed. With all these liabilities to error, and others which we need not here mention, it will be apparent that the best we can get is an approximation to the truth. The great amount of statistical material presented is intended to avoid any errors due to paucity of data upon which conclusions might be based; and, making all due allowance for these variations, it is claimed that the statistics are as reliable as the available information will permit. The inferences drawn from them will be found in the text.

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1748	Ipswich—London	70	one day	—	70	Defoe, <i>Tour through the Whole Island of Great Britain</i> , 1, p. 30	
1751	London—Dover	75	A little more than a day	—	about 70	<i>London Evening Post</i> , Mar. 28, 1751	
1752	London—Newbury	57	12 hours	4½	—	Advertisement of coach given in Money, <i>History of Newbury</i> , p. 338	
	(Unknown)	over 126	2 days	—	63	Brit. Mus., 10,349, g. 11.	
	London—Bath	110	2 days	—	55	'A Journey through England,' p. 82 Ibid., p. 139	Left London 2 a.m.; stayed at Newbury next night about 8 hrs.; left Newbury about 2 a.m., and reached Bath 7 p.m.—two long days of summer
	Birmingham—London	110	2 days summer	—	55	Aris's <i>Birmingham Gazette</i> , Mar. 30, 1752, p. 4	
	Birmingham—London	110	3 days summer	—	37	Ibid., April 13, 1752, p. 2	This was the "Shrewsbury and Birmingham Caravan," and was probably a heavy vehicle that carried some freight too
	Shrewsbury, via Birmingham, to London	158	4 days summer	—	40	Ibid.	
	London—York	209	4 days	—	50	<i>Archæologia Aeliana</i> ,	
1754	London—Newcastle	290	6 day	—	18	N.S., III, p. 247	

1754
 London—York
 London—Newcastle

209 4 days
 290 6 day

Archæologia Acliana,
 N.S., III, p. 247

Year	Route	Days	Price	Season	Notes	Reference
1754	London—Edinburgh	10 days summer 12 days winter	400	—	—	Advertisement of coach given in Malet, <i>Annals of the Road</i> , p. 13, as quoted from the <i>Edinburgh Courant</i> , 1754
	Manchester—London	4½ days	200	—	45	Malet, <i>Annals of the Road</i> , p. 12
	Chelmsford—London	5 hours	31	6 + summer	—	Advertisement of coach given in Thrupp, <i>History of Coaches</i> , p. 107; taken from <i>Ipswich Journal</i> , Aug. 1754
1756	London—Brighton	1 day	57	—	57	<i>Hills, History of East Grinstead</i> , p. 147
	Birmingham, via Stratford, to London Birmingham, via Warwick, to London	2½ days summer 3 days winter	120 110	—	48 37	Aris's <i>Birmingham Gazette</i> , Nov. 15, 1756, p. 4 Ibid.
1757	London—Lewes	1 day	56	—	56	Blew, <i>Brighton and Its Coaches</i> , p. 35
	Warrington—London	3 days	200	—	67	Williamson's <i>Liverpool Advertiser</i> , June 9, 1757
1760	Liverpool—London	3 days	210	—	70	Malet, <i>Annals of the Road</i> , p. 14, quoting from the advertisement
	Birmingham, via Enstone and Oxford, to London	2 days	120	—	60	Brit. Mus. MSS. 23,001, 'Dr Pococke's Travels in England', III
	Birmingham, via Stratford, to London Manchester—London	2 days summer 3 days	120 200	—	60 67	Aris's <i>Birmingham Gazette</i> , May 9, 1757 Axon, <i>Annals of Manchester</i> , p. 93

J. T. II.

15

Daily in summer

Went three times a week; returned alternate days

The Birmingham and Stratford Stage Coach
 The Birmingham and Warwick Old Stage Coach

Took from Monday morning till Wednesday evening

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1760	London—Leeds	190	4 days	—	47	Advertisement of Glanville's Coaches in Ward's <i>Sheffield Public Advertiser</i> , Nov. 4, 1760	This was doubtless winter rate
	London—Sheffield	150	3 days	—	50		
1761	Birmingham—Bristol	86	2 days summer	—	43	Aris's <i>Birmingham Gazette</i> , Apr. 28, 1760, p. 2	Coach advertisement. The passengers slept the two nights at Northampton and Nottingham
	London—Leeds	190	3 days summer	—	63	<i>Leeds Intelligencer</i> , May 19, 1761, p. 3	
	London—York	200	3 days summer 4 days winter	—	67 summer 50 winter	<i>Archæologia Acliana</i> , N.S., iii, p. 248	
1762	Newcastle—London	290	5 days	—	58	<i>Ibid.</i>	Coach advertisement. Left Newcastle in the morning, stayed that night at Kelso; reached Edinburgh next evening
	Plymouth—Exeter	40	12 hours	3½	—	Worth, <i>History of Plymouth</i> , p. 340	
1763	Newcastle—Edinburgh	105	2 days	—	52	<i>Archæologia Acliana</i> , N.S., iii, p. 249	Left Newcastle in the morning, stayed that night at Kelso; reached Edinburgh next evening
	York—Newcastle	90	1 day	—	90	<i>Ibid.</i> , p. 248	
1764	Leeds—London	190	4 days	—	47	Coach advertisement, quoted in Parsons, <i>History of Leeds</i> , i, p. 130	Went 3 times a week, but only in summer. All former coaches went only once a week
	Shrewsbury—London	158	2 days summer	—	79	Owen and Blakeway, <i>History of Shrewsbury</i> , i, p. 515	

	1765	Newcastle—London	201	3 days summer	—	96 summer	Coach advertisement, quoted in <i>Archæologia Antiana</i> , N.S., III, p. 248. Brit. Mus., Add. MSS. 27,828, p. 9, gives the advertisement of this coach	Slower rate in winter. Nights sometimes cut short for sleep. Take out 10 hours for the night at Andover, and we have 24 hours left
		Bath—London	110	ca. 23 hours	4½ to 5	—		
1766		Liverpool—London	210	2 days summer 3 days winter	—	105 summer 70 winter	{ Picton, <i>Memorials of Liverpool</i> , II, p. 116, quoting from first Liverpool directory	
1769		Leeds—London	190	2½ days	—	76	Parsons, <i>History of Leeds</i> , I, p. 130	
1772		Shrewsbury—London	158	1½ day	—	105	Owen and Blakeway, <i>History of Shrewsbury</i> , I, p. 515	This was during the summer only
1773		Manchester—Liverpool	35	12 hours	3	—	{ <i>Manchester Collectanea</i> , in Chetham Society Publications, LXVIII, p. 127	
1774		Shrewsbury, via Birmingham, to London Newcastle—York	158 90	1½ day ca. 16 hours	— 5½	105 —	{ Axon, <i>Annals of Manchester</i> , p. 102 <i>Shrewsbury Chronicle</i> , July 9, 1774, p. 1 <i>Newcastle Courant</i> , April 16, 1774, p. 2	During the summer only The advertisement gives the time as 18 hours, which includes two stoppages (say 1 hour each) for meals
		London—York Edinburgh—London Southampton—London	200 ca. 400 80	2 days 4 days 14½ hours	— — 5½	106 ca. 100 —	Ibid. Ibid., p. 4 <i>Southampton Guide</i> , 1774, p. 63	
		Liverpool—Preston and return	68	1 day	—	68	Williamson's <i>Liverpool Advertiser</i> , June 24, 1774	

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1775	Birmingham, via Oxford, to London	120	18 hours	ca. 7	—	<i>Shrewsbury Chronicle</i> , April 15, 1775, p. 3	Both these were in summer. Latter road was stony and hilly
	London—Oxford	60	9-9½ hours	6½-6¾	—	Brit. Mus., Add. MSS. 17,398, pp. 50, 102	
	Hereford—Monmouth	17½	3-4 hours	5½	—	Ibid., p. 58	
	Newcastle—London	200	3 days	—	97	Armstrong, <i>Post Roads between London and Edinburgh</i> , 1776, p. 5	
1776	Newcastle—Edinburgh	105	1 day summer 1½ day winter	—	105 summer 70 winter	Ibid.	Went 3 times a week Flying coach Went 3 times a week York Old Coach and Y. Diligence It probably did not take a full day's time, for it left London at 10 p.m.
	London—York	200	36 hours	5½	—	Ibid.	
	York—Newcastle	90	1 day	—	90	Ibid.	
	York—London	200	2 days	—	100	Ibid.	
	London—Stamford	90	1 day	—	90	Ibid., p. 6	
	London—Leeds London—Lincoln	190 131	2 days 1 day	— —	95 131	Ibid. Ibid.	
1777	London—Bristol	120	2 days	—	60 winter	Felix Farley's <i>Bristol Journal</i> , Nov. 2, 1776, p. 2	Night coach; left London twice a week or post coach
	Bristol—Bath	11	2 hours	5½	—	Bonner and Middleton's <i>Bristol Journal</i> , Jan. 13, 1776, p. 1	
	Bristol—London	120	18 hours	ca. 7	—	<i>Bristol Gazette and Public Advertiser</i> , Aug. 7, 1777, p. 1	
	Exeter—Bath	85	15 hours	ca. 6	—	Ibid.	

1777	Exeter—Bristol Bath—Exeter, via Bridgewater and Taunton	75 80	13 hours 15 hours	ca. 6 34	—	Ibid. Ibid.	Coach advertisement
1778	Bristol—Exeter	75	13 hours	ca. 6	—	Ibid.	Coach advertisement
	Birmingham—Bristol	86	1 day or 16 hours	5½	86	Aris's <i>Birmingham Gazette</i> , Mar. 30, 1778, p. 1	Went 3 times a week
	Birmingham—London	110	14 day summer	—	73	Ibid., April 20, 1778, p. 3	"The Owl and Original Shrewsbury. Wolverhampton and Birmingham Fly."
	Shrewsbury, via Oxford, to London	160	1½ day summer	—	107	Ibid.	"The Shrewsbury New Fly."
	Birmingham—Sheffield	73	1 day summer	—	73	Ibid., May 25, 1778, p. 2	"The Birmingham and Sheffield Post Coach."
	Coventry—London	90	16 hours summer	5½	—	Ibid.	Post coach, daily except Saturday
	Birmingham, via Oxford, to London	120	18 hours summer	6½	—	Ibid., Oct. 5, 1778, p. 2	Same speed as the one above, but went only 3 times a week
	Birmingham, via Oxford, to London	120	1 day summer	—	120	Ibid.	
1779	Bristol—Weymouth	72	12 hours	6	—	Felix Farley's <i>Bristol Journal</i> , Aug. 14, 1779, p. 1	This must have meant from 22 to 24 hours
	Bristol—London	120	1 day	—	120	Ibid.	This post coach probably stopped over night on the road
	Bristol—London	120	2 days	—	60	Ibid.	
	London—Glasgow or Portpatrick	400	4 days	—	100	Advertisement given in full in Malet, <i>Annals of the Road</i> , p. 24	
	Shrewsbury—London	158	31 hours summer	5+	—	Aris's <i>Birmingham Gazette</i> , April 12, 1779, p. 1	
	London—Birmingham	110	18-19 hours summer	6	—	Ibid.	
	Shrewsbury—Birmingham	46	9 hours summer	5+	—	Ibid.	

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1780	Birmingham—Manchester	85	1 day summer	—	85	Aris's <i>Birmingham Gazette</i> , April 10, 1780, p. 1 Ibid.	3 times a week (coach)
	Birmingham—London	110	19 hours summer	6	—	Jackson's <i>Oxford Journal</i> , July 29, 1780, p. 3	3 times a week (diff-gence) Coach advertisement
1781	Stroud—London	110	1 day	—	110	Aris's <i>Birmingham Gazette</i> , Aug. 20, 1781, p. 1	Post coach
	Birmingham—Manchester	85	13 hours summer	6½	—	Picton, <i>Memorials of Liverpool</i> , II, p. 116 Ibid.	Daily
	Liverpool—London	210	40 hours	5	—	Jackson's <i>Oxford Journal</i> , Jan. 13, 1781, p. 3	These were the slower coaches; one daily and two 3 times a week
	Liverpool—London	210	2 days	—	105	Ibid., April 28, 1781, p. 4 Ibid., June 9, 1781, p. 2	Coach advertisements
	Stroud—London	110	2 days	—	55	<i>Manchester Collectanea</i> , in Chetham Society Publications, LXVIII, p. 135	
	London—Wantage Oxford—Bath Manchester—Birmingham	68 68 85	11 hours 11 hours 15 hours	6 6 ea. 6	— — —	Aris's <i>Birmingham Gazette</i> , Jan. 7, 1782, p. 1 Ibid.	
1782	Birmingham—Bristol	86	14 hours winter	6	—	Hall, <i>History of Nantwich</i> , p. 233, quoting from <i>Chester Guide Book of 1782</i>	
	Birmingham—London	110	22 hours winter	5	—	Jackson's <i>Oxford Journal</i> , Nov. 12, 1782, p. 4	Coach advertisement
	Chester—London	180	2 days summer 2½ days winter	— —	90 summer 72 winter		
	Oxford—Birmingham	60	23 hours	3	—		

1782	London—Bristol	120	1 day	—	120	Coach advertisement
	Bristol—London	120	18 hours	6½	—	Coach advertisement
1783	Bristol—Birmingham	86	1 day	—	86	
1784	London—Bristol	120	1 day	—	120	This probably meant 18 to 20 hours at least, for it was before Palmer's coaches started
	London—Bristol	120	16 hours	7½	—	These were Palmer's coaches
	London—Bath	110	14 hours	ca. 8	—	
	London—Liverpool	210	30 hours	7	—	
	Bath—London	110	1 day	—	110	
	Bath—London	110	2 days	—	55	So there were both one and two-day coaches at the same time
1785	London—Chester	180	2 days	—	90	Coach advertisements
	Chester—Holyhead	60	14 day	—	48	
	Newcastle—London	290	less than 2 days	—	145 +	
	Bristol—Portsmouth	88	15 hours	6	—	Left Newcastle 10 p.m.; got to London at close of third day
	Birmingham—London	110	19 hours	6	—	Palmer's mail coach. On cross post roads he could not go so fast
	London—Norwich	108	15 hours	7 +	—	Palmer's mail coaches. They brought mail from London a day sooner than by the old means

Constitutional Chronicle, Jan. 24, 1782, p. 1
 Sarah Farley's *Bristol Journal*, Aug. 3, 1782, p. 2
 Felix Farley's *Bristol Journal*, Jan. 18, 1783
 Bonner and Middleton's *Bristol Journal*, April 17, 1784
 Felix Farley's *Bristol Journal*, Oct. 2, 1784, p. 1
 Gore's *Liverpool Advertiser*, July 22, 1784;
 Baines, *Hist. of Liverpool*, p. 468
The New Bath Guide, 1784, p. 72
Ibid., p. 73
Morning Chronicle and London Advertiser, Jan. 8, 1785, p. 4
Archæologia Aethiana, N.S., III, p. 249
 Bonner and Middleton's *Bristol Journal*, May 7, 1785
 Brit. Mus., Add. MSS. 27,828, p. 11
 Mason, *History of Norfolk*, I, p. 10; Bayne, *History of Norwich*, p. 282

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1786	London—Chester	180	2 days	—	90	<i>General Advertiser</i> , Oct. 20, 1786, p. 4, and Nov. 14, 1786, p. 4	Lay at Coventry the intervening night for 9 hours. This post coach carried only 4 insiders and a servant on the box
	London—Chester	180	30 hours	6	—	<i>Ibid.</i> , Oct. 20, 1786, p. 4	
	Chester—Holyhead	60	1 day	—	60	<i>Ibid.</i>	
	London—Chester	180	37 hours	5	—	<i>Ibid.</i> , Dec. 8, 1786, p. 1	
	London, via Oxford, to Birmingham	120	16 hours	7½	—	<i>Ibid.</i> , Dec. 22, 1786, p. 1	There was also a two-day coach that went very leisurely
	London—Plymouth	215	28 hours	7½	—	<i>St James Chronicle</i> , Dec. 7, 1786, p. 2	Coa. 1 advertisement
1787	London—Sheffield	150	26 hours	6	—	<i>Leader, Sheffield in the Eighteenth Century</i> , p. 100	91 ¹ journey in 1760 to ca. 3 days
	London—Manchester	195	1 day summer	—	195	<i>General Advertiser</i> , May 21, 1787, p. 4	
	Bristol—London	120	18 hours	ca. 7	—	Felix Farley's <i>Bristol Journal</i> , Jan. 6, 1787, p. 1	
	Bristol—Birmingham	86	15 hours	5½	—	<i>Ibid.</i> , July 28, 1787, p. 1	Palmer's mail coach
1788	Manchester—London	195	28 hours	7	—	<i>Manchester Collectanea</i> , in Chetham Society Publications, LXVIII, p. 153	
	Shrewsbury—London	158	ca. 22 hours	7+	—	Advertisement given in <i>Stapian Shreds and Patches</i> , 1, p. 55	

Year	Route	Mileage	Time	Hours	Days	Source	Notes
1788	Oxford—Bristol (via Favington, Fairford, Cirencester, Tetbury, Sodbury)	72	11½ hours	6	—	Felix Farley's <i>Bristol Journal</i> , May 17, 1788, p. 3	Post coach
	Bristol—Birmingham	86	14 hours	6	—	<i>Ibid.</i>	Palmer's mail coach
	Birmingham—Manchester	85	1 day	—	85	<i>Bristol Gazette and Public Advertiser</i> , May 15, 1788, p. 3	Slept at Newcastle on the way
	Birmingham—Manchester	85	27 hours (16 hours)	5½	—	<i>Ibid.</i>	If we take, say, 11 hours out as the time occupied in resting at night, it will leave 16 hours on the road
1789	London—Bristol	120	16 hours	7½	—	<i>Bath Chronicle</i> , April 17, 1788, p. 2	Some other coaches took 1½ day
	Chester—London	180	36 hours	5	—	Hall, <i>History of Nantwich</i> , p. 233, quoting from <i>Chester Guide Book of 1789</i>	
	Bath—Exeter	80	11½ hours	7	—	<i>Bath Chronicle</i> , Jan. 8, 1789, p. 1	
	Bath—London	110	1 day	—	110	<i>Ibid.</i> , p. 2	
	Bath—London	110	1½ day	—	73		
1790	Bath—London	110	2 days	—	55		
	Oxford—Southampton	38	12 hours	3+	—	Jackson's <i>Oxford Journal</i> , June 5, 1790, p. 4	
	London—Brighton	57	9 hours	6½	—	Blew, <i>Brighton and Its Coaches</i> , p. 39	
1791	London—Salisbury	88	8 to 10 hours	9 to 11	—	Brit. Mus., Add. MSS. 28,570, p. 38, June 15	This was summer. Left London soon after 10 a.m.; supped and slept at Salisbury
	Salisbury—Exeter	90	8 to 10 hours	9 to 11	—	<i>Ibid.</i> , June 16	Left Salisbury soon after 10 a.m.; supped and slept at Exeter

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1791	Exeter—Truro	88	9 to 11 hours	8 to 9½	—	Brit. Mus., Add. MSS. 28,570, p. 38, June 17	Left Exeter soon after 9 a.m.; supped and slept at Truro
	Hull—London	185	3 days	—	62	Battle, <i>Hull Directory</i> , 1791, pp. 65-73	
	Dover—Canterbury	16	a little over 2 hours	ca. 8	—	Brit. Mus. 567, c. 7, 'Beytraege zur Kenntniss von England', 1, p. 7	
	London—Brighton	57	8 hours	7	—	Blew, op. cit., pp. 32, 65	
	London—Shrewsbury	158	2½ hours	5½	—	<i>Morning Chronicle</i> , April 29, 1791, p. 1	Coach advertisement
	London—Bristol	120	17 hours	7	—	Ibid.	Advertisement said this was the only coach that ran through to Bristol in a day
	London—Bath	110	15 hours	7	—	Ibid.	
	London—Leeds	190	28½ hours	ca. 7	—	<i>Morning Post and Daily Advertiser</i> , July 20, 1791, p. 1	
1792	London—Cambridge	55	8 hours	ca. 7	—	Brit. Mus., Add. MSS. 30,173, p. 22	
	Lichfield—Birmingham	17	3½ hours	5	—	Ibid.	
1793	London—Southampton	10	2 hours	5	—	Baird, <i>Agriculture of Middlesex</i> , p. 35	
	London—Cambridge	80	10-12 hours	6½-8	—	<i>The World</i> , Sept. 18, 1793, p. 4	
	London—Cambridge	55	6½ hours	9	—	Ibid.	
	London—Wisebeach	98	13 hours	7½	—	Ibid.	
	London—Bath	110	15 hours	7	—	Ibid.	
1796	London—Cambridge	55	8 hours	7	—	<i>Cambridge Directory</i> , 1796, p. 159	London and Cambridge Diligence

1796 London—Cambridge
55
8 hours
7
Cambridge Directory,
1796, p. 159
London and Cambridge
Diligence

1796	London—Cambridge Wisbeach—Cambridge Cambridge—London Cambridge—Birmingham York—London Sidmouth—Exmouth	55 34 55 105 200 10	7½ hours 8½ hours 10 hours 2 days 31 hours 7 hours	7½ 4 5½ — ca. 7 1½	— — — 32½ — —	Ibid., p. 159 Ibid., p. 159 Ibid., p. 160 Ibid., p. 161 York Guide, 1796, p. 43 Brit. Mus., Add. MSS. 28,793, p. 46 Ibid., p. 57 Ibid., p. 63 Ibid., p. 124 Harris, <i>The Coaching Age</i> , p. 279 Middleton, <i>Life of the Agriculture of Middle- sex</i> , p. 394	Royal Mail Coach "The Fly" Post coach. Sept. 29, 1797 Nov. 1797
1798	Oakhampton—Launceston Launceston—Bodmin Penzance—Helston Edinburgh—London	20 21 14 400	4 hours 4 + hours 2 + hours 3 nights and 2 days	5 5 7 7	— — — 160	I have called this 2½ days of 24 hours each Rates include all stop- pages. Difference in due to difference in amount of time con- sumed in stoppages Distance is given as 57- 59 miles Time taken was from 7 a.m. to 12 p.m., or 17 hours. But take out an hour each for dinner and supper	
1800	Brighton—London	58	9-10 hours summer	6-6½	—	<i>Brightonston Guide</i> , 1800, p. 82	
1805	Manchester—Kendal	75	15 hours	5	—	Brit. Mus., Add. MSS. 30,929, p. 16	
1808	Birmingham—Notting- ham	50	9-9½ hours winter	5-5½	—	<i>Art's Birmingham Ga- zette</i> , Feb. 15, 1808, p. 1 Simond's <i>Travels in Great Britain</i> , 1, p. 16	
1810	Bath—Ilfracombe	100	2 days	4-4½	—	Jackson, <i>The Bath Ar- chives</i> , 1, p. 132	

"Our rate of travelling
does not exceed six
miles an hour, includ-
ing stoppages, but we
might go faster if we
desired it"
Hills were steep and
frequent, the weather
was warm, and they
were heavily laden

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1810	London—Liverpool	210	31 hours	7	—	<i>Manchester Guardian</i> , April 3, 1830, p. 3	This certainly was extremely easy traveling on such a road. Stayed, say, 2 hours at Leeds for dinner
1812	London—Bath	110	2 days	—	55	<i>George Jackson</i> , pp. 382, 387	
	Hull—Manchester (via York and Leeds)	105	14 hours	7½	—	<i>York Herald, County and General Advertiser</i> , July 25, 1812, p. 1	
1813	Cambridge—Leicester (via Huntingdon, Stilton, Stamford and Uppingham)	75	12 hours	6¼	—	<i>Cambridge Chronicle and Journal</i> , Oct. 29, 1813, p. 1	
	Leicester—Birmingham	40	7-8 hours	5½	—	<i>Ibid.</i>	
1815	London—East Grinstead London—Brighton	30 57	5 hours 10 hours	6 ea. 6	— —	<i>Hills, History of East Grinstead</i> , p. 152, quoting from Cary's <i>Itinerary of the Great Roads</i> , 1815	
	Cambridge—London	55	7 hours	8	—	<i>Cambridge Chronicle and Journal</i> , Oct. 27, 1815, p. 3	
1816	London—Brighton	57	6 hours	9½	—	<i>Blew, Brighton and Its Coaches</i> , pp. 103-4, 137, 138	
1818	Shrewsbury—London	158	16 hours	ea. 10	—	<i>Solopian Shreds and Patches</i> , 1, p. 55	
	York—London	200	29½ hours	6½	—	Hargrove, <i>History of York</i> , 1818, Vol. II, Pt. II, pp. 671-7	
	York—Liverpool	90	18½ hours	5	—		
	York—Edinburgh	ea. 200	29½ hours	6¾	—		

Mail coaches. York to Liverpool was a cross-road, not one of the main thoroughfares

1818	York—London	200	30½—31 hours	6½	Ibid.	} These were the stage coaches This was not one of the great thoroughfares
1819	York—Edinburgh Bristol—Exeter	ca. 200 75	30 hours 14 hours	6½ 5½	Ibid. Latimer, <i>Annals of Bristol in the Nineteenth Century</i> , p. 84	
	Liverpool—Nottingham	100 +	8½ hours	12	<i>Liverpool Mercury</i> , July 9, 1819	} The paper called this a rate of 14 miles per hour, but that was erroneous Coach stopped at Birmingham over night; so that the time spent in travel would not be more than 24 hours
	Nottingham—Liverpool	100	9 hours	11	<i>Hampshire Telegraph and Sussex Chronicle</i> , July 19, 1819, p. 3	
1820	Bristol, via Birmingham, to Manchester	170	2 days or 24 hours	7	Latimer, <i>Annals of Bristol in the Nineteenth Century</i> , p. 84	} These were three different coaches
1821	London—Dover	75	10 hours	7½	<i>The Times</i> , July 28, 1821, p. 2	
	London—Manchester	185	19 hours	ca. 10	Ibid., Oct. 8, 1821, p. 3	} These were three different coaches
	London—Southampton	80	9 hours summer	9	<i>The British Traveller</i> , July 20, 1821, p. 1	
	London—Liverpool	210	30 "	7	Ibid.	
	London—Leeds	190	26 "	7½	Ibid.	
	London—Birmingham	110	17 "	6½	Ibid.	
	London—Manchester	185	26 "	7 +	Ibid., Oct. 12, 1821, p. 1	
	London—Manchester	185	27 "	ca. 7	Ibid.	
	London—Manchester	185	24 "	ca. 8	Ibid.	
	London—Liverpool	210	30 "	7	Ibid.	
	London—Exeter	ca. 175	26 "	6½	Ibid.	
	London—Nottingham	120	18 "	6½	Ibid.	
	London—Norwich	108	14 "	7½	Ibid.	
	London, via Northampton, Market Harborough and Leicester, to Derby	130	18 "	7½	Ibid.	

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1821	Birmingham—London	110	15 hours winter	7½	—	Aris's <i>Birmingham Gazette</i> , Jan. 8, 1821, p. 1	These were all different coaches Two different coaches Two different coaches
	Birmingham—London	110	15 hours summer	7½	—	Ibid., April 2, 1821, p. 3	
	Birmingham—London	110	18½ hours winter	6	—	Ibid., Jan. 8, 1821, p. 1	
	Birmingham—London	110	15½ " "	7	—	Ibid.	
	Birmingham—Oxford	60	7½ " "	ca. 8	—	Ibid.	
	Birmingham—Oxford	60	8½ " "	7	—	Ibid.	
	Birmingham—Liverpool	98	13 hours summer	7½	—	Ibid., Oct. 15, 1821, p. 1	
	Birmingham—Liverpool	98	13 " "	7½	—	Ibid.	
	London—Manchester	185	19 " "	ca. 10	—	Ibid.	
	Birmingham—Manchester	85	10½ hours winter	8	—	Ibid., Nov. 19, 1821, p. 1	
	Birmingham—Manchester	85	10½ hours winter	8	—	Owen and Blakeway, <i>History of Shrewsbury</i> , 1, p. 519	
	Shrewsbury—London	158	18 hours	9	—	<i>History of Shrewsbury</i> , 1, p. 519	
	1822	Birmingham—Bath	88	12½ hours summer	7	—		Aris's Birmingham Gazette, April 15, 1822, p. 1
Birmingham—London		110	14 " "	8	—	Ibid., July 21, 1823, p. 1	
Manchester—London		185	ca. 22 hours	ca. 9	—	<i>Manchester Gazette</i> , July 24, 1824, p. 1	
Manchester—Birmingham		85	11½ hours	ca. 8	—	Ibid.	
1825	Colechester—London	56	ca. 6 hours	9+	—	Cromwell, <i>History of Colchester</i> , p. 408	
	Birmingham—London	110	13 hours winter	8½	—	Aris's <i>Birmingham Gazette</i> , Jan. 10, 1825, p. 1; Jan. 31, 1825	
1823	Birmingham—London	110	12¼ " "	9	—	Ibid., Jan. 31, 1825	
	Birmingham—London	110	13¼ " "	8+	—	Ibid.	
	Birmingham—London	110	14¼ " "	7¾	—	Ibid.	
	Birmingham—London	200	24-25 hours winter	8	—	<i>London Magazine</i> , N.S., 1, 1825, p. 36	
	London—York	200	24-25 hours winter	8	—	<i>London Magazine</i> , N.S., 1, 1825, p. 36	

This was called "superior travelling"

Year	Route	Miles	Time	Notes	Source
1826	Liverpool—Manchester	35	2 hrs 32 mins	14	Baines, <i>History of Liverpool</i> , p. 624 <i>The Times</i> , April 8, 1826, p. 1
1828	London—Liverpool	210	26 hours	8+	Coach advertisement given in Oxford Historical Society, <i>Collectanea</i> , IV, p. 278
	Oxford—London	60	6 hours	10	Brit. Mus., Add. MSS. 27,828, p. 17 Blew, <i>Brighton and Its Coaches</i> , p. 158
1829	London—Exeter	ca. 175	20 hours	8½	
	London—Brighton	57	7 hours	8	
1829	Gloucester—London	120	12 hours	10	Counsel, <i>History of Gloucester</i> , p. 209
	Birmingham—London	110	12 hours	9	<i>Birmingham Journal</i> , Oct. 17, 1829, p. 1
1830	London—Dunstable	40	3 hrs 50 mins	10	Smith, <i>Dunstable</i> , p. 112
	London—Manchester	185–200	20 hours	9½–10	Advertisement of "Beelive" coach given in Harris, <i>Old Coaching Days</i> , pp. 43–45
1830	London—Birmingham	109	7 hrs 35 mins	ca. 15	<i>Manchester Guardian</i> , May 8, 1830, p. 3
	Liverpool—Manchester	35	4 hours	9	<i>Annual Register</i> , 1832, p. 445
1830	Liverpool—Manchester	35	3½ hours	10	Baines, <i>History of Liverpool</i> , p. 575
	Birmingham—London	110	12 hours summer	9+	Aris's <i>Birmingham Gazette</i> , May 24, 1830, p. 1 <i>Ibid.</i>
1830	Birmingham—London	110	12 hours summer	9+	
	Birmingham—Liverpool	110	13 "	8½	
1830	Birmingham—Liverpool	98	11 "	9	
	Liverpool—Manchester	35	4 "	9	<i>Great Western Railway. Evidence on the London and Birmingham Railway Bill</i> , p. 8, testimony of Henry Booth

This speed was not hard upon the horses. It would seem that the earlier six-hour coaches were not fully successful

The straightening of this road had doubtless shortened the distance

Special occasion

By furious driving it could be done in 24 hours. See under year 1826

London Magazine, N.S., 1, 1825, p. 36

24–25 hours winter

200

London—Liverpool

1826

Year	Termini	No. of miles	Time required	No. of miles per hour	No. of miles per day	Source of Authority	Remarks
1830	Coventry—London	90	10 hours	9	—	West, <i>History of Warwickshire</i> , p. 782	It will be noted that there is much diversity between these figures and those given by Harris below. And yet different kinds of coaches travelled at different rates which may account for the diversity.
	Coventry—Manchester	100	13½ hours	7½	—		
	Coventry—Cambridge	81	1 day	—	81		
	Manchester—Leeds	45	7-8 hrs, stage C. 6 hrs, mail C.	5½-6½ 7½	—		
ca. 1832	London—Birmingham	110	12 hours	9 +	—	Baines, <i>On the Track of the Mail Coach</i> , pp. 30, 32	
	London—Exeter	ca. 175	17½ hours	10	—		
	London—Leicester	92	11¼ hours	8	—		
	London—Manchester	185	17¼ hours	ca. 11	—		
	London—Brewsbury	158	16 hours	ca. 10	—		
	Gloucester—Brighton	152	15 hours	10	—		
	London—Brighton	57	4 hrs 10 mins	ca. 14	—	Blew, <i>Brighton and Its Coaches</i> , p. 182	
	Braybrooke—London and return	160	12 hours	13½	—	<i>Railway Bill. Extracts from Minutes of Evidence given before the Committee of the Lords</i> , p. 19	
	Worcester—London	118	16½ hours	7	—	<i>Ibid.</i> , p. 22	
	Leicester—London	92	11 hours	8½	—	<i>Ibid.</i> , p. 24	
	London—Brighton	50 +	less than 5 hours	10	—	Brit. Mus., Add. MSS. 27,828, p. 16	

APPENDIX 6

COST OF TRAVEL, 1750-1830

The following data upon this subject have been collected and arranged in tabular form; and it may here be said that this table is subject to the deviations from accuracy that were mentioned at the beginning of Appendix 5. For example, to those who would scrutinize these statistics closely it will be apparent that the distance between certain great termini is different in some cases from that in other cases. This is due in some instances to the fact that different routes were taken between these termini. For example, the road from London to Manchester might be through Dunstable, Northampton, Loughborough and Derby; or it might lead through Coventry, Birmingham, Newcastle and Macclesfield. The improvement of the roads usually led also to the straightening of them, and consequently to the reduction of the distances. In most of these cases we have considered the cost of travelling upon the great highways of communication of the kingdom, for the statistics of travel on the minor cross-roads have been difficult to secure, probably because the great majority of the travellers were destined for the great towns and cities on business, rather than for the smaller places on the cross-roads. Our conclusion from the statistics here presented will be found in the text.

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1752	Newbury—London	57	£ s. d. 19 0 2	d. 2	Advertisement of coach given in Money, <i>History of Newbury</i> , p. 338	
	Birmingham, via Warwick and Oxford, to London	120	1 5 0	2½	Aris's <i>Birmingham Gazette</i> , March 16, 1752, p. 2	
	London—Warwick	98	1 0 0	2½	Ibid.	
	Birmingham—London	119	1 1 0	2½	Ibid., March 30, 1752, p. 3	
	Wolverhampton—London	125	1 5 0	2½	Ibid.	
1753	Shrewsbury—London	158	1 1 0	1½	Owen and Blakewell, <i>History of Shrewsbury</i> , 1, p. 515	
1756	London—Brighton	57	16 0	3½	Hills, <i>History of East Grinstead</i> , p. 147	
	London—East Grinstead	30	6 0	2½		
	Birmingham, via Stratford, to London	120	1 0 0	2		
	Birmingham, via Warwick, to London	110	1 0 0	2½	Aris's <i>Birmingham Gazette</i> , Nov. 15, 1756, p. 4	
1757	London—Leaves	56	13 0	ca. 3	Blew, <i>Brighton and Its Coaches</i> , p. 35	
	London—Brighton	57	16 0	3½		
	Warrington—London	200	2 2 0	2½	Williamson's <i>Liverpool Advertiser</i> , June 9, 1757, gives advertisement	
1760	Liverpool—London	210	2 10 0	ca. 3	Picton, <i>Memorials of Liverpool</i> , 1, pp. 203-4, quoting from the coach advertisement	This was the first stage coach on this route
	Manchester—London	200	2 5 0	2½	Arton, <i>Annals of Manchester</i> , p. 93	
	Birmingham—Bristol	86	1 1 0	3	Aris's <i>Birmingham Gazette</i> , April 28, 1760, p. 2	
1761	London—Leeds	190	2 5 0	2.8	<i>Leeds Intelligencer</i> , May 19, 1761, p. 3	
	Newcastle—London	290	3 5 0	2.7	<i>Archaeologic Aeliana</i> , N.S., III, p. 248	
	Newcastle—York	90	1 0 0	2.7		

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1764	Shrewsbury—London	158	£ s. d. 1 10 0	d. 2½	Owen and Blakeway, <i>History of Shrewsbury</i> , 1, p. 515 Parsons, <i>History of Leeds</i> , 1, p. 1:0, quoted from the coach advertisement	
1766	Shrewsbury—London	158	1 16 0	2½		
1769	Leeds—London	190	1 11 6	2		
1772	Shrewsbury—London	158	1 14 0	2½	Owen and Blakeway, <i>History of Shrewsbury</i> , 1, p. 515	
1774	Liverpool—Manchester	35	8 0	2½	Advertisement in Williamson's <i>Liverpool Advertiser</i> , April 15, 1774	
	Liverpool—Preston	34	8 6	3	Advertisement of coach in Williamson's <i>Liverpool Advertiser</i> , June 24, 1774	
	Newcastle—Edinburgh	106	1 6 6	3	Advertisement of coach in <i>Newcastle Courant</i> , April 16, 1774, p. 4	
	Shrewsbury—London	158	1 10 0	2½	Advertisement of coach in <i>Shrewsbury Chronicle</i> , July 9, 1774, p. 1	
	London—Newcastle	290	3 3 0	2:6	Advertisement of coach in <i>Newcastle Courant</i> , April 16, 1774, p. 2	
1775	Southampton—London	80	16 0	2½	<i>Southampton Guide</i> , 1774, p. 63	The chaise cost so much because the road was stony and hilly
	Hereford—Monmouth	19	15 6	9	Brit. Mus., Add. MSS. 17,398, p. 58	
	London—Birmingham	110	1 7 0	ea. 3	<i>Shrewsbury Chronicle</i> , April 15, 1775, p. 3	
	Hereford—London	125	1 10 0	ea. 3		
	Hereford—Gloucester	27	7 6	3:3		
	Hereford—Bristol (via Gloucester)	63	14 0	2:7	<i>Hereford Journal</i> , Dec. 1, 1805, p. 2	

1776	Newcastle—London	290	3	6	0	23	Armstrong, <i>Post Roads between London and Edinburgh</i> , 1776, p. 5	Flying coach
	Newcastle—Edinburgh	105	1	11	6	33	Ibid.	Flying coach
	London—York	200	2	2	0	23	Ibid.	Flying coach
	York—Newcastle	90	1	1	0	23	Ibid.	Flying coach
	York—London	200	2	2	0	23	Ibid.	York Old Coach—a night coach
	York—London	200	2	2	0	3	Ibid.	York Diligence—day coach
	London—Stamford	90	1	8	0	23	Ibid., p. 6	Left London nightly, 10 p.m.
	London—Leeds	190	2	2	0	23	Ibid.	
	London—Lincoln	131	1	7	0	23	Ibid.	
	London—Bristol	120	1	3	0	23	Felix Farley's <i>Bristol Journal</i> , Nov. 2, 1776, p. 2, gives advertisement	Stage coach
	London—Bath	110	1	1	6	23	Ibid.	Stage coach
	London—Bristol	120	1	8	0	23	Ibid.	Post coach
1777	Bristol—London	120	1	11	6	3+	<i>Bristol Gazette and Public Advertiser</i> , Aug. 7, 1777, p. 1, gives the advertisement	Short distance passengers, 3d. per mile
	Bath—Exeter	80	1	1	0	3	Ibid.	
	Bristol—Exeter	75	1	8	0	3	Ibid.	
1778	London—Shrewsbury	158	1	16	0	23	Aris's <i>Birmingham Gazette</i> , April 20, 1778, p. 3	
	London—Wolverhampton	125	1	8	0	23		
	London—Birmingham	110	1	5	0	23		
	London—Coventry	90	1	1	0	23		
	Birmingham—Sheffield	73	1	0	0	33	Aris's <i>Birmingham Gazette</i> , May 25, 1778, p. 2	
	Coventry—London	90	1	1	0	23	Ibid., Oct. 5, 1778, p. 2	Carried only 4 inside passengers
	Birmingham, via Oxford, to London	120	1	9	0	23		
1779	Birmingham—London	110	1	5	0	23	Ibid.	
	London—Bristol	120	1	5	0	23	Felix Farley's <i>Bristol Journal</i> , Aug. 14, 1779, p. 1, gives advertisement	"One Day Machine"
	London—Bath	110	1	3	0	23	Ibid.	"One Day Machine"
	London—Bristol	120	1	12	0	23	Ibid.	Post Coach or Diligence
	London—Bath	110	1	10	0	23	Ibid.	Post Coach or Diligence

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1779	London—Carlisle	305	£ s. d. 3 6 0	d. 2-6	Advertisement of coach is given in Malet, <i>Annals of the Road</i> , p. 24	The advertisement says that passengers taken up on the road were to pay 4d. per mile, inside, for either coach or diligence
	Carlisle—Glasgow or Portpatrick	100	1 16 6	4-3		
	London—Glasgow or Portpatrick	405	5 2 6	3		
	Bewdley—Birmingham	—	—	3		
1780	London—Birmingham	110	1 5 0	2½	Aris's <i>Birmingham Gazette</i> , April 12, 1779, p. 1	The advertisement reads "each passenger to pay Three-pence per Mile"
	London—Shrewsbury	158	1 16 0	2½		
	Birmingham—Manchester	85	1 1 0	3		
	London—Steyning	51	11 0	2½		
	London—Brighton	57	14 0	3		
	London—Stroud	110	1 2 0	2-4		
	London—Cirencester	98	19 0	2-3		
1781	Liverpool—London	210	2 15 0	3 +	Ibid.	"The Old and Original Shrewsbury, Wolverhampton, Walsall, and Birmingham Fly"
	Birmingham—Manchester	85	1 1 0	3	Ibid., April 10, 1780, p. 1	This diligence was a superior kind of vehicle
	London—Wantage	68	13 0	2-3	Blew, <i>Brighton and Its Coaches</i> , p. 37	Short distance passengers paid 3d. per mile
1782	London—Wallingford	54	10 0	2-2	Jackson's <i>Oxford Journal</i> , April 28, 1781, p. 4	
	Oxford—Bath	68	1 1 0	3-7	Ibid., June 9, 1781, p. 2	
	Bristol—Gloucester	36	8 0	2½	Sarah Farley's <i>Bristol Journal</i> , April 27, 1782, p. 2	
	Chester—London	180	1 11 6	2	Hall, <i>History of Nanterch</i> , p. 233, quoting from <i>Chester Guide Book</i> , 1782	

1782	Oxford—London	60	11 0	2-2	Jaekson's <i>Oxford Journal</i> , Jan. 5, 1782, p. 1
	Banbury—London (via Oxford, Weycombe, Uxbridge)	83	17 0	2-5	<i>Ibid.</i> , May 18, 1782, p. 1
	Bristol—Exeter	75	1 1 0	3½	Sarah Farley's <i>Bristol Journal</i> , April 27, 1782, p. 2
	Exeter—Plymouth	40	12 6	3½	
	Bristol—Gloucester	36	8 0	2-7	
	Bristol—Plymouth	118	1 15 6	3-6	
	Wootton—Bristol	—	—	—	<i>Ibid.</i> , p. 3.
	Bristol—Weymouth	72	17 0	3	<i>Ibid.</i> , Aug. 3, 1782, p. 2
	Bristol—London	120	1 1 0	2-1	<i>Ibid.</i>
	London—Bristol	120	1 8 0	2-8	<i>Constitutional Chronicle</i> , Jan. 24, 1782, p. 1
	London—Bath	110	1 5 0	2-7	Advertisement given in Felix Farley's <i>Bristol Journal</i> , Jan. 18, 1783, p. 1
1783	Bath—Shrewsbury	118	1 7 0	2½	Aris's <i>Birmingham Gazette</i> , May 5, 1783, p. 4
	Bristol—Shrewsbury	108	1 4 0	2½	
	London—Shrewsbury	158	1 11 6	2½	<i>Ibid.</i> , Aug. 18, 1783, p. 4
	London—Wolverhampton	125	1 8 0	2½	
	London—Birmingham	110	1 5 0	2½	
	Shrewsbury—London	158	2 12 6	4½	Bonner and Middleton's <i>Bristol Journal</i> , Sept. 27, 1782, p. 3
	Stonbridge—London	120	1 14 0	3½	
	Bromsgrove—London	112	1 13 0	3½	
	Acester—London	108	1 11 0	3½	
	Oxford—London	60	16 0	3½	
	Bristol—Exeter	75	16 0	2½	<i>Ibid.</i> , Dec. 20, 1783, p. 1
	Bristol—Birmingham	86	1 4 0	3-4	
	Birmingham—Liverpool	100	1 5 0	3	
	Birmingham—Manchester	85	1 4 6	3-4	
	Birmingham—Sheffield	73	1 0 0	3-3	

Short distance passengers, 3d. per mile

The proprietors of this coach say that these rates are enhanced over those previously in force, because of excessively high prices of corn, hay, etc. These higher rates are explained in the advertisement as necessary because of "the several additional duties that have now taken place on all post-coaches, together with the very great expence unavoidably incurred in supporting the same"

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1784	London—Bristol or Bath	120 or 110	£ s. d. 1 8 0	d. 2½-3	Advertisement given in Felix Farley's <i>Bristol Journal</i> , Oct. 2, 1784, p. 1	The first of Palmer's mail coaches
	Bristol—London	120	1 8 0	2-8	Bonner and Middleton's <i>Bristol Journal</i> , March 20, 1784, p. 1	Short distance passengers, 3d. per mile
	Oxford—London	60	12 6	2-5	Jackson's <i>Oxford Journal</i> , Oct. 30, 1784, p. 1	Palmer's mail coach
	Bristol—Portsmouth Bristol—Salisbury	88 53	1 9 0 15 0	ca. 4 3½	Advertisement in Bonner and Middleton's <i>Bristol Journal</i> , May 7, 1785, p. 2	First mail coach on this road
1785	Liverpool—London	210	3 13 6	4½	Advertisement in Gore's <i>Liverpool Advertiser</i> , July 22, 1785	
	Bristol—Oxford	78	14 0	2+	Jackson's <i>Oxford Journal</i> , April 2, 1785, p. 4	
	Oxford—Bristol	78	1 1 0	3-2	<i>Ibid.</i> , Nov. 12, 1785, p. 3	
	Oxford—London Oxford—London	60 60	18 0 13 0	3-6 2-6	<i>Ibid.</i> , p. 4	
1786	London—Chester	180	3 3 0	4-2	<i>Morning Chronicle and London Advertiser</i> , Jan. 8, 1785, p. 4	Those charging the lower price were licensed by the Vice-Chancellor of the University
	Newcastle—Carlisle	55	15 0	3½	<i>Archæologia Aethiana</i> , N.S., III, p. 252	
	Bristol—London	120	1 7 0	2-7	Bonner and Middleton's <i>Bristol Journal</i> , Dec. 23, 1786, p. 2	"Balloon coach"
	Bristol—London	120	1 6 0	2-6	<i>Ibid.</i>	"Light post coach"
	Bristol—London	120	1 2 0	2-2	<i>Ibid.</i>	"Four-horse coach"
	Oxford—Birmingham	60	18 0	3-6	Jackson's <i>Oxford Journal</i> , May 27, 1786, p. 3	
London—Dover Plymouth—London London—Lincoln	75 215 142	1 1 0 2 2 0 1 11 6	3½ 2½ 2½	<i>St James Chronicle</i> , Dec. 7, 1786, p. 2		

St James Chronicle, Dec. 7, 1786,
p. 2

215 2 2 0
142 1 11 6

Plymouth—London
London—Lincoln

1786	London—Chester	180	3	3	0	4 2	<p>No reason can be given for the great difference between these fares from London to Chester, as the kind of coach and the speed were the same in each case</p> <p>I can assign no reason for these differences of fare between London and Holyhead and Chester in the same year</p>
	Chester—Holyhead	60	1	11	6	6 3	
	London—Chester	180	2	5	0	3	
	London—Nantwich	161	2	2	0	3 +	
	London—Stafford	137	1	11	6	2 7	
	London—Lichfield	122	1	8	0	2 7	
	London—Northampton	63	17	0	0	3 2	
	London—Holyhead	240	3	16	6	3 8	
	London—Holyhead	240	4	14	6	4 7	
	London—Chester	180	3	3	0	4 2	
	London—Holyhead	240	3	7	0	3 3	
	London—Chester	180	1	16	0	2 4	
	London—Coventry	90	18	0	0	2 4	
	London—Nantwich	161	1	13	0	2 5	
	London—Chester (via Oxford, Birmingham, Newport and Whitechurch)	188	2	12	6	3 4	
1787	Sheffield—London	150	1	17	0	3	<p><i>Leader, Sheffield in the Eighteenth Century</i>, p. 100 Ibid. Ibid.</p> <p><i>Bath Chronicle</i>, Jan. 11, 1787, p. 1</p> <p>Ibid., p. 4 Ibid., Jan. 18, 1787, p. 1</p>
	Sheffield—York	50	11	0	0	2 3	
	Sheffield—Leeds	35	5	0	0	ca. 2	
	Sheffield—Birmingham	72	8	0	0	1 1/2	
	Bath—Gloucester	38	12	0	0	ca. 4	
	Bath—Tewkesbury	49	16	0	0	4	
	Bath—Worcester	63	1	0	0	ca. 4	
	Bath—Birmingham	88	1	7	0	3 6	
	Bath—Upton-on-Severn	55	17	0	0	3 7	
	Bath—Kidderminster	78	1	5	0	4	
	Bath—Bridgnorth	94	1	10	0	3 8	
	Bath—Shrewsbury	118	1	16	0	3 7	
	Bath—London	110	1	5	0	2 7	
	Bath—Oxford	68	1	1	0	3 7	
	Bristol—London	120	1	7	0	2 7	

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1787	London—Manchester	195	£ s. d. 2 5 0	d. 2-8	<i>General Advertiser</i> , May 21, 1787, p. 4	These were all described as "reduced fares."
	London—Congleton	174	1 18 0	2-6		
	London—Newcastle-under-Lyne	162	1 13 0	2-4		
	London—Stone	150	1 10 0	2-4	Felix Farley's <i>Bristol Journal</i> , Jan. 6, 1787, p. 1	These coaches were almost identical as far as the facilities they offered, and yet there was considerable difference in fares
	London—Lichfield	126	1 4 0	2-3		
	London—Atherstone	109	1 1 0	2-3		
	Bristol—London	120	1 10 0	3	<i>Ibid.</i> , Feb. 10, 1787, p. 3	These were the fares on the mail coach. Short distance passengers were charged 4d. per mile
	Bristol—London	120	1 7 0	2-7		
	Bristol—London	120	1 6 0	2-6		
	Bristol—London	120	1 2 0	2-2	<i>Ibid.</i> , July 28, 1787, p. 1	These were the fares on the mail coach. Short distance passengers were charged 4d. per mile
	Bristol—Shrewsbury	108	1 12 0	3-6		
	Bristol—Holyhead	211	3 14 0	4-2		
	Bristol—Birmingham	86	1 5 0	3-5	<i>Salopian Shreds and Patches</i> , l. p. 55, gives the advertisement	I am wholly at a loss to explain these figures, showing such high rates of fare, in view of the figures which we have already presented for the preceding years. It seems inconceivable, for instance, that the rate in 1781 from Liverpool to London should be 3 + d. per mile, while in 1788 the rate from Manchester to London was practically 5d. per mile
	Bristol—Worcester	61	19 0	3-7		
	Bristol—Gloucester	36	10 0	3-3		
1788	Shrewsbury—Birmingham	46	14 0	3-65	<i>Ibid.</i>	
	Shrewsbury—Oxford	98	1 12 0	ea. 4		
	Shrewsbury—London	158	2 0 0	3		
	Manchester—Macclesfield	20	10 0	6	<i>Manchester Collectanea</i> , in Chetham Society Publications, LXVIII, p. 153	
	Manchester—Leek	33	16 0	ea. 6		
	Manchester—Derby	61	1 10 0	ea. 6		
	Manchester—Loughborough	78	1 16 0	5-5		
	Manchester—Northampton	121	3 0 0	6		
	Manchester—Dunstable	154	3 13 6	5-7		
	Manchester—London	195	3 13 6	4-7		

... in 1788 the rate from Manchester to London was practically 5d. per mile

1788	Manchester, via Preston, Lancaster and Kendal to Carlisle	191	2	6	0	44	Ibid.	
	Manchester, via Rochdale, Halifax, Bradford, Leeds and Tadcaster, to York	69	1	8	0	ca. 5	Ibid., p. 154	
	Manchester—Liverpool	35	14	0	0	ca. 5	<i>Bath Chronicle</i> , April 24, 1788, p. 2	Palmer's mail coach
	Bristol—Exeter	75	1	4	0	3-8	<i>Bristol Gazette and Public Advertiser</i> , May 15, 1788, p. 3	Post coach. No reason given why these rates were so low
	Bristol—Birmingham	86	10	6	0	1-5	Ibid.	
	Bristol—Birmingham	86	8	0	0	1-1	Ibid.	
	Birmingham—Manchester	85	1	7	6	ca. 4	Ibid.	
	Birmingham—Manchester	85	1	5	0	3-5	Ibid.	
	London—Manchester	195	1	11	6	2	Ibid.	
	London—Hull	185	1	10	0	2	Ibid.	
	London—Lincoln	131	1	1	0	2	Ibid.	
	London—Peterborough	81	16	0	0	2-4	Ibid.	
	London—Liverpool	210	1	16	0	2	Ibid.	
	London—Birmingham	110	1	1	0	2-3	Ibid.	
	London—Walsall	118	1	3	0	2-4	Ibid.	
	London—Chester	180	1	16	0	2-4	Ibid.	
	London—Holyhead	240	3	7	6	3-4	Ibid.	
	London—Bristol	120	1	7	0	2-7	Ibid.	
	Chester—London	180	2	2	0	3	Ibid.	
1789	Bath—Exeter	80	1	4	0	3-6	Hall, <i>History of Nantwich</i> , p. 233, quoting from <i>Chester Guide Book of 1789</i>	Post and mail coaches
	Bristol—Birmingham	86	8	0	0	1-1	<i>Bath Chronicle</i> , Jan. 8, 1789, p. 1	Fare by mail coach was 10s. 6d.
	Birmingham—Holyhead	130	2	14	0	5	Ibid.	
	Shrewsbury—Holyhead	103	2	9	0	5-7	Ibid.	
	Bath—London	110	1	5	0	2-7	Ibid., p. 2	The one-day coaches charged no more than the two-day coaches
	Bath—London	110	1	1	0	2-3	Ibid., p. 2	

These were advertised as "reduced fares"

Year	Terrini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1790	Sheffield—York	45	£ s. d. 11 0	d. 3	Sheffield Local Register, p. 64	I am unable to explain these low rates. It was not due to competition, for only one coach went to Birmingham four times a week (<i>ibid.</i> , p. 83)
	Sheffield—Leeds	33	5 0	2		
	Sheffield—Birmingham	73	8 0	1½		
	London—Brighton	57	18 0	3-8	Blew, <i>Brighton and Its Coaches</i> , p. 39	
	London—Worcester	118	1 8 0	3	Jackson's <i>Oxford Journal</i> , April 10, 1790, p. 3	
	London—Oxford	60	18 0	3-6	<i>Ibid.</i> , June 5, 1790, p. 4	
1791	Oxford—Southampton	38	1 1 0	6-6		Do not know why the fare should have been so high on this cross road
	Hull—London	185	2 2 0	2½	Battle, <i>Hull Directory</i> , 1791, pp. 65-73	
	London—Birmingham	110	1 8 0	3	<i>Morning Post and Daily Advertiser</i> , July 20, 1791, p. 1	
	London—Warwick	90	1 5 0	3½		
	London—Shiffnal	140	1 3 0	2	<i>Morning Chronicle</i> , April 29, 1791, p. 1	
	London—Wolverhampton	125	1 2 0	2+		
	London—Bristol	120	1 10 0	3	<i>Ibid.</i>	
	London—Bath	110	1 8 0	3		
	London—Birmingham or Walsall	110	1 1 0	2½		
	1792	London—Colechester	118	14 0	3	<i>Ibid.</i> , April 11, 1792, p. 1
		London—Ipswich	55	19 0	3	
		London—Woodbridge	73	2 0 0	3+	
1793	London—Southampton	82	1 2 0	3+	Baird, <i>Agriculture of Middlesex</i> , p. 35	He says this machine was little inferior to the mail coaches in ease and speed; but that the difference in expense was considerable
	London—Southampton	80	10 6	1½		

1795	Chester—London	180	2	2	0	2-8	<p><i>Chester Guide</i>, 1795, pp. 61-62</p> <p><i>Cambridge Directory</i>, 1796, p. 159</p> <p><i>Ibid.</i></p> <p><i>Ibid.</i>, p. 160</p> <p><i>Ibid.</i></p> <p><i>Ibid.</i></p> <p><i>Ibid.</i></p> <p><i>Ibid.</i></p> <p><i>Ibid.</i>, p. 161</p> <p>Blew, <i>Brighton and Its Coaches</i>, p. 59</p> <p>Harris, <i>The Coaching Age</i>, p. 279</p> <p><i>The Times</i>, May 31, 1802, p. 3</p> <p>Advertisement of coach is given in <i>Hereford Journal</i>, Aug. 14, 1805, p. 2</p>
	Chester—London	180	3	10	0	4 $\frac{3}{4}$	
	Chester—Holyhead	60	1	15	0	7	
	Chester—Shrewsbury	34	13	6		ca. 5	
	Chester—Bath	150	2	9	6	ca. 4	
	Chester—Bristol	140	2	7	0	4	
	Chester—Worcester	84	1	9	6	4-2	
	Chester—Liverpool	18	3	6		2 $\frac{3}{4}$	
	Chester—Manchester	37	4	0		1-3	
1796	London—Cambridge	55	1	1	0	4 $\frac{1}{2}$	
	London—Cambridge	55	1	0	0	4 $\frac{1}{2}$	
	Cambridge—London	55	18	0		4	
	Cambridge—London	55	15	0		3 $\frac{1}{4}$	
	Cambridge—Ipswich	50	16	0		3 $\frac{1}{4}$	
	Cambridge—Birmingham	105	1	11	6	3 $\frac{1}{2}$	
1797	London—Brighton	57	19	0		4	
1798	Edinburgh—London	400	10	0	0	6	
1802	London—Chester	180	4	14	6	6-3	
	Chester—London	180	4	4	0	5-6	
1805	Hereford—London	125	1	10	0	3	

"Royal Mail"—only 4 passengers; night coach
 "London and Cambridge Diligence," for 3 passengers—day coach
 Lower rate possibly due to taking longer time than the foregoing
 Lower rate doubtless due to much slower speed of travel
 The high rates for the coaching centring at Cambridge were probably due to the great extent of the travel to and from that city
 Increased fares due to extra duty on coaches

It seems probable that these figures should have referred to the journey from London to Holyhead, which cost four guineas, as given under date 1786

Year	Termini	No. of miles	Total fare (inside)	Fare per mile	Source of Authority	Remarks
1808	Manchester, via Derby and Nottingham, to London	195	£ s. d. 3 3 6	d. 4 +	<i>Manchester Collectanea</i> , in Chetham Society Publications, LXVIII, p. 160, quoting from <i>Manchester Directory of 1808</i>	These were the fares by mail coach in each case. Lik those given on preceding pages, under date of 1788, they seem to have been much higher than the fares on most of the other roads. This was reduced fare. Before this new coach started the fare was £1. 10s. (see next item) This is advertised under the heading "Very Cheap Traveling"
	Manchester—Macclesfield	21	10 6	6	<i>Ibid.</i>	
	Manchester—Bolton	12	6 0	6	<i>Ibid.</i>	
	Manchester—Birmingham	94	1 15 0	4-5	<i>Ibid.</i>	
	Manchester—Leeds	45	1 3 6	6	<i>Ibid.</i>	
	Manchester—York	69	1 15 0	6	<i>Ibid.</i>	
	Manchester—Liverpool	35	14 0	ea. 5	<i>Ibid.</i>	
1811	Birmingham—Sheffield	73	8 0	1½	Aris's <i>Birmingham Gazette</i> , Feb. 15, 1808, p. 1	
	Birmingham—Sheffield	73	1 10 0	5	<i>Ibid.</i>	
	Birmingham—Nottingham	50	10 0	2½	<i>Ibid.</i>	
1813	Birmingham, via Oxford, to London	120	1 16 0	3½	<i>Ibid.</i>	
	Birmingham—Leicester	40	12 0	3½	<i>Ibid.</i> , Feb. 4, 1811, p. 1	
	Birmingham—Liverpool	98	1 1 0	2½	<i>Ibid.</i>	
	Cambridge—Stamford	44	10 0	ea. 3	<i>Cambridge Chronicle and Journal</i> , Oct. 29, 1813, p. 1	
1815	Cambridge—Leicester	75	1 1 0	3-4	<i>Ibid.</i> , Nov. 3, 1815, p. 3	
	Leicester—Birmingham	40	8 0	2-4	<i>Price, Leeds and Its Neighbourhood</i> , p. 271	
	London—Cambridge	55	18 0	ea. 4	<i>Ibid.</i>	
1815	London—Cambridge	190	3 13 6	4-6	<i>Ibid.</i>	
	London—Leeds	190	3 13 6	4-6	<i>Ibid.</i>	

1816	London—Hastings	60	15 0	3	<i>The Times</i> , May 24, 1816, p. 1
	London—Hastings	60	1 0 0	4	<i>Sheffield Local Register</i> , p. 150
1817	Sheffield—London	150	3 5 0	5½	Hargrove, <i>History of York</i> , 1818, Vol. II, Pt. II, pp. 671-5
1818	York—London	200	3 13 6	4½	<i>The Times</i> , Aug. 27, 1825, p. 3
	London—Bath	110	1 18 0	4-1	Blew, <i>Brighton and Its Coaches</i> , p. 138
	London—Brighton	57	1 1 0	4-5	<i>Annual Register</i> , 1832, p. 445; also <i>Advantages of the Progressive Formation of Railways</i> , p. 23
1830	Liverpool—Manchester	35	10 0	3½	<i>Great Western Railway. Evidence (of Henry Booth) on the London and Birmingham Railway Bill</i> , p. 8
	Liverpool—Manchester	35	10 0	3½	Harris, <i>The Coaching Age</i> , p. 194
	London—Newcastle	290	4 10 0	3½	Brit. Mus. 8235. cc. 4 (1), 'Oxford and Didcot Railway Bill', p. 26
	Bristol—Oxford	68	1 8 0	5	<i>Ibid.</i> , p. 7
1832	Steventon—London	60	1 5 0	5	<i>London and Birmingham Railway Bill. Extracts from Lords Committee, Evidence before Lords Committee</i> , p. 19
	Braybrooke—London and return	160	1 12 0	2-4	<i>Ibid.</i> , p. 22
	Worcester—London	118	2 3 0	4-3	<i>Ibid.</i> , p. 23
	Manchester—London	185	4 4 0	5-4	Maclurk, <i>History of the Hull Railways</i> , p. 11
1837	Hull—Selby	32	7 0	2-6	Brit. Mus. 8235. cc. 4 (1), 'Oxford and Didcot Railway Bill', p. 7
1847	Steventon—Oxford	10	3 0	3-6	<i>Ibid.</i> , p. 26
	Oxford—London	60	1 3 6	4-7	

Stage coach

He says the rate varied much from 10s.

Fare was 25s. and coachman's fee was 3s.

This included the usual fees

In addition, each passenger had to pay the gratuity. Fare includes the gratuity of 2s. 6d.

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APPENDIX 7

COST OF CARRIAGE OF GOODS BY LAND, 1750-1830

The following details of the expense of conveyance by land have been brought together in this tabular form from sources which are among the most reliable. As in the preceding tables, so here, the statistics have been made as accurate as possible; but it is inevitable that some slight errors exist, on account of our inability to know exactly the length of the road from one place to another at these earlier times. But if absolute accuracy is unattainable, we can at least say that the slight limit of error renders our figures relatively correct. The data here presented have been summarized, in order to arrive at some general conclusion as to the cost of carriage, and, at the same time, to enable the reader to see the variations from that general conclusion, which is stated in the text.

Year	Termini	No. of miles	Total cost per cwt.	Cost per cwt. per mile	Source of Authority	Remarks
1749	London—Bury	72	3s. (= £3 per ton)	1/2d.	Phillips, <i>Plan for a Navigable Canal</i> , p. 21	He says it is about 9s. per ton for 10 miles
	Bury—Norwich	40	2s. 2d. (= £2, 3s. 4d. per ton)	6 1/2d.	<i>Ibid.</i>	For cumbersome articles, like packs of wool and woollen goods, groceries, pottery and other merchandise, the cost was a great deal more
1754	—	20	8d.	3/4d.	Brit. Mus. 213. i. 3 (101). Reasons against a Bill for permitting only carriages with Broad Wheels' etc., p. 3	The writer says that meal was brought 20 miles to London for less than 8d. per cwt. Further, he says that the cost of carriage to London in winter was at least 1/3 more than in the summer
	London—Derby	12 1/4	6s. summer 7s. 6d. winter	1/2d. summer 1/2d. winter		
	London—Ashbourne	13 1/2	6s. summer 7s. 6d. winter	1/2d. summer 1/2d. winter		
	London—Bakewell	14 1/2	6s. 6d. summer 8s. winter	1/2d. summer 1/2d. winter		
	London—Chesterfield	14 1/2	6s. 6d. summer 8s. winter	1/2d. summer 1/2d. winter		
	London—Wirksworth	14 1/2	6s. 6d. summer 8s. winter	1/2d. summer 1/2d. winter		
	London—Tidesw 3'	15 1/2	7s. summer 8s. winter	1/2d. summer 1/2d. winter		
	London—Chapel-en-le- Frith	15 1/2	7s. 6d. summer 8s. 6d. winter	1/2d. summer 1/2d. winter		
	London—Ruxton	15 1/2	7s. 6d. summer 8s. 6d. winter	1/2d. summer 1/2d. winter		

The se rates are quoted from the rates as fixed by the Justices of the Peace at their Easter Sessions

Cox, *Three Centuries of Derbyshire Annals*, ii, p. 236

Year	Termini	No. of miles	Total cost per cwt.	Cost per cwt. per mile	Source of Authority	Remarks
1760	Manchester—Liverpool	35	2s.	$\frac{2}{3}d.$	Brit. Mus. B. 504 (4). 'Advantages of Inland Navigations,' p. 18	The rate is given as 10s. per ton
	Birmingham—London	108	—	$\frac{1}{2}d.$	<i>Ibid.</i> , p. 35	Rate is given as about 8s. per ton for 10 miles
	Along Grand Trunk Canal	—	—	$\frac{1}{2}d.$	<i>Ibid.</i> , p. 18; also Meteyard, <i>Life of Wedgwood</i> , 1, p. 275	These references say that the average cost of land carriage here is about 9s. per ton for 10 miles
	Burslem—Winsford	20	$\frac{1}{3}s.$ (= 18s. a ton)	$\frac{1}{2}d.$	Meteyard, <i>Life of Wedgwood</i> , 1, p. 275	
	Burslem—Willington (on Trent)	34	1-7s. (= 34s. a ton)	$\frac{2}{3}d.$		
	Burslem—Bridgnorth	40	3s.	$\frac{1}{2}d.$		
ca. 1760	—	10	$\frac{2}{3}s.$ to $\frac{9}{16}s.$	ca. $\frac{1}{2}d.$	Jewitt, <i>The Wedgwoods</i> , p. 171, quoting from a letter of Richard Whitworth's of that year Phillips, <i>Plan for a Navigable Canal</i> , p. 21	This figure is higher than the others, but why I cannot tell He says the price of land carriage along the route of the Staffordshire Canal was formerly 8-9s. per ton per mile
	Birmingham—Liverpool	100	4s. 0d.	$\frac{1}{2}d.$		
	Manchester—London	195	7s. 0d.	$\frac{2}{3}d.$		
	Blackburn—Liverpool	34	2s. 2-4d.	$\frac{1}{2}d.$	<i>J., II. of C.</i> , xxx. p. 520, and xxxii, p. 725	
	Birley—Preston	23	1s. 0d.	$\frac{1}{2}d.$		
	Leeds—Liverpool	—	—	$\frac{1}{2}d.$		
1766	Winsford Bridge—Coalbrookdale	41	3s.	$\frac{1}{3}d.$	Whitworth, <i>Advantages of Inland Navigation</i> , p. 39	These were all heavy goods, like iron, coal, pottery, clay, etc. He says (p. 11) that the cost of land carriage differed according to the badness of the road or the number of carriers
	Madeley—Nantwich and Winsford	33-40	1s.	1- $\frac{1}{2}d.$	<i>Ibid.</i> , p. 41	
	Winsford—Doddington	12	3s.	$\frac{1}{3}d.$	<i>Ibid.</i> , p. 60	

Winsford
Winsford—Doddington

12

3s.

$\frac{1}{2}d.$

Ibid., p. 60

according to the badness of the road or the number of carriers

Appendix 7

1766	Newcastle and Burslem— Bridgworth	38-40	3s.	ca. 1d.	Ibid.	
	Burslem and Newcastle— Bridgworth and Bewdley	38-42	2½s.	¾d.	Ibid.	
1767	Ripon—York	22	6d.	$\frac{1}{2}d.$	<i>J., H. of C.</i> , March 2, 1767	Quoted as 5s. 6d. a pack, or 44s. a ton
1770	Blackburn—Liverpool	34	2½s.	¾d.	<i>J., H. of C.</i> , XXXII, p. 725	
	Baruley—Preston	23	1s.	½d.	Ibid.	Using same basis as above, 2s. 6d. a pack = 20s. a ton
	Leeds—Liverpool	82	—	¾d.	Ibid.	The cost is quoted as 1s. per ton per mile
	Chester—London	180	8s.	½d.	Brit. Mus. 8235. h. 44. 'Remarks relating to a Canal intended to be made from Chester to Middlewich,' p. 5	
1771	Sheffield, via Middlewich, to Chester	65	3s. 6d.	¾d.	<i>J., H. of C.</i> , xxxvii, pp. 204-7	
	Sheffield, via Manchester, to Chester	75	4s.	¾d.	Ibid.	
	Birmingham—Chester	70	4s.	$\frac{2}{3}d.$	Ibid.	This = ca. ½d. per cwt. per mile
	London—Chester	180	7s. summer 8s. winter	$\frac{1}{3}d.$ summer $\frac{1}{2}d.$ winter	Ibid.	The other rates given under 1754 apply also to this year
1773	Derby—Northampton	54	3s.	¾d.	Cox, <i>Derbyshire Annals</i> , II, p. 236	
1774	Derby—Leicester	24	1s. 6d.	¾d.	<i>J., H. of C.</i> , xxxiv, p. 414	
	Cooper's Bridge— Huddersfield	4	½s.	¾d.		
	Southampton—London	80	3s. 6d.	½d.	<i>Southampton Guide</i> , 1774, p. 64	
1781	Birmingham—London	108	4s. 6d.	½d.	<i>Manchester Collectanea</i> , in Cheetham Society Publica- tions, LXXIII, p. 136	
	London—Birmingham	10	3s.	¾d.	Phillips, <i>Plan for a Navigable Canal</i> , p. 23	
1785	—	—	—	¾d.		He gave the price of land carriage as, on the average, 1s. per ton per mile

Year	Termini	No. of miles	Total cost per cwt.	Cost per cwt. per mile	Source of Authority	Remarks
1785	London—Ongar	21	£1. 0s. per ton	$\frac{1}{2}d.$	Phillips, <i>Plan for a Navigable Canal</i> , p. 24	
	London—Chelmsford	31	£1. 5s. "	$\frac{1}{2}d.$		
	London—Bradree	44	£1. 10s. "	$\frac{1}{2}d.$		
	London—Bradford	53	£1. 15s. "	$\frac{1}{2}d.$		
	London—Sudbury	75	£2. 10s. "	$\frac{1}{2}d.$		
	London—Lavenham	80	£2. 15s. "	$\frac{1}{2}d.$		
	London—Stowmarket	91	£4. 0s. "	$\frac{1}{2}d.$		
	London—Attleborough	112	£4. 0s. "	$\frac{1}{2}d.$		
	London—Hingham	116	£5. 0s. "	$\frac{1}{2}d.$		
	London—Wyndham	120	£5. 10s. "	$\frac{1}{2}d.$		
	London—Norwich	132	£5. 0s. "	$\frac{1}{2}d.$		
	London—Swaffham	132	£5. 0s. "	$\frac{1}{2}d.$		
	Basingstoke—London	50	2s.	$\frac{1}{2}d.$		
	Basingstoke—Reading	16	5s.	$\frac{1}{2}d.$		
Lewes—Lindfield	11	5s.	$\frac{1}{2}d.$			
1788	Lewes—Lindfield	11	1s. per ton per mile	$\frac{3}{4}d.$	Brit. Mus. B. 263 (6). Basingstoke Canal Navigation. Jessop, <i>Estimate of Expense of Making River Ouse Navigable</i> , p. 4	These were coal and timber rates respectively
	Leeds—London	190	6s. 0d.	38d.		
1792	Leeds—Birmingham	196	4s. 0d.	5d.	Leeds <i>Intelligence</i> , Jan. 9, 1792, p. 1	
	Leeds—Newcastle	100	6s. 0d.	72d.		
	Manchester—Etruria	34	2s. 5d.	1d.		
	Bromley Common—Lichfield	3	1 $\frac{1}{2}$ d.	$\frac{1}{2}d.$		
	Manchester—Shardlow	62	3s. 0d.	$\frac{3}{4}d.$		
	Shardlow—Leicester	20	10d.	$\frac{3}{4}d.$		
	Manchester—Newark	72	5s. 3d.	5d.		
	Manchester—Wolverhampton	70	4s. 8d.	$\frac{1}{2}d.$		
	Manchester—Birmingham	85	4s. 9d.	56d.		
	Manchester—Stourport	93	4s. 8d.	$\frac{3}{4}d.$		
	Liverpool—Etruria	42	2s. 6d.	5d.		
	Liverpool—Wolverhampton	85	5s. 0d.	7d.		
	Liverpool—Birmingham	100	5s. 0d.	$\frac{3}{4}d.$		
	Liverpool—Stourport	101	5s. 0d.	$\frac{3}{4}d.$		
Chester—Wolverhampton	55	3s. 6d.	$\frac{1}{2}d.$			
Chester—Birmingham	70	3s. 6d.	$\frac{1}{2}d.$			
Chester—Stourport	74	3s. 6d.	$\frac{1}{2}d.$			

This information was obtained from the compiler's own experience. The prices were for perishable goods. Non-perishables would be carried at lower prices

Salt, *Statistics and Calculations*, p. 71

Year	Route	Distance	Rate	Source
1793	Liverpool—Stourport	101	5s. 0d.	<i>Parl. Papers, 1793, xii, Report No. 109, 'Thames and Isis Navigation,' p. 7</i>
	Chester—Wolverhampton	55	3s. 6d.	
	Chester—Birmingham	70	3s. 6d.	
	Chester—Stourport	74	3s. 6d.	
1794	London—Reading	46	1s. 8d.	<i>Ibid., p. 27</i>
	Cirencester—London	98	3s. 0d.	
	Tetbury—London	107	3s. 6d.	<i>Leeds Intelligencer, April 21, 1794, p. 2</i>
	Tetbury—Leechade	20	9d.	
	Cirencester—Leechade	11	6d.	
1796	Manchester—Hindkylsfield	25	1s. 3d.	<i>Reading Mercury, May 30, 1796, p. 4</i>
	Basingstoke—Winechester	18	10d.	
	"—Southampton	30	1s. 6d.	<i>Young, The Economy of Steam Power on Common Roads, p. 11</i>
	"—Romsey	28	1s. 6d.	
	"—Andover	18	9d.	
	"—Whitchurch	10	6d.	
1802	London—Leeds	190	13s. 0d.	<i>Brit. Mus. K. 6. 58(c), 'Basingstoke Canal Navigation,' p. 11</i>
	Basingstoke—London	50	2s. 0d.	
1808	Basingstoke—Reading	15	10d.	<i>Farey, Agriculture of Derby, iii, p. 275</i>
	London—Derby or Ashtbourne	126—139	6s. 0d.	
	London—Bakewell, Chesterfield, or Wirksworth	147—138	6s. 6d.	<i>Sheffield Local Register, p. 117</i>
	London—Tideswell	150	7s. 0d.	
	London—Buxton or Chapel-en-le-Frith	155	7s. 6d.	<i>Mavor, Agriculture of Berkshire, p. 531</i>
	Derby—Northampton	54	3s. 0d.	
	Derby—Leicester	24	1s. 6d.	<i>This was in January, 1808</i>
	Manchester—Sheffield	35	2s.—2s. 2d.	
	Sheffield—Liverpool	66	2s. 10d.	
	London—Staines	20	£ s. d.	
	London—Windsor	27	1 0 0 per ton	
	London—Maidenhead	33	1 6 8 "	
	London—Reading	46	1 10 0 "	
	London—Wallingford	50	2 10 0 "	
	London—Abingdon	58	3 0 0 "	
	London—Oxford	60	3 10 0 "	
	London—Leechade	87	4 0 0 "	
			5 0 0 "	

These were the rates assessed by the Justices for the summer half of the year. The rates for the winter half of the year were from $\frac{1}{2}$ to $\frac{3}{4}$ more than these. They are given in Farey, iii, p. 275

This was in January, 1808

Year	Termini	No. of miles	Total cost per cwt.	Cost per cwt. per mile	Source of Authority	Remarks
1800	Sheffield—London On 16 chief roads	150	11s. 8d.	$\frac{7}{16}$ d. $\frac{1}{16}$ d.	Sheffield Local Register, p. 123 Parl. Papers, 1800, III, 431. Third Report of Committee on Broad Wheels, p. 461	The average cost of carriage on these roads was 1s. 3½d. per ton per mile
1810	London—Windsor	27	1s. 6d.	$\frac{3}{16}$ d.	Albutt, Rivers and Canals West of London, p. 3	
	London—Henley	40	2s. 3d.	$\frac{3}{16}$ d.		
	London—Reading	46	2s. 6d.	$\frac{3}{16}$ d.		
	London—Wallingford	50	2-9s.	$\frac{1}{16}$ d.		
	London—Abingdon	58	3½s.	$\frac{3}{16}$ d.		
	London—Lechlade	87	4s.	$\frac{1}{2}$ +d.		
	London—Weybridge	20	1½s.	$\frac{1}{16}$ d.		
	London—Guildford	30	1½s.	$\frac{1}{16}$ d.		
	London—Godalming	34	2s.	$\frac{1}{16}$ d.		
	London—Basingstoke	50	1½s.	$\frac{3}{16}$ d.		
	London—Reading	46	2s.-2½s.	$\frac{3}{16}$ d.— $\frac{3}{16}$ d.	Heavy goods went slightly cheaper than other goods (such as groceries, malt, etc.)	
	London—Newbury	52	3½s.—3½s.	$\frac{5}{16}$ d.— $\frac{1}{16}$ d.		
	London—Abingdon	60	3½s.	$\frac{7}{16}$ d.		
	London—Wantage	63	4s.	$\frac{1}{16}$ d.		
	London—Swindon	75	4½s.	$\frac{3}{16}$ d.		
	London—Seminaton	96	5½s.	$\frac{3}{16}$ d.		
	London—Bath	110	6½s.	$\frac{5}{16}$ d.		
	London—Bristol	120	7½s.	$\frac{3}{16}$ d.		
	Liverpool—Etruria	42	2½s.	$\frac{3}{16}$ d.		
	"—Wolverhampton	85	5s.	$\frac{1}{16}$ d.		
	"—Birmingham	100	5s.	$\frac{3}{16}$ d.		
	Manchester—Lichfield	65	4s.	$\frac{3}{16}$ d.		
	"—Derby	55	3s.	$\frac{1}{16}$ d.		
	"—Leicester	82	6s.	$\frac{1}{16}$ d.		
	"—Newark	72	5½s.	$\frac{3}{16}$ d.		
	"—Nottingham	65	4s.	$\frac{3}{16}$ d.		
	"—Wolverhampton	70	4½s.	$\frac{3}{16}$ d.		
	"—Birmingham	85	4s.	$\frac{1}{2}$ +d.		

Baines, History of Liverpool.
pp. 439-40

Year	Route	Number	Cost	Rate	Source	Notes
1810	Cambridge—Watford	50	2s. 6d.	3d.	<i>Cambridge Chronicle and Journal</i> , Nov. 9, 1810, p. 2	6s. per qr. for oats would be 2s. 6d. per cwt. (of 112 lbs.)
1812	Cambridge—Stortford	26	1s. 1½d.	1d.	<i>Ibid.</i> , Nov. 23, 1810, p. 2	
	Cambridge—London	55	3s. 0d.	3d.	<i>Ibid.</i> , June 19, 1812, p. 2	
1813	Cambridge—Stortford	26	1s. 6-5d.	7d.	<i>Ibid.</i> , Oct. 9, 1812, p. 1	
	London—Bristol	120	10s. 0d.	1d.	<i>Ibid.</i> , Oct. 29, 1813, p. 2	
1816	Portsmouth—London	80	4s. 6d.	3d.	<i>Hampshire Telegraph and Sussex Chronicle</i> , Oct. 14, 1816, p. 3	
1829	Newcastle—Carlisle	62	1s. 9d. to 2s. 3d.	1 to 3d.	Evidence taken before Commons Committee on Newcastle and Carlisle Railway Bill, pp. 2, 13, 14, 15	Cost was 35s.—45s. per ton. A little less for return carriage. Low cost of coal carriage was probably due to ocean competition
1831	—	—	—	45d.	<i>Birmingham Journal</i> , Jan. 22, 1831, p. 1	Cost by fly vans was given as 9d. per ton per mile
1832	London—Bristol	120	4s.	3d.	<i>Bristol Liberator</i> , Jan. 7, 1832, p. 1	Advertised as reduced rates of carriage
	Bristol—Birmingham	86	3s.	3d.		These were the rates on groceries, teas, etc.
1833	London—Bristol	120	4s.	3d.	<i>Proceedings of the Great Western Railway Company</i> , pp. 11, 12, 19	This was the cost of wagon carriage. For carriage of articles that could be carried by coach the expense was 1d. per lb. See also Aris's <i>Birmingham Gazette</i> , April 2, 1821, p. 1; June 11, 1821, p. 1
	London—Bath	110	6s.	3d.		
1834	London—Reading	46	1½s.	3d.	<i>Great Western Railway. Evidence at the London and Birmingham Railway Bill</i> , pp. 32-33, testimony of Mr Westall	
	Birmingham—London	110	5s.	1d.		
1835	London—Oxford	60	3s. to 3s. 6d.	6 to 7d.	<i>Brit. Mus.</i> , 8235, cc. 4 (1), 'Oxford and Didcot Railway Bill', p. 3	
	Gloucester—London	98	4s. to 4s. 6d.	1d.	<i>Great Western Railway Bill. Evidence before Lords Committee</i> , pp. 489, 490	
1835	Tiverton—London	160	5s. 0d.	3d.	<i>Ibid.</i> , p. 29	On woollens
	London—Tiverton	160	4s. 0d.	1½d.	<i>Ibid.</i>	On wool
1835	London—Reading	46	1s. 9d.	3d.	<i>Ibid.</i> , pp. 396, 398	On tallow and woollens
	Henley—Reading	7	2s. 0d.	3½d.	<i>Ibid.</i> , p. 414	On woollen cloths

APPENDIX 8

COST OF CARRIAGE BY INLAND NAVIGATIONS

IN the following statistics, I have presented some available information regarding the expenses of conveyance by canal, and, where possible, have made a comparison of these with the costs of conveyance by the ordinary roads. It will be observed in the first table that the opening of the Grand Trunk Canal reduced the cost of carriage to an amount only one-third to one-fourth of that paid for land carriage. The following figures are taken from Baines, *History of Liverpool*, pp. 439-40, into which, perhaps, they were incorporated from Salt, *Statistics and Calculations*, p. 71:

	Canal carriage per ton	Land carriage per ton
	£ s. d.	£ s. d.
From Liverpool to Etruria	13 4	2 10 0
" " Wolverhampton	1 5 0	5 0 0
" " Birmingham and Stourport	1 10 0	5 0 0
From Manchester to Lichfield	1 0 0	4 0 0
" " Derby	1 10 0	3 0 0
" " Leicester	1 10 0	6 0 0
" " Newark	2 0 0	5 6 8
" " Nottingham	2 0 0	4 0 0
" " Wolverhampton	1 5 0	4 13 4
" " Birmingham	1 10 0	4 0 0
From Liverpool or Manchester to Shardlow ...	1 10 0	3 0 0

The freight rates on the navigations connecting Manchester with the Trent and Severn, and with the Birmingham Canal, in 1781, were:

for perishable goods, 3*d.* per ton per mile,
for non-perishable goods, 2½*d.* " "

The freight from Shardlow to Gainsborough (on Trent Navigation) was 10*s.* per ton (v. *Manchester Collectanea*, in Chetham Society Publications, LXVIII, p. 136).

The following table of freight rates, taken from Allutt, *Rivers and Canals West of London*, p. 3, shows us what the rates of carriage were along the Thames, as compared with the rates for land carriage in the same sections:

Price of Carriage on the River Thames Navigation.

	Water carriage per ton	Land carriage per ton
	£ s. d.	£ s. d.
From London to Windsor or Maidenhead ...	9 0	1 10 0
" " Marlow or Henley	12 0	2 5 0
" " Reading or Caversham	15 0	2 10 0
" " Wallingford or Bensington	18 0	2 18 0
" " Abingdon or Oxford	1 2 0	3 5 0
" " Faringdon or Lechlade	1 8 0	4 0 0

Therefore, according to Allnutt, the cost of land carriage along this route was from three to three and one-third times as much as water carriage along the same route. But Mavor gives slightly different figures for practically the same year, and these we subjoin.

Mavor, *Agriculture of Berkshire*, 1808, p. 531, gives us the following Table showing Prices of Carriage on the Thames and Isis Navigation, from Lechlade to London and back, downward and upward; also Cost of Land Carriage to and from the Several Places undermentioned and London; and also the Time generally taken in navigating a Barge from such Places to London downward (with aid of stream) and upward (by horse-towing):

Between London and	Prices of water carriage		Price of land carriage each way	General time of passage	
	Down	Up		Down	Up
	per ton <i>s. d.</i>	per ton <i>s. d.</i>	per ton <i>£ s. d.</i>	days	days
Staines	5 0	7 0	1 0 0	1	1½
Windsor	6 0	8 0	1 6 8	1	2
Maidenhead	7 6	9 6	1 10 0	1½	2½
Marlow	9 0	11 6	2 0 0	1½	3
Henley	10 6	13 6	2 5 0	1½	3½
Reading	12 0	16 0	2 10 0	2	4
Wallingford	14 0	18 0	3 0 0	3	5
Abingdon	16 6	23 0	3 10 0	3½	5½
Oxford	19 0	25 0	4 0 0	3½	6
Lechlade	30 0	40 0	5 0 0	5	8

From this table, if we omit the last item, we learn that the cost of water carriage down-stream was roughly one-fourth, and the cost up-stream one-third, of the cost of carriage by land: or, in other words, the cost of land carriage was three to four times that of water carriage by the Thames Navigation.

Allnutt, p. 5. Prices of Carriage on the River Wey Navigation:

	Water carriage per ton	Land carriage per ton
	<i>£ s. d.</i>	<i>£ s. d.</i>
From London to Weybridge	8 0	1 5 0
.. .. Guildford	12 0	1 15 0
.. .. Godalming	13 6	2 0 0

Therefore, land carriage cost three times as much as water carriage.

Ibid., p. 6. Prices of Carriage on the Basingstoke Canal:

	Water carriage per ton	Land carriage per ton
	<i>£ s. d.</i>	<i>£ s. d.</i>
From London to Basingstoke	18 0	1 15 0

Therefore, land carriage cost twice as much as water carriage. (The cost of land carriage about 1786 seems to have been slightly higher than at this time (1810), for it was then £2 per ton. See Brit. Mus. B. 263 (6), 'Basingstoke Canal Navigation.')

Allmott, *Rivers and Canals West of London*, p. 8:

Prices of Carriage on River Kennet Navigation:

	Water carriage per ton	Land carriage per ton
	£ s. d.	£ s. d.
From London to Reading (heavy goods, e.g., coal)	15 0	2 0 0
(other goods, e.g., groceries)	18 0	2 5 0
From London to Newbury (heavy goods) ...	18 0	3 10 0
(other goods) ...	1 5 0	3 15 0

Therefore, land carriage cost on the average three times as much as water carriage.

Ibid., p. 9. Prices of Carriage on the Wilts and Berks Canal:

	Water carriage per ton	Land carriage per ton
	£ s. d.	£ s. d.
From London to Abingdon	1 2 0	3 5 0
" " Wantage	1 6 0	4 0 0
" " Swindon	1 13 0	4 15 0
" " Semington	2 5 0	5 10 0
" " Bath	2 12 6	6 3 0
" " Bristol	2 15 0	7 10 0

Therefore, the cost of land carriage was about three times the cost of water carriage.

Ibid., p. 11. Prices of Carriage on the Kennet and Avon Canal:

	Water carriage per ton	Land carriage per ton
	£ s. d.	£ s. d.
From London to Newbury (heavy goods, e.g., coal, timber)	18 0	3 10 0
(groceries, valuables, etc.)	1 5 0	3 15 0
From London to Devizes (heavy goods) ...	1 16 0	5 10 0
(groceries, etc.) ...	2 0 0	6 0 0
From London to Bath (heavy goods) ...	2 7 0	7 0 0
(groceries, etc.) ...	2 10 0	7 10 0
From London to Bristol (heavy goods) ...	2 9 6	8 0 0
(groceries, etc.) ...	2 13 0	8 10 0

Therefore, land carriage cost three times as much as water carriage.

From the tables given above, it would seem to be an almost universal rule that on the rivers and canals west of London the cost of water carriage was only about one-third of that by land.

On page 20 of Allmutt's work, he has shown the average ton-mile cost for the conveyance of goods on the various navigations. This table is next appended, a study of it will show that the price of carriage on river navigations was much less than on canal navigations. Where or how he obtained the data for this table, he does not say, and I have been unable to discover; but it almost seems as if his object were partisan, namely, to show that river navigation was cheaper than canal navigation. I insert the table here for what it is worth; but I warn the reader that my study of the subject does not warrant the above inference. The reduction of the cost to a ton-mile basis is contrary to the way in which, according to my researches, the prices were stated or reckoned.

Average Price of Carriage (including tolls, etc.):

Names of Navigations	Valuable or perishable goods or goods liable to risk (per ton per mile)	Other goods coarse or heavy (per ton per mile)
By Basingstoke, Kennet and Avon, Wilts and Berks, Thames and Severn, and Stroud canals	<i>d.</i> 5-5 $\frac{3}{4}$	<i>d.</i> 3 $\frac{1}{4}$ -4
By other canals, viz., Grand Junction, Oxford, Fazeley, Birmingham, Staffordshire and Worcestershire, and Grand Trunk ...	5 $\frac{1}{2}$ -6	3 $\frac{3}{4}$ -4 $\frac{1}{4}$
On rivers Thames, Isis, Wey, Kennet, Avon, Severn	2 $\frac{1}{2}$ -3	2-2 $\frac{1}{2}$
Average price of carriage by river Mersey, Runcorn to Liverpool	3-3 $\frac{1}{2}$	1 $\frac{3}{4}$ -2 $\frac{1}{4}$
By river Trent, Gainsborough to Shardlow ...	2 $\frac{3}{4}$ -3 $\frac{1}{4}$	2-2 $\frac{1}{2}$
By river Severn, Stourport to Bristol ...	2 $\frac{1}{2}$ -3	2-2 $\frac{1}{4}$

Before leaving this table, let me say that if any one will take the trouble to work out the ton-mile figures for the cost of carriage of goods, on the above-mentioned canals, as given in the foregoing tables, he will not find the figures in this last table to be correct, but will find them too high. Furthermore, we have facts from other sources which confirm our opinion that Allmutt's ton-mile figures here given for canal navigations are altogether too high. In 'Collection of Prospectuses, Maps, etc., of Railways and Canals,' p. 19, we have the distances and tonnage rates between Birmingham and London, via the Birmingham, Warwick and Birmingham, Warwick and Napton, Oxford, and Grand Junction canals, showing that the tonnage rate along this route for "general merchandise" was 29s. 8d., and the distance 146 miles. This, when reduced to the standard that Allmutt (unwisely) adopted, would give us the cost of carriage along these canals as 2 $\frac{1}{2}$ d. per ton per mile, which is practically the same figure as he has given for the cost of carriage on the great rivers. On the whole, therefore, we are compelled to reject his inaccurate comparison, as given in this table. It must not be assumed that in making the above computation on a ton-mile basis we are giving any countenance to that basis of comparison of rates; we have used it simply tentatively, to prove

the erroneous nature of what Allnutt has brought forward. The fact is that water rates were not quoted on that basis.

In the 'Proceedings of the Great Western Railway Company,' in 1833, in the evidence of Mr Stone (tea dealer) of Bristol (p. 11), it was shown that, since 1827, the cost of land carriage from London to Bristol was 4s. per hundredweight, and the cost of water carriage from London to Bristol was 2s. 6d. per hundredweight.

On page 12 (*ibid.*), in the evidence of Mr Shepherd (grocer) of Bath, it was shown that the cost of land carriage, London to Bath, was 6s. per hundredweight, and the cost of water carriage, London to Bath, was 2s. 6d. per hundredweight.

On page 19 (*ibid.*), in the evidence of Mr Harris (grocer) of Reading, it was shown that the cost of carriage by land, London to Reading, was 30s. per ton, and the cost of carriage by water, London to Reading, was 15s. per ton.

In the Reports of the Commissioners on the Thames Navigation, in 1811, comparative freight rates on canals and rivers are given; but they were issued by those who would be favourable to the Thames. They are given here because they show Allnutt's figures of ton-mile rates, on the canals, for valuable and perishable goods, to be altogether too high. The rates they quoted were as follows:

I. By Canals.

London—Birmingham (143 miles),

Freight on valuable goods = 55s. per ton, or $4\frac{1}{2}d.$ per ton per mile.

.. heavy .. = 35s. .. 3d.

Birmingham—Manchester (116 miles),

Freight on valuable goods = 40s. per ton, or $4\frac{1}{2}d.$ per ton per mile.

.. heavy .. = 26s. .. 3d.

Basingstoke—Weybridge (41 miles by canal and river),

Freight on valuable goods = 15s. 4d. per ton, or $4\frac{1}{2}d.$ per ton per mile.

.. heavy .. = 13s. .. $4\frac{1}{2}d.$

The mean of the rates on the three canals shows that valuable goods were carried for $4\frac{1}{2}d.$ per ton per mile, and heavy goods were carried for $3\frac{1}{2}d.$ per ton per mile.

II. By River.

Reading—London (78 miles),

Freight on valuable goods = 18s. per ton, or $2\frac{3}{4}d.$ per ton per mile.

.. heavy .. = 13s. .. 2d.

London—Abingdon (108 miles),

Freight on valuable goods = 26s. per ton, or $2\frac{3}{4}d.$ per ton per mile.

.. heavy .. = 20s. .. $2\frac{1}{4}d.$

Taking the average of these rates, we would judge that, on the Thames river, valuable goods were carried for $2\frac{3}{4}d.$ per ton per mile, and heavy goods were carried for $2\frac{1}{4}d.$ per ton per mile.

It will be noted from the above that the average rate here given on valuable goods carried by the canals was $4\frac{1}{2}d.$ per ton per mile, while Allnutt gives 5d. to 6d.; which seems to indicate that Allnutt's figures are very much overstated. Even the above figures given by the Thames Commissioners must not be accepted as authoritative, since they were given, doubtless for a purpose, by a body of men who wanted to present the Thames Navigation in as favourable a light as possible.

In the evidence of Mr Westall, a linen draper of Birmingham, before the Committee on the London and Birmingham Railway Bill, we learn that from London to Birmingham the rate on light goods carried by coach was 1d. per lb.; on heavy

goods carried by waggon it was 5s. per cwt.; and on the canal, linen goods and mercery paid 2s. 9d. per cwt., while extra heavy goods paid 2s. 6d. per cwt. (v. *Great Western Railway. Evidence on the London and Birmingham Railway Bill*, pp. 32-33). Goods that came by coach from London were delivered in fifteen to sixteen hours from the time of leaving London. Goods that came by waggon generally took four days. Goods that came by canal took five to six days. From these statements it would appear that the cost by canal was just half of the cost by waggon. This is in accordance with information culled from other sources. For instance, that the cost of land carriage of Birmingham iron manufactures from Birmingham to London was 5s. per cwt., is confirmed by Brit. Mus. 214. i. 4 (120), 'Report of Committee on Oxford Canal,' p. 1; and the freight cost of the same goods by fly-bout on the canal from Birmingham to London, at a somewhat later period, was 45s. to 50s. per ton, or (say) 2s. 6d. per cwt. (*Remarks upon Pamphlet by "Investigator" on the Proposed Birmingham and London Railway*, p. 13). It is evident, therefore, from this that the expense of carriage by canal was only one-half of that by land.

Again, from the 'Report of the Committee on the Oxford Canal' [Brit. Mus. 214. i. 4 (120)], p. 3, we have the following statistics:

From Birmingham to Oxford, by canal, 160 miles, cost of carriage per ton was	£ s. d.
	1 6 8
From Oxford to London, by Thames, cost per ton was	1 4 0
∴ total charge by canal and river from Birmingham to London was	2 10 8
But total charge by road from Birmingham to London was	5 0 0

Therefore the expense of water carriage was about one-half of that by road.

The great difference in cost between canal carriage and land carriage is also brought out in Phillips, *Plan for a Navigable Canal*, p. 21. Here he says that near the Staffordshire Canal the cost of road carriage was 8-9s. per ton for 10 miles, while the cost of water carriage by the canal was a half-crown per ton for 10 miles. This would indicate that canal carriage there was only about one-fourth the cost of carriage by road.

In the elaboration of this subject we find much diversity of statement as to the cost of carriage, and this is but natural, since the various waterways were very much unlike one another and also because different classes of goods could only be moved at different costs of transportation [see, for instance, *Communications to the Board of Agriculture*, 1, p. 179; *Observations on the Comparative Merits of Navigations and Railroads*, p. 40; Gooch, *Agriculture of Cambridge*, p. 28]. But from what we have here presented, we may broadly generalize by saying that the cost of canal conveyance was from one-fourth to one-half of the cost of carriage by road.



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APPENDIX 9

RAILWAY AND CANAL AMALGAMATIONS UP TO 1866

From Brit. Doc. 1872 (364), xiv, 1 (Part 2), pp. 755-6, we take the following table as to the canals and navigations acquired by railway companies by amalgamation, purchase, or lease:

Year when acquired	Canals and navigations acquired	Terms
	<i>Bristol and Exeter Railway</i>	
1864	Grand Western Canal	Sale authorized
1866	Bridgewater and Tamton Canal	Transfer authorized
	<i>Great Eastern Railway</i>	
1846	Stowmarket Navigation	Leased for 42 years from January 1846
1846	Lowestoft Navigation	Leased in perpetuity
	<i>Great Northern Railway</i>	
1846	Fosdyke and Witham Navigation	Authority to lease
1846	Grantham Canal	Authority to purchase
1847	Louth Navigation	Authority to purchase
1846	Nottingham Canal	Authority to purchase
	<i>Great Western Railway</i>	
1846	Stratford-upon-Avon Canal	Purchased
1852	Kennet and Avon Canal	} Transfer
	Kennet Navigation	
	<i>Lancashire and Yorkshire Railway</i>	
1846	Manchester, Bolton and Bury Canal	Vested
	<i>Manchester, Sheffield and Lincolnshire Railway</i>	
1846	Chesterfield and Gainsborough Canal	} Vested in perpetuity for an annuity
1846	Macclesfield Canal	
1846	Peak Forest Canal	
	<i>London and North Western Railway</i>	
1846-7	Shropshire Union Canals, viz.	Authorized in 1847 to be leased in perpetuity to the London and North Western Railway Company
	Shrewsbury Canal	
	Montgomeryshire Canal	
	Birmingham and Liverpool Junction Canal	
	Ellesmere and Chester Shropshire Canal	
1864	Lancaster Canal	Transfer by lease in perpetuity, 1864
1847	Huddersfield and Manchester Canal	Vested
1864	St Helen's Canal	Vested
1852	Cromford and High Peak Canal	Vested jointly in the Midland and L. & N. W. Ry. Cos.
	<i>Midland Railway</i>	
1846	Ashby Canal	Authorized to purchase
1846	Oakham Canal	Authorized to purchase
	<i>Midland Great Western Railway</i>	
1845	Royal Canal	Purchased

Year when acquired	Canals and navigations acquired	Terms
1845	<i>Monmouthshire Railway</i> Monmouthshire Canal Navigations	Vested
1865	Breeon and Abergavenny Canal	Purchased
1863	<i>Newport Pagnell Railway</i> Newport Pagnell Canal	Authority to purchase
1848	<i>North British Railway</i> Edinburgh and Glasgow Union Canal	Vested
1847	<i>North Eastern Railway</i> Hull and Leven Canal Leven Canal Pocklington Canal	Authority to purchase
1846	<i>North Staffordshire Railway</i> Trent and Mersey Canal	Vested
1864	Newcastle-under-Lyme Canal	Leased in perpetuity
1852	<i>Somerset Central Railway</i> Glastonbury Canal	Transferred
1847	<i>South Yorkshire Railway</i> Stainforth and Keadby Navigation	Leased by Act of 1864, together with the railways, for 999 years, to the Manchester, Sheffield and Lincolnshire Railway
1847	Don Navigation	
1848	Sheffield Canal	
1850	Dearne and Don Navigation	
1860	<i>Tenbury and Bewdley Railway</i> Leominster Canal (part of)	Purchased

APPENDIX 10

EFFECT OF RAILWAY COMPETITION ON CANAL CHARGES

IN the following tables, I have brought together such information of a statistical character as could be found, in the hope that it might make more definite the results that accrued from the competition of railways with the previously existing canals. It will be seen that the variations which are found in these rates are too wide to base any general statement upon them, and have it reflect with mathematical precision the reductions which were made. The only conclusion which we may reach from the facts as presented is that the minimum reduction was about one-sixth of the former rates and the maximum reduction was about six-sevenths of those rates. These limits, however, are of little practical value; and to generalize somewhat further and still be within the truth, we may say that, on the whole, the minimum reduction of rates was from one-third to one-half of the former rates.

The following table shows a statement of the reduction which took place in the rates on the Grand Junction and Leicester lines of canal since the introduction of

railways in that section (1836). The Grand Junction Canal forms the main trunk of canal communication between London and the North. It extends from Paddington to Braunston, where it runs into the Oxford Canal, which communicates by other canals with Liverpool, Manchester and Birmingham. Five miles short of its entrance to the Oxford Canal it is joined by the Leicester lines. The lines here included were amalgamated with the Grand Junction Canal.

TABLE A. *Tonnage rates on undermentioned lines of canal.*

Canals	Rates authorized under their Acts, and which they did charge		Reduced since 1836 to	
	s.	d.	s.	d.
Grand Junction, 97 miles,				
On sundries	16	3 ³ / ₄	2	0 ¹ / ₄
On coal	9	1	2	0 ¹ / ₄
Grand Union, 24 miles,				
On sundries	6	0	5 ¹ / ₂	
On coal	2	11	5 ¹ / ₂	
Union, 19 miles,				
On sundries	4	9	5 ¹ / ₂	
On coal	2	1	5 ¹ / ₂	
Leicester, 16 miles,				
On sundries	2	6	4	
On coal	1	2	4	
Loughborough, 10 miles,				
On sundries	2	6	4	
On coal	1	2	4	
Erewash, 11 miles,				
On sundries	1	0	4	
On coal	1	0	4	

Here the reduction was very great; so great as to make the competitive rates only one-third to one-eighth of the former canal rates (v. Brit. Doc. 1846 (275), xii, 93, 'Minutes of Evidence,' p. 43).

From the Report of the Royal Commission of 1867, Brit. Doc. 1867 [3844], xxxviii, 1, p. lxx, we take the following information:

TABLE B. *Rates per ton. Bristol to London.*

Articles	Rates charged by Carriers			Rates charged by Railway 1866				
	1820	1830	1840					
	s.	d.	s.	d.	s.	d.		
Drapery	66	0	60	6	47	6	40	0
Hops	68	0	63	0	49	6	40	0
Oil	60	6	47	0	42	0	20	0
Tobacco	66	0	66	0	47	6	26	8

TABLE C. Rates per ton, Birmingham to London.

Articles	Rates by Canal		Rates charged by Railway 1866	
	1836	1842		
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	
Undamageable iron	25 0	—	15 0	
Hardware	60 0	40 0	27 6	
Sugar	40 0	37 6	21 8	
Tallow	35 0	30 0	21 8	
Drapery	70 0	45 0	40 0	
Glass	70 0	—	27 6	

This road was opened in 1837-8, and therefore the difference between the rates of 1836 and 1842 would show the effect of the railway. The canal rates of 1842 were only from two-thirds to six-sevenths of those of 1836; that is, there had been a reduction of from one-seventh to one-third of the former canal rates.

From Manchester to London, bales and grain were carried;

in 1833, by quick vans, at £20 per ton.

„ 1834, by canal „ £4 „

„ 1840, by railway „ £3. 4s. 8d. per ton. } This was before the railway

„ 1866, by railway „ £1. 15s. „ } company acted as carrier.

The railway rate of 1840 was, therefore, only three-fourths of the former canal rate of 1834.

Tables D, E, F, G are taken from Brit. Doc. 1881 (374), XIII, 1. 'Report of the Select Committee on Railway Rates and Fares,' Appendix No. 59.

TABLE D. Tonnage rates, London to Birmingham. By canal in 1836; by railway and canal in 1842; by railways in 1866 and 1880.

Articles	Rates by Canal, Collected and Delivered		Rates by Railways, Collected and Delivered		Rates by Railways, Collected and Delivered
	Before Railway opened	After Railway opened			
	1836	1842	1842	1866	1880
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Undamageable iron	25 0	—	—	15 0	15 0
Damageable iron	27 6	—	—	17 6	17 6
Hardware ...	60 0	35 0	40 0	27 6	—
Nails	40 0	32 6	32 6	21 8	—
Raw Sugar ...	40 0	37 6	37 6	21 8	20 0
Lump Sugar ...	50 0	37 6	40 0	27 6	—
Tallow	35 0	35 0	30 0	21 8	—
Tea	50 0	37 6	40 0	32 6	34 2
Drapery	70 0	—	45 0	40 0	40 0
Spelter	—	18 0	20 0	17 6	15 0
Glass	70 0	—	—	27 6	—

During the stoppage of the canal by frost, etc., before the opening of the railway, goods had to be sent by road waggon at these charges:

Glass, 140s. per ton.
Other goods, 120s. „

From the above figures for the canal rates of 1836 and 1842, it appears that, on account of the railway competition, the canal rates of 1842 were only from two-thirds to three-fourths of the canal rates of 1836.

TABLE E. *Tonnage rates, London to Manchester. By quick vans in 1833-4; by canal in 1834; by railways in 1840, 1866 and 1880.*

Articles	Quick Vans	Quick Vans	Canal	When Railways opened, before Ry. Cos. were carriers	Rates by Railways, the Railway Cos. being carriers	Rates by Railways, the Railway Cos. being carriers
	1833	1834	1834	1840	1866	1880
Sugar, raw ...	—	£ s. d.	—	s. d.	s. d.	s. d.
		—	—	61 8	28 4	4-ton lots 22 6
						less lots 31 8
Sugar for refiners	—	—	—	—	20 0	20 0
Tallow ...	—	—	—	61 8	25 0	piping 27 6
Lead ...	—	—	—	61 8	28 4	31 8
Bales, Paeks, and Trusses	£20	18 13 4	80	64 8	35 0	40 0
Hardware ...	—	—	—	64 8	40 0	43 4
Silk ...	—	—	100	—	insured 87 6	
					smalls 3 2	
					minsured 62 6	62 6
					smalls 2 2	
Glass ...	—	—	100	69 8	40 0	40 0
Furniture ...	—	—	140	—	O. R. 70 0	O. R. 70 0
Luggage ...	—	—	—	79 8	55 0	55 0
Wines and Spirits	—	—	—	69 8	40 0	40 0
Hides ...	—	—	—	69 8	28 4	30 0

From the above table, nothing very definite can be learned as to the effect of railways in reducing the rates formerly charged by canals; for in a comparison of the rates of 1834 and 1840 there are only two articles for which the rates are given in both of these years, namely, "Bales, Paeks, and Trusses," and "Glass." The table is more valuable in showing the reduction of rates between 1840 and 1866, after the railway companies became carriers.

The following table is much more valuable in showing the effect of railway in reducing the rates charged by the canals (q.v.).

From this table, the rates by canal, before and after the railway was opened, are easily compared, without any disturbing elements; and it is apparent that the reduced rates after the railway was opened were only from one-half to two-thirds of those in effect before the railway was opened; or, in other words, there was a reduction of one-third to one-half of the former cost of carriage.

TABLE F. *Tonnage rates, Birmingham to Manchester. By canal in 1836; by railways and canal in 1842; by railways in 1866 and 1880.*

Articles	Rates by Canal, Collected and Delivered		Rates by Railways, Collected and Delivered		Rates by Railways, Collected and Delivered
	Before Railways opened	After Railways opened	1842	1866	
	1836	1842			1880
Undamageable iron	<i>s. d.</i> 22 6	<i>s. d.</i> —	<i>s. d.</i> —	<i>s. d.</i> 10 0 to 11 6	<i>s. d.</i> 12 0
Damageable iron	25 0	—	—	11 6 to 13 0	13 6
Hardware ...	40 0	20 0	25 0	<i>s. d.</i> 20 0	21 8
Nails ...	30 0	17 6	20 0	16 8	17 6
Iron wire ...	—	17 6	20 0	16 8	17 6
Parcels and bales	30 0	20 0	25 0	22 6	24 2
Flint Glass ...	40 0	—	—	O. R. 22 6	A. 20 10

TABLE G. *Tonnage rates, South Staffordshire to Liverpool. By canal in 1831, and by railways in 1866 and 1880.*

Articles	Rates by Canal, Collected and Delivered	Rates by Railways, Collected and Delivered		Rates by Railways, Collected only (but delivered alongside ship in 10-ton lots)	
	1831	1866		1880	
Undamageable iron	<i>s. d.</i> 18 0	<i>s. d.</i> 10 0	<i>s. d.</i> to 11 6	<i>s. d.</i> 10 0	<i>s. d.</i> to 11 6
Damageable iron	20 0	11 0	to 13 0	12 6	to 14 0
Hardware ...	40 0	15 10	to 18 4	20 0	to 23 4
Nails ...	27 6	14 2	to 16 8	15 0	to 17 6
Glass ...	40 0	O. R. 22 <i>s.</i> 6 <i>d.</i>		17 6	to 18 4 O. R.
Timber ...	13 4	10 0	to 12 6	11 8	to 12 6
Grain ...	13 4	10 0	to 12 6	11 8	to 12 9
		(including collection in Liverpool)			

These figures do not show the immediate effect of the railways, but only the ultimate reduction of rates which they brought about, a reduction which amounted to one-sixth to one-half of the former canal rates.

APPENDIX 11

STATISTICS SHOWING EXTENT TO WHICH FREIGHT RATES WERE RAISED THROUGH AMALGAMATIONS OF CANALS AND RAILWAYS

In the following tables we give some authoritative information as to the extent to which railway and canal rates were raised, through the amalgamation of the canals with the railways. From the nature of the case, it is impossible to generalize, since each instance had no connexion with any other but was arranged solely on its own merits.

About the middle of the century, pig iron was brought in large amounts to Runcorn (chiefly from Scotland), because that was a great depot and distributing centre. From there it was sent along the Bridgewater Canal to Leigh, thence along the Leeds and Liverpool Canal and the Lancaster Canal into the country northward. The following table contrasts the tolls that were charged before and after the formation of the working arrangement between the railways and canals in that section.

Illustration of the Operation of the Advanced Toll on Pig Iron from Runcorn to the following places:

To	Total Railway charges with which the Canal from Runcorn must compete		Canal Tolls									
			Previous to the Lease					After the Lease				
			From Fleet-wood	From Pool-ton	Lancaster Canal, 1 <i>d.</i> per ton per mile	Leeds and Liverpool Canal, 3 <i>d.</i> per ton per mile	Total Toll formerly	Lancaster Canal, 1 <i>d.</i> per ton per mile	Leeds and Liverpool Canal, 1 1/2 <i>d.</i> per ton per mile	Total Toll now		
<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	miles <i>d.</i>	miles <i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	miles <i>d.</i>	miles <i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>					
Wigan	4 0	—	—	—	8	4	4	—	—	8	1 0	1 0
Blackburn	5 6	5 0	11	11	19	9 1/2	1 8 1/2	11	11	19	2 4 1/2	3 3 1/2
Accrington	—	5 6	11	11	25	1 0 1/2	1 11 1/2	11	11	25	3 1 1/2	4 0 1/2
Burnley	7 0	5 6	11	11	35	1 5 1/2	2 4 1/2	11	11	35	4 4 1/2	5 3 1/2
Marsden	—	5 6	11	11	40	1 8	2 7	11	11	40	5 0	5 11
Colne	—	5 6	11	11	45	1 10 1/2	2 9 1/2	11	11	45	5 7 1/2	6 6 1/2

It will be observed from these figures that the total tolls charged after the leasing of the canals by the railways were twice or three times as much as before the lease was effected. Brit. Doc. 1852-3 (246), xxxviii, 175, 'Evidence of Mr Loeh.'

In the case of the Bolton and Bury Canal, great changes were made in the rate of tolls after its amalgamation with the Lancashire and Yorkshire Railway, as indicated by the following schedule, from which we see that in some cases the railway freight rate was slightly more than the canal tolls, and in other cases slightly less; so that, on the whole, we may say that the average railway freight mileage rate was probably about the same as the average canal tolls. In other words, independent carriers sending goods by the canal would pay as much in tolls only as the railway would charge for the whole service, including haulage. Brit. Doc. 1852-3 (246), xxxviii, 175, 'Evidence of Mr Loeh.'

Bolton and Bury Canal.

Comparison of the Relative Charges per ton per mile made by the Lancashire and Yorkshire Railway Co., for freight on their railway, and for Toll on their Canal.

		Railway Freights			Canal Tolls					
		per ton	Dis- tance	Mile- age	per ton	Dis- tance	Mile- age			
Manchester— Bolton	Iron	s. d.	miles	d.	s. d.	s. d.	miles	d.		
		2 0	10	2 4	Toll 1 9½ Loekage 0½ Wharfage 0½	1 10½	10½	2 12		
					If from Liverpool or Runcorn direct					
Liverpool— Bury	Timber Dye woods	6 8	34	2 35	s. d. Toll 2 1 Loekage 0½ Wharfage 0½	2 2½	12½	2 1		
		Liverpool— Bolton	Timber	6 8	28	2 86	Loekage and wharfage as above	1 10½	10½	2 12
				Fleetwood— Bolton	Iron	5 0	40	1 5	1 10½	10½	2 12
Fleetwood— Bolton	Grain	6 4	40	1 9	" "	1 10½	10½	2 12		
Fleetwood— Bury	Iron	6 0	46	1 56	" "	2 2½	12½	2 1		
Fleetwood— Bury	Grain	8 0	46	2 09	" "	2 2½	12½	2 1		

The following comparison is made of the Charges on the Huddersfield Canal, before and after amalgamation with the London and North Western Railway:

Huddersfield Canal.

Charges before Amalgamation	Charges subsequent to Amalgamation
Toll of 1d. per ton per mile	Toll, 1d. per ton per mile Tunnel dues, 1s. 6d. per boat each way Light dues, equal to 10 to 15 tons Wharfage, 1d. per ton

Illustration.

Formerly, a boat with a cargo of 20 tons, and returning light,	£ s. d.
would pay for 20 miles	1 13 4
Subsequently, Toll	1 13 4
Tunnel dues, 1s. 6d. each way ...	3 0
Light dues, say for 15 tons ...	1 5 0
Wharfage, on 20 tons	1 8
	<u>3 3 0</u>
	Difference = 1 9 8

Brit. Doc. 1852-3 (246), xxxviii, 175, 'Evidence of Mr Loeh.' See also *ibid.*, p. 34, showing how, after a prolonged contest, the Bridgewater Canal Trustees were forced to put up their rates in obedience to the demand of the railways.

Two other cases are here quoted from the 'Report of the Committee of 1872 on Railway Amalgamations,' Brit. Doc. 1872 (364), xiii, 1, 'Minutes of Evidence,' p. 332:

Between Leeds and Manchester, there were three navigations, namely, the Aire and Calder, the Calder and Hebble, and the Rochdale Canal. Manchester packs were being conveyed along these waterways at a rate with which the railways could not compete; and in order to destroy this competition the London and North Western, the Lancashire and Yorkshire, the North Midland, and the Manchester, Sheffield and Lincolnshire Railways jointly obtained a lease of the Rochdale Canal for a term of years, and raised the tonnage upon Manchester packs to a rate prohibiting their conveyance upon the water any longer.

Another instance is that of the London and North Western Railway Company in dealing with the food supply from Liverpool and from Gloucester to the mining districts of Staffordshire. Distance was all in favour of Gloucester, and the rate from that port to the Staffordshire collieries was originally 7s. a ton. The London and North Western, having obtained practical control over the old Birmingham Canal, by which the food supplies were conveyed from the terminus of the Birmingham and Worcester Canal at Birmingham to the collieries, an average distance of ten miles, raised the rate on that canal so as to increase the total rate from 7s. to 10s. per ton, and by so doing turned the supply of corn for that district from Gloucester to Liverpool, in order that this supply should be conveyed over seventy-five miles of their railway. By 1865 the bankers, merchants, etc., of Liverpool were loud in their complaints against the excessive rates charged by "that leviathan monopolist," the London and North Western. Brit. Mus. C. T. 309 (7), 'Rates of Carriage to and from Liverpool,' pp. 1-10.

We have elsewhere noted the extortionate prices charged for carriage by the navigations connecting Liverpool and Manchester, before the opening of the railway there in 1830; and the strong protests of those who were the projectors of the railway. With reference to this subject, there is an interesting remark by Mr Francis R. Conder, C.E., in a paper read before the Manchester Statistical Society, on Nov. 30, 1882. He says: "The statement might well be regarded as incredible, were it not supported by indisputable evidence, that fifty years after the opening of the Liverpool and Manchester Railway, it costs more to convey a bale of cotton from the one city to the other than it did in 1829." Brit. Doc. 1883 (252), xiii, 1, Appendix, p. 239. Within half a century, one monopoly was displaced by a more progressive but equally exacting one.

APPENDIX 12

ILLUSTRATIONS OF THE WAY IN WHICH CANALS SOMETIMES MAINTAINED COMPETITION AGAINST THE RAILWAYS

It may serve to exemplify more fully how any competition between the canals and the railways was possible, if we take one or two illustrations:

About 1850, the Grand Junction Canal Company was the largest of the carriers by canal. In 1847 the canal companies generally were afraid that the carriers would be forced to leave the waterways. They had been driven off the London and North Western road and forced to give up some of their most important traffic. The Trent and Mersey Canal had allied its interests with, and was under the control of, the North Staffordshire Railway Company, and therefore the canal route from Birmingham to Liverpool and Manchester was practically closed to private carriers.

Under these circumstances, the Grand Junction Canal Company determined to fight for their right to carry between London and Birmingham. They entered into negotiations with other independent canals, asking them to share in starting a carrying establishment. They all refused; and the Grand Junction Company, before entering upon a carrying business, made agreements with almost all the other independent canals between the end of their line and Birmingham, so as to make sure what tolls these canals would charge them. Under these arrangements, the Grand Junction Company was able for years to keep the traffic on the canal and even to increase the *absolute* amount of it. The statistics of this trade we append below: Brit. Doc. 1852-3 (246), xxxviii, 175, 'Evidence of Mr Mellish,' pp. 14-15:

Amount of Trade on Grand Junction Canal.

Year	Through Trade	Local Trade	Total Trade
	tons	tons	tons
1833	186,029	522,228	708,257
1834	192,253	527,528	719,781
1835	192,859	633,786	824,645
1836	193,043	826,518	1,019,561
1837	216,706	890,251	1,106,957
1838	202,134	746,354	948,488
1839	231,953	712,369	944,322
1840	224,819	729,430	954,249
1841	235,511	851,954	1,087,465
1842	227,782	714,053	941,835
1843	239,116	749,386	988,502
1844	295,100	794,421	1,089,521
1845	294,257	847,616	1,141,873
1846	229,282	858,689	1,087,971
1847	253,141	910,325	1,163,466
1848	227,736	803,548	1,031,284
1849	206,390	771,865	978,255
1850	221,853	804,879	1,026,732
1851	219,886	879,988	1,099,874
1852	228,935	915,644	1,144,579

The foregoing statistics begin with 1833, the year the London and Birmingham Railway Act was passed, so that the figures for the first years were not affected by railway competition.

The total trade on the canal had increased, therefore, 25 per cent. in twenty years. To show how large this trade was, compare the following figures:

	Length of line	Tonnage
1852, London and North Western Railway	639 miles	3,398,622 tons.
„ Grand Junction Canal	135 „	1,144,579 „

That is, with a length of line about five times as great as that of the canal, the railway carried only three times the amount of freight that was carried by the canal. Of course, we must remember that the heavy and bulky freight that went by the canal paid a much lower carriage rate than the goods that were sent by rail, so that, ton for ton, the revenue on the railway was much greater than that on the freight carried by the canal. Consequently, from the standpoint of the operating revenue, the above comparison may mean very little.

Note, that much the larger part of the above traffic was local. We have said that the absolute amount of traffic on the canal increased, but, of course, the relative amount did not keep pace with that on the railway.

Another case which shows us the way in which, by the aid of the carriers, a canal was able to keep its traffic, at least for some time, from going over to the railway, was that of the Bridgewater Canal. When the Liverpool and Hury Railway was opened, which was another line between Liverpool and Manchester, it had to be satisfied with some part of the traffic to commence with. At that time, the Bridgewater Trustees were carrying about twice as much traffic between these two places as the Liverpool and Manchester Railway (v. table at end of this Appendix). The railway companies proposed to the Bridgewater Trustees that instead of continuing to carry what they could collect, and what they conceived themselves to be entitled to, they should be content with only half the traffic, and the other half should be divided between the two railway companies. The Trustees objected to this, but the railway companies insisted on the division; and at the same time they required the Trustees to exclude the private carriers from the canals, for it was felt that the success of the Trustees in collecting so large a traffic was due very much to the exertions and independent energy of the carriers. The Trustees declined both proposals: either to yield up the trade which was their own, or to exclude the carriers from their canals. (They had bought up the Mersey and Irwell Navigation, in 1844, as almost a bankrupt concern.) The railway companies persevered in their demands, and as a result the rates between Liverpool and Manchester were reduced from an average of 7s. and 9s. a ton, to 2s. 6d. a ton, for six months or so. The Trustees, to avert the railway companies' intention, made arrangements with the private carriers that they would carry them through safely and that they would bear their losses from the beginning to the close of the contest. In return for this, they required the carriers to act almost as their agents and to charge the freight rates that the Trustees might direct. It answered the purpose; the carriers were thus able to pass through the contest and aid the trade on the canal; and the final result was that the proportion of traffic on the canals was as large as, if not larger than, it had been previously.

The railway companies again applied for a division of traffic, and it was agreed to, with the stipulation that the Trustees should pay over to the railway companies 5s. per ton on the excess which the Trustees might carry above their one-half. This went on for about nine months, but it was a losing game for the Trustees, and they put an end to it about the close of the year 1850, after which there was no division of traffic, but a tariff of rates for the three parties.

Under previous arrangement, the canal charged 8s. 4d. a ton on manufactured goods from Manchester to Liverpool, while the railway charged 10s. for the same service, the difference being regarded as an equivalent for the faster carriage on the railway. But, later, the railway company forced the canals, after long-continued resistance, to put their rates up to 10s. *Hist. Doc.* 1852-3 (246), xxxviii, 175. 'Minutes of Evidence,' pp. 23, 34.

The tonnage of freight carried on these navigations, during these critical years, is given in the following table. It shows what an important factor the private carriers were in the maintenance of the traffic, as compared with the amount carried by the owners of the navigations:

Statement of Traffic by Water between Liverpool and Manchester, 1839-52 inclusive,
and by Railway for the years 1838-48 inclusive.

Year	Bridgewater Canal			Mersey and Irwell Navigation			Gross Total Tonnage			Carried by Railway
	Carried by Owners	Carried by Carriers	Total Tonnage	Carried by Owners	Carried by Carriers	Total Tonnage	Carried by Owners	Carried by Carriers	Total Tonnage	
1839	30,526	162,600	193,126	96,488	29,280	125,768	127,014	191,880	318,894	Average 164,625
1840	26,862	169,631	196,493	90,455	51,352	141,807	117,317	220,983	338,800	
1841	26,263	154,013	180,276	74,429	69,155	143,584	100,692	223,168	323,800	
1842	19,217	169,154	188,371	54,118	85,335	139,453	73,330	254,480	327,819	
1843	21,207	233,788	256,995	54,947	101,063	156,010	76,154	336,851	413,005	
1844	19,511	266,599	285,910	36,424	107,408	143,832	55,735	374,007	429,742	
1845	23,030	241,747	265,677	42,344	156,089	199,023	66,274	398,436	464,710	
1846	29,134	254,233	283,367	50,219	164,442	214,661	79,353	418,075	498,028	
1847	18,196	223,763	241,959	41,937	129,885	171,822	60,133	353,648	413,781	
1848	16,334	262,064	278,398	28,689	122,850	151,539	45,023	384,914	429,037	
1849	22,756	271,839	294,595	48,059	135,990	184,049	70,815	407,829	478,644	
1850	24,025	230,655	254,680	29,807	129,036	158,903	53,892	359,691	413,583	
1851	29,777	172,109	201,886	9,150	138,632	147,832	38,927	310,791	349,718	
1852	27,993	201,768	229,761	7,701	131,442	139,143	35,694	333,210	368,904	

APPENDIX 13

STATISTICAL VIEW OF HIGHWAY AND CANAL LEGISLATION

The accompanying tabular view of the Road Acts and Canal Acts must not be understood to be reduced to the most careful mathematical exactness of absolute accuracy; but within the limits of accuracy which are at all possible in the application of statistics to the subject in hand, we venture to assert that no defects will be found, and that the presentation here given will show concisely the relative importance which the roads and canals assumed at the different periods and in the different sections of England. It has been the endeavour to group the counties by natural divisions, according to the great industrial characteristics which have been predominant in each group, and not according to any artificial geographical arrangement.

What, then, are the limits within which we may expect accuracy? In the first place, a road or a canal which extended into two or more counties has been noted under each county: so that if one road were built through three counties, it would be made to appear as three roads. But since this has been done consistently through the whole time between 1700 and 1830, the relative accuracy of our statistics will not be affected.

We must not suppose, however, that all these Acts represent actual road construction immediately after the passing of the Acts. Sometimes roads authorized to be made at a certain time were not made until years afterwards; and this would seem to vitiate any conclusions we might draw; but when we remember that this dilatoriness in constructing roads after they were sanctioned would not be much different at one period from another, we can easily see that our results are still quite comparable at all the periods during this epoch.

Again, *all* the Acts here enumerated were not for construction of new roads. A great many terms are used in the statutes in describing the purposes of the Acts, such as "building," "constructing," "amending," "repairing," "widening," "altering," etc., the roads; and in many other cases the Acts were passed for continuing the provisions of former Acts. While, therefore, our figures do not give us exact information as to new construction, they give us a very accurate guide as to the relative importance which the roads assumed at the different periods and in different sections of the kingdom. What we have said in this connexion regarding the roads is not so pertinent concerning the canals, for in connexion with them there was comparatively little legislation that was not followed by actual construction.

Another reservation we must make as to the roads, namely, that these Acts do not include the general road or turnpike Acts which were intended to apply to all the roads alike. As we have seen, these general Acts were scarce during the last half of the eighteenth century, because legislation was passed for each road separately according as the claim of each was presented. The number of these general Acts was so small in comparison with the number of separate road Acts (there being only four of any great consequence), that we may safely neglect them, as being insignificant for statistical purposes.

Now, what do our statistics, as thus defined, show in regard to the development of the means of communication? That there was a great increase in the attention given to road improvement beginning about 1750, is evident from the average road Acts per decade in the period given, the number per decade from 1751-90 being five

Divisions of England	Total Road Acts						Total Road Acts for the periods						Average Road Acts per decade			Percentage Increase of Road Acts			Percentage of the whole area of England	Percentage of Road Acts for the periods		
	1791-1810		1771-1810		1811-1830		1791-1830		1751-1830		1791-1830		1751-1830		1791-1830		1751-1830			1791-1830		
	1791-50	1751-70	1771-90	1791-1810	1811-30	1791-1830	1791-50	1751-70	1771-90	1791-1830	1791-50	1751-70	1771-90	1791-1830	1791-50	1751-70	1771-90	1791-1830		1791-50	1751-70	1771-90
1. Northern Counties—Northumberland, Cumberland, Westmorland, Durham	16	30	39	62	76	1	16	78	138	5	3.2	19.5	34.5	50.1	7.7	3.8	4.8	5.6	3.8	4.8	5.6	
2. Yorkshire, Lancashire, Cheshire	72	110	114	211	268	4	72	224	479	61	14.4	56	110.7	280	114	17.2	13.7	19.6	17.2	13.7	19.6	
3. North Midlands—Derby, Stafford, Nottingham, Shropshire, Warwick, Leicestershire and Rutland, Northampton	55	180	190	237	277	26	55	379	514	89	11	94.7	128.5	761	36	13.2	23.2	21.1	13.2	23.2	21.1	
4. West Midlands—Hereford, Monmouth, Worcester	20	36	45	49	52	7	20	81	101	22	4	20	25	400	25	4.8	5	4.1	4.8	5	4.1	
5. South Midlands—Berkshire, Oxford, Buckingham, Bedford, Hertford	89	89	78	98	111	8	89	167	209	22	17.8	41.7	52.2	134	25	21.3	10.2	8.6	21.3	10.2	8.6	
6. Eastern Counties—Lincoln, Huntingdon, Cambridge, Norfolk, Suffolk, Essex	44	75	55	95	108	7	44	130	203	20	8.8	32.5	50.7	269	56	10.5	8	8.3	10.5	8	8.3	
7. South-eastern Counties—Middlesex, Kent, Surrey, Sussex, Hampshire	82	162	122	195	220	24	82	284	415	41	16.4	71	103.7	333	46	19.6	17.4	17	19.6	17.4	17	
8. South-western Counties: (a) Gloucester, Wilts, Somerset	40	112	78	114	134	17	40	190	248	49	8	47.5	62	494	31	9.6	11.6	10.2	9.6	11.6	10.2	
(b) Dorset, Devon, Cornwall	0	58	42	50	83	5	0	100	133	14	0	25	33.2	33	33	0	6.1	5.5	0	6.1	5.5	
Total Road Acts	418	870	763	1111	1329	108	418	1633	2440	83.6	408.2	610	388	49								
Total Canal Acts	24	46	215	108			70	323			17.5	80.7										

N.B. Canal Acts are lower figures in each case.

times, and from 1791-1830 between seven and eight times, greater than those of 1701-50. The immediate change at the decade 1751-60 is very marked from the number of Acts of that period as compared with those of the period 1741-50, namely 140 in the latter decade and 403 in the former, which is almost 200 per cent. increase. This change would seem to point very strongly to the belief that the Industrial Revolution was already in progress in the decade from 1751-60. The percentage of increase of the road Acts in 1751-90 over the preceding fifty years is markedly characteristic of England's progress.

Another feature of the table which will be at once discerned, is the way in which certain sections increased their road Acts, as a sign of the industrial advance in these localities. Perhaps this is best brought out by considering the average road Acts per decade in the three periods given. Two divisions are very prominent in this respect, namely, the North Midland counties in one group, and the counties of Lancaster, York and Chester in the other. These were the great manufacturing sections, which were much in need of improved means of carriage and communication. But the causes for these changes we have dwelt upon fully in the chapter dealing with the roads after 1750.

It is needless for us to follow out in detail all the information obtainable from such a view of the legislation: but one other fact deserves to be mentioned, that is, the enormous change in the number of canal Acts in the period 1791-1800 over any previous period. In that period there were almost exactly six times as many Acts as in the preceding decade; and the figures we have here given for twenty-year periods show the change at a glance. Had we the opportunity to give the figures for the year 1793, and compare them with the corresponding figures for any previous year, we should at once discover that the thirty-third year of the reign of George III was the year of the "canal mania." There were exactly three times as many Acts passed that year as in the preceding. With the opening of the railway era in 1825, we come to a time when there were very few, almost no, Acts passed for the construction of canals, and the break at this year was very abrupt.

APPENDIX 14

PICKFORD ET AL. v. THE GRAND JUNCTION RAILWAY CO.

An important chapter in the history of railways is that which deals with their relation to the carriers, and shows us the way in which the latter were driven off the lines of railway and their trade came into the hands of the railway companies. We must not give the impression, however, that *all* the firms of carriers were driven off the rails, nor that those which were ousted from their trade had their business overthrown and their connexions despoiled immediately. Some lines dealt more liberally with the carriers, and even encouraged their trade as a means of increasing the revenues of their roads; while others were opposed to the carriers from the first and did all they could to take the trade away from them. We have elsewhere examined this subject in general, and therefore do not need to revert to it here; but, instead, we wish to present the history of a particular case, which throws much light upon the general subject, a case which was unique in the history of railway traffic development, and which made the carrying trade the topic of vigorous and sometimes acrimonious discussion. The case of Pickford et al. v. The Grand

Junction Railway Co. is all the more important from the fact that at the present time Pickfords are probably the chief survivors of the early carriers who began their work on the canals and have had a continuous activity as forwarders of goods ever since.

For some years after the establishment of the steam railway as a common carrier, it was thought by many that the public interest could best be safeguarded by allowing competition on the railway lines; and, with this object in view, the private carriers were in most cases admitted to these lines. As we have already seen, there were several different systems under which the carriers were allowed to work. On the London and Birmingham Railway all carriers were admitted under certain regulations; but the Grand Junction Railway Co., while they allowed private carriers engaged in the London trade upon their line, retained to themselves the conveyance of all Birmingham and Lancashire goods.

The presence of the carriers upon their line was irksome to the Grand Junction Railway Co., for the latter were anxious to secure a regulated monopoly; and, while seeming to give more freedom to the carriers and the public, the railway company, in 1839, invited the carriers to enter into arrangements with them, by which the Birmingham and Lancashire traffic was to be opened to competition among the carriers, and the charges to the public were to be reduced. But the condition was imposed that the carriers were "not to charge less than" the railway company. The rates were reduced to the public, subject to this reservation. It would seem as if this were but a cloak to cover up a deeper design. In 1838 the railway company found that, even with their monopoly of the carriage between Lancashire and Birmingham, their business as general carriers was very small; for the public had become accustomed to their former carriers, whose established connexions gave them facilities for safe and economical carriage. It would, therefore, be advantageous for the railway company to have the old carriers supplanted and their connexions appropriated. Hence, while the carrier was, apparently, freely admitted upon the line, in reality he was admitted as a mere servant of the railway company. By the agreement, Pickfords got but a small percentage of the traffic receipts from the goods that were turned over to the railway company. Then, when the railway rates were reduced, ostensibly to benefit the public, the returns of the Pickfords became so small as to be unremunerative. The railway company did not stop here, however, but compelled Pickfords, under an ingenious arrangement, to contribute, out of their small percentage, a certain amount in payment of railway services at terminals (J. Moss, *Railways*, p. 386; *Railway Times*, iv, p. 186).

In 1840 a crisis was finally reached in the relation of the carrier to the railway company. By their Acts of Parliament the Grand Junction Railway Co. were authorized to make reasonable charges for the carriage of goods, and to fix what they regarded as proper charges for carrying small parcels, not exceeding 500 lbs. each. The railway company became carriers of goods for hire between Manchester and London, using for that purpose their own line and the lines of the Liverpool and Manchester and London and Birmingham Railway Cos. They published a list of charges, which divided the "rates by merchandize trains" into seven classes, from 16s. to 60s. a ton; and then followed "boxes, bales, hampers, or other packages," when they contained parcels, etc., under 112 lbs. weight each, directed, consigned, or intended for different persons, or for more than one person, on which the rate was made 1d. per lb. weight. On Nov. 24, 1840, Pickford & Co. packed several parcels (consisting of teas, books, and hardware, which had been delivered to them by various persons to be carried from Birmingham to Manchester) in a hamper, the gross weight of which, including the parcels, was 8 cwt. 3 qrs., although each parcel

separately was less than 112 lbs. weight, and would, if delivered separately, have been a small parcel and thus have fallen under the title "smalls" according to the sevenfold classification above-named. This hamper was tendered to the Grand Junction Railway Co., and they were asked to carry it to its destination, for which service Pickfords offered to pay all that the railway company could legally charge, namely, 60s. per ton or a total of £1. 6s. 6d. The railway company's agent at Birmingham refused to receive the hamper unless the senders allowed him to open it, so that the number of parcels might be known, and each parcel might be charged and paid for separately at the rate fixed in the railway company's list, or unless they would pay the railway company 1d. per lb. upon the total weight of 8 cwt. 3 qrs., which would have amounted to £4. 1s. 8d. Pickfords refused to pay the latter, and the railway company refused to carry the hamper (*Railway and Canal Cases*, III, pp. 193-5. A similar case is given in *ibid.*, III, pp. 197-8). This case was tried in 1841 and was decided in favour of Pickford & Co. (*Railway and Canal Cases*, II, p. 592 et seq.).

It will present the situation more clearly if we give briefly the two sides of the case, without attempting to weigh the merits of either; and if the reader will remember that there were other cases similar to this (e.g., *Parker v. Great Western Railway Co.*, as given in *Railway and Canal Cases*, III, pp. 563-87), he will understand that the arguments in this case were applicable in the others. The evidence and affidavits in favour of the Grand Junction Railway Co. are found in *Railway Times*, IV (1841), pp. 208-9, 236-8, 289-92; V (1842), pp. 739-41; VI, pp. 176, 206; VII, pp. 217-18; and those in favour of Pickford & Co. are given in *Railway Times*, IV, pp. 293-6, 297-8, 366-7; V, pp. 739-41; VI, pp. 113, 152, 198-9, 238-9; VII, p. 328; and in *Railway and Canal Cases*, III, pp. 203-4, 538, 551-5.

The central difficulty, as we noted above, turned upon the carrying of "smalls" in hampers. It was said that Pickford & Co. had sent small parcels for different persons packed together in hampers, for the carriage of which they had paid the railway a certain rate per ton, the same as for goods, and afterwards, in distributing these parcels, charged each person the full amount of carriage that would have been paid had each parcel been carried separately. This was represented as having been done in order that the carriers might pocket the difference and thus swell their profits from the carrying trade. Pickford & Co. denied this allegation, and the court did not find any truth in it. On the other hand, the court decided that it was illegal for a railway company to charge for a hamper of small parcels for delivery to one consignee, the same as if they had had the trouble of collecting and delivering each separate article.

The statement was made that Pickford & Co.'s charges were not uniform to all persons under like circumstances, and thus there was introduced upon the railway a system which the public had found very objectionable on the canals. Not only were they accused of discrimination between customers, but it was also said that they commonly made insufficient, and, in some cases, untrue declarations of the description or quantity of the goods they delivered to the railway company for carriage, and thus deprived the railway company of their just and normal charges for carrying. The Grand Junction Railway Co. also believed it true that, because they did not charge anything for packages returning empty, Pickford & Co. declared as empty certain packages which were actually discovered to contain goods that Pickfords knew to be liable to charge like all other goods. To remedy these injuries that were believed to exist, and to benefit both the public and themselves, the Grand Junction Railway Co. determined to put an end to certain special agreements between them and the common carriers, and so some of the carriers continued their business and others ceased to carry on the Grand Junction Railway.

The Grand Junction Railway Co. had acquired the right to carry goods on the

lines of the London and Birmingham Railway Co. and the Liverpool and Manchester Railway Co. In Liverpool and Manchester the Grand Junction Railway Co. had no arrangements for collecting and distributing their traffic and so employed the Liverpool and Manchester Railway Co. as their forwarding and delivering agent in these cities. They were in the same position with regard to London, and for some time they had employed the old carrying firm of Chaplin and Horne to be their agents in the metropolis, to unload and deliver in London all goods brought thither by the Grand Junction Railway Co., and to collect and load in London all goods that could be sent by that railway company. (The arrangements by which Chaplin and Horne acted as agents of the Grand Junction Railway Co. in London are given in *Railway and Canal Cases*, III, pp. 199-201; see also the advertisement of Chaplin and Horne in *Railway Times*, VII, p. 1447.) For this work Chaplin and Horne got 10s. per ton. The Grand Junction Railway Co. had been accustomed to charge 65s. per ton for goods sent from Manchester to London, and to pay 10s. per ton to Chaplin and Horne for their work. Pickford & Co. wanted the railway company to give them the same favourable rate as had been given Chaplin and Horne; and they tendered the railway company 55s. per ton for the carriage of the goods, they doing the work of distributing their own goods in London. But the railway company said 65s. per ton was their charge to all persons for carrying goods, and thus Pickford & Co. were refused any concessions. The court held that it was unreasonable for the Grand Junction Railway Co. to discriminate between the two carrying firms, and their decision was that the railway company should make their rates for carriage to all parties, under like circumstances, the same (*Railway and Canal Cases*, III, pp. 203-4).

In addition to the foregoing, another of the great points in dispute was the desirability of having the common carriers on the railway line. We have elsewhere shown that practically all the early railway acts contemplated the competition of the carriers on the line and made provision therefor according to the varying circumstances. Of course, subsequent experience had clearly shown that this right could not be exercised without great danger to the public, and therefore some deemed it wise either to regulate this competition, or else to have the railway companies cooperate with the carriers so that the latter, with their well-equipped establishments, might be valuable adjuncts of the railways in extending their traffic. The question, therefore, was, as to whether it was the interest of the public and the railways to overthrow or to encourage the carriers upon the lines. It was evident that if the railways could get all the carriers driven off their lines and could obtain a monopoly of the traffic, the public would have little security as to economy of charge and efficiency of management in connexion with the operation of the railways; and concerning this matter Pickford & Co., while opposing the Grand Junction Railway Co. in their monopolistic policy, appealed to the public to support them in their efforts to prevent this monopoly (see their letter addressed to "The Merchants and Trade of Liverpool," as given in *Railway Times*, VI, p. 152). The railway company, in their turn, pointed out that it would be more economical to eliminate all middlemen and their profits, as thereby rates would be lower for the public, and also referred with much satisfaction to the fact that their rates were much lower than the rates charged by the carriers on their line (*v. Railway Times*, VI, p. 206). Consequently, they urged that the public interests would be best served by giving them, rather than the common carriers, all the traffic. Pickford & Co., on the other hand, reminded the public that it was their competition that caused the railway company to put down the rates, and that if the public allowed them to be driven off the line, the Grand Junction Railway Co. would then be in a position to unduly increase the rates and recoup themselves for their present competitive loss.

The foregoing were the chief points in the controversy, but there were many minor elements which also entered into it (see digest of the essential points of the dispute in *Railway Times*, v, pp. 739-41). As we have already noted, the decision of the court (rendered July 7, 1842) and of the Vice-Chancellor was in favour of Piekford & Co., and the Grand Junction Railway Co. were required to live up to the law in the application of rates and to desist from discrimination against Piekford & Co. (*Railway and Canal Cases*, III, pp. 203-4).

As a matter of fact, however, the Grand Junction Railway Co. did not obey the decision of the court, but continued their existing policy. A long and desultory correspondence was kept up between these two parties, ostensibly, from the railway company's point of view, to arrive at some satisfactory arrangement as to the legal principles to be observed, but, really, it would seem, to prevent the carrier from getting any hold upon traffic to be carried on the railway. Piekford & Co., by letter, appealed to the railway company, and urged the latter to deal fairly with their shareholders and the carriers by obedience to the law (v. letter in *Railway Times*, VI, p. 113): but the railway company refused to accept the court's decision. Piekfords then addressed the traders of Liverpool, and, doubtless, those of other places also, showing the determination of the Grand Junction Railway Co. to secure a monopoly of the carrying trade, and earnestly soliciting the support of the merchants in their efforts to prevent this (*Railway Times*, VI, p. 152). Their claims were upheld by some of the most influential of those who were closely in touch with traffic affairs, and were also supported by the experience of some roads which had found it desirable to change their former plan of exclusion of the carriers (*Railway Times*, VI, p. 152); but the Grand Junction Railway Co. continued their system (although slightly altered) with singular pertinacity and in almost entire disregard of the court, notwithstanding the statement of their Secretary that they were living up to the court's decree (v. Letter of Mark Hish, in *Railway Times*, VI, p. 206).

During the two years which followed the first decision, Piekford & Co. had been unable to get the railway company to grant them reasonable charges for carriage in accordance with the law. The Grand Junction Railway Co. took an appeal against the decision of the Vice-Chancellor, and reopened the case before the Lord Chancellor (*Railway and Canal Cases*, III, p. 538); but upon the evidence showing the unreasonable and discriminating way in which the railway company had treated the carriers on their line (*ibid.*, pp. 551-5), the Lord Chancellor upheld the decision of the Vice-Chancellor against the railway company.

It is almost impossible to ascertain exactly the attitude taken by the Grand Junction Railway Co. in regard to this decision, but it seems fairly certain that they practically ignored the decree of the court. We arrive at this conclusion from the action that was taken by the merchants of Liverpool in 1849, when they presented to the Railway Commissioners a memorial with reference to the carriage of parcels by railway. After citing the decision of the court that the sending of hampers packed with small parcels was legally and morally justifiable, they referred to the oppressive regulations issued by the railway companies calculated to put a stop to that privilege altogether, and then asked that an investigation be made into this course of procedure and the remedy be applied, so that shippers might be protected and that railways might be prevented from securing a monopoly of the carrying trade (v. 'Memorial' given in *Railway Times*, XII, p. 624. Memorials of like nature were presented from the merchants of Birmingham, Leeds, etc., as shown in *Herepath's Railway and Commercial Journal*, XI, p. 585). These complaints against the railway companies became loud and persistent; and in the same year (1849) a deputation, consisting of the most influential carriers, appeared before the Railway Commission, and presented petitions from Liverpool, Birmingham, Leeds, Edinburgh,

Sheffield, Newcastle, Bristol, and other large places, praying that the railway companies might be prevented from resorting to illegal and improper means in order to defeat fair competition (*Herepath's Railway and Commercial Journal*, xi, p. 599). With all this testimony, the conclusion is almost inevitable that the Grand Junction Railway Co. paid little attention to the verdict of the court; but continued the policy which was considered as most effective for driving the private carriers off their line.

On the whole subject of the relations of the railways to the carriers, see Nash, *Railway Carrying and Carriers' Law* (1846), Pt. II, Chap. XI, which takes up the two great cases, *Pickfords v. Grand Junction Railway Co.*, and *Parker v. Great Western Railway Co.* Hodges, *The Law relating to Railways and Railway Companies* (1847), Chap. II, also treats the whole question fully from the legal side, and goes exhaustively into the two great cases. See also the public discussion of it in the *Railway Chronicle*, 1844, pp. 110-11, 134-5, 159-60, 184-5, and *ibid.*, 1845, pp. 173 and 379, in which the railway side is taken; as it is also in *Brit. Mus.* 8235. b. 57 (1), 'The Carriers' Case considered in Reference to Railways' (1841), a small pamphlet written in a very biased vein. Both sides are presented in *The Times*, Mar. 5, 1844, p. 5; June 10, 1844, p. 6; Sept. 27, 1844, p. 6; April 21, 1845, p. 6; Mar. 21, 1846, p. 5; July 24, 1846, p. 4; Aug. 3, 1846, p. 3. Refer also to Whitehead, *Railway Management*, pp. 6-8, and Boyle, *Hope for the Canals*, pp. 5-6, 14-18.

BIBLIOGRAPHY

It is necessary to say that the following references do not comprise more than a majority of the works that have been consulted, but they are those from which material has been chiefly obtained for the discussion of the subject in hand. Occasionally others are mentioned in the text, but it has been essential to limit the voluminous bibliography to include only the most important sources of information.

OFFICIAL PUBLICATIONS

- British Documents to 1911, including Journals of the House of Commons and House of Lords, Statutes of the Realm, Reports of Committees and Commissions, etc.
Rotuli Parliamentorum and Rotuli Hundredorum.
Hansard's Parliamentary Debates.
Mirror of Parliament.
Calendar of State Papers, Domestic.
Calendar of Treasury Papers.
Rymer's *Fœdera, Conventiones, Literae, et eujuscunq̄ generis Acta Publica inter reges Angliæ*, etc.
HAYNES, S. A Collection of State Papers relating to Affairs in the Reigns of King Henry VIII, King Edward VI, Queen Mary, and Queen Elizabeth, from the year 1542 to 1570...left by William Cecil, Lord Burghley.
Acts of the Privy Council of England, 1429-1601.
RUSHWORTH, JOHN. *Historical Collections of Private Passages of State*, etc., 1618-49.
FIRTH, C. H., and TAIT, R. S. *Acts and Ordinances of the Interregnum, 1642-1660*. 3 vols. London, 1911.
Railway and Canal Cases. Vols. I-VII. London, 1835-54.

GENERAL WORKS

- A., M. *The Imperial Railway of Great Britain*. London, 1865.
ACWORTH, WILLIAM M. *The Railways of England*. London, 1889.
ADAMS, WILLIAM BRIDGES. *Practical Remarks on Railways and Permanent Way; as adapted to the Various Requirements of Transit*. London, 1854.
— *Roads and Rails and their Sequences, Physical and Moral*. London, 1862.
— *English Pleasure Carriages; their Origin, History, Varieties, Material, Construction, etc.* London, 1837.
Agriculture, Board of. *Communications to the Board of Agriculture; on Subjects relative to the Husbandry and Internal Improvement of the Country, 1797-1811*. 7 vols. London, 1797-1811. Ditto for year 1819. London, 1819.
ALEXANDER, JOHN. *The Two Stephensons. Pioneers of the Railway System*. London, [1903].

- ALLEN, JOHN. History of the Borough of Liskeard and its Vicinity. London, 1856.
- ALLEN, LAKE. The History of Portsmouth; containing a full and enlarged Account of its Ancient and Present State, etc. London, 1817.
- [ALLEN, THOMAS.] A History of the County of Lincoln, from the Earliest Period to the Present Time; by the Author of the Histories of London, Yorkshire, Lambeth, Surrey, Essex, etc. Assisted by Several Gentlemen residing in the County. 2 vols. London, 1834.
- ALLNUTT, ZACHARIAH. Considerations on the Best Mode of Improving the Present imperfect State of the Navigation of the River Thames from Richmond to Staines, showing the Advantages to the Public, the Navigator, and the Owners and Occupiers of Houses, Mills, etc....in preference to the making any Canal. Maps, etc. Henley, 1805.
- Useful and Correct Accounts of the Navigation of the Rivers and Canals West of London. Map. 2nd ed. Henley, [ca. 1810].
- ANDERSON, JAMES, LL.D. Recreations in Agriculture, Natural History, Arts, and Miscellaneous Literature. 6 vols. London, 1799-1802.
- ANDERSON, JOHN. History of Edinburgh. Edinburgh, 1856.
- ANDERSON, T. An Historical and Chronological Deduction of the Origin of Commerce. 4 vols. London, 1764.
- Anonymous. A Cursory View of a Proposed Canal: from Kendal to the Duke of Bridgewater's Canal, leading to the great Manufacturing Town of Manchester, etc. (Birmingham Free Reference Library, No. 90,319.) [N.P.] [1769.]
- Case in Support of the Bill now depending in Parliament for removing the Bar between the Birmingham, and the Birmingham and Worcester Canals. (1815.) (Birmingham Free Reference Library, No. 87,368.)
- Observation on the General Comparative Merits of Inland Communication by Navigations or Rail-Roads, with particular Reference to those projected or existing between Bath, Bristol, and London: In a Letter to Charles Dundas, Esq., M.P., Chairman of the Kennet and Avon Canal Company. London, 1825.
- Statement by a Subscriber to the London and Birmingham Railway, to the Proprietors and Occupiers of Estates on the Line of the proposed...Railway. Dated, London, 27 Jan., 1831. (Birmingham Free Reference Library, No. 88,482.)
- Observations on Railways particularly on the Proposed London and Birmingham Railway. London, 1831.
- Railways: their Uses and Management. London, 1842.
- An Account of the Proceedings of the Great Western Railway Company, with Extracts from the Evidence given in Support of the Bill, before the Committee of the House of Commons, in the Session of 1834. London, 1834.
- Copy of the Wearmouth Bridge Acts of Parliament, viz., 32 Geo. III. c. 90, for building the Bridge, and 54 Geo. III. c. 117, to authorize the Disposal of Certain Securities on the Tolls by way of Lottery.... Bishopwearmouth, 1830.
- Two Reports of the Commissioners of the Thames Navigation, on the Objects and Consequences of the Several Projected Canals, which interfere with the Interests of that River; and on the present sufficient and still improving State of its Navigation. Oxford, 1811.
- The Queen's Famous Progress, or Her Majesty's Royal Journey to the Bath, and Happy Return. London, 1702.
- Observations on a General Iron Railway: Showing its great Superiority over all the Present Methods of Conveyance, and claiming the particular attention of Merchants, Manufacturers, Farmers, and, indeed, every class of

- Society. 2nd ed. (Author was Thomas Gray.) London, 1821. Brit. Museum 1029. e. 19.
- Anonymous. The Parish of Ashburton in the Fifteenth and Sixteenth Centuries; as it appears from Extracts from the Churchwardens' Accounts, A.D. 1479-1580. With Notes and Comments. London, 1870.
- A Compleat History of Somersetshire. Sherborne, 1742.
- The History of Cheshire: Containing King's Vale-Royall entire, together with considerable Extracts from Sir Peter Leycester's Antiquities of Cheshire; and the Observations of Later Writers, particularly Pennant, Grose, etc. 2 vols. Chester, 1778.
- Railway Competition. A Letter to George Carr Glyn, Esq., M.P., Chairman of the London and North Western Railway. London, 1849.
- The History of Guildford, the County-Town of Surrey. Containing its Ancient and Present State, civil and ecclesiastical, Collected from Public Records and other Authorities, etc. Guildford, 1801.
- The History of Inland Navigations, particularly those of the Duke of Bridgewater in Lancashire and Cheshire. Folding Map of the Bridgewater Canal. London, 1766. 2nd ed., 1799.
- The Monthly Chronicle of North-Country Lore and Legend. 5 vols. Newcastle-on-Tyne, 1887-91.
- Salopian Shreds and Patches (reprinted from "Eddowes's Shrewsbury Journal"). 10 vols. Shrewsbury, 1875-92.
- ANSTIER, ROBERT. Remarks on the Comparative Advantages of Wheel Carriages of different Structure and Draught. Bridgewater and London, 1790.
- ARCHER, MARK. William Hedley, the Inventor of Railway Locomotion on the Present Principle. 3rd ed. Newcastle-upon-Tyne, [1885].
- ASHTON, JOHN. The Dawn of the XIXth Century in England. 2 vols. London, 1886.
- ASTLE, THOMAS. The Will of Henry VII. London, 1775.
- ASTON, JOSEPH. A Picture of Manchester. Manchester, [1816].
- ATKINSON, D. H. Ralph Thoresby, the Topographer; His Town and Times. 2 vols. Leeds, 1885-87.
- ATKINSON, THOMAS DINNAM, and CLARK, JOHN WILLIS. Cambridge Described and Illustrated, being a short History of the Town and University. London, 1897.
- ATKYN, SIR ROBERT. The Ancient and Present State of Gloucestershire. London, 1712. (Reprinted in 1768.)
- AVON, RIVER. A Reply to the Answer to the Objections usually raised against the Embankment of the River Avon within the Port of Bristol...in a Letter to George Gibbs, Esq.,.... Bristol, 1791.
- Orders in Council, His Majesty's Commission, and Certificate of the Commissioners, in the Year 1636, relative to the Navigation of the River Avon, in the Counties of Gloucester, Worcester and Warwick. (Birmingham Free Reference Library, No. 90,318.) Tewkesbury, 1826.
- AXON, ERNEST (editor). Manchester Quarter Sessions. Notes of Proceedings, Vol. 1, 1616-23. Edited from the Manuscript in the Reference Library, Manchester. [Manchester]. 1901.
- AXON, WILLIAM EDWARD ARMITAGE. The Annals of Manchester: A Chronological Record from the Earliest Times to the end of 1885. Manchester and London, 1886.
- BACON, NATHANIELL. The Annals of Ipswich. The Lawes, Customes and Government of the same. Collected out of Y^e Records Bookes and Writings of that Towne. Edited by William H. Richardson, M.A.: with a Memoir by Sterling Westhorp, Mayor of Ipswich, 1884-85. Ipswich, 1884.

- BADESLADE, THOMAS. *The History of the Ancient and Present State of the Navigation of the Port of King's-Lyn, and of Cambridge, and the rest of the Trading-Towns in those Parts: And of the Navigable Rivers that have their Course through the Great-Level of the Fens, called Bedford Level. Also The History of the Ancient and Present State of Drauing in that Level... From Authentick Records, and Ancient Manuscripts; and from Observations and Surveys...* London, 1725.
- *Reasons humbly offered to the Consideration of the Publick; shewing how the Works now executing by Virtue of an Act of Parliament to Recover and Preserve the Navigation of the River Dee, will destroy the Navigation; and occasion the Drowning of all the Low Lands adjacent to the said River, etc.* Chester, [1735].
- *The New Cut Canal, intended for Improving the Navigation of the City of Chester, with the Low Lands adjacent to the River Dee, compared with the Welland, alias Spalding River, now silted up, and Deeping-Fens adjacent, now Drowned, etc.* Chester, [1736].
- *The Ancient and Present State of the Navigation of the Towns of Lyn, Wisbeach, Spalding, and Boston; of the Rivers that pass through those Places...* 2nd ed. London, 1751. [This is, in substance, the same as Badeslade's "Account of the Present State, etc." with additions from MSS. in possession of the Corporation of Adventurers.]
- BAIGENT, FRANCIS JOSEPH, and MILLARD, JAMES ELWIN. *A History of the Ancient Town and Manor of Basingstoke in the County of Southampton.* Basingstoke and London, 1889.
- BAILEY, JOHN, and CULLEY, GEORGE. *General View of the Agriculture of the County of Northumberland...* London, 1794.
- *General View of the Agriculture of the County of Cumberland. With Observations on the Means of Improvement. Drawn up for the Consideration of the Board of Agriculture and Internal Improvement.* London, 1794.
- BAILEY, THOMAS. *Annals of Nottinghamshire. History of the County of Nottingham, including the Borough.* 4 vols. in 2. London and Nottingham, [1852-55].
- BAINES, EDWARD. *The History of the County Palatine and Duchy of Lancaster.* 2 vols. London and Manchester, 1868.
- *The History of the County Palatine and Duchy of Lancaster.* New edition, revised and edited by John Harland; continued and completed by Brooke Herford. 2 vols. London, 1868.
- BAINES, F. E. *On the Track of the Mail Coach; being a Volume of Reminiscences, personal and otherwise.* London, 1895. (Author was sometime Inspector-General of Mails, and author of "Forty Years at the Post Office.")
- BAINES, THOMAS, and FAIRBAIN, WILLIAM. *Lancashire and Cheshire, Past and Present.* London, 1867.
- BAINES, THOMAS. *History of the Commerce and Town of Liverpool, and of the Rise of Manufacturing Industry in the Adjoining Counties.* London and Liverpool, 1852.
- BAIRD, THOMAS. *General View of the Agriculture of the County of Middlesex, With Observations on the Means of its Improvement...* London, 1793.
- BARRETT, C. R. B. *Somersetshire: Highways, Byways, and Waterways.* London, 1894.
- BARTLETT, WILLIAM A. *The History and Antiquities of the Parish of Wimbledon, Surrey.* London and Wimbledon, 1865.
- BATEMAN, JOSEPH. *The General Turnpike Road Act, 3 Geo. IV. cap. 126; with an Appendix of Forms... to which are added an Index and Notes.* London, 1822.

- BATEMAN, JOSEPH. *A Second Supplement to the General Turnpike Road Acts for 1827. Containing the Amended Acts 5 Geo. IV. c. 69 and 8 Geo. IV. c. 24, etc.* London, 1827.
- *The General Highway Act, 5 & 6 W. IV. c. 50, with Notes and an Index.* London, 1835.
- BATESON, MARY. *Records of the Borough of Leicester, being a series of Extracts from the Archives of the Corporation of Leicester.* 3 vols. London, 1899-1905.
- BAVLEY, THOMAS BUTTERWORTH. *Observations on the General Highway and Turnpike Acts passed in the Seventh Year of His Present Majesty, etc.* London, 1773.
- BAYNE, A. D. *A Comprehensive History of Norwich (including municipal, political, religious, and commercial History).* London and Norwich, 1869.
- BEAUCHOFF, PHILIP, D.D. *An Historical Account of Thomas Sutton, Esq.; and of his Foundation in Charter-House.* London, 1737.
- BECKMANN, JOHN. *A History of Inventions and Discoveries.* 3 vols. London, 1797.
- BENNETT, JAMES. *The History of Tewkesbury.* Tewkesbury, 1830.
- BERGIER, NICOLAS. *The General History of the Highways, in all Parts of the World, more particularly in Great Britain.* London, 1712. (Good on Roman administration of the highways.)
- BILLINGSLEY, JOHN. *General View of the Agriculture of the County of Somerset, with Observations on the Means of its Improvement....* Bath and London, 1797.
- BIRD, JAMES BARRY. *The Laws Respecting Travellers and Travelling, comprising all the Cases and Statutes relative to that Subject, etc.* London, 1801.
- *The Laws respecting Highways and Turnpike Roads, comprising the Common Law relating to Highways...the Statute Law relating to Highways and Turnpike Roads, etc.* London, 1801.
- BISHOP, J. *General View of the Agriculture of the County of Salop....* Brentford, 1794.
- BLACKLOCK, F. GAINSFORD. *The Suppressed Benedictine Minster, and other Ancient and Modern Institutions, of the Borough of Leominster.* Leominster, [1900].
- BLACKNER, JOHN. *The History of Nottingham, embracing its Antiquities, Trade, and Manufactures, from the Earliest Authentic Records to the Present Period.* Nottingham, 1815.
- BLEW, WILLIAM C. A. *Brighton and Its Coaches. A History of the London and Brighton Road, with some Account of the Provincial Coaches that have run from Brighton.* London, 1894.
- BLEWITT, REGINALD JAMES. *New Monmouthshire Railway from Newport to Nanty-glo and Blaenafon through Pontypool.* [Newport, 1844.]
- BLONFIELD, FRANCIS. *An Essay towards a Topographical History of the County of Norfolk.* 2nd ed. 11 vols. London, 1805-10.
- BLONFIELD, J[AS]. C[HABLES]. *History of the Present Deanery of Bicester, Oxon.* 8 vols. Oxford and London, 1882-94.
- BOOTH, HENRY. *An Account of the Liverpool and Manchester Railway, comprising a History of the Parliamentary Proceedings, preparatory to the Passing of the Act, a Description of the Railway, in an Excursion from Liverpool to Manchester....*Liverpool, [1830].
- BOURN, DANIEL. *A Treatise upon Wheel Carriages; shewing their Present Defects; with a Plan and Description of a New Constructed Waggon; which will effectually preserve and improve the Public Roads, and be more useful, cheap, and handy to the Proprietor.* London, 1763.
- *Some Brief Remarks upon Mr Jacob's Treatise on Wheel Carriages.* Lond' n, 1778.

- BOWEN, I. George Stephenson and M. Ferdinand de Lesseps. The Men and their Work: the First Public Railway in the World; and the Suez and Panama Canals. London, 1893.
- BOYLE, EDWARD, and WAGHOEN, THOMAS. The Law relating to Traffic on Railways and Canals. 3 vols. London, 1901.
- BOYLE, J. R. The Early History of the Town and Port of Hedon, in the East Riding of the County of York. Hull and York, 1895.
- The County of Durham. London, 1892.
- BOYLE, THOMAS. Hope for the Canals! showing the Evil of Amalgamations with Railways to Public and Private Interests, and the Means for the Complete and Permanent Restoration of Canal Property to a Position of Prosperity, upon its Present Basis of Original and Independent Enterprise. London, 1848.
- BOYMAN, BOYMAN. Steam Navigation, its Rise and Progress. London, 1840.
- BOYS, JOHN. General View of the Agriculture of the County of Kent.... Brentford, 1794.
- BOYS, WILLIAM. Collections for an History of Sandwich in Kent. Canterbury, 1892.
- BRAD, JOHN. The History and Antiquities of the Town and County of the Town of Newcastle upon Tyne. 2 vols. London, 1789.
- BRASBRIDGE, JOSEPH. The Fruits of Experience; or Memoir of Joseph Brasbridge, written in his 80th year. London, 1824.
- BRASSINGTON, W. SALT. Historic Worcestershire. London, 1895. (Pp. 21-30 deal with Roman, British and Saxon Roads.)
- BRAY, WILLIAM. Sketch of a Tour into Derbyshire and Yorkshire. 2nd ed., 1783. (In Pinkerton's Voyages and Travels, Vol. II, pp. 336-464.)
- BRAYLEY, EDWARD W. A Topographical History of Surrey. 5 vols. London, 1850.
- BRENT, JOHN. Canterbury in the Olden Time, From the Municipal Archives and other Sources. Canterbury and London, 1860.
- BREWER, J. S., and BULLEN, WILLIAM. Calendar of the Carew Manuscripts, preserved in the Archbishopial Library at Lambeth, 1515-1574. London, 1867-73.
- BRINDLEY, JAMES. Queries proposed by the Committee of the Common-Council of the City of London, about the intended Canal from Monkey Island to Isleworth, answered. Also, An Estimate of the Expence of making a Navigable Canal from Monkey Island to Isleworth, upon the Lower Line laid down in the Plan, by the Way of Stanes, etc. London, 1770.
- [Report] to the Committee of the Common-Council of the City of London [regarding the improvement of the river Thames]. [London], 1770.
- BRISCOE, JOHN POTTER. History of the Trent Bridges at Nottingham. (A Paper read before the Royal Historical Society, Apr. 22, 1873.)
- BROME, JAMES. Travels over England, Scotland, and Wales. Giving a True and Exact Description of the Chiefest Cities, Towns, etc. London, 1700.
- BROWN, THOMAS. General View of the Agriculture of the County of Derby.... London, 1794.
- BROWNE, Sir THOMAS (1605-82). Works: including his Life and Correspondence. Edited by Simon Wilkin. 4 vols. Norwich and London, 1836.
- BUCHANAN, ROBERTSON (C.E.). A Practical Treatise on Propelling Vessels by Steam, etc. Glasgow, 1816.
- BULL, FREDERICK WILLIAM. A History of Newport Pagnell. Kettering, 1600.
- [BULL, HENRY.] A History, Military and Municipal, of the Ancient Borough of the Devizes, and subordinately of the entire Hundred of Potterne and Cannings in which it is included. London and Devizes, 1859.

- BULLER, E. C. *A Compendious History and Description of the North Union Railway.* Preston, 1838.
- BUNCE, JOHN THACKRAY. *History of the Corporation of Birmingham, with a Sketch of the Earlier Government of the Town.* 2 vols. Birmingham, 1878-85.
- BUND, J. W. WILLIS (compiler and editor). *Worcestershire County Records. Division I, Documents relating to Quarter Sessions. Calendar of the Quarter Sessions Papers. Vol. 1, 1591-1643.* Worcester, 1900.
- BURN, RICHARD. *The Justice of the Peace, and Parish Officer.* 2 vols. London, 1755. (Burn was a J.P. for Westmorland County.)
 — *A New and Accurate Description of the Present Great Roads and the Principal Cross Roads of England and Wales.* London, 1756.
 — *The History of the Poor Laws: with Observations.* London, 1764. (Pp. 236-238 refer to the highways.)
- BURTON, ROBERT. *A New View, and Observations on the Ancient and Present State of London and Westminster (continued by an Able Hand).* London, 1730.
- BURTON, THOMAS. *Diary of Thomas Burton, Esq., Member in the Parliaments of Oliver and Richard Cromwell, from 1656 to 1659....* Edited and illustrated with notes historical and biographical by John Towild Rutt. 4 vols. London, 1828.
- BURTON, WILLIAM. *The Description of Leicestershire, Containing Matters of Antiquitye, Historye, Armorye and Genealogy.* (MS. notes by Peter Le Neve.) London, 1622.
- BUSCH, DR WILHELM. *England under the Tudors. Vol. 1, King Henry VII (1485-1509).* Translated under the supervision of Rev. A. H. Johnson, M.A., by Alice Todd. With Introduction and some comments by James Gairdner. London, 1895.
- BUTTERWORTH, A. KAYE. *A Treatise on the Law relating to Rates and Traffic on Railways and Canals, with special reference to The Railway and Canal Traffic Act, 1888, and the Practice of the Railway and Canal Commission.* 2nd ed. London, 1889.
- CALDERWOOD, Mrs. *Letters and Journals of Mrs Calderwood of Polton, from England, Holland, and the Low Countries in 1756.* Edited by Alexander Fergusson. Edinburgh, 1884.
- [CANNING, RICHARD.] *The Principal Charters Which have been Granted to the Corporation of Ipswich in Suffolk.* London, 1754.
- CAPPER, CHARLES HENRY. *Observations on "Investigator's" Pamphlet relative to Railways.* London, 1831.
- CAPPER, ROBERT. *Proposed Birmingham Ship Canal.* Birmingham, 1886.
- CARÖE, W. D., and GORDON, E. J. A. *Sefton: A Descriptive and Historical Account, comprising the Collected Notes and Researches of the late Rev. Engelbert Horley; Together with the Records of the Moek Corporation.* London and New York, 1893.
- CARTER, N. H. *Letters from Europe, comprising the Journal of a Tour through Ireland, England, Scotland, France, Italy, and Switzerland in the years 1825, '26, and '27.* 2 vols. New York, 1827.
- CARTWRIGHT, JAMES J[OEL]. *Chapters in the History of Yorkshire; being a collection of Original Letters, Papers, and Public Documents, illustrating the State of that County in the Reigns of Elizabeth, James I, and Charles I.* Wakefield, 1872.
 — (editor). *The Memoirs of Sir John Reresby, of Thrybergh, Bart., M.P. for York, etc., 1634-1689, written by Himself.* London, 1875.

- CARY, JOHN. Cary's new Itinerary, or an Accurate Delineation of the Great Roads, both direct and cross, throughout England and Wales. London, 1798.
— Inland Navigation; or Select Plans of the Several Navigable Canals throughout Great Britain, etc. London, 1795.
- CARY, ROBERT. Memoirs of the Life of Robert Cary, Baron of Leppington, and Earl of Monmouth. Written by Himself, and now published from an Original MS. in the Custody of John Earl of Corke and Orrery,.... London, 1759.
- CATHRALL, WILLIAM. The History of Oswestry, comprising the British, Saxon, Norman, and English Eras; the Topography of the Borough, etc. Oswestry, [1855].
- CHALLENGER, BROMLEY. Selections from the Municipal Chronicles of the Borough of Abingdon from A.D. 1555 to A.D. 1897. Abingdon, 1898.
- CHALMERS, GEORGE. Caledonia; or a Historical and Topographical Account of North Britain from the most ancient to the present Times. New edition. 8 vols. Paisley, 1887-1902.
- CHAMBERLAIN, HENRY. A New and Compleat History and Survey of the Cities of London and Westminster, the Borough of Southwark, and Parts adjacent; from the Earliest Accounts to the Beginning of the Year 1770...By a Society of Gentlemen; Revised, Corrected and Improved, by Henry Chamberlain. London, 1770.
- CHAMBERLAYNE, EDWARD. Angliae Notitia, or the Present State of England; Together with Divers Reflections upon the Antient State thereof. 1st, 2nd and 3rd editions. London, 1669.
- CHAMBERS, A. H. Observations on the Formation, State and Condition of Turnpike Roads, and other Highways, with Suggestions for their Permanent Improvement on Scientific Principles.... London, 1820.
- CHANTER, J. R., and WAINWRIGHT, THOS. Reprint of the Barnstaple Records. 2 vols. Barnstaple, 1900.
- CHANTREAU, M. Voyage dans les trois Royaumes d'Angleterre, d'Écosse et d'Irlande, fait en 1788 et 1789. 3 vols. Paris, 1792.
- CHAPMAN, WILLIAM. Report on the Proposed Navigation between the East and West Seas, so far as extends from Newcastle to Laydon-Bridge,.... Newcastle, 1795.
— Observations on the Various Systems of Canal Navigation, with Inferences practical and mathematical; in which Mr Fulton's Plan of Wheel-Boats, and the Utility of Subterraneous and of small Canals, are particularly investigated. London, 1797.
- CHATTAWAY, E. D. Railways: Their Capital and Dividends, with Statistics of their Working in Great Britain and Ireland. London, 1855-56.
- CITIZEN, A (pseud.). A Short Historical Account of Bristol Bridge; with a Proposition for a new Stone Bridge, from Temple Side to the Opposite shore. As also An Account of some remarkable stone Bridges abroad....Likewise An Account of some Bridges of Note in England. Bristol, 1759.
— A Reply to A most Partial Pamphlet, entitled A Letter from a By-Stander, to the Commissioners for Re-building the Bridge at Bristol. Bath, 1762.
- CIVIS (pseud.). The Railway Question. Practical Suggestions for a Fundamental Reform of the Railway System, on a Principle combining National Benefits with the Permanent Interests of Shareholders. London, 1856.
- CLARIDGE, JOHN. General View of the Agriculture in the County of Dorset.... London, 1793.
- CLARK, ANDREW. The Life and Times of Anthony Wood, Antiquary, of Oxford, 1632-1695, described by himself. Collected from his Diaries and other Papers. 5 vols. Oxford, 1891-1900.

- CLARK, ANDREW. Survey of the Antiquities of the City of Oxford, composed in 1661-66 by Anthony Wood; edited by Andrew Clark. 3 vols. Oxford, 1889, 1890, 1899.
- CLARK, JOHN. General View of the Agriculture of the County of Hereford. London, 1794.
- CLARKE, LEONARD W. The History of Birmingham. 7 vols. in MS. Birmingham, [N.D.].
- CLELAND, JAMES. Enumeration of the Inhabitants of the City of Glasgow and County of Linark. For the Government Census of M.DCCC.XXXI. with Population, and Statistical Tables relative to England and Scotland. 2nd ed. Glasgow, 1832.
- CLIFFORD, FREDERICK. History of Private Bill Legislation. 2 vols. London, 1885-87.
- CLUBBE, JOHN. History and Antiquities of the Ancient Villa of Wheatfield, in the County of Suffolk. (Contained in "Fugitive Pieces on Various Subjects," Brit. Mus. 12,352. cc. 21. London, 1761.)
- CLUTTERBUCK, ROBERT. The History and Antiquities of the County of Hertford, compiled from the best authorities and Original Records. 2 vols. London, 1815.
- CLUTTERBUCK, Rev. R. H. The Archives of the Corporation of Andover. Reprinted from the "Andover Advertiser," 1891 (?).
- COBBETT, RICHARD STUTELY. Memorials of Twickenham. London, 1872.
- COBBETT, WILLIAM, JR. The Law of Turnpikes; or an Analytical Arrangement of, and Illustrative Commentaries on, all the General Acts relative to the Turnpike Roads of England; etc. London, 1824.
- COBBETT, WILLIAM, M.P. Tour in Scotland; and in the Four Norther Counties of England in the Autumn of the Year 1832. London, 1833.
- CODRINGTON, THOMAS. Roman Roads in Britain. London and Brighton, 1903.
- COLBORNE, JOHN. Report on a View taken in Pursuance of an Order of the Bedford Level Corporation, in the Months of June and July last, of the Middle and South Levels, and their Outfalls to sea; with a Plan for the effectual Draining the said Levels. [Chester], 1777.
- COLBORNE, THOMAS. The Monmouthshire Railways and the Monmouthshire Freighters. Newport, 1890.
- [COLLINS, B. C.] A Treatise on Inland Navigation. Salisbury: Printed for B. C. Collins, 1788.
- COLQUHOUN, PATRICK. A Treatise on the Commerce and Police of the River Thames.
- COLVILLE, Mrs ARTHUR. Duchess Sarah: being the Social History of the Times of Sarah Jennings Duchess of Marlborough, with Glimpses of her Life and Anecdotes of her Contemporaries in the Seventeenth and Eighteenth Centuries. London, New York, etc., 1904.
- CONYBEARE, Rev. EDWARD. A History of Cambridgeshire. London, 1897.
- COOKE, GEO. ALEXANDER. A Topographical and Statistical Description of the County of Lancaster; containing an Account of its Situation, Extent, Towns, Rivers, Canals, etc. London, [N.D.].
- Topographical and Statistical Description of the County of York. London, [N.D., but about 1812].
- CORDER, J. Considérations sur les chemins de fer. Paris, 1830.
- [CORY, JOHN.] The History of Liverpool, from the Earliest Authenticated Period down to the Present Time.... Liverpool, 1810.
- CORRY, JOHN, and EVANS, Rev. JOHN. The History of Bristol, Civil and Ecclesiastical; including Biographical Notices of Eminent and Distinguished Natives. (Vol. 1 by John Corry and Vol. II by Rev. John Evans.) Bristol, 1816.

- CORRY, JOHN. *The History of Lancashire*. 2 vols. London, 1825.
- CORT, R. *Rail-road Impositions Detected: or Facts and Arguments to prove that the Liverpool and Manchester Railway has not paid One per cent. Nett Profit; and that the Birmingham, Bristol, Southampton, Windsor, and other Railways are, and must forever be, only Bubble Speculations*. London, 1834.
- COTTERILL, CHARLES FORSTER. *The Past, Present and Future Position of the London and North Western, and Great Western Railway Companies...with an Inquiry how far the Principle of Competing Lines, in Reference to Railway Undertakings, is sound and defensible*. London, 1849.
- COULSON, H. J. W., and FORBES, URQUHART A. *The Law relating to Waters, Sea, Tidal and Inland, Including Rights and Duties of Riparian Owners, Canals, Fishery, Navigation, Ferries, Bridges, and Tolls and Rates thereon*. 2nd edition. London, 1902.
- COURT, M. H. *A Digest of the Realities of the Great Western Railway*. London, 1848.
- COWPER, EDWARD ALFRED. *The Steam Engine*. (In "Heat and Its Mechanical Applications." A series of Lectures delivered at the Institution of Civil Engineers, session 1883-84, pp. 55-100.) London, 1885.
- COWPER, J. M. *Notes from the Records of Faversham, 1560-1600*. (In *Trans. Royal Historical Society*, 1872, pp. 324-343.)
- COX, REV. J. CHAS. *Three Centuries of Derbyshire Annals, as illustrated by the Records of the Quarter Sessions of the County of Derby, from Queen Elizabeth to Queen Victoria*. 2 vols. London, 1890.
- COXE, WILLIAM. *A Historical Tour Through Monmouthshire*. (First published in 1801.) Brecon, 1904.
- CROKER, JOHN WILSON. *The Croker Papers. The Correspondence and Diaries of the late Right Honourable John Wilson Croker, LL.D., F.R.S., Secretary to the Admiralty from 1809-1830*. Edited by Louis J. Jennings, in 3 vols. London, 1885.
- CROMWELL, THOMAS. *History and Description of the Ancient Town and Borough of Colchester, in Essex*. 2 vols. London, 1825.
- CROSTON, JAMES. *The History of the County Palatine and Duchy of Lancaster, by the late Edward Baines, with additions of the late John Harland and Rev. Brooke Herford. A New, Revised, and Enlarged Edition, edited by James Croston*. 5 vols. Manchester and London, 1888.
- CRUDEN, ROBERT PEIRCE. *The History of the Town of Gravesend in the County of Kent and of the Port of London*. London, 1843.
- CRUTCHLEY, JOHN. *General View of the Agriculture of the County of Rutland...* London, 1794.
- CUMMING, ALEXANDER. *Observations on the Effects which Carriage Wheels with Rims of different Shapes have on the Roads; respectfully offered to the Consideration of the Legislature*. (Birmingham Free Reference Library, No. 210,445.) Pentonville, 1797.
- *A Supplement to the Observations on the Contrary Effects of Cylindrical and Conical Carriage Wheels*. London, 1809. (Discusses mechanical features.)
- CUMMING, T. G. *Description of the Iron Bridges of Suspension now Erecting over the Strait of Menai, at Bangor, and over the River Conway, in North Wales.... Also some Account of the Different Bridges of Suspension in England and Scotland, etc.* London, 1824.
- *Illustrations of the Origin and Progress of Rail and Tram Roads, and Steam Carriages, or Locomotive Engines; also Interesting Descriptive Particulars of the Formation...Extent, and Mode of Working some of the Principal Railways now in Use within the United Kingdom*. Denbigh, 1824.

- CUNDY, N[ICHOLAS] W. *Inland Transit. The Practicability, Utility, and Benefit of Railroads; the Comparative Attraction and Speed of Steam Engines, on a Railroad, Navigation, and Turnpike Road...* 2nd ed. London, 1834.
- *Observations on Railways, addressed to the Nobility, Gentry, Clergy, Agriculturists, Merchants, Manufacturers, Ship Owners, and Traders, particularly to those situate on the Line and connected with the Grand Northern and Eastern Railroad.* 2nd ed. Yarmouth, 1835.
- CUNNINGHAM, W. *The Growth of English Industry and Commerce.* 3 vols. 4th ed. Cambridge, 1903-05. (5th ed., 1910-12.)
- DANIEL, Rev. J. J. *The History of Chippenham.* Compiled from Researches by the Author, and from the Collections of the Late Rev. Canon Jackson, F.S.A. Chippenham, Bath, and London, 1894.
- DAVIES, Rev. JOHN SILVESTER. *A History of Southampton.* Partly from the Manuscript of Dr Speed, in the Southampton Archives. Southampton and London, 1883.
- DAVIES, Rev. ROWLAND. *Journal of the Very Rev. Rowland Davies, LL.D., Dean of Ross (and afterwards Dean of Cork), from Mar. 8, 1688-89, to September 29, 1690.* Edited by Richard Caulfield, B.A. Printed for the Camden Society, 1857.
- DAVIS, HENRY GEORGE. *The Memorials of the Hamlet of Knightsbridge.* (Edited by Chas. Davis.) London, 1859.
- DAVIS, RICHARD. *General View of the Agriculture of the County of Oxford...* London, 1794.
- DAVIS, THOMAS. *General View of the Agriculture of the County of Wilts...* London, 1794.
- DEACON, WILLIAM. *Observations on Stage Waggons, Stage Coaches, Turnpike-Roads, Toll-Bars, Weighing Machines, &c.* Occasioned by a Committee of the House of Commons being appointed to inquire into the Principles and Effects of Broad and Narrow Wheels. London, 1817.
- DECHESNE, LAURENT. *L'Évolution économique sociale de l'industrie de la laine en Angleterre.* Paris, 1900.
- DEE, JOHN. *The Private Diary of Dr John Dee, and the Catalogue of his Library of Manuscripts, from the Original MSS. in the Ashmolean Museum at Oxford, and Trinity College Library, Cambridge.* Edited by James Orchard Halliwell, Esq., F.R.S. London, 1842.
- DEERING, CHARLES, M.D. *Nottinghamia Vetus et Nova, or an Historical Account of the Ancient and Present State of the Town of Nottingham.* Gathered from the Remains of Antiquity and Collected from Authentic Manuscripts and Ancient as well as Modern Historians. Nottingham, 1751.
- [DEFOE, DANIEL.] *An Essay upon Projects* (pp. 68-112). London, 1697. *Brit. Mus.* 1029. b. 24.
- *A Tour through the Whole Island of Great Britain.* By a Gentleman. 4th edition. 4 vols. London, 1748.
- *A Tour Through the Whole Island of Great Britain.* 4th edition, with very great Additions, Improvements, and Corrections; which bring it down to the year 1748. 4 vols. London, 1748.
- DEHANY, WILLIAM KNIGHT. *The General Turnpike Acts, 3 Geo. IV. c. 126 and 4 Geo. IV. c. 95, with the Reasons for Passing the Explanatory Act, and for the Alterations introduced into it, etc.* London, 1823.
- DEKKER, THOMAS. *A Knight's Conjuring. Done in earnest: Discovered in jest.* London, [1607].
- DELANE, W. F. A. *The Present General Laws for Regulating Highways in England; consisting of the 41 Geo. III. c. 109; 41 Geo. III. c. 23; and the Last General*

- Highway Act 5 & 6 W. IV. c. 50. Arranged Alphabetically as one Act. London, 1835.
- DELAUNE, THOMAS. *Angliae Metropolis: or, The Present State of London: with Memorials comprehending a Full and Succinct Account of the Ancient and Modern State thereof...continued by a careful hand.* London, 1690.
- [DENNE, SAMUEL.] *The History and Antiquities of Rochester and its Environs, etc.* Rochester, 1772.
- DENT, ROBERT K. *The Making of Birmingham: being a History of the Rise and Growth of the Midland Metropolis.* Birmingham and London, 1894.
- D'EWEES, SIR SIMONDS. *The Journals of all the Parliaments During the Reign of Queen Elizabeth, both of the House of Lords and House of Commons.* London, 1682.
- D'HASSEZ, BARON. *Great Britain in 1833.* 2 vols. Philadelphia, 1833. (French edition, 2 vols. Bruxelles, 1833.)
- DIBDIN, THOMAS FROGNALL. *A Bibliographical, Antiquarian and Picturesque Tour in the Northern Counties of England and in Scotland.* 2 vols. London, 1838.
- DICKSON, R. W. *General View of the Agriculture of Lancashire....* By R. W. Dickson. Revised and prepared for the Press by W. Stevenson. London, 1815.
- DODD, RALPH. *Report on the First Part of the Line of Inland Navigation from the East to the West Sea by way of Newcastle and Carlisle, as originally projected, and lately surveyed. With Map.* Newcastle, 1795.
- *Report on the Proposed Canal Navigation, forming a Junction of the Rivers Thames and Medway: with General Estimates, etc.* London, 1799.
- *A Short Historical Account of the Greater Part of the Principal Canals in the Known World; with some Reflections upon the General Utility of Canals.* Newcastle-upon-Tyne, 1795.
- *Report on the Intended Grand Surrey Canal Navigation.* London, 1800.
- DODDS, JOHN. *Railway Reform A Public Necessity, with Practical Suggestions.* Belfast, 1868.
- DONALDSON, JAMES. *General View of the Agriculture of the County of Northampton....* Edinburgh, 1794.
- DONKIN, BRYAN. *A Paper read before the Institution of Civil Engineers, on the Construction of Carriage-way Pavements.* London, 1824.
- DRAKE, FRANCIS. *Eboracum; or the History and Antiquities of the City of York.* London, 1736.
- DRIVER, ABRAHAM and WILLIAM. *General View of the Agriculture of the County of Hants....* London, 1794.
- DUGDALE, SIR WILLIAM. *The Life, Diary, and Correspondence of Sir William Dugdale, edited by William Hamper.* London, 1827.
- DUNCUMB, JOHN. *Collections towards the History and Antiquities of the County of Hereford.* 3 vols. (Vol. III is by W. H. Cooke; and the continuations are by W. H. Cooke, in 1892, and M. G. Watkins, in 1897.) Hereford and London, 1804-82.
- *General View of the Agriculture of the County of Hereford....* London, 1805.
- DUNDAS, CHARLES. *Observations on the General Comparative Merits of Inland Communication by navigations or railroads.* Bath, 1825.
- DUNSFORD, MARTIN. *Historical Memoirs of the Town and Parish of Tiverton in County of Devon. Collected from the Best Authorities.* Exeter, 1790.
- *Miscellaneous Observations in the Course of Two Tours, through several Parts of the West of England.* Tiverton, 1800.
- DUPIN, (Baron) CHARLES. *Mémoires sur la Marine et les ponts et chaussées de France et d'Angleterre.* Paris, 1818.

- DUPIN, (Baron) CHARLES. Voyages dans la Grande-Bretagne, entrepris relativement aux Services Publiques de la Guerre, de la Marine, et des Ponts et Chaussées en 1816, 1817, 1818 et 1819. 3 Parties. [Part III deals with roads and canals.] Paris, 1820-24.
- The Commercial Power of Great Britain; exhibiting a Complete View of the Public Works of this Country....Translated from the French. 2 vols. London, 1825. [This is a translation of part III of "Voyages dans la Grande-Bretagne."]
- DUTENS, J. Mémoires sur les travaux publics de l'Angleterre. Paris, 1819.
- EARWATER, JOHN PARSONS (editor). The Court Leet Records of the Manor of Manchester from the year 1552 to the year 1686, and from the year 1731 to the year 1816. 12 vols. Manchester, 1884-90.
- EAST, ROBERT. Extracts from Records in the Possession of the Municipal Corporation of the Borough of Portsmouth and from Other Documents relating thereto. New and enlarged edition. Portsmouth, 1891.
- ECKERSLEY, PETER. Railway Management. Observations on Two Letters to George Carr Glyn, Esq., M.P., by John Whitehead...and Mark Huish. London, 1848.
- ENGWORTH, RICHARD LOVELL. An Essay on the Construction of Roads and Carriages. 2nd edition. London, 1817.
- EGERTON, FRANCIS HENRY. The Second Part of a Letter to the Parisians, and the French Nation, upon Inland Navigation, containing a Defence of the Public Character of His Grace, Francis Egerton, late Duke of Bridgewater, etc. By the Honorable Francis Henry Egerton....And including some Notices and Anecdotes concerning Mr James Brindley. [Paris, 1820.]
- EGREMONT, JOHN. The Law relating to Highways, Turnpike-Roads, Public Bridges, and Navigable Rivers. Vol. I. (No other was published.) London, 1830.
- ELSTOB, WILLIAM, JR. The Pernicious Consequences of Replacing Denver-Dam and Sluices, etc., considered; in a Letter to Mr John Leaford. Wherein his Arguments (concerning the same) contained in a Pamphlet entitled, Observations, etc., are fairly and candidly examined. Cambridge, 1745.
- ENFIELD, WILLIAM. An Essay towards the History of Liverpool, drawn up from Papers left by the late Mr George Perry, and from other Materials since collected. Warrington, 1773.
- ENGLEFIELD, Sir HENRY C. Observations on the Probable Consequences of the Demolition of London Bridge. London, 1821.
- ESCOTT, THOS. HAY SWEET. England: Its People, Polity, and Pursuits. 2 vols. London, Paris, and New York, 1879.
- ESPRIELLA, DON MANUEL ALVAREZ [pseudonym for Robert Southey]. Letters from England (translated from the Spanish). 1st American edition, Boston, 1807. 2nd American edition, New York, 1808.
- [EVELYN, JOHN.] A Character of England. As it was lately presented in a Letter to a Noble Man of France. London, 1659. Brit. Mus. 292. a. 43.
- FAIRBAIRN, HENRY. A Treatise on the Political Economy of Railroads; in which the New Mode of Locomotion is considered in its Influence upon the Affairs of Nations. London, 1836.
- FAIRBAIRN, WILLIAM. Remarks on Canal Navigation, illustrative of the Advantages of the Use of Steam as a Moving Power on Canals. London, 1831.
- FALKNER, JOHN MEADE. A History of Oxfordshire. London, 1899.
- FAREY, JOHN, SR. General View of the Agriculture and Minerals of Derbyshire. 3 vols. London, 1811.
- FARBER, WILLIAM. The Court Rolls of the Honor of Clitheroe in the County of Lancaster, Vol. 1. Manchester and Burnley, 1897.

- FAUJAS DE SAINT-FOND, BARTHELÉMY. Travels in England, Scotland, and the Hebrides. Translated from the French. 2 vols. London, 1799.
- FAULKNER, THOMAS. An Historical and Topographical Description of Chelsea and its Environs. 2 vols. Chelsea, 1829.
- The History and Antiquities of the Parish of Hammersmith. London, 1839.
- FAY, SAM. A Royal Road: being the History of the London and South Western Railway, from 1825 to the present Time. Kingston-on-Thames, 1883.
- FERGUSON, RICHARD SAUL. Cumberland and Westmorland M.P.s from the Restoration to the Reform Bill of 1867. London, 1871.
- A History of Cumberland. London, 1890.
- A Boke of Recorde or Register, containing all the nets and doings in or concerning the Corporation within the Town of Kirkbickendall beginning (1575), etc. Kendal and Carlisle, 1892.
- FERGUSON, R. S., and NANSON, W. Some Municipal Records of the City of Carlisle. Carlisle and London, 1887.
- FIENNES, CELIA. Through England on a Side Saddle in the time of William and Mary. With an introduction by Hon. Mrs Griffiths. London and New York, 1888.
- FISHWICK, LIEUT.-COL. HENRY. The History of the Parish of Preston in Amounderness in the County of Lancashire. Rochdale and London, 1900.
- FLETCHER, WILLIAM. The History and Development of Steam Locomotion on Common Roads. London, 1891.
- FOOT, PETER. General View of the Agriculture of the County of Middlesex.... London, 1794.
- FOWLER, JOHN KERSLEY. Echoes of Old Country Life. London and New York, 1892.
- Records of Old Times: Historical, Social, Political, Sporting and Agricultural. London, 1898.
- FOX, JOHN. General View of the Agriculture of the County of Monmouth.... Brentford, 1794.
- FRASER, ROBERT. General View of the County of Devon.... London, 1794.
- General View of the County of Cornwall.... London, 1794.
- FREEMAN, EDWARD A. Exeter (in Historic Towns Series). London, 1887.
- FRY, JOSEPH STORRS. An Essay on the Construction of Wheel Carriages...With Suggestions relating to the Principles on which Tolls ought to be imposed, etc. London, 1820.
- FULTON, ROBERT. A Treatise on the Improvement of Canal Navigation; exhibiting the numerous Advantages to be derived from small canals and boats from two to five feet wide, etc. London, 1796.
- [GALT, WILLIAM.] Railway Reform; its Expediency and Practicability considered. 3rd ed. London, 1811.
- GALT, WILLIAM. Railway Reform: its Importance and Practicability considered as affecting the Nation, the Shareholders and the Government. London, 1865.
- GASQUET, ABBOT. Parish Life in Mediaeval England. London, [1906].
- GASQUET, FRANCIS AIDAN. Henry VIII and the English Monasteries. London, 1906.
- GATTY, ALFRED. Sheffield: Past and Present. London, 1873.
- GAUSSEN, ALICE C. G. A Later Pepys. The Correspondence of Sir William Weller Pepys, Bart., Master in Chancery 1758-1825, with Mrs Chapone, Mrs Hartley, etc. Edited with an introduction and notes by Alice C. G. Gausсен. 2 vols. London and New York, 1904.
- GENTLEMAN (pseud.). Proposals at large for the Easy and Effectual Amendment of the Roads, by some further necessary Laws and Regulations concerning the Wheels of all Carriages; and the Methods or Rules of Travelling;...To which

- are added, Brief Remarks and Considerations on the foregoing Proposals; tending to prove the Necessity and Utility thereof. By a Gentleman. London, 1753.
- GENTLEMAN (psend.). A Tour from London to the Lakes; containing Natural, Economical, and Literary Observations. London, 1792.
- A Tour in Monmouthshire and Part of Glamorganshire in July 1806. Halesworth, 1807. Brit. Mus. 578. b. 41 (1).
- GEORGE, C. M. The National Waggon-Post; to travel at the Rate of twenty miles per hour, carrying One Thousand Ton Weight, all over the kingdom of England, with Passengers, Goods, and Stock. Paris, 1825.
- GERSTNER, F. DE. Mémoire sur les grandes routes, les chemins de fer et les canaux de navigation; traduit de l'Allemand de M. F. de Gerstner...et précédé d'une introduction, par M. P. S. Girard. Paris, 1827.
- GIBBS, A. E. The Corporation Records of St Albans. St Albans, 1890.
- GILBERT, C. S. An Historical Survey of the County of Cornwall: to which is added a Complete Heraldry of the same. 2 vols. Plymouth and London, 1817-20.
- GILBERT, DAVIES. The Parochial History of Cornwall, founded on the Manuscript Histories of Mr Hals and Mr Tonkin. 4 vols. London, 1838.
- GILBEY, Sir WALTER. Early Carriages and Roads. London, 1903.
- GODWIN, GEORGE, Jr. An Appeal to the Public on the Subject of Railways. London, 1837.
- GONZALES, DON MANOEL. The Voyage of Don Manoel Gonzales (late Merchant) of the City of Lisbon in Portugal, to Great Britain (1751)...Translated from the Portuguese Manuscript. London, 1808.
- GOUCH, Rev. WILLIAM. General View of the Agriculture of the County of Cambridge.... London, 1813.
- GOODMAN, WILLIAM. The Social History of Great Britain during the Reigns of the Stuarts, beginning with the Seventeenth Century. New York, 1843.
- GORDON, ALEXANDER. An Historical and Practical Treatise upon Elemental Locomotion, by Means of Steam Carriages on Common Roads; showing the Commercial, Political, and Moral Advantages, etc. London, 1832.
- The Fitness of Turnpike Roads and Highways for the most Expeditious, Safe, Convenient, and Economical Internal Communication. London, 1835.
- Observations addressed to Those Interested in either Rail-ways or Turnpike-Roads; showing the Comparative Expedition, Safety, Convenience, and Public and Private Economy of these two Kinds of Road for Internal Communication. London, 1837.
- Observations on Railway Monopolies, and Remedial Measures. London, 1841.
- GORDON, W. J. Our Home Railways: How they began and How they are worked. 2 vols. London, [1910].
- GOSSON, STEPHEN. Pleasant Quippes for Upstart Newfangled Gentlewomen. London, 1595. Reprinted, 1847.
- GRAHAM, THOMAS. Treatise on Internal Intercourse and Communication in Civilized States and particularly in Great Britain. London, 1834.
- Essays and Letters on Subjects conducive to the Improvement and Extension of Inland Communication and Transport. Westminster, 1835.
- A Letter to the Traders and Carriers on the Navigations connecting Liverpool and Manchester. 2nd ed. Glasgow, 1834.
- GRANGER, JOSEPH. General View of the Agriculture of the County of Durham.... London, 1794.
- GRAY, THOMAS. Observations on a General Iron Railway, or Land Steam-Conveyance; to supersede the Necessity of Horses in all Public Vehicles; showing its vast Superiority in every Respect, etc. 5th ed. London, 1825. (1st ed., 1821.)

- [GRAY, W.] *Chorographia, or a Survey of Newcastle upon Tyne.* London, 1649.
- Great Western Railway. Extracts from the Minutes of Evidence on the London and Birmingham Railway Bill, together with Abstracts from Acts of Parliament, etc. (Birmingham Free Reference Library, No. 63,041.) London, 1833.
- Great Western Railway Bill. Minutes of Evidence taken before the Lords Committees to whom the Bill was committed. 1835.
- Great Western Railway. Speech of Counsel on the 30th May, 1848, before A Select Committee of the House of Commons, on behalf of the Head, Lower and Assistant Masters of Eton against the Great Western Railway Extension from Slough to Windsor. (Printed for private circulation only.)
- [GREEN, JOHN RICHARD.] *Oxford during the Last Century, being two Series of Papers published in the Oxford Chronicle and Berks and Bucks Gazette during the Year 1859.* Oxford, 1859.
- GREEN, JOHN RICHARD, and ROBERSON, Rev. GEORGE. *Studies in Oxford History, chiefly in the Eighteenth Century.* Edited by C. L. Stainer. Oxford, 1901.
- GREEN, JOHN RICHARD. *Oxford Studies.* (Edited by Mrs J. R. Green and Miss K. Norgate.) London 1901.
- GREEN, VALENTINE. *The History and Antiquities of the City and Suburbs of Worcester.* Two volumes in one. London, 1796.
- GRIFFITH, EDWARD. *A Collection of Ancient Records, relating to the Borough of Huntingdon, with Observations illustrative of the History of Parliamentary Boroughs in General.* London, 1727.
- GRIGGS, Messrs. *General View of the Agriculture of the County of Essex....* London, 1794.
- GRINLING, CHARLES II. *The History of the Great Northern Railway, 1845-1902.* London, 1903.
- GRUNDY, JOHN. *Philosophical and Mathematical Reasons, Humbly offered to the Consideration of the Publick, To prove that the Present Works, executing at Chester, to recover and preserve the Navigation of the River Dee, must intirely destroy the same. With some Remarks on Mr Badeslade's Reasons, etc., thereon.* Chester, [1735 or 1736].
- GULDING, Rev. JOHN MELVILLE (editor). *Reading Records. Diary of the Corporation, 1431-1654.* 4 vols. London, 1892-96.
- GURNEY, GOLDSWORTHY. *Observations on Steam Carriages on Turnpike Roads. With Returns of the Daily Practical Results of Working; the Cause of the Stoppage of the Carriage at Gloucester; and the consequent Official Report of the House of Commons....* London, 1832.
- GUTHRIE, JAMES. *The River Tyne: its History and Resources.* (Guthrie was late Secretary to the R. Tyne Commission.) Newcastle-upon-Tyne, 1880.
- H., W. *The Infallible Guide to Travellers, or Direct Independants. Giving a most Exact Account of the Four Principal Roads of England, beginning at the Standard in Corahill, and extending to the Sea-Shore, and branching to most of the Cities...with their true distance...according to MrOglesby's Dimensuration.* By W. H. Gent. London, 1682.
- HADLEY, GEORGE. *A New and Complete History of the Town and County of the Town of Kingston-upon-Hull.* Kingston-upon-Hull, 1788.
- HALL, JAMES. *A History of the Town and Parish of Nantwich,...in the County Palatine of Chester.* Nantwich, 1883.
- HALLIWELL, JAMES ORCHARD (editor). *The Autobiography and Correspondence of Sir Simonds D'Ewes, during the reigns of James I and Charles I.* 2 vols. London, 1845.

- HANCOCK, WALTER. Narrative of Twelve Years' Experiments (1824-36) Demonstrative of the Practicability and Advantage of Employing Steam-Carriages on Common Roads.... London, 1838.
- HANDYSIDE, GEORGE. Review of the Manchester, Sheffield and Lincolnshire Railway. Newcastle-upon-Tyne, 1863.
- HANSHALL, J. H. The History of the County Palatine of Chester. Chester, 1817.
- HARCOURT, LEVESON FRANCIS VERNON. Rivers and Canals. The Flow, Control, and Improvement of Rivers, and the Design, Construction and Development of Canals both for Navigation and Irrigation, etc. 2 vols. 2nd edition, re-written and enlarged. Oxford, 1896.
- HARDWICK, CHARLES. History of the Borough of Preston and its Environs, in the County of Lancaster. Preston and London, 1857.
- HARDY and PAGE. Bedfordshire County Records. Notes and Extracts from the County Records comprised in the Quarter Sessions Rolls (1714-1832) and Sessions Minute Books (1651-1660). [N.P., N.D. (1907?).]
- HARDY, WILLIAM JOHN (editor). A Calendar to the Records of the Borough of Doncaster. 4 vols. Doncaster, 1899-1903.
- HARGROVE, WILLIAM. History and Description of the Ancient City of York; comprising all the most interesting Information, already published in Drake's Eboracum; enriched with much Entirely New Matter, from other Authentic Sources. 2 vols. York, 1818.
- HARPER, CHARLES G. The Holyhead Road; the Mail Coach Road to Dublin. 2 vols. London, 1902.
- The Exeter Road; the Story of the West of England Highway. London, 1899.
- The Bath Road; History, Fashion and Frivolity on an old Highway. London, 1899.
- The Cambridge, Ely, and King's Lynn Road; the great Fenland Highway. London, 1902.
- The Norwich Road; an East Anglian Highway. London, 1901.
- The Great North Road; the Old Mail Road to Scotland. 2 vols. London, [N.D.].
- The Newmarket, Bury, Thetford, and Cromer Road; Sport and History on an East Anglian Turnpike. London, 1904.
- The Brighton Road; Old Times and New on a Classic Highway. London, 1892.
- The Dover Road; Annals of an Ancient Turnpike. London, 1895.
- The Portsmouth Road, and Its Tributaries; To-day and in Days of Old. London, 1895.
- HARRIS, GEORGE. Materials for a Domestic History of England. (In Trans. Royal Historical Society, 1873, pp. 142-57.)
- HARRIS, STANLEY. Old Coaching Days. London, 1882.
- The Coaching Age. London, 1885.
- [Wm.] Harrison's Description of England in Shakspeare's Youth. Being the Second and Third Books of his Description of Britaine and England. Edited from the first two Editions of Holinshed's Chronicle, A.D. 1577, 1587. By Frederick J. Furnivall. 3 vols. London, 1877-1908.
- HASSALL, CHARLES. General View of the Agriculture of the County of Monmouth.... London, 1812.
- HAWKINS, JOHN. Observations on the State of the Highways, and on the Laws for Amending and Keeping them in Repair, etc. London, 1768.
- Tyburn's Worthies. London, 1722.

- HAWKINS, WILLIAM. A Full True and Impartial Account of all the Robberies committed in City, Town, and Country, for several Years past by William Hawkins, in Company with Wilson, Wright, Butler, Fox, and others not yet Taken, etc. London, 1722. Brit. Mus. G. 10,418 (1).
- HAWKSMOOR, NICHOLAS. A Short Historical Account of London-Bridge; with a Proposition for a New Stone-Bridge at Westminster....In a Letter to the Right Honourable the Members of Parliament for the City and Liberty of Westminster. London, 1736.
- HEAD, SIR GEORGE. A Home Tour Through the Manufacturing Districts of England in the summer of 1835. New York, 1836.
- HEALEY, CHARLES E. H. CHADWICK. The History of the Part of West Somerset comprising the Parishes of Luccombe, Selworthy, Stoke Pero, Porlock, Culbone and Oare. London, 1901.
- HEZUNE, THOMAS. Remarks and Collections. 6 vols. Edited by C. E. Doble, D. W. Rannie, and others. Oxford, 1885-1902.
- HEARNSHAW, F. J. C., and D. M. (editors). Southampton Court Leet Records. Vol. 1, Parts 1 and II, 1550-1602. Southampton, 1905-06.
- HEDGES, JOHN KIRBY. The History of Wallingford, in the County of Berks, from the Invasion of Julius Caesar to the Present Time. 2 vols. London, 1881.
- HELV, JAMES. Representation of the Benefits and Advantages of making the River Avon Navigable from Christ-Church to the City of New Sarum; &c. London, 1672.
- HEMINGWAY, JOSEPH. History of the City of Chester, from its Foundation to the Present Time. 2 vols. Chester, 1831.
- HENMEON, J. C. The History of the British Post Office. London, 1912. (An excellent piece of work.)
- HERVEY, JOHN, First Earl of Bristol. The Diary of John Hervey, First Earl of Bristol. With Extracts from his Book of Expenses, 1688-1742. With Appendices and Notes. Wells, 1894.
- HERVEY, JOHN, Lord. Memoirs of the Reign of George the Second, from his Accession to the Death of Queen Caroline. Edited from the Original Manuscript at Ickworth, by the Right Hon. John Wilson Croker, LL.D., F.R.S. 2 vols. London, 1848.
- HERVEY, JOHN. Letter Books of John Hervey, First Earl of Bristol...1651-1750. 3 vols. Wells, 1894.
- HIBBARD, JOHN. Statements on the Great Utility of a Circular and other Inland, etc., Canal Navigation, and Drainage; with the great Interest locally arising therefrom to the Improvement of Agriculture, Cattle, Manufacture, Commerce, and Fisheries, of Great Britain and Ireland. etc. London, 1796.
- HILLS, WALLACE HENRY. The History of East Grinstead. East Grinstead, 1906.
- HITCHINS, FORTESCUE. The History of Cornwall, from the Earliest Records and Traditions to the Present Time. Edited by Mr Samuel Drew of St Austell. 2 vols. Helston, 1824.
- HOBHOUSE, Right Rev. Bishop. Churchwardens' Accounts of Crosecombe, Pilton, Yatton, Tintinhull, Morebath and St Michael's Bath, ranging from A.D. 1349 to 1560. [London], 1890.
- HODGES, WILLIAM. The Law relating to Railways and Railway Companies. London, 1847.
- HODGSON, JOHN. A History of Northumberland, in three Parts. (Pt III, Vol. 1, 1820; Pt I by J. Hodgson Hinde, 1858.) 6 vols. Newcastle-upon-Tyne, 1820-58.
- HÖFREN, GUSTAF. Englands Zustände, Politik, und Machtentwicklung mit Beziehung auf Deutschland. Theile 1, II. Leipzig, 1846.

- HOLINSHEAD, RAPHAEL. Description of Britaine. London, 1585.
 ———. Chronicles of England, Scotland, and Ireland. 6 vols. London, 1807-08.
- HOLLAND, HENRY. General View of the Agriculture of Cheshire.... London, 1808.
- [HOLLAND, JOHN.] The Tour of the Don. A Series of Extempore Sketches made during a pedestrian Rumble along the Banks of that River, and its principal Tributaries. Originally published in the "Sheffield Mercury" during the Year 1836. 2 vols. London, 1837.
- HOLLOWAY, WILLIAM. The History and Antiquities of the Ancient Town and Port of Rye, in the County of Sussex. London, 1847.
- HOLMES, RICHARD. The Booke of Entries of the Portefraet Corporation, 1653-1726. Pontefract, 1882.
- HOLT, JOHN. General View of the Agriculture of the County of Lancaster.... London, 1794.
- HOMER, HENRY. An Inquiry into the means of Preserving and Improving the Publick Roads of this Kingdom. London, 1767.
- HOPKIN, EVAN. An Abstract of the Particulars contained in a Perambulatory Survey of above Two Hundred Miles of Turnpike Road, through the Counties of Carmarthen, Brecknock, Monmouth, and Gloucester. Swansea, 1805.
- HORSEFIELD, THOMAS WALKER. The History, Antiquities, and Topography of the County of Sussex. 2 vols. Lewes and London, 1835.
- HOUGHTON, JOHN. A Collection of Letters for the Improvement of Husbandry and Trade. 2 vols. London, 1681.
 ———. A Collection [of Letters] for the Improvement of Husbandry and Trade, etc. Revised, corrected, and published by...Richard Hadley, F.R.S. 4 vols. London, 1727.
- HOWARD, Hon. Sir ROBERT. The Committee, a Comedy. London, 1665.
- HUDDLESTON, LAWSON. Method of Conveying Boats or Barges from a higher to a lower Level and the contrary on Canals; by means of a Plunger, instead of loosing Water by Locks. (Nicholson's Journal, iv, p. 236, anno 1702.)
- HUDSON, Rev. WILLIAM, and TINGEY, JOHN COTTINGHAM. The Records of the City of Norwich. 2 vols. (I have examined only Vol. 1.) Norwich and London, 1906.
- HUERNE DE POMMEUSE, M. Des Canaux Navigables considérés d'une manière générale, avec des recherches comparatives sur la navigation intérieure de la France et celle de l'Angleterre. Tome deuxième. Paris, 1822. (Vol. 1 unpublished.)
- HULES, JONATHAN. A Description and Draught of a new-invented Machine for carrying Vessels or Ships — t of, or into any Harbour, Port, or River against Wind and Tide, or in a cōm. London, 1737.
- HUMPHREYS, ARTHUR L. The Materials for the History of the Town of Wellington, County of Somerset. London and Wellington, 1889.
- HUNTER, Rev. JOSEPH. South Yorkshire: The History and Topography of the Deanery of Doncaster. 2 vols. London, 1828, 1831.
- HUNTER, JOSEPH. Hallamshire. The History and Topography of the Parish of Sheffield in the County of York....A new and enlarged edition, by the Rev. Alfred Gatty, D.D. London, 1869.
- HUTCHINS, JOHN. The History and Antiquities of the County of Dorset, compiled from the best and most Ancient Historians, Inquisitiones post mortem, and other Valuable Records and Manuscripts in the Public Offices, and Libraries, and in Private Hands, etc. 2 vols. London, 1774.
- HUTCHINSON, W. The History of the County of Cumberland, and some Places Adjacent. 2 vols. Carlisle, 1794.
- HUTTON, W. An History of Birmingham. 3rd edition, 4 vols., with MS. Notes by Hamper. Birmingham, 1795.

- HUTTON, W[ILLIAM]. The Scarborough Tour in 1803. London, 1804.
- INVESTIGATOR (pseud.). Beware the Bubbles!! Remarks on Proposed Railways, more particularly on that between Birmingham and London. 2nd ed. London, 1831.
- IRVING, JOSEPH. The Annals of Our Time, 1837-71. London and New York, 1871.
- JACKSON, SIR GEORGE. The Bath Archives. A further Selection from the Diaries and Letters of Sir George Jackson, K.C.H., from 1809 to 1816. Edited by Lady Jackson. 2 vols. London, 1873.
- JACOB, JOSEPH. Observations on the Structure and Draught of Wheel Carriages. London, 1773.
- JAFFERSON, J. CORDY. The Life of Robert Stephenson, F.R.S. (with Descriptive Chapters on some of his most Important Professional Works, by Prof. Wm. Pole, F.R.S.). 2 vols. London, 1864.
- JEANS, J. S. Jubilee Memorial of the Railway System. A History of the Stockton and Darlington Railway and a Record of its Results. London, 1875.
- JEROLT, EDWARD. A General Account of West Somerset, Description of the Valley in MS. and the History of the Town of Taunton. Taunton, 1873.
- JESSOP, WILLIAM. Report to the Committee of the Subscribers to the Grand Junction Canal. Northampton, 1792.
- [JESSOP, WILLIAM.] Estimate [by Wm. Jessop] of the Expence of making Navigable the River Ouse, from Lewes into Barcomb Mill-Pond, at the High Water of Neap Tides, for Vessels of 45 ft. in Length, 12 ft. in Breadth, and drawing 3 ft. 6 in. of Water; so as to carry 30 Tons. (It is accompanied by other papers in MS. regarding the Navigation and Drainage Works along this route near Lewes.)
- JEWITT, LEWELLYNS. The Wedgwoods; being a Life of Josiah Wedgwood; with Notices of his Works and their Productions, Memoirs, and a History of the Early Potteries of Staffordshire. London, 1865.
- JOHNSON, CHARLES. A General History of the Lives and Adventures of the Most Famous Highwaymen, Murderers, Street-Robbers, etc. London, 1734.
- JOHNSON, CUTHBERT W. The Advantages of Railways to Agriculture. [Lewes, 1837.]
- JORDAN, REV. JOHN. A Parochial History of Emsay, in the County of Oxford. London and Oxford, 1857.
- JOYCE, HEBBERT. The History of the Post Office from its Establishment down to 1836. London, 1893.
- JUSSERAND, J. J. Les Anglais au moyen âge: In vie nomade et les routes d'Angleterre au XIV^e siècle. Paris, 1884. (Translated by L. T. Smith under the title 'English Wayfaring Life in the Middle Ages.' London, 1889. 4th ed., 1892.)
- KEMP, THOMAS. A History of Warwick and its People. Warwick, 1905 (?).
- KENNEDY, JOHN. The History of Steam Navigation. Liverpool, 1903.
- KENT, NATHANIEL. General View of the Agriculture of the County of Norfolk.... London, 1794.
- KING, AUSTIN J., and WATTS, B. H. The Municipal Records of Bath, 1189-1604. London, [1885].
- KING, Lieut.-Col. COOPER. A History of Berkshire. London, 1887.
- KITCHIN, THOMAS. The Traveller's Guide through England and Wales. London, 1763.
- [LABELYE, CHARLES.] The Present State of Westminster Bridge. Containing a Description of the said Bridge, as it has been ordered into Execution by the Right Honourable, etc., the Commissioners appointed by Parliament, etc. 2nd edition. London, 1743.
- LABELYE, CHARLES. The Result of a View of the Great Level of the Fens, taken at the Desire of His Grace the Duke of Bedford, etc., Governor, and the Gentlemen of the Corporation of the Fens, in July 1745. London, 1745.

- LABELYE, CHARLES. An Abstract of Mr Charles Labelye's Report, Relating to the Improvement of the River Wear, and Port of Sunderland. Newcastle-upon-Tyne, 1748.
- A Description of Westminster Bridge. To which are added, An Account of the Methods made use of in laying the Foundations of its Piers. And an Answer to the Chief Objections that have been made thereto. With an Appendix, containing Several Particulars relating to the said Bridge, or to the History of the Building thereof, etc. London, 1751.
- LAMBERT, B. The History and Survey of London and its Environs. 4 vols. London, 1806.
- LANGFORD, JOHN ALFRED. A Century of Birmingham Life: or a Chronicle of Local Events from 1741 to 1841. 2 vols. Birmingham and London, 1868.
- Modern Birmingham and its Institutions: a Chronicle of Local Events, from 1841 to 1871. 2 vols. Birmingham (1873-77).
- LANGLEY, J. BAXTER. The Dangers of the North British Railway Policy, or a Question for the Consideration of the Inhabitants of Newcastle and the Surrounding Towns. 2nd ed. Newcastle, [1861].
- LARDNER, DIONYSIUS. Railway Economy: A Treatise on the New Art of Transport, its Management, Prospects and Relations,.... London, 1850.
- Railway Economy: A Treatise on the New Art of Transport....With an Exposition of the Practical Results of the Railways in Operation in the United Kingdom, on the Continent, and in America. London, 1850.
- LATIMER, JOHN. The Corporation of Bristol in the Sixteenth Century. 1531-1600 (from original sources). Bristol, 1903.
- The Annals of Bristol in the Seventeenth Century. Bristol, 1900.
- The Annals of Bristol in the Eighteenth Century. Bristol, 1893.
- The Annals of Bristol in the Nineteenth Century. Bristol, 1887.
- LAYSON, JOHN F. George Stephenson; The Locomotive and the Railway. London, 1881.
- LEACH, EDMUND. A Treatise of Universal Inland Navigations, and the Use of All sorts of Mines. A Work entirely New. Recommended to the Inhabitants of Great Britain and Ireland. Plainly demonstrating the Possibility of making any River and Stream of Running Water in the World Navigable, by Canals of a New Construction, without Locks and Dams, etc. London, [1790].
- LEADER, JOHN DANIEL. Extracts from the Earliest Book of Accounts belonging to the Town Trustees of Sheffield, dating from 1566 to 1707, with Explanatory Notes. Sheffield, 1879.
- The Records of the Burgery of Sheffield, commonly called the Town Trust. London, 1897.
- LEADER, ROBERT FANON. History of the Company of Cutlers in Hallamshire in the County of York. 2 vols. Sheffield, 1905.
- Sheffield in the Eighteenth Century. Sheffield, 1901.
- LEATHAM, ISAAC. General View of the Agriculture of the East Riding of Yorkshire.... London, 1794.
- LECKY, WILLIAM EDWARD HARTPOLE. A History of England in the Eighteenth Century. 8 vols. London, 1878-90.
- LEE, LANCELOT J., and VENABLES, R. G. Shropshire County Records. Issued in fourteen numbers.
- LELAND, JOHN. The Itinerary of John Leland, the Antiquary. 9 vols. 2nd edition; collected and improved from the Original Manuscript. With the addition also of a General Index. Oxford, 1745.
- [LE SAGE, G. L.] Brit. Mus. 10,348. aa. 12. Remarques sur l'état present

- G'Angleterre, faites par un voyageur inconnu [G. L. Le Sage] dans les années 1713 et 1714. Amsterdam, 1715.
- LESLIE, JAMES. Description of an Inclined Plane for conveying Boats from One Level to another on the Monkland Canal, at Blackhill, near Glasgow. Edinburgh, 1852.
- LEYLAND, JOHN. The Yorkshire Coast, and the Cleveland Hills and Dales. London, 1892.
- LINDSAY, W. S. History of Merchant Shipping and Ancient Commerce. 4 vols. London, 1874-76.
- LIPSCOM, GEORGE. A Journey into Cornwall, through the Counties of Southampton, Wilts, Dorset, Somerset and Devon. Warwick, 1799.
- LITTLETON, E. Proposal for Maintaining and Repairing the Highways. London, 1692.
- LLOYD, JOHN, JR. Papers relating to the History and Navigation of the Rivers Wye and Lug. Hereford, [1873].
- LLOYD, SAMUEL. A National Canal between the Four Rivers a National Necessity. London, 1888.
- LOFTIE, W. J. A History of London. 2 vols. London, 1883.
- Old and New London. 5 vols. London, [N.D.]. Vols. 1 and 2 are by Walter Thornbury.
- London and Birmingham Railway Bill. Extracts from the Minutes of Evidence given before the Committee of the Lords on this Bill. London, 1832.
- LOVEDAY, JOHN EDWARD TAYLOR. Diary of a Tour in 1732 through Parts of England, Wales, Ireland and Scotland. Edinburgh, 1890.
- LOWE, ROBERT. General View of the Agriculture of the County of Nottingham.... London, 1794.
- MACADAM, JOHN LONDON. Remarks on the Present System of Road-making, with Observations deduced from Practice and Experience with a view to the Revision of the Existing Laws and the Introduction of Improvements in the Method of Making, Repairing, and Preserving Roads, and defending the Road Trusts from Misapplication of Funds. Bristol, 1816; 2nd edition, Bristol, 1819; 3rd and 4th editions, London, 1821; 5th edition, London, 1822.
- Observations on the Management of Trusts for the care of Turnpike Roads, as regards the Repair of the Road, the expenditure of the Revenue, and the appointment and Quality of Executive Officers, etc. London, 1825.
- MACE, THOMAS. Profit, Conveniency, and Pleasure, to the Whole Nation. Being a short Rational Discourse, lately presented to His Majesty concerning the Highways of England: Their Badness, the Causes thereof, the Reasons of those Causes, the impossibility of ever having them well-mended according to the old way of mending But may...according to This New Way.... London, 1675.
- MACERONI, FRANCIS. A Few Facts concerning Elementary Locomotion. 2nd ed. London, 1834.
- Maceroni versus Mechanics' Magazine. London, 1834.
- Memoirs of the Life and Adventures of Colonel Maceroni.... 2 vols. London, 1838.
- MACGREGOR, J. Observations on the River Tyne, with a View to the Improvement of the Navigation;.... Newcastle, 1832.
- MACKENZIE, E. A Descriptive and Historical Account of the Town and County of Newcastle-upon-Tyne, including the Borough of Gateshead. 2 vols. in one. Newcastle-upon-Tyne. 1827.
- [MACKY, J.] A Journey through England. In Familiar Letters from a Gentleman Here, to His Friend Abroad. 3 vols. London, 1714-29.

- MACLAREN, C.** Railways compared with Canals and Common Roads, and their Uses and Advantages explained. Edinburgh, 1825. (Contained in the "Pamphleteer," Vol. xxvi. London, 1826.)
- MACPHERSON, DAVID.** Annals of Commerce, Manufactures, Fishery and Navigation. 4 vols. London, 1805 (?).
- MACRITCHIE, Rev. WILLIAM.** Diary of a Tour Through Great Britain in 1795. (With introduction and notes by David MacRitchie.) London, 1897.
- MACTURK, G. G.** A History of the Hull Railways. Hull, [1879].
- MAITLAND, WILLIAM.** The History and Survey of London from its Foundation to the Present Time. 2 vols. London, 1760.
- MALCOLM, WILLIAM, JAMES and JACOB.** General View of the Agriculture of the County of Surrey.... London, 1794.
- General View of the Agriculture of the County of Buckingham.... London, 1794.
- MALDEN, H. ELLIOT.** A History of Surrey. London, 1900.
- MALET, Captain [HAROLD ESDALE].** Annals of the Road or Notes on Mail and Stage Coaching in Great Britain. To which are added Essays on the Road, by Nimrod. London, 1876.
- MANSING, OWEN.** The History and Antiquities of the County of Surrey. 3 vols. London, 1804.
- MANTOUX, PAUL.** La Révolution industrielle du xviii^e siècle. Paris, 1906.
- MARKHAM, CHRISTOPHER ALEXANDER.** The Liber Custumarum: the Book of the Ancient Usages and Customs of the Town of Northampton, from the Earliest Record to 1448. Northampton, 1895.
- MARKHAM, CHRISTOPHER A., and COX, Rev. JOHN CHARLES.** The Records of the Borough of Northampton. 2 vols. Northampton, 1898.
- MARSH, A. E. W.** A History of the Borough and Town of Calne, and some Account of the Villages, etc., in its Vicinity. Calne and London, 1904.
- MARSHALL, WILLIAM.** The Rural Economy of Norfolk: comprising the Management of Landed Estates, and the Present Practice of Husbandry in that County. 2 vols. London, 1787.
- The Rural Economy of Yorkshire. Comprising the Management of Landed Estates, and the Present Practice of Husbandry in the Agricultural Districts of that County. 2 vols. London, 1788.
- The Rural Economy of Gloucestershire; including its Dairy, etc. 2 vols. Gloucester, 1789.
- The Rural Economy of the Midland Counties; including the Management of Live Stock &c. 2nd edition. 2 vols. London, 1796.
- The Rural Economy of the West of England: including Devonshire, and parts of Somersetshire, Dorsetshire and Cornwall.... 2 vols. London, 1796.
- The Rural Economy of the Southern Counties; comprising Kent, Surrey, Sussex; the Isle of Wight; the Chalk Hills of Wiltshire, Hampshire, etc. 2 vols. London, 1798.
- Minutes, Experiments, Observations, and General Remarks on Agriculture in the Southern Counties; a new Edition. To which is prefixed a sketch of the Vale of London, and an Outline of its Rural Economy now first published. 2 vols. London, 1799.
- A Review of the Reports to the Board of Agriculture; from the Northern Department of England. York, 1808.
- A Review (and Complete Abstract) of the Reports to the Board of Agriculture; from the Midland Department of England.... York, 1815.
- A Review (and Complete Abstract) of the Reports to the Board of Agriculture; from the Southern and Peninsular Departments of England.... York, 1817.

- MARSHALL, WILLIAM. *Railway Legislation and Railway Reform considered with Special Reference to Scottish Lines.* 2nd edition. Edinburgh, 1853.
- MARTIN, R. M. *Railways—Past, Present, and Prospective.* London, 1849.
- MASON, ROBERT HINDRY. *The History of Norfolk: from Original Records and other Authoritative Sources preserved in public and private collections.* London, 1884.
- MASSINGRERD, Rev. W. O. *History of the Parish of Ormsby-cum-Ketsby, in the Hundred of Hill and County of Lincoln, compiled from Original Sources.* Lincoln, [1893].
- *Court Rolls of the Manor of Ingoldmelfs in the County of Lincoln.* London, 1902.
- MATHER, WILLIAM. *Of Repairing and Mending the Highways.* London, 1696.
- MATHEW, FRANCIS. *Of the Opening of Rivers for Navigation, The Benefit exemplified by The Two Avons of Salisbury and Bristol. With a Mediterranean Passage by Water for Billanders of Thirty Tun between Bristol and London. With the Results.* London, 1655.
- *A Mediterranean Passage by Water between the Two Sea Towns Lynn and Yarmouth, upon the Two Rivers The Little Ouse, and Waveney. With farther Results. Producing the Passage from Yarmouth to York.* London, 1656.
- *A Mediterranean Passage by Water from London to Bristol &c. And from Lynne to Yarmouth, and so consequently to the City of York: for the great Advancement of Trade and Traffique.* London, 1670.
- MATHEWS, J. *Remarks on the Cause and Progress of the Scarcity and Dearthness.* London, 1797.
- MAVOR, WILLIAM. *General View of the Agriculture of Berkshire....* London, 1808.
- MAXWELL, GEORGE. *General View of the Agriculture of the County of Huntingdon....* London, 1793.
- MAXWELL, Rt. Hon. Sir HERBERT. *The Creevey Papers: A Selection from the correspondence and Diaries of the late Thomas Creevey, M.P.* 2 vols. London, 1904.
- MAY, GEORGE. *A Descriptive History of the Town of Evesham, from the foundation of its Saxon Monastery.* Evesham and London, 1845.
- MCDONNELL, G. *Railway Management, with and without Railway Statistics.* London, [1854?].
- MEIGE, GUY. *The Present State of Great Britain and Ireland.* 11th edition, revised and completed by Solomon Bolton. London, 1757.
- MERCATOR (pseud.). *Remarks on the Tonnage Rates and Drawbacks of the Grand Junction Canal, with Observations on the proposed London and Birmingham Canal, by Mercator.* London, 1836.
- MERTON, GEORGE. *A Guide to Surveyors of the Highways, shewing the Duty of Such Surveyors...collected and gathered out of Public Acts of Parliament, etc., now in force.* London, 1694.
- METCALFE, JOHN. *The Life of John Metcalfe, commonly called Blind Jack of Knaresborough. With many entertaining anecdotes...and also a Succinct Account of his various Contracts for Making Roads, Erecting Bridges, and other Undertakings,....* York, 1795.
- METEYARD, ELIZA. *The Life of Josiah Wedgwood from his Private Correspondence and Family Papers...and other Original Sources.* 2 vols. London, 1865-66.
- MIDDLETON, JOHN. *View of the Agriculture of Middlesex; with Observations on the Means of its Improvement....* London, 1798.
- MISSON, HENRY DE VAUDROY. *Mémoires et observations faites par un voyageur en Angleterre.* [Paris], 1698. (This book was translated into English by John

- Ozell and published in London, 1719, under the title "M. Misson's Memoirs and Observations in his Travels over England etc.")
- MOLYNEUX, WILLIAM. *Burton-on-Trent: its History, its Waters, and its Breweries.* London, [1869].
- MOMSEN, DR P. *Einiges über die öffentlichen Arbeiten in England,....* Kiel, 1838.
- MONEY, WALTER. *The History of the Ancient Town and Borough of Newbury in the County of Berks.* Oxford and London, 1887.
- MONK, JOHN. *General View of the Agriculture of the County of Leicester....* London, 1794.
- MOORE, HENRY CHARLES. *Omnibuses and Cabs: Their Origin and History.* London, 1902.
- MOORE, THOMAS. *The History of Devonshire, from the Earliest Period to the Present.* London, 1829.
- MORANT, PHILIP. *The History and Antiquities of the County of Essex, compiled from the best and most ancient historians; from Domesday-Book, etc.; the whole digested, improved, perfected, and brought down to the present time.* 2 vols. London, 1768. (Reprinted at Chelmsford, 1816.)
- MOREAU, P. *Description of the Railroad from Liverpool to Manchester. Together with a History of Railroads, and matters connected therewith, compiled by A. Notré,....* Translated from the French by J. C. Stoeker, Jr., Civil Engineer. Boston (Mass.), 1833.
- MORITZ, REV. CHARLES P. *Travels, chiefly on foot, through Several Parts of England, in 1782, described in Letters to a Friend. Translated from the German by a Lady.* (In Pinkerton's *Voyages and Travels*, Vol. II, pp. 489-573.) The German text is entitled "Reisen eines Deutschen in England im Jahr 1782," by Carl Philip Moriz. Berlin, 1785.
- MORRIS, RUPERT HUGH. *Chester in the Plantagenet and Tudor Reigns.* [Chester, 1893.]
- MORRISON, JAMES. *Observations illustrative of the Defects of the English System of Railway Legislation, and of its injurious Operation on the Public Interests; with Suggestions for its Improvement.* London, 1846.
- MORTON, JOHN. *The Natural History of Northamptonshire; with Some Account of the Antiquities. To which is Annexed A Transcript of Domesday-Book, so far as it relates to That County.* London, 1712.
- MORYSON, FYNES. *An Itinerary written by Fynes Moryson Gent. First in t' e Latine Tongue, and then translated by him into English. Containing His Ten Yeeres Travell through the Twelve Dominions of Germany, Bohmerland, Switserland, Netherland, Denmarke, Poland, Italy, Turkey, France, England, Scotland, and Ireland.* London, 1617.
- MOYLE, H[ENRY] J[OSEPH]. *Descriptive Catalogue of the Charters, Minute Books and Other Documents of the Borough of Weymouth and Melecombe Regis, A.D. 1252-1800.* Weymouth, 1883.
- MUDGE, RICHARD Z. *Observations on Railways, with Reference to Utility, Profit, and the Obvious Necessity for a National System.* London, 1837.
- MUIR, RAMSEY. *A History of Liverpool.* London, 1907.
- MURRAY, ADAM. *General View of the Agriculture of the County of Warwick....* London, 1813.
- NASH, CHARLES. *Railway Carrying and Carriers' Law; the Liabilities and Non-Liabilities of Railways, Carriers, and others....the Dispute between Railways and Carriers; Extracts from Judgments; with the Law, and Cases illustrating the Reasoning on those Subjects; etc.* London, 1846.

- NELSON, W. *The Office and Authority of a Justice of Peace: Collected out of all the Books, whether of Common or Statute Law, hitherto written on that subject, etc.* 6th edition. London, 1718.
- NEWBALL, JOHN. *A Concern for Trade, and the Various Consequences; relating to the Encrease and Decrease...Also Remarks on the Bill, intit'd A Bill to amend and render more effectual the Laws in Being for the Preservation of the publick Roads, &c.* Stamford [1745-6 (?)].
- Newcastle. *An Account of the Great Flood in the River Tyne, on Saturday Morning, Dec. 30, 1815. To which is added, A Narrative of the Great Flood in the Rivers Tyne, Tease, and Wear, &c. on the 16th and 17th Nov., 1771.* Newcastle, 1816.
- *Copy of the Evidence taken before a Committee of the House of Commons on the Newcastle and Carlisle Railway Bill. Taken from the shorthand notes of Mr Gurney. To which is added the Report of Mr Leather, on the Projected Line of Railway.* Newcastle-upon-Tyne, 1829.
- [NICHOLS, JOHN.] *Illustrations of the Manners and Expences of Antient Times in England, in the Fifteenth, Sixteenth, and Seventeenth Centuries, deduced from the Accompts of Church-wardens, and other Authentic Documents, collected from Various Parts of the kingdom, with explanatory Notes.* London, 1797.
- NICHOLS, JOHN. *The Progresses and Public Proecessions of Queen Elizabeth...now first printed from Original Manuscripts of the Times; or collected from searee Pamphlets, etc.* 3 vols. London, 1788-1805.
- NICHOLSON, CORNELIUS. *The Annals of Kendal: being a Historical and Descriptive Account of Kendal and the Neighbourhood.* London and Kendal, 1861.
- NICHOLSON, JOSEPH, and BURN, RICHARD. *The History and Antiquities of the Counties of Westmorland and Cumberlan.* 2 vols. London, 1777.
- NORDEN, JOHN. *Notes on London and Westminster.* 1592. [Brit. Mus. 010347. m. 16.]
- *Speculi Britanniae Pars. A Description of Hartfordshire.* 1598. (Reprinted) London, 1903.
- *The Surveyors Dialogue.* London, 1607.
- *Speculi Britanniae Pars Altera: or a Delineation of Northamptonshire (in 1610).* London, 1720.
- *Speculi Britanniae Pars: An Historical and Chorographical Description of the County of Essex.* London, 1840.
- *An Intended Guyde for English Travailers.* London, 1625.
- *Speculum Britanniae: An Historical and Chorographical Description of Middlesex and Hartfordshire.* London, 1723.
- *Speculi Britanniae Pars: A Description of Hartfordshire, by John Norden, 1598. Reprinted with portrait and biography of John Norden by W. B. Gerish.* Ware and London, 1903.
- NORTH, ROGER. *The Life of the Right Honourable Francis North, Baron of Guilford, Lord Keeper of the Great Seal, under King Charles II and King James II....* London, 1742.
- Northumberland County History Committee. *A History of Northumberland.* 7 vols. Vols. I and II, by Edward Bateson, London, 1893-95. Vol. III, by Allen B. Hinds, London, 1896. Vols. IV-VII, by John C. Hodgson, London, 1897-1904.
- O'BRIEN, W. *The Prize Essay on Canals and Canal Conveyance, for which a Premium of £100 was awarded by the Canal Association.* London, 1858.
- OBSERVER, An (pseud.). *Brief Remarks on the Proposed Regent's Canal.* London, 1812.
- OGILBY, JOHN. [Brit. Mus. G. 4697.] *Britannia Depicta: or, Ogilby Improved. Being an Actual Survey of all the Direct and Principal Cross Roads of England*

- and Wales...Engraved by Emanuel Bowen, Geographer...Compiled from the Best Authorities, by John Owen, Gent.
- OGILBY, JOHN. *Britannia, Volume the First; or, an Illustration of the Kingdom of England and Dominion of Wales: by a Geographical and Historical Description of the Principal Roads thereof. Actually Admeasured and Delineated....* London, 1675.
- *An Actual Survey of all the Principal Roads of England and Wales; described by One Hundred Maps from Copper Plates...now improved, very much corrected, and made portable by John Senex.* 2 vols. London, 1710.
- OGILVIE, A. M. *Ralph Allen's Bye, Way, and Cross-Road Posts (from Documents in the Home Office Papers in the Record Office).* London, 1897.
- OLIVER, REV. GEORGE. *The History of the City of Exeter.* Exeter and London, 1861.
- ORMEROD, GEORGE. *The History of the County Palatine and City of Chester.* (2nd edition, revised and enlarged, by Thomas Helsby.) 3 vols. London, 1882.
- [OWEN, HUGH.] *Some Account of the Ancient and Present State of Shrewsbury.* Shrewsbury, 1808.
- OWEN, HUGH, and BLAKEWAY, JOHN BRICKDALE. *A History of Shrewsbury.* 2 vols. London, 1825.
- OWEN, WILLIAM. *New Book of Roads; or a Description of the Roads of Great Britain.* London, 1805.
- P., E. M. S. *The Two James's and the Two Stephensons; or, the Earliest History of Passenger Transit on Railways.* London, 1861.
- P., F. *A Letter to a Friend, containing Observations on the Comparative Merits of Canals and Railways, occasioned by the Reports of the Committee of the Liverpool and Manchester Railway.* London, 1832.
- P., J. *For Mending the Roads of England: its proposed.* Signed J. P. *Brit. Mus. T. 1816 (13).* [1715 (?).]
- P., N. A. *A Descant upon Railroads.* London, 1842.
- PAGAN, WILLIAM. *Road Reform: A Plan for abolishing Turnpike Tolls and Statute Labour Assessments, and for providing the Funds necessary for maintaining the Public Roads by an Annual Rate to be levied on Horses.* Edinburgh, 1845.
- PAGE, WILLIAM (editor). *The Victoria History of the Counties of England.* (We omit the complete list of these volumes, but many of them have excellent material.)
- PALMER, HENRY R. *Report on the Improvement of the Rivers Mersey and Irwell, between Liverpool and Manchester, describing the Means of adapting them for the Navigation of Sea-going Vessels.* London, 1840.
- *Description of a Railway on a New Principle; with Observations on those hitherto constructed.* London, 1824.
- PALMER, J. E. *British Canals. Problems and Possibilities.* London, 1910.
- PALMER, JOHN. *Papers relative to the Agreement made by Government with Mr Palmer, for the Reform and Improvement of the Posts.* London, 1797.
- *Mr Palmer's Case Explained.* By C. Bonnor. London, 1797.
- *Debates in Both Houses of Parliament in the Months of May and June 1808, relative to the Agreement made by Government with Mr Palmer for the Reform and Improvement of the Post Office and its Revenue.* London, 1809. *Brit. Mus. 8244. cc. 37.*
- PARK, THOMAS (compiler). *The Harleian Miscellany: A Collection of Scarce, Curious, and Entertaining Pamphlets and Tracts, as well in Manuscript as in Print: Selected from the Library of Edward Harley, Second Earl of Oxford, etc.* 10 vols. London, 1808-13.
- PARKES, W. *Claim of the Subscribers to the Birmingham and Liverpool Railroad.* London, 1824.

- PARKINSON, R. General View of the Agriculture of the County of Huntingdon.... London, 1813.
- PARNELL, Rt. Hon. Sir HENRY. A Treatise on Roads. London, 1834.
- PARSLOE, JOSEPH. Our Railways. Sketches Historical and Descriptive, with Practical Information as to Fares and Rates, etc., and a Chapter on Railway Reform. London, 1878.
- PARSONS, EDWARD. The Civil, Ecclesiastical, Literary, Commercial and Miscellaneous History of Leeds, Halifax, Huddersfield, Bradford, Wakefield, Dewsbury, Otley, and the Manufacturing District of Yorkshire. 2 vols. Leeds, 1834.
- [PATCHING OF PATCHES, RESTA.] Four Topographical Letters, written in July 1755, upon a Journey through Bedfordshire, Northamptonshire, Leicestershire, Nottinghamshire, Derbyshire, Warwickshire, etc. from a Gentleman in London to his Brother and Sister in Town, etc. Newcastle-upon-Tyne, 1757.
- PATERSON, JAMES. A Practical Treatise on the Making and Upholding of Public Roads...And a Dissertation on the Utility of Broad Wheels, and other Improvements. Montrose, 1819.
- PEARCE, WILLIAM. General View of the Agriculture of Berkshire.... London, 1794.
- PEASE, Sir ALFRED E. The Diaries of Edward Pease, the Father of English Railways. London, 1907.
- PEGGE, SAMUEL. Chivalria Miscellanea, or Anecdotes of Old Times; Regal, Noble, Gentilitial, and Miscellaneous. London, 1818.
- PENBERTON, T. EDGAR. James Watt, of Soho and Heathfield, Annals of Industry and Genius. Birmingham, 1905.
- PENNANT, THOMAS. The Journey from Chester to London. London, 1782
 — A Tour from Downing to Alston Moor (1773). London, 1801.
 — A Tour from Alston Moor to Harrogate (1773). London, 1804.
 — A Journey from London to the Isle of Wight (1787). London, 1801.
- PEPYS, SAMUEL. Diary and Correspondence of Samuel Pepys, Esq., F.R.S., from his Manuscript Cypher in the Pepysian Library, with a Life and Notes by Richard Lord Braybrooke. Deciphered, with additional notes, by Rev. Mynors Bright. 6 vols. London, 1875-79.
- PERCY, H. A. [Brit. Mus. 684. c. 27.] Northumberland Household Book (edited by T. Percy, Bishop of Dromore). The more correct and full title is, "The Regulations and Establishment of the Household of H. A. Percy...at his Castles of Wresill and Leginfield in Yorkshire [at 1512 and after]." 1770.
- PHILLIPS, Rev. WILLIAM. The History and Antiquities of Somersetshire. 2 vols. London, 1839.
- PHIL'ANGLUS (pseud.). The Contrast: also Further Considerations on the Concern for Trade. With Proposals how to amend and render more effectual the Laws in Being for the Preservation of the Public Roads, and to preserve Trade. In Two Letters to a Member. London, [1746]. Br. Mus. 1139. 1. 11 (2).
- PHILLIPS, FRANCIS. Analysis of the Defective State of Turnpike Roads and Turnpike Securities, with Suggestions for their Improvement. London, 1834.
- PHILLIPS, J. A General History of Inland Navigation, Foreign and Domestic; containing a Complete Account of the Canals already executed in England; with Considerations on those projected. 4th ed. London, 1803.
- PHILLIPS, JOHN. A Treatise on Inland Navigation; illustrated with a Whole-Sheet Plan, delineating the Course of an Intended Navigable Canal from London to Norwich and Lynn, through the Counties of Essex, Suffolk and Norfolk... With Two Other Plans, to prove the Practicability of executing the Whole with Success:.... London, 1785.

- PHILLIPS, SIR RICHARD. A Personal Tour through the United Kingdom; describing living objects and contemporaneous interests. Nos. 1 and 2. London, 1828.
- PHILLIPS, ROBERT. A Dissertation concerning the Present State of the High Roads of England, especially of those near London. Wherein is proposed a new Method of Repairing and Maintaining Them. London, 1737.
- PICTON, J. ALLANSON. Memorials of Liverpool, Historical and Topographical, including a History of the Dock Estate. 2nd ed. 2 vols. London and Liverpool, 1875.
- Liverpool Municipal Records. 2 vols. London and Liverpool, 1883, 1886.
- PILKINGTON, JAMES. A View of the Present State of Derbyshire; with an Account of its most remarkable Antiquities. 2 vols. Derby, 1789.
- PITT, W. General View of the Agriculture of the County of Stafford.... London, 1794.
- PITT, WILLIAM. General View of the Agriculture of the County of Leicester.... London, 1809.
- General View of the Agriculture of the County of Northampton.... London, 1809.
- General View of the Agriculture of the County of Worcester.... London, 1813.
- PLYMLEY, JOSEPH. General View of the Agriculture of Shropshire.... London, 1803.
- POMEROY, WILLIAM THOMAS. General View of the Agriculture of the County of Worcester.... London, 1794.
- POOLE, BENJAMIN. Coventry: its History and Antiquities. London and Coventry, 1870.
- POOLE, BRAITHWAITE. The Commerce of Liverpool. London and Liverpool, 1854.
- PRATT, EDWIN A. British Canals: Is their Resuscitation Practicable? London, 1906.
- A History of Inland Transport and Communication in England. New York, 1912.
- PRICE, A[UBREY] C[HAULES]. Leeds and its Neighbourhood: an Illustration of English History. Oxford, 1909.
- PRIEST, R. V. ST JOHN. General View of the Agriculture of Buckinghamshire.... London, 1813.
- PRIESTLEY, JOSEPH. Historical Account of the Navigable Rivers, Canals, and Railways throughout Great Britain (to refer to the Map of Inland Navigation). London, 1831.
- PRINGLE, ANDREW. General View of the Agriculture of the County of Westmorland.... Edinburgh, 1794.
- PROCTER, THOMAS. A Profitable Worke to this whole Kingdome. Concerning the mending of all High-ways as also for Waters and Iron Workes. London, 1610.
- PROGRESS, PETER (pseud.). The Rail, its Origin and Progress. London, 1847.
- The Locomotive, or the Steam Engine applied to Railways, Common Roads, and Water. And an Account of the Atmospheric Railway. London, 1848.
- PROPRIETOR, A (pseud.). The Advantages of Railways with Locomotive Engines, especially the London and Greenwich Railway or Viaduct...to the Public, the Proprietors of Property along and near the Line of Road, and the shareholders, explained. 2nd ed. London, 1833.
- PROVIS, W. A. Suggestions for Improving the Canal Communication between Birmingham, Wolverhampton, Shropshire, Cheshire, North Wales, and Manchester, by means of a New Canal from Middlewich to Altringham. London, 1837.
- PUBLICUS (pseud.). Observations on Bridge Building, and the Several Plans offered for a New Bridge. In a Letter addressed to the Gentlemen of the Committee,

- appointed by the Common Council of the City of London, for putting in Execution a Scheme of Building a New Bridge across the Thames, at or near Black Friars. London, 1760.
- [QUINCEY, THOMAS.] A Short Tour in the Midland Counties of England: performed in the summer of 1772. Together with an Account of a similar Excursion undertaken September 1774 [by Thomas Quincey]. London, 1775.
- RADCLIFFE, SIR GEORGE. The Life and Original Correspondence of Sir George Radcliffe,....By Thomas Dunham Whitaker. London, 1810.
- Railway A Few General Observations on the Principal Railways executed, in progress, and projected, in the Midland Counties and North of England, with the Author's Opinion upon them as Investments. London, 1838.
- Railways as they Really Are. or Facts for the Serious Consideration of Railway Proprietors. No. 1. London, Brighton and South Coast Railway. London, 1847. No. II. The Dover, or South-Eastern Company. London, 1848. No. VII. The Lancashire and Yorkshire Railway. London, 1847.
- RAUMER, FREDERICK VON. England in 1841: being a series of letters written to friends in Germany. Translated from the German by H. Evans Lloyd. 2 vols. London, 1842.
- RENDEL, G[RACE] DAPHNE. Newcastle-on-Tyne: its Municipal Origin and Growth. London, 1898.
- RENNIE, BROUN, and SHIBREFF, MESSRS. General View of the Agriculture of the West Riding of Yorkshire.... London, 1794.
- RENNIE, JOHN. Report of a Survey of the River Thames, between Reading and Isleworth, and of Several Lines of Canals projected to be made between those Places; with Observations on their Comparative Eligibility. London, 1794.
- Report and Estimate of the Grand Southern Canal, proposed to be made between Tunbridge and Portsmouth: by means of which and the River Medway, an Inland Navigation will be opened between the River Thames and Portsmouth. [With large Plan of the Canal.] London, 1810.
- Autobiography of Sir John Rennie, F.R.S. Comprising the History of his Professional Life, together with Reminiscences dating from the Commencement of the Century to the Present Time. London, 1875.
- RICHARDSON, M. A. The Borderer's Table Book. 8 vols. Newcastle-upon-Tyne, 1846.
- Reprints of Rare Tracts, Imprints of Ancient Manuscripts, &c., chiefly illustrative of the History of the Northern Counties. Vol. III, Historical. Newcastle, 1849.
- ROBERSON, GEORGE, and GREEN, JOHN RICHARD. Oxford during the last Century. Oxford, [N.D.].
- ROBERTS, GEORGE. The Social History of the People of the Southern Counties of England in past Centuries. London, 1856.
- ROBERTS, SAMUEL. Autobiography and Select Remains of the late Samuel Roberts (of Sheffield). London, 1849.
- ROBERTSON, ARCHIBALD. A Topographical Survey of the Great Road from London to Bath and Bristol, etc., in 2 Parts. London, 1792.
- ROBERTSON, REV. DAVID. Diary of Francis Evans, Secretary to Bishop Lloyd, 1699-1706. Printed for the Worcestershire Historical Society, by James Parker & Co. Oxford, 1903.
- ROGERS, JAMES E. THOROLD. A History of Agriculture and Prices in England. 6 vols. London, 1886-87.
- [RUDDER, S.] The History of the Ancient Town of Cirencester, in two Parts: Pt I—The Ancient State; Pt II—the Modern and Present State. Cirencester, 1814.

- RUDGE, THOMAS. *General View of the Agriculture of the County of Gloucester...* London, 1807.
- RUSHWORTH, JOHN. *Historical Collections of Private Passages of State, Weighty Matters in Law. Remarkable Proceedings in Five Parliaments (1618-1629).* 8 vols. London, 1721.
- RYDOCK, WILLIAM. *The Life and Notorious Practices of William Rydock, alias Wreathoeke. Who was condemned for Felony in Robbing the Reverend Dr Lancaster on the Highway. June 11, 1735.* London, 1736.
- RYE, W. B. *Collections for the History of Rochester.* 3 vols. Rochester, 1817-87.
- RYE, WILLIAM BRESCHELEY. *England as Seen by Foreigners in the Days of Elizabeth and James the First....Extracts from the Travels of Foreign Princes and Others.* London, 1865.
- *England as seen by Foreigners in the days of Elizabeth and James I. Comprising translations of the Journals of the two Dukes of Wirtemberg in 1592 and 1610.* London, 1865.
- RYMER, JAMES. *The Practice of Navigation upon a New Plan.* Bath, 1778.
- RYMER, THOMAS. *Fœdera, Conventiones, Litteræ, et Cujuscunque Generis Acta Pœblica, inter Reges Angliæ et Alios quosvis Imperatores, Reges, Pontifices, Principes, vel Communitates, ab inenite Sæculo Duodecimo, viz., ab anno 1101, ad nostra usque Tempora. Habita aut Tractata, etc. Editio secunda. Tomi I-XX.* Londini, 1726-1735.
- S., E. *The Discoverie of the Knights of the Poste: Or the Knightes of the Post, or comon common baylers newly Descried....* London, 1597.
- S., R. (pseud.). [Br. Mus. 1028. a. 3.] *Avona; or a Transient View of the Benefit of making Rivers of this Kingdom Navigable. Occasioned by observing the Situation of the City of Salisbury, upon the Avon, and the Consequence of opening that River to that City. Communicated by Letter to a Friend at London.* By R. S. London, 1675.
- SALIS, HENRY RODOLPHE DE. *A Chronology of Inland Navigation in Great Britain.* London, 1897.
- SALT, SAMUEL. *Statistics and Calculations essentially necessary to Persons connected with Railways or Canals, containing a Variety of Information not to be found elsewhere.* Manchester, 1845.
- SALZMANN, L. F. *The History of the Parish of Hailsham, the Abbey of Otham and the Priory of Michelham.* Lewes, 1901.
- SANDARS, JOSEPH. *A Letter on the Subject of the Projected Rail Road between Liverpool and Manchester, pointing out the Necessity for its Adoption and the Manifest Advantages it offers to the Public, with an Exposure of the exorbitant and unjust Charges of the Water Carriers.* 3rd edition. Liverpool, 1824.
- SAUSSURE, CESAR DE. *A Foreign View of England in the Reigns of George I and George II.* Translated and edited by Madame Van Muyden. London, 1902.
- SCOTCHER, RICHARD. *The Origin of the River Wey Navigation. Being an Account of the Canalization of the River, from a Manuscript written by Richard Scotcher in 1657. Now first published. Edited with an Introduction by Thomas J. Laey.* Guildford, 1895.
- SCOTT, BENJAMIN. *The Progress of Locomotion; being Two Lectures on the Advances made in Artificial Locomotion in Great Britain.* London, 1854.
- SCOTT, JOHN. *Digests of the General Highway and Turnpike Laws, with the Schedule of Forms, and Remarks. Also an Appendix on the Construction and Preservation of Roads.* London, 1778.
- *Berwick-upon-Tweed. The History of the Town and Guild.* London, 1888.

- SCRIVENOR, HARRY. *The Railways of the United Kingdom Statistically considered in relation to their Extent, Capital, Amalgamation, etc. From authentic documents.* London, 1849.
- SEKON, G. A. (pseud. for G. A. Nokes). *A History of the Great Western Railway, being the Story of the Broad Gauge.* London, 1895.
- SEYER, SAMUEL. *Memoirs Historical and Topographical of Bristol and its Neighbourhood.* 2 vols. Bristol, 1821, 1823.
- SHAEN, SAMUEL, JR. *A Review of Railways and Railway Legislation at Home and Abroad.* London, 1847.
- SHAPLEIGH, JOHN. *Highways: a Treatise shewing the Hardships, and Inconveniences of Presenting, or indicting Parishes, Towns, etc., for not repairing the Highways. And offering several material Additions, and Amendments to the Laws now in being, for the better, and more effectual Repairing of the same.* London, 1749.
- SHAREHOLDERS, A. (pseud.). *Railroads. Statements and Reflections thereon: particularly with Reference to the Proposed Railroad without a Tunnel, and the competition for the Line between London and Brighton. By a Shareholder, at the Request of Other Shareholders.* London, 1835.
- SHAW, GEORGE T. and ISABELLA. *Liverpool's First Directory. A Reprint of the Names and Addresses from Gore's Directory for 1766... Also a History of the Liverpool Directories from 1766 to 1907.* Liverpool, 1907.
- SHAW, Rev. S. *A Tour to the West of England in 1788 (in Pinkerton's Voyages and Travels, Vol. II, pp. 172-335).* London, 1789.
- SHAW, SIMON. *History of the Staffordshire Potteries; and the Rise and Progress of the Manufacture of Pottery and Porcelain.* First published in Hanley, 1829, and Reissued at London, 1900.
- SHEARDOWN, WILLIAM. *The Great North Road and the Great Northern Railway; or, Roads and Rails.* Doncaster, [1863].
- SHELFORD, LEONARD. *The General Highway Act of the 5 & 6 W. IV. c. 50. With Notes Explaining the Alterations in the Law of Highways, etc.* London, 1835.
- SIMOND, LOUIS. *Journal of a Tour and Residence in Great Britain, during the years 1810 and 1811, by a French Traveller.* 2 vols. New York, 1815. (2nd ed., corrected and enlarged: to which is added an Appendix on France, written in December 1815, and October 1816. 2 vols. Edinburgh, 1817.)
- SIMPSON, ROBERT. *A Collection of Fragments Illustrative of the History and Antiquities of Derby, compiled from authentic sources.* 2 vols. Derby, 1826.
- SINCLAIR, Rev. J. S. *Memoirs of Sir John Sinclair, Bart.* 2 vols. London, 1837.
- SKEY, ROBERT S. *Report to the Committee of the Birmingham and Liverpool Junction Canal, on the Present State of the Competition between the Canal Carriers using that Line and the Grand Junction Railway Company, with Suggestions for a more economical and effective working of the Canal.* Westminster, 1841.
- SLEIGH, JOHN. *A History of the Ancient Parish of Leek, in Staffordshire; including Horton, Cheddleton and Ipstones.* 2nd ed. London, [1883].
- SLUGG, J. T. *Reminiscences of Manchester Fifty Years Ago.* Manchester and London, 1881.
- SMEATON, JOHN. *Begin, From a Survey of the River Calder, from Wakefield to Brooksmouth, and from thence to Salter-Hebble Bridge, near Halifax, taken in the Months of October and November 1757, by John Smeaton, it appears as follows:— Halifax, 1757.*
— Reports of the late John Smeaton, F.R.S., made on Various Occasions, in the Course of his Employment as a Civil Engineer. 3 vols. London, 1812.

- SMILES, SAMUEL. *Lives of the Engineers*. 4 vols. London, 1861-62.
- *Industrial Biography*. *Iron Workers and Tool Makers*. London, 1879.
- SMITH, ARTHUR. *The Bubble of the Age; or the Fallacies of Railway Investments, Railway Accounts, and Railway Dividends*. 3rd ed. London, 1848.
- SMITH, WORTHINGTON G. *Dunstable: Its History and Surroundings*. London, 1904.
- SORBIÈRE, SAMUEL. *A Voyage to England, containing many Things relating to the State of Learning, Religion, and other Curiosities of that Kingdom* (English translation). London, 1709.
- STEWART, HENRY. *Account of a Plan for the better supplying the City of Edinburgh with Coal; together with an Examination of the Merits of the Two Principal Lines pointed out for the Intended Canal between Edinburgh and Glasgow*. Edinburgh, 1800.
- STEVENSON, DAVID. *Fifty Years on the London and North Western Railway, and other Memoranda in the Life of David Stevenson*. Edited by Leopold Turner. London, 1891.
- STEVENSON, W. HENRY. *Records of the Borough of Nottingham; being a series of extracts from the Archives of the Corporation of Nottingham*, 5 vols., 1155-1702. (Vol. v edited by W. T. Baker.) London and Nottingham, 1882-90.
- *Calendar of the Records of the Corporation of Gloucester*. Gloucester, 1893.
- STEVENSON, WILLIAM. *General View of the Agriculture of the County of Dorset...* London, 1812.
- *General View of the Agriculture of the County of Surrey...* London, 1813.
- STEWART, CHARLES S. *Sketches of Society in Great Britain and Ireland*. 2nd ed. 2 vols. Philadelphia, 1835.
- STOCKS, JOHN EDWARD, and BRAGG, W. B. *Market Harborough Parish Records to A.D. 1530*. London, 1890.
- STONE, THOMAS. *General View of the Agriculture of the County of Huntingdon...* London, 1793.
- *General View of the Agriculture of the County of Bedford...* London, 1794.
- *General View of the Agriculture of the County of Lincoln...* London, 1794.
- STOW, JOHN. *The Abridgement of the English Chronicle, First Collected by M. John Stow, and after him augmented with very many memorable Antiquities, and continued...unto the beginning of the Year 1618*. By E. H. Gentleman. London, 1618.
- *Annales, or a Generall Chronicle of England*. Begun by John Stow: Continued and augmented...unto the end of this present yeere, 1631. By Edmund Howes, Gent. London, 1631.
- *A Survey of London, written in the year 1598*. New Edition edited by William J. Thoms, F.S.A. London, 1842. (Another edition, London, 1876.)
- *A Summarie of the Chronicles of England to 1590*. London, [N.D.].
- STRETTON, CLEMENT E. *Early Tramroads and Railways in Leicester-shire*. Burton-on-Trent, 1900.
- *History of Various English Railways* (The Stretton Collection for the Chicago Exhibition, 1893).
- *A Few Notes on Early Railway History*. London, 1884.
- *History of the South Staffordshire Railway*. Wolverhampton, 1885.
- *The Stour Valley Railway and Great Western*. Shrewsbury, 1886.
- *History of the Manchester and Birmingham Railway*. Manchester, 1886.
- *The Grand Junction Railway*. [N.P.], 1887.
- *The History of the Birmingham and Derby Junction Railway*. Birmingham, 1892.

- STRETTON, CLEMENT E. *The History of the Birmingham, Wolverhampton, and Stour Valley Railway.* Printed for Chicago Exhibition, 1893.
- *The History of the Railways of Birmingham.* Birmingham, 1897 (?).
- *The History of the London and Birmingham Railway.* Leeds, 1901.
- *The History of the Amalgamation and the Formation of the London and North Western Railway Company.* Leeds, 1901.
- *History of the London and North Western Railway.* Leeds, 1902.
- *The History of the Birmingham and Gloucester, and Bristol and Gloucester Railways.* Leeds, 1902.
- *The Stone Roads, Canals, Edge-Rail-Ways, Outram-Ways, and Electric Railways in the County of Leicester.* Leicester, [1907].
- STRICKLAND, H. E. *General View of the Agriculture of the East Riding of Yorkshire....* York, 1812.
- SUBSCRIBER (psend.). *Remarks upon the Pamphlet by "Investigator," on the Proposed Railway between Birmingham and London.* By a Subscriber to the Railway. London, 1831.
- SUMMERS, JEREMIAH WILLIAM. *The History and Antiquities of Sunderland, Bishopwearmouth, etc., from the earliest Authentic Records down to the Present Time.* Vol. 1. Sunderland, 1858.
- SURTEES, ROBERT. *The History and Antiquities of the County Palatine of Durham: compiled from original records preserved in public repositories and private collections.* 4 vols. London, 1816-40.
- Surtees Society Publications. Vols. LXXV and LXXVII, for the years 1875 and 1883, entitled "Yorkshire Diaries and Autobiographies in the Seventeenth and Eighteenth Centuries." Durham, London, etc., 1877 and 1886.
- SUTCLIFFE, JOHN. *Report on the Line of Navigation from Hexham to Haydon-Bridge.... And A Report on the Line from Newcastle to Haydon-Bridge....* Newcastle, [1797].
- *A Treatise on Canals and Reservoirs, and the best Mode of Designing and Executing them; with Observations on the Rochdale, Leeds and Liverpool, and Huddersfield Canals, &c.* Rochdale, 1816.
- SWINDEN, HENRY. *The History and Antiquities of the Ancient Burgh of Great Yarmouth in the County of Norfolk.* Norwich, 1772.
- SYDENHAM, JOHN. *The History of the Town and County of Poole; collected and arranged from Ancient Records and other authentic documents, etc.* Poole, 1839.
- SYDNEY, WILLIAM CONNOR. *England and the English in the Eighteenth Century.* 2 vols. London, 1891.
- *The Early Days of the Nineteenth Century, in England.* 2 vols. London, 1898.
- SYKES, JOHN. *Local Records; or Historical Register of Remarkable Events which have occurred in Northumberland and Durham, Newcastle-upon-Tyne, and Berwick-upon-Tweed.* 2 vols. Newcastle, 1833. (Reprinted and a third volume added by T. Fordyce, Newcastle, 1866-67.)
- SYLVESTER, CHARLES. *Report on Rail Roads, and Locomotive Engines, addressed to the Chairman of the Committee of the Liverpool and Manchester projected Railroad.* 2nd ed. Liverpool, 1825.
- SYMPSON, E. MANSEL. *Lincoln: A Historical and Topographical Account of the City.* London, 1906.
- TAIT, JAMES. *Mediaeval Manchester and the Beginnings of Lancashire.* Manchester, 1904.
- TATE, GEORGE. *The History of the Borough, Castle and Barony of Alnwick.* 2 vols. London, 1866-68.

- TATHAM, WILLIAM. Remarks on Inland Canals, and a full System of interior Navigation, Various Uses of the Inclined Plane, &c. London, 1798.
- The Political Economy of Inland Navigation, Irrigation and Drainage.... London, 1799.
- TAYLOR, JAMES. A Brief Account of the Rise and Early Progress of Steam Navigation: intended to demonstrate that it originated in the Suggestions and Experiments of the late Mr James Taylor of Camnock, in connection with the late Mr Miller of Dalswinton. Ayr, 1844.
- TAYLOR, JOHN ("Water Poet"). The Old, Old, Very Old Man; or The Age and long Life of Thomas Parr, the Son of John Parr of Winnington in the Parish of Alberbury, in the County of Salopp (or Shropshire) who was Borne in the Raigne of King Edward the 4th being aged 152 yeares and odd Monethes &c. London, 1635.
- The Coaches Overthrow. Or A Joviall Exaltation of Divers Tradesmen, and Others, for the Suppression of Troublesome Haekney Coaches. London, [1635?].
- All the Workes of John Taylor the Water Poet being 63 in number Collected into one Volume by the Author. London, 1630.
- The Carriers' Cosmography: or A Brief Relation of the Inns, Ordinaries, Hostelries, and other Lodgings in and near London; where the Carriers, Waggons, Foot-posts and Higglers do usnally come from any parts, towns, shires,...with nomination of what days of the week they do come to London, and on what days they return; &c. London, 1637.
- John Taylor's Last Voyage, and Adventure, Performed from the twentieth of July last 1641 to the tenth of September following. In which time he past, with a Seullers Boate from the Citie of London, to the Cities and Townes of Oxford, Gloucester, Shrewesbury, Bristol, Bathe, Monmouth, and Hereford, &c. London, 1641.
- TAYLOR, JOSEPH. A Journey to Edenborough in Scotland (in 1705). Printed from the MS. with Notes, by William Cowan. Edinburgh, 1903.
- TEISSERENC, EDMOND. Études sur les voies de communication perfectionnées et sur les lois économiques de la production du transport. Paris, 1847.
- [TELFORD, THOMAS, and DOUGLASS, L.] An Account of the Improvements of the Port of London, and more particularly of the Intended Iron Bridge, consisting of one Arch, of Six Hundred Feet Span. London, 1801.
- TELFORD, THOMAS, and NICHOLLS, Capt. Ship Canal for the Junction of the English and Bristol Channels. Reports by these two men. London, [1824].
- TELFORD, THOMAS. Life of Thomas Telford, Civil Engineer, written by himself; containing a Descriptive Narrative of his Professional Labours: with a Folio Atlas of Copper Plates. Edited by John Rickman, one of his Executors.... London, 1838.
- [THOMAS, JOHN.] The Local Register and Chronological Account of Occurrences and Facts connected with the Town and Neighbourhood of Sheffield. Sheffield, 1830.
- THOMAS, WILLIAM. Observations on Canals and Railways, illustrative of the... Advantages to be derived from an Iron Rail-Way, adapted to Common Carriages, between Newcastle, Hexham and Carlisle;...also second edition, Report of Robert Dodd...on a Proposed Navigable Canal between Newcastle and Hexham. Newcastle-upon-Tyne, 1825.
- THOMPSON, FISHEY. The History and Antiquities of Boston, and the Villages of Skirbeck, Fishtoft, &c. Boston (Eng. and Mass.) and London, 1856.
- [THORPE, J.] A Collection of Statutes concerning Rochester Bridge. London, 1733.

- THURPP, GEORGE A. *The History of Coaches*. London, 1877.
- TIMMINS, SAMUEL. *William Murdock*. (In *Birmingham Miscellaneous Pamphlets*, Vol. II. 2. Birmingham Free Central Library, No. 145,025.)
- TOMBS, R. C. *The King's Post*. Being a volume of historical facts relating to the Posts, Mail Coaches, Coach Roads, and Railway Mail Services of and connected with the Ancient City of Bristol from 1580 to the Present time. Bristol, 1905.
- *The Bristol Royal Mail, Post, Telegraph, and Telephone*. Bristol, [N.D.].
- TOULMIN, JOSHUA. *The History of the Town of Taunton, in the County of Somerset*. Taunton, 1791.
- TREBEGOLD, THOMAS. *A Practical Treatise on Railroads and Carriages, showing the Principles of estimating their strength, Proportions, Expense, and Annual Produce, etc.* London, 1825.
- TREVITHICK, FRANCIS. *Life of Richard Trevithick, with an Account of his Inventions*. 2 vols. London, 1872.
- TRISTRAM, WILLIAM OUTRAM. *Coaching Days and Coaching Ways*. London, 1888.
- TRUSLER, JOHN. *Description of the Road from London to Bath*. London, 1797.
- *A Delineation of the Roads of the West and South of England*. Bath, 1800.
- TUKE, Mr. Jr. *General View of the Agriculture of the North Riding of Yorkshire*.... London, 1794.
- TURNER, GEORGE. *General View of the Agriculture of the County of Gloucester*.... London, 1794.
- TURNER, WILLIAM H[ENRY]. *Selections from the Records of the City of Oxford, with Extracts from Other Documents illustrating the Municipal History, 1509-1583*. Oxford and London, 1880.
- TWINING, REV. THOMAS. *Recreations and Studies of a Country Clergyman of the Eighteenth Century*. London, 1882.
- VALLANCE, JOHN. *Considerations on the Expedience of Sinking Capital in Railways*. London, 1825.
- VANCOUVER, CHARLES. *General View of the Agriculture of the County of Cambridge*.... London, 1794.
- *General View of the Agriculture of the County of Essex*.... London, 1795.
- *General View of the Agriculture of the County of Devon*.... London, 1808.
- *General View of the Agriculture of Hampshire*.... London, 1813.
- VANDERSTEGEN, WILLIAM. *The Present State of the Thames Considered; and a Comparative View of Canal and River Navigation*. London, 1794.
- VATRE, THEODOR. *Culturbilder aus Alt-England*. Berlin, 1887.
- VOWELL, JOHN, alias HOKER, JOHN. *The Antique Description and Account of the City of Exeter: in three Parts*. Exon, 1765.
- WAGNER, CARL A. *Über die wirthschaftliche Lage der Binnenschiffahrtsunternehmungen in Grosbritannien und Irland*. 2 Pts. Berlin, 1901. (Reprinted from *Archiv für Eisenbahnwesen*.)
- WAKE, BERNARD JOHN. *Turnpike Roads: Lenders of Money on Mortgage of Tolls, &c. cannot, under the Present Acts, have any Legal Security:—A Reply, in Support of this Doctrine to William Knight Delany, Esq....the avowed Draughtsman of the Recent Turnpike Road Acts, and who has attempted to refute it, in Answer to a Former Publication by the Author of this*. London, 1823.
- WALFORD, CORNELIUS. *Fairs, Past and Present: A Chapter in the History of Commerce*. London, 1883.
- WALFORD, EDWARD. *Old and New London*. 6 vols. London, [N.D.].
- WALKER, D. *General View of the Agriculture of the County of Hertford*.... London, 1795.

- WALKER, JAMES, and RASTRICK, JOHN URPETH. *Liverpool and Manchester Railway. Report to the Directors on the Comparative Merits of Loco-motive & Fixed Engines, as a Moving Power.* Liverpool, 1829.
- WALKER, JAMES SCOTT. *An Accurate Description of the Liverpool and Manchester Railway, and the Branch Railways to St Helen's, Warrington, Wigan and Bolton; with an Account of the Opening of the Railway, and of the Melancholy Accident which occurred to the late Rt. Hon. William Huskisson, etc.* 3rd edition. Liverpool, 1832.
- WALLIS, JOHN. *The Natural History and Antiquities of Northumberland: and so much of the County of Durham as lies between the Rivers Tyne and Tweed; commonly called North Bishoprick.* 2 vols. London, 1769.
- WALPOLE, HORACE. *Paul Heutzner's Travels in England, during the Reign of Queen Elizabeth (1598), translated by Horace late Earl of Orford, etc.* London, 1797.
- *Journal of the Reign of King George the Third, from the year 1771 to 1783. Now first published from the Original Manuscripts. Edited, with notes, by Dr Doran.* 2 vols. London, 1859.
- *The Letters of Horace Walpole...edited by Mrs Paget Toynbee.* 16 vols. London, 1903.
- WARD, JOHN. *The Borough of Stokes-upon-Trent, in the Commencement of the Reign of Her Most Gracious Majesty Queen Victoria, etc.* London, 1843.
- WARD, THOMAS HUMPHRY. *The Reign of Queen Victoria: A Survey of Fifty Years of Progress.* 2 vols. London, 1887.
- WARDELL, JAMES. *The Municipal History of the Borough of Leeds, in the County of York, including numerous extracts from the Court Books of the Corporation, and an Appendix, containing copies and translations of Charters, and other Documents relating to the Borough.* London and Leeds, 1846.
- WARNER, Rev. RICHARD. *A Walk through some of the Western Counties of England.* Bath, 1800.
- *The History of Bath.* Bath, 1801.
- *A Tour through the Northern Counties of England and the Borders of Scotland.* 2 vols. Bath, 1802.
- *A Tour through Cornwall in the Autumn of 1808.* Bath, 1809.
- WATKINS, JOHN. *An Essay towards a History of Bideford, in the County of Devon.* Exeter, 1792.
- WEBB, SIDNEY and BEATRICE. *English Local Government: The Story of the King's Highway.* London: Longmans, Green & Co., 1913.
- WEDEL, LUPOLD VON. *Journey through England and Scotland, made by Lupold von Wedel in the years 1584 and 1585. Translated from the Original Manuscript by Dr Gottfried von Bülow, Supt. of the Royal Archives in Stettin. (In Trans. Royal Historical Society, N.S., Vol. ix, 1895, pp. 223-70.)*
- WEDGE, JOHN. *General View of the Agriculture of the County of Warwick...* London, 1794.
- WEDGE, THOMAS. *General View of the Agriculture of the County Palatine of Chester...* London, 1794.
- WELFORD, RICHARD. *A History of the Parish of Gosforth, in the County of Northumberland.* Newcastle-upon-Tyne (1879).
- *History of Newcastle and Gateshead in the Fourteenth and Fifteenth Centuries.* London and Newcastle-upon-Tyne, [N.D.; probably about 1884].
- WELLBELOVED, ROBERT. *A Treatise on the Law relating to Highways; comprehending Turnpike Roads, Public Bridges, and Public Foot-paths, etc.* London, 1829.

- [WENDEBORN, F. A.] *Beiträge Zur Kenntniss Grosbritanniens vom Jahr 1779.* Aus der Handschrift eines Ungenannten [F. A. Wendeborn] herausgegeben von Georg Forster, Professor am Carolino in Cassel. Lemgo, 1780.
- WENDEBORN, FRED. AUG. *A View of England towards the Close of the Eighteenth Century.* Translated from the Original German, by the Author himself. 2 vols. London, 1791.
- WENTWORTH, THOMAS, Earl of Strafford. *The Earl of Strafford's Letters and Dispatches, with an Essay towards his Life by Sir George Radcliffe....* By W. Knowler. 2 vols. London, 1739.
- *The Wentworth Papers (1705-39).* Selected from the Private and Family Correspondence of Thomas Wentworth, Lord Raby, created, in 1711, Earl of Strafford, of Stainborough, co. York. With a Memoir and Notes by James J. Cartwright, M.A. London, 1883.
- WEST, WILLIAM. *The History, Topography and Directory of Warwickshire, etc.* Birmingham, 1830.
- WESTALL, GEORGE. *Inland Cruising on the Rivers and Canals of England and Wales.* London, 1908.
- WHEELER, JAMES. *Manchester, its Political, Social, and Commercial History, Ancient and Modern.* Manchester and London, 1836.
- WHEELER, WILLIAM HENRY. *A History of the Fens of South Lincolnshire, being a Description of the Rivers Witham and Welland and their Estuary, etc.* 2nd edition. Boston and London, 1896.
- WHISHAW, FRANCIS. *Analysis of Railways: consisting of a Series of Reports on the Twelve Hundred Miles of Projected Railways in England and Wales, now before Parliament; together with those which have been abandoned for the present Session, etc.* London, 1837.
- WHITAKER, THOMAS DUNHAM. *The History and Antiquities of the Deanery of Craven, in the County of York.* 2nd edition. London, 1812.
- *Loidis and Elmete; or an attempt to illustrate the District described in those Words by Bede; and supposed to embrace the Lower Portions of Airedale and Wharfedale, together with the Entire Vale of Calder, in the County of York.* Leeds, 1816.
- *The History and Antiquities of the Deanery of Craven, in the County of York,* 3rd edition with many Additions and Corrections, edited by A. W. Morant. London, 1878.
- WHITE, J. *Some Account of the Proposed Improvements of the Western Part of London, by the Formation of the Regent's Park....* 2nd edition. London, 1815.
- WHITEHEAD, JOHN. *Railway Management, Letter to George Carr Glyn, Esq., M.P., Chairman of the London and North Western Railway Company.* 2nd edition. London, 1848.
- WHITMORE, W. W. *Letter to Lord John Russell on Railways.* London, 1847.
- WHITWORTH, RICHARD. *The Advantages of Inland Navigation: or some Observations offered to the Public to shew that an Inland Navigation may be easily effected between the three great ports of Bristol, Liverpool, and Hull; together with a Plan for executing the same.* London, 1766.
- WHITWORTH, ROBERT. *A Report and Survey of the Canal proposed to be made on one Level from Waltham-Abbey to Moorfields. Also of a line which may be continued from Mary-bone to the said proposed Canal, etc. With an Address on the Importance and great Utility of Canals in General.* London, 1773.
- WILD, Rev. J. *Tetney, Lincolnshire. A History.* (Printed for the Author by Albert Gait.) Grimsby, 1901.

- WILKINSON, W. A. *The Toll Question on Railways exemplified in the case of the Croydon and Greenwich Companies.* London, 1841.
- WILLIAMSON, Captain JAMES. *The Clyde Passenger Steamer: Its Rise and Progress during the Nineteenth Century.* Glasgow, 1904.
- WILLMORE, FREDERIC WILLIAM. *A History of Walsall and its Neighbourhood.* Walsall and London, 1887.
- *Records of Rushall, County Stafford, with a Transcript of the Old Parish Register and Extracts from the Churchwardens' Accounts.* Walsall, 1892.
- WILLMORE, GRAHAM, WOLLASTON, F. L., and HODGES, W. *Reports of Cases argued and determined in the Court of Queen's Bench and upon Writs of Error from that Court to the Exchequer Chamber, and in the Bail Court.* London, 1840.
- WILSON, HENRY. *Hints to Road Speculators, together with the Influence Railroads will have upon Society, in promoting Agriculture, Commerce, and Manufactures.* London, 1845.
- WILSON, THOMAS. *The Railway System and its Author, Thomas Gray, now of Exeter. A Letter to the Right Hon. Sir Robert Peel, Bart.* London, 1845.
- WODDERSPOON, JOHN. *Memorial of the Ancient Town of Ipswich, in the county of Suffolk.* Ipswich and London, 1850.
- WOOD, NICHOLAS. *A Practical Treatise on Railroads, and Interior Communication in General; with Original Experiments and Tables of the Comparative Value of Canals and Rail-Roads.* London, 1825.
- WOODCROFT, BENNET. *A Sketch of the Origin and Progress of Steam Navigation from Authentic Documents.* London, 1848.
- WOODRUFF, CHAS. EVELEIGH. *A History of the Town and Port of Fordwich, with a Transcription of the XVth Century Copy of the Custumal.* Canterbury, [1895].
- WOODWARD, B. B., WILKS, T. C., and LOCKHART, CHARLES. *A General History of Hampshire, or the County of Southampton, including the Isle of Wight.* 3 vols. London, [1861-69].
- WOOLRYCH, HUMPHREY W. *A Treatise on the Law of Ways, including Highways, Turnpike Roads and Tolls, Private Rights of Way, Bridges, and Ferries.* London, 1829.
- *A Treatise on the Law of Waters and of Sewers; including the Law relating to Rights in the Sea, and Rights in Rivers, Canals, Dock Companies, Fisheries, Mills, etc.* London, 1830.
- WORDSWORTH, CHRISTOPHER. *The Fifteenth Century Cartulary of St Nicholas Hospital, Salisbury, with Other Records.* Salisbury, 1902.
- WORGAN, G. B. *General View of the Agriculture of the County of Cornwall....* London, 1811.
- WORTH, RICHARD NICHOLS. *History of Plymouth, from the Earliest Period to the Present Time.* Plymouth, 1890.
- *Calendar of the Plymouth Municipal Records.* Plymouth, 1893.
- WYLIE, JAMES HAMILTON. *History of England under Henry the Fourth.* 4 vols. London, 1884-98.
- YONGE, WALTER. *Diary of Walter Yonge, edited by George Roberts for the Camden Society.* London, 1848.
- York and North Midland Railway Reports of the Committee of Investigation.* York, 1849.
- YOUNG, ARTHUR. *The Farmer's Tour Through the East of England.* London, 1771.
- *A Six Weeks' Tour Through the Southern Counties of England and Wales.* London, 1768.
- *A Six Months' Tour Through the North of England.* London, 1771.

- YOUNG, ARTHUR. *The Farmer's Letters to the People of England*. London, 1768.
- *General View of the Agriculture of the County of Lincoln*; Drawn up for the Consideration of the Board of Agriculture and Internal Improvement, by the Secretary to the Board. London, 1799.
- *General View of the Agriculture of Hertfordshire*; Drawn up for the Consideration of the Board of Agriculture and Internal Improvement, by the Secretary to the Board. London, 1804.
- *General View of the Agriculture of the County of Suffolk*; Drawn up for the Consideration of the Board of Agriculture and Internal Improvement, by the Secretary to the Board. 3rd edition. London, 1804.
- *The Farmer's Letters to the People of England...to which is added Sylvae: or, Occasional Tracts on Husbandry and Rural Economies*. London, 1767.
- *General View of the Agriculture of the County of Sussex....* London, 1793.
- *General View of the Agriculture of the County of Suffolk....* London, 1794.
- *General View of the Agriculture of the County of Norfolk....* London, 1804.
- *General View of the Agriculture of the County of Essex....* 2 vols. London, 1807.
- *View of the Agriculture of Oxfordshire....* London, 1809.
- YOUNG, CHARLES FREDERICK T. (C.E.) *The Economy of Steam Power on Common Roads, in Relation to Agriculturists, Railway Companies, Mine and Coal Owners....with its History and Practice in Great Britain....And its Progress in the United States*, by Alex. L. Holly, C.E., and J. K. Fisher. London, 1860.
- YOUNG, Rev. GEORGE. *A History of Whitby, and Streoneshall Abbey; with a Statistical Survey of the Vicinity to the Distance of Twenty-five Miles*. 2 vols. Whitby, 1817.

BRITISH MUSEUM MANUSCRIPTS

- No. 5,489, pp. 108-21. Papers concerning the River Stour in County of Kent. 1774-75.
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- No. 5,957, pp. 1-48. Tour in England, July 20 to Oct. 19, 1735.
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- No. 6,767. Notes of a Tour in Nottinghamshire and Derbyshire, etc., in 1766.
- No. 11,052, pp. 80-136. Papers regarding River Wye Navigation. [1649-51.]
- No. 11,302. (Sendamore Papers, Vol. xii.) Papers and Accounts on the County of Hereford. Bridges, Iron Works, and River Wye.
- No. 11,394, pp. 28-44. Papers on the Dee Navigation, 1733.
- No. 11,571. Journey through Surrey and Sussex by John Burton, 1752.
- No. 12,496, pp. 263-91. Orders and Directions, Together with a Commission for the better Administration of Justice, and more perfect Information of His Majesty, etc. (Printed.) London, 1630.
- No. 12,497, p. 360. The Presentment of the Jury touching Mordon (Wandle) River (co. Surrey).

- No. 14,256-259. Dr Richard Pocoeke's Journey Round Scotland to the Orkneys, 1760. 4 vols.
- No. 14,260-261. Travels of Dr Pocoeke in England in 1764. 2 vols.
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- No. 34,754. A Relation of a Short Survey of 26 Counties, briefly describing the Citties and their Seytuations, and the Corporate Towns and Castles Herein. Observed in a Seven Weekes Journey begun at the City of Norwich, (1634)..... By a Captaine, a Lieutenn^t, and an Ancient, All three of the Military Company at Norwich. Also A Relation of a Short Survey of the Westerne Counties, in which is briefly described the Citties, Corporations, Castles, and some other Remarkables in them. Observed in a seven Weekes Journey begun at Norwich,Aug. 4, 1635. By the same Lieutennant, that with the Captaine, and Ancient of the Military Company in Norwich Made a Journey ' to the North the yeere before.
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- Add. 30,302. Remarks upon Wayside Chapels with Observations on the Architecture and Present State of the Chantry on Wakefield Bridge, by John Chessell Buckler and Charles Alban Buckler, architects. London and Oxford, 1870.
- Add. 30,929. Diary of Charles Danvers, of Tours in the West of England and in the Lake District, 1795-1812.
- Add. 31,337. Journal of a Tour from Brighton to Weymouth in 1816.
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- Add. 33,683-685. Journal of a Northern Tour (by Rev. John Skinner) from Camerton, to London, to Peterborough, and Lincoln, to York and Furham, and thence to Edinburgh and Linlithgow in the year 1825. 3 vols.
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- Add. 36,663, p. 558, gives 'A List of Coaches passing through and coming into Newcastle-under-Lyme, Nov. 1830 (by Mr T. P. Platt).'
- Add. 36,767, pp. 1-4, give an Order of Privy Council in regard to the Conservation of River Thames. Page 146, a paper entitled, 'The State of the Cause concerning the Milles and Causey at Chester.' 27 Feb., 1607.
- Add. 36,914. River Weaver Navigation and Cheshire Salt Works, 1699-1720.

BRITISH MUSEUM, EGERTON MANUSCRIPTS

- Eger. 784. Diary of Mr (William) Whiteway of Dorchester, co. Dorset, from Nov. 1618 to March 1634.
- Bibl. Eg. 926. Original Letters from the Rev. S. Denne, Rector of Wilmington, Kent, and others, on Kentish Topography and Antiquities, 1771-84.
- Eger. 2235, pp. 84-93. Tours of the Rev. Joseph Spence to Kimbolton and Ormesby in 1743, and to Kirkby and the Peak in 1752.

BRITISH MUSEUM, STOWE MANUSCRIPTS

- Stowe 747, p. 84. Letter from (Sir) A. Copley, dated Saturday, Jan. 1, 1697, to Thomas Kirke, Leedes, regarding a Bill to make river Dun navigable.
- Stowe 818, pp. 83-87. Memoranda on making Derwent river Navigable.
- Stowe 877. Sampson Erdeswicke's Staffordshire. MS. additions by E. Vernon. Pp. 13-22 contain 'A Scheme or Proposal for making a Navigable Communication between the Rivers of Trent and Severn, in the County of Stafford. By Dr Thomas Congreve of Wolverhampton.' Printed in London, 1717.

BRITISH MUSEUM, LANSDOWN MANUSCRIPTS

- Lansd. 32. Papers regarding the River Lee Navigation.
- Lansd. 38, pp. 84-85. An Answer to the Complaint of the Inhabitants of Enfield against the carrying of grain from Ware to London by the River of Ley (Lea), Oct. 29, 1583. P. 88, A Petition of the Inhabitants of Ware to Lord Burghley, for a Commission to hinder damage done to the River Lea, 1583. Pp. 91-95, The Defects of the Water of the River Lea from Waltham Holy Cross to the mills beneath Stratford at Bow, 1583.
- Lansd. 41, p. 44. Orders issued for the Conservation of the River Thames, Sept. 1584; pp. 169-76, Ordinances, Laws and Decrees of Oct. 1, 6 Elizabeth, of the Commissioners of Sewers of Lincolnshire.
- Lansd. 49, pp. 74-75. An Order for the Repair of the Bridge at Walmesford. [1536]

- Lansd. 55, pp. 109, 114. Complaint to Lord Burghley as to the impassability of Christmas Lane in Suffolk. Jan. 8, 1587.
- Lansd. 60, p. 96. The Inhabitants of Enfield complain to the Queen that they are impoverished by the Navigation of the River Lea, and ask redress or relief. 1589.
- Lansd. 76, No. 55, pp. 125-28. Order of the Star Chamber concerning the Right of Navigation on River Lea, June 20, 1594.
- Lansd. 84, pp. 55-57. Papers concerning the exactions made by the people of King's Lynn on goods carried to or from Cambridge. 1597.
- Lansd. 142. Several Papers concerning the Watermen of the River Thames.
- Lansd. 166, pp. 84-93. Papers regarding the repairing of Berwick Bridge. [1607-13]
- Lansd. 328. A Volume containing extracts from Ancient Records concerning the Repairing of bridges in various Counties of England.
- Lansd. 561. Trial in Court of King's Bench, 1754, regarding the Ancient Highway from Richmond, through Richmond Park, to Croydon.
- Lansd. 688. Tour in the Midland Counties, 1710.
- Lansd. 722, pp. 29-40. Sir William Dugdale's Journal of his Itinerary to the Fens of Ely, begun from London, May 19, 1657.
- Lansd. 896, pp. 162-67. Papers on the Navigation of Beverley Beck.

BRITISH MUSEUM, HARLEY MANUSCRIPTS

- Harl. 368, p. 7 ff. A Paper giving Reasons [in favor of Bristol] against the Continuance of the Port of Gloucester. May 25, 1584.
- Harl. 2003. This whole Volume deals with the River Dee and its Mills and Causey, etc.
- Harl. 2022, p. 66. Papers regarding River Dee.
- Harl. 2046, p. 1. Indenture made April 28, anno 12 Eliz., for repairing a highway 2½ miles long adjoining to Chester.
- Harl. 2057, p. 116. An Order of the Assembly at Chester, July 17, 1612, for cleansing etc. Horne Lane.
- Harl. 2077, p. 21. Regarding the maintenance of Huntington Lane, near the City of Chester, in repair.
- Harl. 2081. Law Papers Concerning Dee Mills. Ca. 1607.
- Harl. 2082. Cheshire Collections of Manuscripts on Chester and Dee Mills, etc.
- Harl. 2084. This Volume deals almost wholly with the River Dee and the Mills and Causey at Chester.
- Harl. 2150, p. 182. Indenture under which Thomas Bennett of Chester was to keep the Streets of that city in good repair. Dated Oct. 8, 12 Eliz.
- Harl. 2263, p. 323. A License for inclosing a certain horse way through private ground. Dated Dec. 23, 1708.
- Harl. 2264, p. 272. Docquet of a License for the enclosure of a certain common. 24 Jan., 1710.
- Harl. 6166, p. 229 ff. The defaults and common Nuisance of Bridges and of Causeys and of Ways at every end of the Bridges within the Hundreds of Tandridge and Ryegate and Divers Other Places within the said County [Surrey] to be inquired of by the Justices of Peace of the same County at their General Sessions to be held at Croyden the Tuesday next after Twelfth day in the 25th Year of our Sovereign Lord King Henry VIII.
- Harl. 6211. An Account of my Travels from Venice through Germany into England [temp. Charles I], Vol. II, pp. 132-206. [By John Lawson (?).]
- Harl. 6494, p. 129 ff. Journey into the West of England, 1637.

BRITISH MUSEUM, SLOANE MANUSCRIPTS

- Sloane 1156. Relation du voyage de Monsieur de la Villeauxcleres en Angleterre fait en l'année 1624.
- Sloane 1731 b. Journal du voyage de mon frère Jean de Cardonnel en Irlande etc. [including West England]. 1640-50.
- Sloane 1891. Dr Thomas Browne's Journal of a Tour in Kent. 1693.
- Sloane 1900, pp. 36-60. Dr Edward Browne's Memorandum Book, 1662; Diary of a Journey in England, begun Sept. 8, 1662.
- Sloane 1983 A & B. Memoranda made in a Journey from London to Oxford.
- Sloane 3323, pp. 267-69. Papers concerning the River Dee Navigation.

WYATT MANUSCRIPTS

- Nos. 93,189 and 93,190, 2 vols., in Birmingham Free Reference Library. Deal with a variety of subjects.

BRITISH MUSEUM, PAMPHLETS AND TRACTS

012314. c. 88. Coach and Sedan Pleasantly Disputing for Place and Precedence, the Brewers-Cart being Moderator. London, [1636].
08226. aaa. 29. Reasons humbly offered to the Consideration of Parliament, for the suppressing such of the Stage-Coaches and Caravans now travelling upon the Roads of England, as are unnecessary, and Regulating such as shall be thought fit to be continued. [1700?]
08235. f. 18. Seasonable Considerations on a Navigable Canal Intended to be cut from the River Trent, at Wilden Ferry, in the County of Derby, to the River Mersey, in the County of Chester. [1766]
08235. f. 77. Observations on the General Comparative Merits of Inland Communication by Navigations or Railroads, with particuar Reference to those projected or existing between Bath, Bristol, and London: in a Letter to Charles Dundas, Esq., M.P., Chairman of the Kennet and Avon Canal Company. London, 1825.
08235. h. 12. Reports and Pamphlets on the Subject of Norwich a Port, from the Year 1818 to the passing of the Norwich and Lowestoft Navigation Act in 1827. Norwich, [1818-27].
21. h. 5 (2). By the Maior. Orders set down by the right Honorable, Sir John Watts, Knight, Lord Maior of this City of London with the Co[n]sent of the Aldermen his brethren concerning the rates of Carriages with Cartes within this Cittie and Borough of Southwarke. At the Guild Hall the xxv day of November, 1606. London, [1606].
21. h. 5 (36). Ad Session Cier' & Terminer & Gaolae Domini Regis de Newgate Deliberation' tent' pro Civitat' London apud Justice-Ball in le Old Baily in Paroch' S. Sepulchri in Ward' de Faringdon extra London praed', die Mercurii, scilicet decimo septimo die Junii, Anno Regni Regis Caroli Secundi nunc Angliae &c. vicesimo, etc. [London, 1666 or 1667?]
21. h. 5 (52). Ad General' Quarterial' Session' Pacis Dom' Regis tent' pro Civitat' London...die Mercurii, scilicet sexto decimo die Octobris, Anno Regni Dom' nostri Caroli Secundi...vicesimo quarto, etc. [London, 1672]
101. i. 59. Plan for Raising Three Hundred Thousand Pounds, for the Purpose of compleating the Bridge at Black-Friars, and Redeeming the Toll thereon; Embanking the North Side of the River Thames...; Redeeming the Antient Toll upon London Bridge.... London. 1737.

102. k. 52. An Act of Common Council for the better Regulation of Hackney-Coaches. London, 1683.
191. c. 9. A New Description of England and Wales, with the Adjacent Islands. Wherein are contained Diverse useful Observations and Discoveries, in respect to Natural History, Antiquities, Customs...with a Particular Account of the Products, Trade, and Manufactures...to which is added a new and correct Set of Maps of each County, their Roads and Distances;...by Hermann Moll, Geographer. London, 1724.
213. i. 1 (44). A Bill for Enlarging the Term and Powers granted by an Act passed in the Twentieth Year of the Reign of His present Majesty [Geo. II] for repairing the High-Road leading from...Stockton-upon-Tees, to Darlington, and from thence through Winston to Burnard Castle, etc.
213. i. 1 (45). A Bill for Continuing, and making more Effectual, Two Acts of Parliament, one passed in the Tenth Year of the Reign of Her late Majesty Queen Anne, and the other in the Eighth Year of the Reign of His late Majesty King George the First, for Repairing the Highway between a certain Place called Kilburn Bridge in the County of Middlesex, and Sparrows Herne in the County of Hertford.
213. i. 1 (86). The Case of the Deputy Postmasters [as to keeping horses for supplying those riding post]. [London, 1748 (?)]
213. i. 1 (87). The Case of the Innkeepers and Keepers of Livery Stables, and also of the several Owners and Proprietors of Inns and Livery-Stables, and of Lands lett therewith. [London, 1748]
213. i. 1 (91). The Case of the Land-Owners interested in the Banks on each Side of the River Ouze, in the County of Norfolk, between Stowbridge and the Port of Lynn.
213. i. 2 (60). A State of the Road from Keighley to Kendall: and of the Expence the Country will be put to, by paying Interest and Salaries, in case the Bill for a Turnpike-Road should pass; with an estimate of what may be yearly raised by the Laws now in being.
213. i. 2 (61). The Reasons published against the Bill for a Turnpike between Keighley and Kirkby Kendal, Answered.
213. i. 2 (62). Reasons against the Bill for an intended Turnpike between Keighley, in the County of York, and Kendall, in the County of Westmorland.
213. i. 2 (76). A Bill for Confirming an Agreement entered into between the Company of Proprietors of the Undertaking for recovering and preserving the Navigation of the River Dee, and Sir John Glynne, Baronet, Lord of the Manor of Hawarden, and several Freeholders and Occupiers of Land within the said Manor; and for Explaining and Amending Three several Acts of Parliament, of the Sixth, Fourteenth, and Seventeenth Years of His present Majesty's Reign, for recovering and preserving the Navigation of the said River Dee.
213. i. 3 (100). Considerations about the Method of Preserving the Public Roads.
213. i. 3 (101). Reasons against a Bill for Permitting only Carriages with broad Wheels, and those drawn by two Horses, to pass on Turupike Roads, with regard to the Conntries within Twenty-five or Thirty Miles of London. [About 1754-55.]
213. i. 5 (94). A State of the Case, relating to the several Navigations made, or proposed to be made in or adjoining to the North-Eastern Parts of the County of Chester.
213. i. 5 (94). Remarks upon the Observations on the intended Navigation from Witton Bridge, to the Towns of Knutsford, Macclesfield, Stoekport, and Manchester. [Ca. 1766]

213. i. 5 (95). A State of Facts tending to shew the Utility of the Proposed Canal from Witton near Northwich to Knutsford and Macclesfield, and by Stockport to Manchester. [Cn. 1766]
213. i. 5 (96). Navigation. Some Observtions relative to Navigation: Humbly submitted to the Consideration of the Legislature. [Ca. 1766]
213. i. 5 (97). Observtions on the Intended Navigation from Witton Bridge to Knutsford; and from thence through Macclesfield and Stockport to the Town of Manchester. [Cn. 1766]
214. i. 4 (103). Observtions on the Effects of the Intended Oxford Canal Navigation, with respect to the Diminution or Increase of Seamen. [1769]
214. i. 4 (104). Begin, As a Bill is now depending in Parliament before the Right Honourable the House of Commons, for making a Canal, from the City of Coventry, to the City of Oxford, the following Queries are humbly submitted to the Consideration of both Houses of Parliament, before the said Bill passes into a Law. [1769]
214. i. 4 (119). A Letter (dated Mar. 4. 1769) from Yarmouth to the Representatives in Parliament for Yarmouth and Lynn, on the Subject of the Canal Navigation from Coventry to Oxford, now depending in Parliament.
214. i. 4 (120). Report from the Committee appointed by the Chamber of London to consider the Bill for extending the Coventry Canal to Oxford; with Facts and Observations subjoined respecting the Coal and Coasting Trade. [1769?]
214. i. 4 (124). The Case of the Petitioner, George Perrott, Esquire, on the Bill for Making a Canal from the Coventry Canal-Navigation, at or near Coventry, to the City of Oxford. [1769?]
215. i. 1 (105). Thames Navigation. (Reply to a printed Bill lately handed about, entitled, Some few of the many Objections that occur to the Bill now depending in Parliament for making a Navigable Cut from Sunning...to Monkey Island, &c.) [1771?]
215. i. 4 (117). Case and Reasons for Disusing Weighing Engines on the Turnpike Roads. 1774.
290. c. 30. A New and Compleat Survey of London. By a Citizen and Native of London. 2 vols. London, 1742.
356. m. 1 (26). An Act for making the River Stour Navigable from the Town of Manningtree in the County of Essex, to the Town of Sudbury in the County of Suffolk. (Act 4 & 5 Anne, c. 15, Public.)
356. m. 1 (34). A Bill to make the River Darwent, in the County of Derby, Navigable (Act 6 Geo. I—Public—c. 27).
356. m. 1 (66). The Case of the Carriers and Waggoners who carry Goods to hire. [1720?]
357. b. 7 (39 or 99). Reasons against the Navigable Scheme.
357. b. 7 (109). An Answer to the Reasons against the Navigable Scheme.
357. b. 9 (2). A Particular State of the Receipts and Issues of the Publick Revenue Taxes and Loanes during the Reigne of his late Majesty King William. That is to say, From the 5th day of November 1688 from which Day the Parliament appointed the said Accounts should comence to the 25th day of March 1702 being the first Determination of the Accompts since the Demise of his said late Majestye which happened on the 8th day of March preceeding. The same reduced to one Generall Account or State for the whole time above mencōned. [This is all in MS.]
357. b. 9 (72). Reasons Humbly Offered by John Daniel and William Blackburn, Esquires, for themselves, and on Behalf of Charles Dneckenfield, Thomas Butterworth, and John Reddish, Esquires, and others, Gentlemen and Freeholders of

- the County of Chester, against a Bill for Repenling an Act made in the Seventh Year of His Majesty's Reign, for making the River Weaver Navigable from Frodsham Itridge to Winsford Itridge in the County of Chester. [1726?]
357. b. 9 (73). Reasons Humbly Offered Against allowing the County of Chester any part of the Tonnage Duty for making the River Weaver Navigable; and that the same may be made Navigable on the Easlest Terms.
357. b. . (74). Reasons Humbly Offered Against a Bill passed the Honourable House of Commons and now Depending before Your Lordships, Entitled, A Bill for Repealing an Act passed in the Seventh Year of His present Majesty's Reign, for making the River Weaver Navigable, from Frodsham Itridge to Winsford Itridge in the County of Chester, and for the more speedy and effectual carrying on and perfecting the Navigatlon of the said River, from Frodsham Itridge to Northwych in the said County.
357. b. 9 (75). Proposals Humbly Offered for Making the River Weever Navigable from Frodsham Bridge, to Northwich in the County of Chester.
357. b. 4 (76). Reasons Humbly Offered for passing the Bill for making the River Weaver Navigable from Frodsham Bridge to Northwich in the County of Chester: With Remarks upon the Proposals from Liverpool.
357. b. 9 (77). The Case of the Ilarge-Masters and others, Navigating on the Rivers of Isis and Thames, from Oxford to London; showing the Hardships they labour under, by the exorbitant Sums they pay for passing through the several Locks, Wears, Hucks, Gates and for the Use of Boats belonging to the same, and going over Towing-Paths on the Banks of the said Rivers.
357. b. 9 (78). Reasons Humbly Offered by the Trustees of Richard Vernon, Esq., deceased, against the Bill for Repealing an Act made in the Seventh Year of His Majesty's Reign, For making the River Weaver Navigable from Frodsham Bridge to Winsford Itridge, in the County of Chester.
357. c. 1 (28). The Case of the Cheesemongers, in and about the Cities of London and Westminster, relating to the Bill to recover and preserve the Navigation of the River Dee, in the County of Chester. [1732]
357. c. 1 (37). The Case of the Inhabitants of the County and City of Chester, Petitioners for the Bill to Recover and Preserve the Navigation of the River Dee; In Answer to the Petition of the Cheesemongers in and about the City of London against the said Bill. [1732]
357. c. 2 (69). Reasons against building a Bridge over the Thames at Westminster.
357. c. 4 (32). An Act for making Navigable the River or Hrool, called Worsley Brook, from Worsley Mill, in the Township of Worsley, in the County Palatine of Lancaster, to the River Irwell in the said County. (Act 10 Geo. II—Public—c. 9.)
357. c. 13 (54). The Case of the Undertakers for making Navigable the Rivers Aire and Calder, in the County of York, and of their Lessees. [31 Geo. II?]
358. b. 3 (41). Reasons for extending the Navigation of the River Calder from Wakefield to Halifax. (This would be about 1757 or 1758, for Smenton's Survey was made 1757.)
358. h. 4 (36). An Act for Explaining and Amending an Act passed in the Sixth Year of His present Majesty's Reign, intituled, An Act to Recover and Preserve the Navigation of the River Dee, in the County Palatine of Chester; and another Act passed in the Fourteenth Year of his present Majesty's Reign, intituled, An Act for Incorporating the Undertakers of the Navigation of the River Dee; and for Repealing the Tonnage-Rates payable to the said Undertakers; and for granting to them other Tonage or Keelage-Rates in lieu thereof; and for other Purposes therein mentioned. (Act 17 Geo. II, c. 28, Public.)

517. b. 31. The Statute 7 Geo. IV, cap. cxlii, for Consolidating the Trusts of the Turnpike Roads, in the Neighbourhood of the Metropolis, north of the Thames.... London, 1826.
517. k. 16 (3). England's Wants: or several Proposals probably beneficial for England, Humbly offered to the Consideration of all Good Patriots in both Houses of Parliament. By a true lover of his Country [Edward Chamberlayne]. London, 1667.
567. e. 7. Beyträge Zur Kenntniß vorzüglich des Innern von England und seiner Einwohner. Aus den Briefen eines Freundes gezogen von der Herausgeber. 4 Hde. Leipzig, 1791.
577. b. 6-10. A Description of England and Wales. Containing a particular Account of each County...and the Lives of the illustrious Men each County has produced, &c. 10 vols. London, 1769.
578. k. 30. Observations made during a Tour through Parts of England, Scotland, and Wales, in a Series of Letters [by Richard Joseph Sullivan, F.R.S.]. London, 1780.
579. e. 41 (3). A Description of the Ancient and Present State of the Town and Abbey of Bury St Edmund's, in the County of Suffolk. 3rd edition. Bury St Edmunds, 1782.
579. e. 42 (4). A Description of Manchester: giving a Historical Account of those Limits in which the Town was formerly included....By a Native of the Town. Manchester, 1783.
712. a. 4. The Traveller's Companion. Containing Variety of Useful yet Pleasant Matters relating to Commerce.... London, 1702. Pp. 54-58 give an outline of the Post Roads (at that time) from London, with their several stages and branches.
712. g. 15. A Few General Observations on the Principal Railways Executed, in Progress, and Projected, in the Midland Counties and North of England, with the Author's Opinion upon them as Investments. Maps. London, 1838.
712. g. 16 (17). A Treatise of Wool and Cattel. In a Letter written to a Friend, Occasioned upon a Discourse concerning the great Abatements of Rents, and the Low Value of Lands, &c. London, 1677.
712. g. 16 (20). The Trade of England Revived: and the Abuses thereof Rectified, in Relation to Wool and Wollen-Cloth, Silk and Silk-Weavers, Hawkers, Bankrupts, Stage-Coaches, Shop-Keepers, Companies, Markets, Linnen-Cloth. Also What Statutes in force may be injurious to Trade and Tradesmen, with several Proposals. London, 1681.
725. e. 40. News from the Fens, or An Answer to a Pamphlet entituled, Navigation Prejudiced by the Fen-Drainers...Wherein is set forth the Vanitie and Falshood of that Discourse, and it is Proved, That Navigation is meliorated by the Fen-Drainers, &c. London, 1654.
796. e. 36. A Brief Director for those that would send their Letters to any Parts of England, Scotland or Ireland. Or a List of all the Carriers, Waggoners, Coaches...that come to London, from the most parts and places, by Land and Sea. [1710?]
816. l. 4 (21). Robinson, Mayor. Commune Concilium tentum in Camera Guhaldæ Civitatis London. decimo die Octobris, Anno Domini 1663. Annoque Regni Domini nostri Caroli Secundi, nunc Regis Angliæ, etc. Decimo quinto. [London, 1663]
816. m. 7 (131). A Proposal [for regulating Cars, Carts, etc., in London].
816. m. 8 (4). The Case of the Town and Port of King's-Lynn in Norfolk, as to their Navigation.

816. m. 8 (5). The Case of the Corporation of the Great Level of the Fens; relating to a Bill depending in Parliament, for the better Preservation of the Navigation of the Port of King's-Lynn;...
816. m. 8 (6). The State of the Adventurers Case, in Answer to a Petition exhibited against them by the Inhabitants of the Soake of Peterburgh.
816. m. 8 (11). A Short Demonstration, That Navigation to Bedford, is for the Benefit of Bedfordshire.
816. m. 8 (38). The Case of the Citizens of Chester in Answer to several Petitions from Liverpool, Parkgate, and the Cheesemongers; and also to Printed Reasons [by Thomas Badeslade] against the Act to Reeover and Preserve the Navigation of the River Dee. 1735.
816. m. 8 (39). Reasons for making the River Dnnn in the West Riding of the County of York navigable, and the great advantages which will accrue to the Nation in general by it.
816. m. 8 (49). The Case of the Barge-Masters and others, Navigating on the Rivers of Isis and Thames, from Oxford to London, shewing the Hardships they labour under, by the exorbitant sums they pay for passing through the several Locks, etc. [1720?]
816. m. 8 (50). Reasons for making Navigable the Rivers of Stower and Salwerp, and the Rivulets and Brooks running into the same, in the Counties of Worcester and Stafford. [1720?]
816. m. 8 (51). An Answer, as well to a Paper, intituled Reasons wherefore the making Navigable of the Rivers of Stower and Salwerp in the County of Worcester, will be of great advantage to the County of Salop, and especially to the Towns of Shrewsbury, Bridge-North, Wenlocke, Wellington, and Towns adjoining to the River of Severn. As also to another Paper, intituled, An Answer to some partiall pretences, ealled, Reasons dispersed by some Shropshire Coal Masters. [1720?]
816. m. 8 (52). The Case of making the River Avon, in the County of Somerset and Gloucester, Navigable, from Bristol to Bath....
816. m. 8 (53). The Case for Making the Rivers Aire and Calder, in the County of York, Navigable to Leeds and Wakefield.
816. m. 8 (54). Reasons against the Bill for making the Rivers Ayre and Calder, in the West Riding of the County of York, Navigable.
816. m. 8 (55). Reasons humbly offered to the Consideration of the Parliament, for the making Navigable the River Derwent, from the Town of Derby to River Trent.
816. m. 8 (56). The Case of the Navigation of the River Wye, in the County of Snrry. [London (?), 1670.]
816. m. 8 (57). A Reply to a Paper Intituled: An Answer to the Pretended Case Printed concerning the Navigation of the River Wye, in the County of Surrey, by shewing the true state thereof. [1670?]
816. m. 8 (58). The Proposals for making the River Chelmer navigable, from Malden to Chelmsford, are as follow. Also, Objections against these Proposals.
816. m. 9 (13). An Abstract of the Forfeitures and Penalties set and imposed on Offenees done contrary to the Act of Parliament for Paving and Cleansing the Streets.
816. m. 12 (79). An Act of Common Council for the Government of Cars, Carts, Carrooms, Carters, and Carmen; and for the Prevention of Frauds in the Buying and Selling of Coals.
816. m. 12 (151). To the Honourable the Commons of England in Parliament Assembled. The Humble Petition of a great Number of the Licensed Hackney Coachmen.

816. m. 12 (152). The Case of the Antient Hackney-Coachmen....Humbly Presented to the Honourable House of Commons.
816. m. 12 (153). The Case of John Nicholson, Walter Storey, (and others) in Behalf of themselves and the First 400 Ancient Hackney-Coachmen, and their Widows.
816. m. 12 (154). The Crse of the Hackney Coachmen.
816. m. 12 (155). The Hackney Coachmen's Case, Humbly presented to the Honourable House of Commons; with a Proposal to Raise for Her Majesty £200,000 per annum.
816. m. 12 (156). The Case of Thomas Blunt...and the Rest of the Eight Hundred Licens'd Hackney Coach-men....
816. m. 12 (157). To the Honourable the House of Commons, The Humble Petition of Charles Sewell, Thomas Holland, and George Garrett, on behalf of themselves, and the rest of the Eight Hundred Licensed Hackney Coach-men, and their Widows.
816. m. 12 (158). To this Honorable House, The Case of the Coachmen; of divers Coachmakers, Harnessmakers...and other Traders depending upon them,... in relation to the Bill for encreasing the Number of Hackney Coaches.
816. m. 12 (159). The Case of Divers Tradesmen, Creditors of the Hackney Coachmen, in London and Westminster, and Stagemen to several Places of England.
816. m. 12 (161*). The Humble Proposals of James Lord Mordington, and Martin Laycock, Esq.; for the Farming of the Hackney-Coaches.
816. m. 12 (162). Stage-Coaches Vindicated; or Certain Animadversions and Reflections upon several Papers writ by J. C. of the Inner Temple, Gent., against Stage Coaches.
816. m. 12 (163). A Copy of a Printed Letter from J. C. to a Post-Master in the Country, with Directions about the Management of his Designe for Putting down Stage Coaches.
816. m. 14 (26). Reasons Humbly Offered to the Honourable House of Commons, why the Waggoners ought not to be obliged to any certain Weight.
816. m. 14 (27). The Case of Richard Fielder, in Relation to the Petition of the Waggoners.
816. m. 14 (28). The Case of John Littlehales, against the pretended Petition of the Waggoners travelling the Northern Roads of England, etc.
883. h. 16. The Laws of Sewers; or the Office and Authority of Commissioners of Sewers. 2nd edition. London, 1732.
682. b. 22. A Description of the River Thames, etc., with the City of London's Jurisdiction and Conservacy thereof proved, both in point of Right and Usage, by Prescription, Charters, etc...to which is added...Observations...also of the Water Carriage on the River Thames.... London, 1758.
1028. h. 24. The Methods proposed for making River Dunn Navigable, and the Objections to it answered. With an Account of the Petitioner's Behaviour to the Land owners. To which is annexed, a Mapp of the River, and the Reasons lately Printed for making it Navigable, with the Advantages of it. London, 1723.
1130. c. 43 (2). Statement of the General Laws respecting Highways, and Turnpike Roads; including the Substance of the New Acts. London, [1825?].
1138. h. 11. The Ancient Trades Decayed, Repaired Agin: Wherein are declared the several Abuses that have utterly impaired all the Ancient Trades in the Kingdom;...Written by a Countrey Tradesman. London, 1678.
1246. l. 16 (1). Act 7 Geo. I, Stat. 1, c. 15. An Act for making the Rivers Mersey and Irwell navigable from Liverpool to Manchester, in the County Palatine of Lancaster.

1246. l. 16 (3). An Act for making a Navigable Cut, or Canal, from the River Trent, at or near Wilden Ferry in the County of Derby, to the River Mersey, at or near Runcorn Gap.
1302. g. 8 (3). Canal between the Eastern and the Western Seas. Newcastle-upon-Tyne, 1817. [A series of reports of various meetings, regarding better communication between Newcastle and Carlisle, taken from local newspapers of that year.]
1396. e. 22 (4). Ruminations on Railways. No. 1, Railway Speculation; No. 11, The Railway Board of Trade. London, 1845.
1396. g. 13. Railways; their Uses and Management. London, 1842.
1396. g. 21. Railways and the Board of Trade. 3rd edition. London, 1845.
1396. g. 49 (13). The Amalgamation of Railways considered as affecting the Internal Commerce of the Country. London, 1846.
1851. b. 2 (15). Begin: Pilkington, Mayor. [A Proclamation of the London Common Council.] [London, 1691]
1865. e. 17 (28). The Case of many Coachmen in London and Westminster, and within the Weekly Bills of Mortality, Licensed according to the Act for Licensing Hackney-Coaches, but yet turned out by the present Commissioners. [London, 1670?]
1879. e. 4 (28). The Case of the Waggoners of England, Humbly presented to the Consideration of Parliament. [1700?]
1890. e. 9. Plans, Prospectus, Reports, and Minutes of Evidence, in reference to the London and Birmingham Railway. London, 1832-65.
1890. e. 4 (57). Proposals for Raising by Subscription the Sum of £400,000 in Shares of £100 for the Purpose of building and maintaining a Bridge over the River Thames, from the South side of the said River, at or near...Horse Shoe Alley,...to the Bottom of Queen Street, Cheapside, in the city of London. London, 1810.
2064. a. A General History of the County of Norfolk, intended to convey all the Information of a Norfolk Tour, with the more extended Details.... 2 vols. Norwich, 1829.
- 2099 (5). An Essay to shew the Advantages that will follow the Progressive Formation of Railways throughout the Kingdom. By E. P. London, 1836.
2390. Tracts on the Proposed Stamford Junction Navigation. Stamford, [1810-11].
6376. b. 28 (2). Bye Laws made by the Trustees of the River Lee Navigation; and Penal Clauses in the Acts of Parliament, passed for improving, extending, and preserving the Navigation of the River Lee; from the Town of Hertford to the River Thames. Hertford, 1827.
6426. de. 13. An Act for better Regulating the Poor; Maintaining a Nightly Watch; Lighting, Paving, and Cleansing the Streets, Rows, and Passage; Providing Fire-Engines and Firemen, and Regulating the Hackney-Coachmen, Chairmen, Carmen, and Porters, within the City of Chester. London, 1772.
6485. e. 11. A Brief Account of Wilkinson and Hetherington, two Notorious Highwaymen, who were executed at Morpeth...1821. Newcastle-upon-Tyne, 1821.
8223. e. 9 (12). The Case of the Unlicensed Hackney-Chairmen, usually Employ'd within the Cities of London and Westminster and the Suburbs and Liberties thereof.
8223. e. 10 (70). Prospectus of the Kentish Railway Company.
8223. e. 10 (101). Prospectus of the Norfolk, Suffolk, and Essex Rail-Road Company. 1825.

8223. c. 10 (116). Prospectus of the Patent Steam Carriage Company, for England and Wales. [1825]
8223. e. 10 (147). Prospectus of the Surrey, Sussex, and Hants Railroad Company. London, 1825.
8223. c. 10 (148). Prospectus of the Surrey, Sussex, Hants, Wilts, and Somerset Rail-Road Company. Lothbury, 1825.
8223. c. 10 (149). Taunton Great Western Rail-Road Company. [Resolutions drawn up] At a Meeting of Land-Owners and Others, resident in Taunton and its Neighbourhood the Expediency of forming a Rail-Road from...Taunton to Bristol, and from Taunton to Exeter, with a Branch to Tiverton. Taunton, 1825.
8223. c. 10 (151). Proposed Tontine Bridge across the Swale, at or near King's Ferry, Isle of Sheppy.
8229. bbb. 60. Considerations on the Probable Commerce and Revenue that may arise on the Proposed Canal between Newcastle and Maryport. Carlisle, 1807.
8235. a. 71. The Railways of England; containing an Account of their Origin, Progress, and Present State...together with a Map. London, 1839.
8235. aaa. 5. History of the Darlington and Barnard Castle Railway; with Notices of the Stockton and Darlington, Clarence, West Hartlepool, and other Railways and Companies in the District. By an Inhabitant of Barnard Castle. London, 1877.
8235. b. 57 (1). The Carriers' Case Considered in Reference to Railways. London, 1841.
8235. c. 72. Railway Management; or how to make Ten Per Cent. London, 1860.
8235. ee. 41 (1). An Authentic Description of the Kennet and Avon Canal. To which are added, Observations upon the Present State of the Inland Navigation of the South-Western Counties of England; and of the Counties of Monmouth, Glamorgan, and Brecon, in South Wales. London, 1811.
8235. d. 27. Railways and Shareholders; with Glances at Railway Transactions—Shareholders' Powers—Accounts and Audits—Railway Meetings—Defective Legislation, etc. By an Edinbro' Reviewer. 2nd edition. London, 1849.
8235. ee. 4 (1). Oxford and Dideot Railway Bill. Copy of the Evidence taken before a Committee of the House of Commons. Oxford, [1843].
8235. ee. 12 (1). Reasons in favour of a Direct Line of Railroad from London to Manchester. London, 1846.
8235. h. 44. Remarks relating to a Canal intended to be made from the City of Chester, to join the Navigation from the Trent to the Mersey, at or near Middlewich. Chester, 1770.
8245. bb. 14. A Letter to the Inhabitants of Hertford [as to the desirability of Turnpike Trusts working together to secure the best results]. [1771?]
8775. b. 49 (1). Reasons against the Bill now depending in Parliament, for the Scouring out and Deepening of the River Nene.... Cambridge, 1754.
8775. c. 66. Extracts from the Book of Minutes of the Commissioners, and from Reports of Engineers; with other matters relating to the Wear Navigation Act. Same hand. 1819.
8775. f. 20. Considerations on the Idea of Uniting the Rivers Thames and Severn through Cirencester, with some Observations on other intended Canals. London 1782.
8776. a. 17. A Short Narrative of the Proceedings of the Gentlemen, concerned in obtaining the Act, for building a Bridge at Westminster.... London, 1738.
8776. a. 43. Reflections on the General Utility of Inland Navigation to the

- Commercial and Landed Interests of England; with Observations, by Publicol., on the Intended Canal from Birmingham to Worcester, etc. London, [N.D.].
8776. aaa. 33. Facts and Arguments respecting the Great Utility of an Extensive Plan of Inland Navigation in Ireland. Dublin, 1800.
8776. b. 40. Considerations on the Proposed Cut from the Medway to the Thames, ...and its probable Effects on the Navigation of the Medway. London, 1827.
8776. e. 14. Thames Navigation. Observations upon the Evidence adduced before the Committee of the House of Commons, upon the late Application to Parliament for a Bill for making a Navigable Canal from the River Kennet...to join the Hasingstoke Canal, etc. Maidenhead, 1825.
8776. e. 21. Proposals at Large for the easy and effectual Amendment of the Roads, by some further Necessary Laws and Regulations, concerning the Wheels of all Carriages;...By a Gentleman. London, 1753.
8776. ee. 17 (6). A Treatise on Inland Navigation. Salisbury: Printed by B. C. Collins, 1788. [Probably Collins was also the author.]
- 10,347. e. 13. Tables for the Calculation of Lock Dues, payable upon the Calder and Hebble Navigation by virtue of an Act of Parl. (5 Geo. IV). Halifax: Printed for the use only of the Company of Proprietors of the Calder and Hebble Navigation, 1825.
- 10,348. a. 5. Meine Fussreise durch die drey brittischen Königreiche. Voran einige Nachrichten von dem Feldzuge in Champagne. Von einem französischen Offizier. Riga, 1797.
- 10,348. eee. 56. North of England and Scotland in 1704 [A Journal published from the Original MS. of an unknown author]. Edinburgh, 1818.
- 10,349. a. 1. A Brief Description of England and Wales; containing a Particular Account of each County.... London, [1780?].
- 10,349. bb. 17. A New and Accurate Description of the Present Great Roads and the Principle Cross Roads of England and Wales commencing at London, and continued to the farthest Parts of the Kingdom, with the several Branches.... London, 1756.
- 10,349. g. 11. Narrative of the Journey of an Irish Gentleman through England in the Year 1752. Edited (by Henry Huth) from a Contemporary Manuscript, with a few illustrative Notes. London, 1869.
- 10,815. e. 35. Will of the Duke of Bridgewater. London, 1836.
- II. 263. (4). Facts and Reasons Tending to shew, that the Proposed Canal, from the Trent to the Mersey, ought not to terminate at Northwich and Hurton; and to prove, That this Plan hath been well digested and hath not wanted public Notoriety.
- B. 263. (5) and (7). An (engraved) Plan of the Intended Navigable Canal from Hasingstoke to the River Wey; and a List of Landowners through whose Grounds the Hasingstoke Canal is intended to pass.
- B. 263. (6). Basingstoke Canal Navigation. Supposed Annual Carriage on the said Canal, &c. [1786 or 1787]
- B. 503. (5) and (6). Reports of the Engineers appointed by the Commissioners of the Navigation of the Rivers Thames and Isis to survey the State of the said Navigation from Lechlade to Days Lock.... Printed 1791.
- B. 503. (7). A Report of the Committee of Commissioners of the Navigation of the Thames and Isis, appointed to Survey the Rivers from Lechlade to Whitchurch, 1791. Printed at Oxford, 1791.
- B. 504. (2). An Address to the Public on the New Intended Canal from Stourbridge to Worcester; with the Case of the Staffordshire and Worcestershire Canal Company. 1786.

- B. 504. (3). Reflections on the General Utility of Inland Navigation to the Commercial and Landed Interests of England; with Observations on the Intended Canal from Birmingham to Worcester, and some Strictures upon the Opposition given to it by the Proprietors of the Staffordshire and Worcestershire Canal. It is signed "Publicola."
- B. 504. (4). A View of the Advantages of Inland Navigations; with a Plan of a Navigable Canal, intended for a Communication between the Ports of Liverpool and Hull. London, 1765. [The author was probably R. Bentley, partner of Josiah Wedgwood.]
- C. 32. d. 8. A Direction for the English Traveller, by which he shall be enabled to Coast about all England and Wales &c. [London, 1643] It contains 'A Brief Director for those That would send their Letters to any parts of England, Scotland, or Ireland. Or, a List of all the Carriers, Waggoners, Coaches, Posts, Ships, Barks, Hoys, and Passage Boats that come to London, from the most parts and places, by Land and Sea.'
- C.T. 217. Letter [of W. W. Whitmore] to Lord John Russell on Railways. London, 1847.
- C.T. 309. (7). Report of the Proceedings of a Public Meeting of the Inhabitants of...Liverpool...[to consider the Rates of Carriage to and from Liverpool].
- E. 856. (4). An Act of Common-Council made the eleventh day of September, in the Year of our Lord 1655. For the better avoiding and prevention of Annoyances within the City of London, and Liberties of the same. [London], 1655.
- E. 927. (4). The Devil's Cabinet Broke Open: or a New Discovery of the Highway Thieves. Being a Seasonable Advice of a Gentleman lately converted from them, to Gentlemen and Travellers to avoid their Villanies.... London, 1657.
- E. 1063. (59). An Ordinance for Better Amending and Keeping in Repair the Common Highwaies within this Nation. London (Mar. 31), 1654.
- E. 1064. (5). An Ordinance of Explanation of a Former Ordinance, Entitled, An Ordinance for Better Amending and Keeping in Repair the Common Highwaies within this Nation. May 16, 1654.
- E. 1064. (18). An Ordinance for the Regulation of Hackney Coachmen in London and the Places Adjacent.
- E. 1064. (38). An Ordinance for the Giving Libertie for the Carrying of Millstones, Stone, Timber, etc. Sept. 2, 1654.
- G. 6463. (228). Articles set down by the Right Worshipfull Thomas Randolph Esquier, Master and Comptroller generall of all her Majesties Postes, and straightly by him commanded to be kept by the Postes from London, to the Northerne borders against Scotland.... London, 1583.
- G. 6463. (232). Orders set downe and allowed by the Lordes of her Majesties Privie Counsell, and appoynted to be put in print for the Postes betweene London and the borders of Scotland. [At Westminster, Jan. 14, 1583] [1583]
- K. 6. 58 (c). Basingstoke Canal Navigation.
- Maps 46. b. 23. A Book of the Names of all Parishes, Market Towns, Villages, Hamlets, and smallest Places, in England and Wales.... London, 1657.
- Maps 46. b. 26. A Book of the Names of all Parishes, Market Towns, Villages, Hamlets, and smallest Places, in England and Wales. London, 1677.
- Maps 88. d. 13. Documents and Plans relating to Canals of England.
- T. 100* (14). The Case of the River Derwent, in respect of Navigation, and of the Bill now in Parliament concerning the same. [1705 (?)]

- T. 1157. (2). *The Fingerpost; or Direct Road from John-o'-Groat's to the Land's End: being a Discussion of the Railway Question.* London, [1825?].
- T. 1157. (4). *Highways Improved. A Letter to a Member of Parliament on the Expediency of Appointing County or District Surveyors of Highways.* London, 1825.
- T. 1371. (18). *The Probable Effects of the Proposed Railway from Birmingham to London Considered.* London, 1831.
- T. 1860. (3). *A Journey to England. With some Account of the Manners and Customs of that Nation.* London, 1700.

SERIAL PUBLICATIONS

Annual Register.

Antiquary, The.

Archaeologia: or Miscellaneous Tracts relating to Antiquity. Published by the London Society of Antiquaries. London, 1770-present time.

Archaeologia Aeliana: or Miscellaneous Tracts relating to Antiquity. Published by the Society of Antiquaries, of Newcastle-upon-Tyne, New Series.

British Almanac and Companion. London, 1829-46.

Camden Society. *Annals of the First Four Years of the Reign of Queen Elizabeth* by Sir John Hayward, Knt. Edited from Harl. MS. 6021, by John Bruce. London, 1840.

Camden Society. *Wills and Inventories from the Registers of the Commissary of Bury St Edmunds and the Archdeacon of Sudbury.* Edited by Samuel Tymms. London, 1850.

Camden Society. *Letters and Papers of the Verney Family down to the End of the Year 1639.* Printed from the Original MSS. in the possession of Sir Harry Verney, Bart. Edited by John Bruce. London, 1853.

Chetham Society Publications. Vol. XLVI contains *The Portmote or Court Leet Records of the Borough or Town and Royal Manor of Salford, from 1597 to 1669 inclusive.* Transcribed and edited by G. de T. Mandley. 1902.

Vol. LXV contains the *Continuation of the Court Leet Records of the Manor of Manchester, A.D. 1586-1602.* Compiled and edited by John Harland, 1865.

Chetham Society Publications. Vols. LXXVIII and LXXII, *Collectanea relating to Manchester and its Neighbourhood at Various Periods.* Compiled, arranged, and edited by John Harland, F.S.A. Printed for the Society, 1866 and 1867.

The Commercial and Agricultural Magazine, 1799-1802, continued as The Agricultural Magazine, 1802-

Edinburgh Review. Vol. xxxii (1819), pp. 477-87; Vol. cxix (1864), pp. 340-8. *Gentleman's Magazine.*

The Grand Magazine of Universal Intelligence, and Monthly Chronicle of Our Own Times. 3 vols. London, 1758-60.

Highland Society of Scotland. *Prize Essays and Transactions of the Highland Society of Scotland.* Vol. vi (Edinburgh, 1824), pp. 1-146, deals with Railroads in a series of Essays edited by Robert Stephenson.

Local Notes and Queries. 7 vols. (Birmingham Free Reference Library, No. 144,953.)

The London Magazine; Or, Gentleman's Monthly Intelligencer. 27 vols. London, 1732-58.

The London Magazine. Vol. I, N.S., 1825.

Memoirs and Proceedings of the Literary and Philosophical Society of Manchester. 2nd series, Vol. III (1819), and 4th series, Vol. VIII (1894).

- Monthly Magazine.
 Oxford Historical Society. Collectanea. 4 vols. Oxford, 1885-1905.
 Quarterly Review, The. Vols. xxxii and xcvi. London, 1825 and 1855.
 Quatrième Congrès International de Navigation Intérieure, tenu à Manchester en 1890. Rapports des délégués Français sur les travaux du Congrès. Paris, 1892.
 Railway Chronicle, 1844-49. London, 1844-49.
 Railway and Commercial Journal, Herepath's. Vols. ix-xi. London, 1847-49.
 Railway Magazine, The, and Annals of Science, by John Herepath: containing copious accounts of all Railways at Home and Abroad, N.S., Vols. i-vi. London, 1836-39.
 Railway Times. Vols. i-xii (1838-49). London, 1838-49.
 Repertory of Arts and Manufactures, The. 16 vols. London, 1794-1802; continued as The Repertory of Arts, Manufactures, and Agriculture, consisting of Original Communications, etc. 2nd series, 46 vols. London, 1802-25.
 Royal Statistical Society, Journal of the. London, 1839-present time.
 Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society, N.S., Vols. i-iv. Kendal, 1901-04.
 Transactions of the Lancashire and Cheshire Antiquarian Society. Manchester, 1883-present time.

NEWSPAPERS

- The Bath Chronicle. Jan. 11, 1787-Jan. 8, 1789.
 Birmingham Advertiser, 1833. Birmingham, 1833.
 Aris's Birmingham Gazette. (Birmingham), 1740-1833.
 The Birmingham Journal, 1825-34. Birmingham, 1825-34.
 Bonner and Middleton's Bristol Journal. (Bristol), Jan. 14, 1775-Dec. 23, 1786.
 The Bristol Gazette and Public Advertiser. (Bristol), Aug. 7, 1777-May, 15, 1788.
 The Bristol Liberal. Jan. 7, 1832.
 The Bristol Mercury. June 30, 1832-Oct. 5, 1833.
 The Constitutional Chronicle. (Bristol), 1780-82 (irregular numbers only).
 Felix Farley's Bristol Journal. (Bristol), Nov. 2, 1776-May 17, 1788; Nov. 17, 1832-Dec. 13, 1834.
 Sarah Farley's Bristol Journal. (Bristol), April 27, 1782-August 3, 1782.
 The Chronicle of Bristol. Aug. 1, 1829-Jan. 1, 1830.
 The Cambridge Chronicle and Journal. from Nov. 2, 1810-Nov. 3, 1815.
 Gloucester Journal, 1789-91. Gloucester, 1789-91 (irregular numbers only).
 Hampshire Advertiser and Salisbury Guardian. Southampton, 1832-34.
 The Hampshire Telegraph and Sussex Chronicle. 1814-19.
 Hereford Journal. April 20, 1803-Dec. 4, 1805 (irregular numbers only).
 Hull Advertiser. 1834-35.
 Leeds Intelligencer, 1758-1836. Leeds, 1758-1836.
 Billinge's Liverpool Advertiser, 1823-28; continued as The Liverpool Times, 1829-32. Liverpool, 1823-32.
 The City Mercury: or, Advertisements concerning Trade. London, Nov. 4, 1675; July 4, 1692; March 13, 1693; March 20, 1693; March 27, 1693; June 11, 1694; Dec. 10, 1694.
 The County Chronicle and Weekly Advertiser, for Essex, Herts, Kent, Surrey, Middlesex, Berks, etc. London, 1818-36.
 Domestic Intelligence, or News both from City and Country. London, Oct. 24, 1679-; continued as The Protestant (Domestic) Intelligencer, or News both from City and Country, from Jan. 16, 1680, on. London, 1679-82.

- The Economist, Weekly Commercial Times, and Bankers' Gazette, 1844-47.
London, 1844-47.
- The London Evening Post. (London), Jan. 20-22, 1732-36.
- The Gazetteer and New Daily Advertiser. (London), Feb. 27, 1787-April 4, 1788.
- The General Advertiser. (London), Feb. 26, 1785-May 21, 1787.
- The Morning Chronicle and London Advertiser. Jan. 8, 1785-April 1, 1786.
- The Morning Chronicle. (London), April 1, 1791-April 11, 1792.
- The Morning Post and Daily Advertiser. (London), July 20, 1791.
- The Oracle. (London), March 22, 1792-Sept. 22, 1792.
- The Public Advertiser. (London), April 8, 1786-Oct. 22, 1793.
- The St James Chronicle. (London), Dec. 7, 1786-Aug. 29, 1793.
- The London Times. March 3, 1794-Nov. 8, 1847.
- The Manchester Advertiser. (Manchester), Aug. 30, 1825 to end of 1826.
- Wheeler's Manchester Chronicle, 1831-32. Manchester, 1831-32.
- Manchester Courier, 1825-27. Manchester, 1825-27.
- Manchester Gazette, 1824-31. Manchester, 1824-31.
- Manchester Guardian, 1825-46. Manchester, 1825-46.
- The Newcastle Courant. (Newcastle), April 16, 1774-Dec. 4, 1794; 1821-32.
- Oxford Gazette and Reading Mercury, 1767-71. Reading, 1767-71.
- Jackson's Oxford Journal. July 29, 1780-Nov. 2, 1793.
- The Reading Mercury and Oxford Gazette. Reading, 1792-96.
- Sheffield Iris, 1828-37. Sheffield, 1828-37.
- Ward's Sheffield Public Advertiser. (Sheffield), 1760-65.
- The Shrewsbury Chronicle or Wood's British Gazette. (Shrewsbury), Feb. 20, 1773-April 15, 1775.
- The York Herald, County and General Advertiser. York. 1812-14.

GUIDE BOOKS

- Bath. The New Bath Guide, or useful Pocket Companion for the Year 1784.
- The New Birmingham Directory, and Gentleman and Tradesman's Compleat Memorandum Book. (Printed by and for M. Swinney.) Birmingham, 1774 (?).
- The Birmingham Directory; or Merchant and Tradesman's Useful Companion. Birmingham, 1777.
- Chapman's Birmingham Directory. Birmingham, 1803.
- Brit. Mus. 579. c. 41 (1). Brighton New Guide; or a Description of Brighthelmston and the Adjacent Country. London, 1800.
- The Tradesman's and Traveller's Pocket Companion: or the Bath and Bristol Guide.... Bath, [1750?].
- Matthews, William. Matthews New Bristol Directory, for the Year 1793-94, etc. Bristol, [1793-94].
- Bristol. The New History, Survey and Description of the City and Suburbs of Bristol, or Complete Guide, and informing and useful Companion for the Residents and Visitants of this ancient, extensive and increasing City, etc. Bristol, 1794.
- A Description of the University, Town, and County of Cambridge...Directions concerning the Posts, Roads, Stage Coaches, Waggons, etc., to and from Cambridge. Cambridge, 1796.
- The Chester Guide. Chester, 1795.
- Battle's Hull Directory for the Year 1791. Hull, [1791].
- A Complete Guide to All Persons who have any Trade or Concern with the City of London, and Parts adjacent; containing the Names of all streets...An

- Account of all the Stage-Coaches, Carriers, &c. (for the years 1740, 1772, 1774, 1783). London, 1740, 1772, 1774, 1783.
- (W.) Holden's Annual List of Coaches, Waggons, Carls, Vessels, &c., from London, to all parts of England, Wales, Scotland, and Parts of Ireland, including the villages near the Metropolis. London, 1802, 1809.
- Brit. Mus. 579. c. 43 (3). The Ancient and Modern History of Portesmouth, Portsea, Gosport and their Environs. Gosport, [N.D.]
- Southampton. The Southampton Guide for 1774 and 1797.
- The York Guide (1796): Containing a Description of the Cathedral and other Public Buildings...to which is added...Times of the Posts coming in and going out; Mail and other Coaches, etc. 2nd edition. York, 1796.

MAPS

- Ogilby, John. Itinerarium Angliae, or, A Book of Roads, wherein are contained the Principal Road-Ways of His Majesty's Kingdom of England and Dominion of Wales. London: Printed by the Author at his House in White-Fryers, M.DC.LXXV.
- Brit. Mus. Maps 86. d. 10 (33). A New Map containing all the Cities, Market Townes...Roads, etc. London, 1696.
- England Exactly Described, or a Guide to Travellers: in a Compleat Sett of Mapps of all the County's of England. London, 1715.
- Brit. Mus. B. 264. (3). A Set of Fifty New and Correct Maps of England and Wales, &c. with the Great Roads and Principal Cross-Roads, &c. Shewing the Computed Miles from Town to Town. A Work long wanted, and very useful for all Gentlemen that travel to any Part of England. All, except two, composed and done by Hermann Moll, Geographer. London, 1724.
- Badeslade, Thomas. Chorographia Britanniae, or a set of Maps of all the Counties in England and Wales. (Comprises a Map for showing the great roads from London and a Map of all the cross roads.) London, 1742.
- Bowles's New Traveller's Guide, through the Principal Direct and Cross Roads of England and Wales. London, [ca. 1750].
- Armstrong, Mostyn John. An Actual Survey of the Great Post-Roads between London and Edinburgh. London, 1776.
- Paterson, Daniel. A New and Accurate Description of all the Direct and Principal Cross Roads in Great Britain. 4th edition. London, 1778. Fifth edition, corrected, and improved, with Additions, London, 1781. Fifteenth edition of same, London, 1811.
- Kitchin, Thomas. The Roads in England and Wales. Engraved from the latest Surveys, by Thomas Kitchin, Hydrographer to His Majesty. 1783.
- Brit. Mus. 1190. 7. A Map of England, shewing the Lines of all the Navigable Canals, with those which have been proposed.... 1795.
- A Collection of Prospectuses, Maps, and other Doenments relating to Early Railways, Canals, etc., 1793-1846. Birmingham Free Central Library, Iron Room, Box No. 11. (Some fine material.)
- Enouy, Joseph. A New Map of England and Wales, compiled from Actual Surveys of the Counties...with the Turnpike Roads according to the New Admeasurements, Navigable Rivers and Canals. London, 1801.
- Brit. Mus. Maps 30. a. 47. Map of England and Wales with Part of Scotland [showing clearly the navigable canals and rivers]. 1802.

- Smith's New Map of England and Wales, with Part of Scotland, including the Turnpike and principal Cross Roads, the Course of the Rivers and Navigable Canals, &c. London, 1806. *Ibid.*, for the year 1818, and for 1827.
- Owens, William. *New Book of Roads, or a Description of the Roads of Great Britain.* New edition. London, 1814.
- Mogg, Edward. *A Survey of the Highroads of England and Wales, with Part of Scotland...exhibiting at one View...the various Branches of Roads and Towns to which they lead, together with the actual Distance of the same from the Main Road, Rivers, Navigable Canals, Railways...&c.* London, 1814-15. *Brit. Mus. Maps* 47. e. 14.
- Cary, John. *Cary's New Itinerary: or an Accurate Delineation of the Great Roads, both Direct and Cross, throughout England and Wales: with many of the principal roads, in Scotland, from an Actual Admeasurement.* 7th edition, with Improvements. London, 1817.
- (Huene de Pommeuse.) *Des Canaux Navigables.* Atlas de la Navigation Intérieure de l'Angleterre et de la France. 1819. Paris, 1822.
- Chellins's Official Maps of the London and Birmingham, and the Grand Junction Railways. London, 1839.
- Brit. Mus. Maps* 92. d. 29. *Wyld's Railroad Map of England and Wales* [showing also those in progress and those projected, and outlining the high roads]. London, 1840.
- A Map of England, Wales, and Scotland, describing all the Direct and Principal Cross Roads in Great Britain, and showing the Railroads, Great Rivers and Navigable Canals.* London, 1841.
- Bradshaw's Railway Companion, containing the Times of Departure, Fares, etc., of the Railways of England, etc.* Manchester and London, 1842.
- Cary's Reduction of his Large Map of England and Wales, with Part of Scotland; comprehending the whole of the Turnpike Roads, with the Great Rivers and the Course of the different Navigable Canals.* London, [1850?].
- Collins' Railway Map of England and Wales and Part of Scotland, shewing the Inland Navigation by means of Rivers and Canals, together with the Rail and Principal Turnpike Roads, from the most recent surveys.* London, [1852?].
- England and Wales showing the Railroads, completed, proposed, and in Progress.* London, [1853].
- Bett's New Map of England and Wales compiled from the latest Parliamentary Documents, showing the Roads and Railroads.* London, [ca. 1853].
- Stanford's Railway and Road Map of England and Wales.* London, 1862.
- Brit. Mus. Maps* 29. a. 37. *A Pocket-Guide to the English Traveller: Being a Compleat Survey and Admeasurement of all the Principal Roads and most considerable Cross-Roads in England and Wales. In One Hundred Copper Plates.* London, 1719.
- Brit. Mus.* 1175. (106). *A New Map of England and Wales, comprehending the whole of the Turnpike Roads, with the Great Rivers and Navigable Canals.* London, 1804. Very complete in its details.
- Brit. Mus. C.* 32. d. 8. *A New Map of the Kingdom of England and Principality of Wales, taken out of I. S. (i.e., John Speed).* London, 1673. It is contained in 'A Direction for the English Traveller.' London, 1643.
- Brit. Mus.* 1205. (9). *A New Travelling Map of England, Wales and Scotland; Drawn from all the Surveys which have hitherto been made of particular Counties, describing the Direct and principal Cross Roads, Cities, Boroughs, Market Towns and Villages, to which is added the actual distance from one*

- Market Town to another, and exact admeasurement of each place from London. By Edward Mogg. London, 1810. Excellent map.
- Brit. Mus. 577. e. 2. The Traveller's Guide: or, a Most Exact Description of the Roads of England. Being Mr Ogilby's Actual Survey, and Mensuration by the Wheel, of the Great Roads from London...together with the Cross Roads. London, 1699. This is simply a pocket edition of Ogilby's 'Itinerarium Angliae.'
- Brit. Mus. 1175. (45). A New Map of England and Wales, describing all the Turnpike and principal Bye Roads, the Great Rivers and Navigable Canals. By Robert Rowe. London, 1819. Great detail.
- Brit. Mus. 1205. (10). Wallis's New Travelling Map of England and Wales, with Part of Scotland, on which are delineated the Direct and Principal Cross Roads,... Also the Course of the Great Rivers.... London, 1815. Clear representation of the roads because avoiding a mass of other details.
- Brit. Mus. 1175. (17). The Post Roads through England and Wales; by T. Jefferys, Geographer to His Majesty. [London, 1792] Omits all other roads except post roads.
- Brit. Mus. K. 5. 68. Bowles's New Pocket Map of England and Wales, Revised and corrected from the best Authorities; with the Addition of New Roads, and other Improvements. By D. Paterson. London, 1773.
- Brit. Mus. K. 191. g. 13. Nouveau Théâtre de la Grande Bretagne, Vol. iv. After the first two plates, there is 'A New Map of South Britain or England and Wales. Containing all the Cities and Market Towns with the Roads from Town to Town....' London, 1720. Does not show London as the centre of a series of great roads to all parts of the kingdom; but shows many smaller places than London which were greater road centres than it.
- Brit. Mus. K. 5. 52. A New Map of England. Containing the Adjacent Parts of Scotland, Ireland, France, Flanders and Holland. Shewing the true Situation and Distance of London from Edinburgh, Dublin,...With a Description of the Post Roads, and their several Branches from Town to Town,...By R. Greene. London, [1690]. Does not show such a vast network of roads as some other maps of this time.
- Brit. Mus. K. 5. 60. The South Part of Great Britain, called England and Wales. Containing all y^e Cities, Market Towns, Boroughs,...with y^e Names of ye Rivers,...Great or Post Roads, and principal Cross Roads &c. By Hermann Moll, Geographer. London, 1710.
- Brit. Mus. K. 5. 61. A New and Accurate Map of England and Wales. Describing in a more distinct and correct manner than any other Map Extant, all the Cities, Boroughs, & Market Towns &c. also all the direct and principal Cross Roads, with the post Towns and computed distances between Town and Town....By E. Bowen, Geographer. London, 1734. Roads clearly delineated.
- Brit. Mus. K. 5. 62. Le Royaume d'Angleterre. Divisé en Comtez et Baronies. Dressé sur les dernières Observations par et chez le Sr le Rouge Ingénieur Géographe du Roi. Paris, 1745. Gives the great roads only.
- Brit. Mus. 1205. (4). The Traveller's Guide or Ogilby's Roads Epitomized. A Set of Tables in which are described all the grand Roads & several of the Cross Roads of England and Wales....By I. V. Kircher. London, [1706]. Shows a vast network of roads at that time, as does also
- Brit. Mus. Maps 86. d. 10 (33). A New Map Containing all the Citties, Market Townes, Rivers, Bridges, & other considerable Places in England and Wales. Wherein are delineated y^e Roads from Towne to Towne,... London, [1696].

- Brit. Mus. K. 5. 88. *The Traveller's Companion or the Post Roads of England and Wales; with Distances in Measured Miles.* By the late John Rocque, Chorographer to the King. London, 1771.
- Brit. Mus. K. 5. 84. *The Roads of England according to Mr Ogilby's Survey.* London, [1712]. Circular map of the great roads.
- Brit. Mus. Maps 89. c. 3 (50). *A New Mapp of the Kingdome of England, representing the Princedom of Wales, and other Provinces, Cities, Market Towns, with the Roads from Town to Town.* Amsterdam, [1590]. This volume gives also a complete series of county maps.
- Brit. Mus. 1220. 4. *Smith's New Map of the Railways and Canals of England, Wales and Scotland.* Containing also the principal Roads, and the distances of the places from London. London, 1838. Gives dates of Canal Acts.

N.B. The foregoing are only a few of the large number of maps consulted in order to secure the greatest degree of accuracy in this work.

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