



SIR ERNEST PAGET, BART.

CHAIRMAN OF THE MIDLAND RAILWAY COMPANY

THE HISTORY
OF THE
MIDLAND RAILWAY

BY
CLEMENT E. STRETTON
VI

WITH ONE HUNDRED ILLUSTRATIONS AND SIX DIAGRAMS

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PREFACE

IT is hardly to be wondered that the subject of communication in the Midland Counties has always interested me, for our family has long been connected with the railways, canals, and tramways of Leicestershire. As a boy I lived at New Found Pool, Leicester, close to the Leicester and Swannington Railway, and much of my time was spent on the line. My interest in this railway was strengthened when I was told that it was the key to the inner history of the Midland Railway Company. Shortly after, I became an engineering pupil, and obtained permission, through the courtesy of Mr. Edward Shipley Ellis, to make copies of the plans, sections, diagrams of locomotives, and other documents belonging to this Company. My first contribution to the history of the Midland Railway was made as long ago as the 17th July, 1867—the thirty-fifth anniversary of the opening of the Swannington line—when I read a paper at Leicester, entitled “Notes on the Leicester and Swannington Railway.”

The first part of this History deals with the various independent lines which now form the Midland Railway and events that took place prior to 1865. It has been compiled almost entirely from the books and papers forming the “Stretton Railway Collection,” which, after being sent to the Chicago Exhibition of 1893, was presented by the author and his son to the nation, and is now to be found in the Museums at South Kensington, Leicester, Liverpool, Loughborough, and Holyhead. The later History of the Railway, from 1865 to the present day, is based upon records which I have most carefully kept of every event

as it occurred, my intimate knowledge of the history of the line enabling me to arrange this material in a way which, I trust, is likely to be interesting and valuable, not only to engineers and railway men, but also to the general public.

The fact that the Midland line has been built up by amalgamations, extensions, and purchases, has rendered the work more difficult than it would otherwise have been; it has been necessary to give, not only the names of these small lines, but also the reason why they were acquired, together with a short account of their previous history. The extent of these amalgamations may be gathered from the tabulated statements on pages 348 and 349.

Though the book treats mainly of the origin and growth of the Midland Company, many of the sections are of a wider interest; *e.g.* those dealing with the invention of the first Edge-rail-way by William Jessop, and the "Outram-way" introduced by the Outrams of Alfreton. On page 259 a chart will be found showing the administration of the railway, that will probably be new to the majority of readers.

I wish to express my thanks to the Midland Railway Company for the loan of several very interesting photographs, to the Chairman and the officials for their courtesy and for lending photographs to illustrate the details of the departments. I am also indebted to Mr. G. R. Stephenson and Mr. W. H. Ellis for the loan of portraits; and to Messrs. R. Stephenson and Co., Messrs. Sharp, Stewart, and Co., The Butterley Iron Company, the late Mr. James Ellis, and the descendants of Mr. Stenson, Mr. Jessop, and Mr. Outram, for lending records which have enabled me to verify my information.

C. E. S.

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THE HISTORY

OF THE

MIDLAND RAILWAY

CHAPTER I.

THE BIRTH OF A RAILWAY

THE system of railway traction which has revolutionised the world can hardly be said to have been created, and it is more in accord with historical accuracy to describe it as having dawned—to have, in fact, been evolved out of primitive and very elementary systems for facilitating the transport of minerals. But whilst these ancient systems, which were in operation on a small scale in a limited number of districts, form the foundation and the exciting cause for better and more efficient methods, it was, of course, the introduction of a new system of traction and the harnessing of a new force by means of steam locomotives that led to the birth of modern railways.

The development of this new source of power in the service of mankind vastly increased the resources not only of this country, where it first was discovered, but it led practically to the creation of a new world—or at least a world vastly different to that before this new power was called into being. It enabled the commerce of Britain to expand and develop as it had never done before ; and with extended trade and the provision of cheap and speedy communication from one part of the country to another it proved an instrument for the elevation and advancement of all ranks and conditions of men.

Without railways England under modern conditions would be impossible, for not only are railways indispensable for the trade and commerce of the country, but they are absolutely essential for the conveyance of food for the inhabitants of our great industrial centres.

It is only seventy years ago that the first modern railway was opened ;

but since the time of that great experiment the country has been covered with a network of lines from one end to the other. In this great expansion which has become of world-wide importance the Midland Railway has played a very important part. Some of the lines and systems which it owns to-day were amongst the earliest lines of any kind that were constructed, and they form important parts of those methods of traction by means of horses which led to the introduction of modern railways.

The new system was hailed with joy and wonder in all those towns and places where in early days it was introduced; and although familiarity may have in these days somewhat obscured our eyes to the beauty and grandeur of a train in rapid flight and a locomotive in full steam, yet it is by no means difficult to understand the astonishment of those who for the first time witnessed so great a revolution. In recording the history of the Midland System it will be necessary to give the reader glimpses from contemporary records of what was at the time so wonderful a spectacle.

The Midland Railway Company, as we know it to-day under its present style and title, was incorporated by an Act of Parliament passed on May 10th, 1844, by virtue of which three previously existing independent railway companies, namely the "North Midland," "Midland Counties," and "Birmingham and Derby Junction," were on and from that date dissolved, and their railways and capital became consolidated and incorporated as "The Midland Railway Company."

Strictly speaking, it will be seen that the present Company has existed for a period of over fifty-six years, but *actually* the ways, works, and traffic of the undertakings which it took over, as well as those which it afterwards acquired, date back to a far more remote period. In order, therefore, to fully understand the reasons why the original lines were made and the causes which led to the "consolidation" in the year 1844, it is necessary to investigate the histories of the three independent companies above mentioned.

The first portion of the Midland Railway constructed on modern principles, worked by locomotives, and conveying passengers as well as minerals, was, beyond all question, the line from Leicester to Swannington. It was the earliest line of railway now belonging to the Midland constructed by George Stephenson and his son Robert on the same plan which they had previously introduced with such great success between Liverpool and Manchester. Not only the engineers, but the first manager, Mr. George Vaughan, the locomotive men, the man to work the incline, the platelayers, the guard, were all brought from the Liverpool and Manchester line to instruct the local men to become

proficient in railway management ; and the rules and regulations of the Liverpool and Manchester were also adopted. The only difference between the two railways was that whereas the Liverpool and Manchester was a double line and had both passenger and goods trains, the Leicester and Swannington was a single line and had mixed trains carrying both passengers and minerals. By this means the new railway system was brought down from the north, where it had hitherto alone existed, into the very centre of England.

For many generations coal mines have been worked in the Swannington and Coleorton district of Leicestershire, also in the Erewash Valley, Nottinghamshire, and for very many years the only means of conveying the coal to the various towns and markets was by horses and carts upon the common road, a method which proved expensive and unsatisfactory.

The colliery owners in both Leicestershire and Nottinghamshire were anxiously looking for an improved means of communication, and favoured the introduction of canals ; but they were both equally anxious that the canals should be constructed so as either to give exceptional advantages to their own particular coalfield, or, failing that, then to give equal facilities to both.

To attain this object, as long ago as the year 1776 the Loughborough Navigation Company was formed to improve parts of the River Soar and make a canal from the River Trent to Loughborough. In the following year, 1777, the Erewash Canal Company commenced the construction of their undertaking, which extended from Langley Mill and the Nottinghamshire coalfield to the River Trent. Shortly afterwards it was proposed to form a Leicester Canal Company to extend the communication from Loughborough to the West Bridge at Leicester. In other words, by means of these three canals and the River Trent, the Nottinghamshire coal was to be brought to Leicester, and the Leicestershire coal would thereby be completely shut out of its own market. The Leicestershire coal owners naturally fought against such a scheme, and were powerful enough to prevent its being carried out until the Leicester Canal Company undertook to make a branch canal and tramroads extending from near Loughborough over the Charnwood Forest to the Swannington coalfields. By this means it was thought equal facilities would be conferred on both, and when, on October 27th, 1794, the canal was opened to Leicester for coal traffic, two boats arrived together, bringing loads from the rival districts.

However, the Leicestershire coal owners were destined to be disappointed, for in the winter of 1799 the banks of the Charnwood Forest Canal burst, the works were seriously damaged, and the whole

of the water ran away and flooded the surrounding district. The canal was not repaired, but the bridges and other works can still be seen and the track traced, after having been disused for over a hundred years.

Thus the failure of this branch canal effectually shut out the Leicestershire coal and gave the entire trade to the Nottinghamshire and Derbyshire coal owners, a condition of things which remained unaltered for no less than thirty-three years.

Ultimately, in October, 1828, Mr. William Stenson, one of the partners in the Whitwick Colliery, Leicestershire, paid a visit to Newcastle-upon-Tyne and the Stockton and Darlington Railway, where he was so much impressed with the value of railways and locomotives for the conveyance of coal that he returned home determined, if possible, to obtain railway communication between Whitwick and the town of Leicester.

He first examined the route for a direct line, but found the gradients far too severe ; so, taking his theodolite, he walked over the country in the direction of Bagworth, Desford, and Glenfield, and on arrival at Leicester reported to his partners, Mr. Whetstone and Mr. Samuel Smith Harris, that he had found a suitable route, and after a long consultation it was decided that "Mr. John Ellis, of Beaumont Leys, near Leicester, was the best person to assist them in the project."

Mr. Stenson at once wrote a long letter to Mr. Ellis, fully explaining that the Leicestershire colliery owners at Coleorton, Swannington, and Whitwick found that coal was being sent by canal from Derbyshire and Nottinghamshire to Leicester, and that their coal was practically shut out of its own market. He added : "Our carting beats us, but I see a way to relief if we can but get up a railway company. I've tried the ground with my theodolite and find no difficulty in making a railway, though a tunnel will, I think, have to be made through the hill at Glenfield, and further that there will have to be a severe incline near to Bagworth." Mr. Ellis at once saw the importance of the undertaking to the town and trade of Leicester, and having gone over the proposed route with Mr. Stenson, he decided to make a journey to Liverpool in order to consult his friend, George Stephenson, who was then engaged in the construction of the Liverpool and Manchester Railway. After travelling upon one of the contractor's engines to Rainhill cutting, Mr. Ellis found Stephenson engaged in directing the men how to overcome a difficulty in the construction of the Rainhill bridge.

The object of the visit was explained, and Mr. Stephenson was asked to go over to Leicester to inspect the route and to become the engineer of the proposed new line. To quote the words of Mr. Ellis, "Old George" was cross, and replied, "I have thirty-one miles of railway to

make, and the directors think that that is enough for any man at a time."

It has been assumed that George Stephenson gave utterance to the celebrated dictum that "thirty-one miles of railway were enough for any man to make at a time." But this is not so. The facts were that George Stephenson, in 1826, entered into an agreement with the directors of the Liverpool and Manchester line, under which he accepted the post of engineer-in-chief of their railway at a salary of £1,000 per annum, and to devote practically the whole of his time to its construction; and further, that he was to undertake no other line until their works were completed. It must be remembered that George Stephenson in 1826 was comparatively a poor and unknown man, but in 1829 he had become celebrated, and the reason for his being "cross" was that, having already had to decline the offer to make several other lines, he was practically compelled to decline another proposal. George Stephenson by this time was far too great a man and had too thorough a grasp of railway engineering to limit his energies—unless compelled by circumstances to do so—to the construction of thirty-one miles of line. On a previous occasion he had asked the directors to allow him to undertake to make a railway from Canterbury to Whitstable, but he was refused the necessary permission, and it was on this occasion that the Chairman of the Liverpool and Manchester Railway—and not Stephenson—delivered himself of the famous saying, "No; thirty-one miles is enough for any man to make at one time." This is further confirmed by what immediately followed, for it will be seen that George Stephenson himself and his son, Robert Stephenson, who had also been engaged on the Liverpool and Manchester line, both returned with Mr. Ellis to Leicester.

Mr. Ellis decided not to take Stephenson's refusal as a final answer, but determined to wait for a few hours until Stephenson had completed the difficult task upon which at the moment he was engaged, and until the two could dine together at the inn only a short distance from the bridge.

After dinner Mr. Ellis again commenced to explain the object of his visit, and read to Stephenson the letter which he had received from Mr. Stenson. A map was produced showing the proposed route; Mr. Stephenson became interested in the subject, and agreed that there was "something in the scheme." Ultimately "Old George" remarked, "When are you going back to Leicester?"

"To-night," was the prompt reply of Mr. Ellis, to which Mr. Stephenson answered, "Then I will go with you."

On arrival at Leicester, Mr. Stenson accompanied Mr. Ellis and

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Mr. Stephenson and his son Robert over the proposed route, and when Mr. Stephenson was shown building-sand near Glenfield, granite at Groby, coal at Bagworth, Whitwick, and Swannington, brickworks at Snibston, granite at Bardon Hill, and lime at Ticknall—all of which were required in the town of Leicester—he came to the conclusion that a very useful railway could easily be constructed, and accordingly prepared a special report in favour of the projected line, which he considered could be made for “the sum of £75,450 or thereabouts.”

Mr. Ellis invited his friends and those persons likely to join in the scheme to meet him at the Bell Hotel, Leicester, when he, Mr. Stephen-



THE BELL HOTEL, LEICESTER
(Birthplace of the Leicester and Swannington Railway).

son, and Mr. Stenson fully explained the objects and details of the proposed railway. The meeting unanimously resolved to form itself into a provisional committee to obtain an Act for the making of the proposed line, and decided that the share capital should be £90,000 in 1,800 shares of £50 each, with power to raise £20,000 by loan if required. To ascertain how the money was to be raised was the next consideration; in fact, to find how much each one present was really interested in the railway. Taking a large sheet of paper, and with pen in hand, Mr. Ellis remarked, “Now, gentlemen, how many shares?” to which George Stephenson immediately replied, “Put me down for fifty.” This gave the list an excellent start, and all went well till nearly £60,000

had been subscribed ; then the matter hung fire. Mr. Ellis remarked that most of the rich men of Leicester had their money in canals, and that he feared they would not be likely to assist the railway. This caused George Stephenson to exclaim, "Give me the sheet, and I will



MR. ROBERT STEPHENSON
(Engineer, Leicester and Swannington Railway).

raise the money for you in Liverpool" ; and the sheet was accordingly handed to him.

Mr. Thomas Paget, a well-known local banker, further strengthened the hands of the promoters by then expressing his willingness to provide a sum of £20,000 on loan if necessary.

The financial part of the business being thus settled, Mr. Stephenson was asked to become the engineer for the line, but the request only brought forth the same reply as at first given to Mr. Ellis—"No ; I have thirty-one miles of railway to make, and the Liverpool directors think that that is enough for any man at a time." "That being so," said Mr. Ellis, "is there any person thou canst recommend?" "Well, I think my son Robert is competent to undertake the thing." "But wilt thou be answerable for him?" asked Mr. Ellis, to which Stephenson replied, "Oh, yes, certainly."

Robert Stephenson, who was then about twenty-seven years of age, was at once appointed as engineer, and instructions were given that he should prepare the necessary plans and documents for Parliament without delay. One gentleman asked if a narrow gauge of about 3 feet would not be cheaper than the 4 feet 8½ inches gauge which Mr. Stephenson proposed. The very suggestion of a "break of gauge" was more than "Old George" could stand. "This won't do," he remarked. "I tell you the Stockton and Darlington, the Liverpool and Manchester, the Canterbury and Whitstable, and the Leicester and Swannington must all be 4 feet 8½ inches. Make them of the same width ; though they may be a long way apart now, depend upon it, they will be joined together some day." This reply met with general applause, and the gauge question was finally settled for this railway, not another word being said upon the subject. This important meeting lasted for fully four hours, and it will be seen that before it concluded Mr. Ellis and his friends had succeeded in placing the scheme upon a sound basis. Therefore the Bell Hotel is without doubt the birthplace of the Leicester and Swannington Railway Company.

Mr. George Stephenson returned to Liverpool, and in a very short time the "sheet" was sent back, he having obtained the names of persons willing to provide one-third of the total capital of the Company, the list including many of the leading Liverpool merchants. These gentlemen afterwards became generally known as "The Liverpool party," and they had very great influence in this and many other railways.

Mr. Robert Stephenson accordingly immediately made the necessary survey, and the plans were duly completed. Practically he followed the route suggested by Mr. Stenson, but as far as possible he improved the gradients. At Bagworth the nature of the ground necessitated a very considerable rise, and no less than five alternative schemes were prepared, in order, if possible, to obtain a line over which locomotives could run ; but even the best of these plans required

<i>Names</i>	<i>Places of abode</i>	<i>Addresses</i>	<i>Shares</i>
<i>William Woodall</i>	<i>Doncaster near Doncaster</i>	<i>Clerk</i>	<i>1614</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1615</i>
<i>George Worthington</i>	<i>Liverpool</i>	<i>Esquire</i>	<i>Twenty</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1617</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1618</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1619</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1620</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1621</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1622</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1623</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1624</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1625</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1626</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1627</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1628</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1629</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1630</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1631</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1632</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1633</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1634</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1635</i>
<i>Thomas Wright</i>	<i>Harriet Donworth</i>	<i>Clerk</i>	<i>Four</i>
<i>ditto</i>	<i>Leicester</i>	<i>"</i>	<i>1636</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1637</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1638</i>
<i>ditto</i>	<i>"</i>	<i>"</i>	<i>1639</i>

At a Special General Meeting of the Company of Proprietors of the Leicester and Swannington Railway holden at the Bell Hotel in Leicester on the sixth day of September 1850 the foregoing Entries were made and the Common Seal of the said Company was affixed hereto.

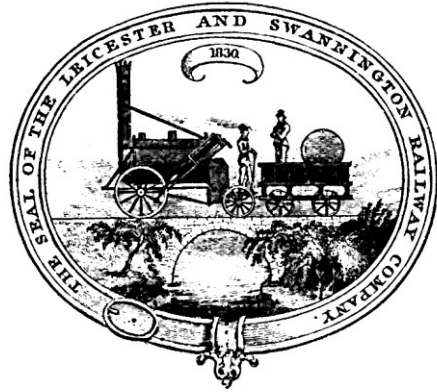
Chas^r. Winstanley
Chairman



FIRST REGISTER OF PROPRIETORS
(Now preserved at the Leicester Museum).

that a gradient of 1 in 66 should be constructed, an incline which was out of the question for locomotives in 1830. It was therefore necessary to fall back upon the original idea of a "self-acting rope incline." Robert Stephenson regretted this, for he wrote to his father, "I am most anxious to avoid this rope business."

The Company's Act received the Royal Assent on May 29th, 1830, being one of the very earliest, if not the earliest, railways to be sanctioned on the first application. Clause XIX. provided "That the said Company of Proprietors shall meet together at the Bell Hotel in Leicester, or at some other convenient place in Leicester aforesaid, within two calendar months next after the passing of this Act."



THE SEAL (full size).

This meeting was held on June 25th, 1830, when the Directors were appointed as follows:—

Clement Winstanley (Chairman)	.	Leicester.
Isaac Hodgson (Deputy-Chairman)	.	Leicester.
Robert Birkley	.	Leicester.
Benjamin Cort	.	Leicester.
John Ellis	.	Leicester.
James Goddard	.	Market Harborough.
Joshua Grundy	.	Leicestershire.
Thomas Leach	.	Leicester.
William Martin	.	Leicestershire.
Richard Mitchell	.	Leicester.
Richard Norman	.	Melton Mowbray.
Charles James Packe	.	Leicestershire.
Thomas Pares	.	Leicester.
Joseph Phillips	.	Leicester.
Thomas Stokes	.	Leicester.

At a Special General Meeting of the proprietors held at the Bell Hotel, Leicester, September 6th, 1830, 1,639 shares were issued, Nos. 1 to 1,639, of £50 each; the register of proprietors being sealed and signed—"Clement Winstanley, Chairman."

The Company's Act gave power to construct a railway from the navigable part of the River Soar, near the West Bridge, Leicester,

to the Hinckley and Melbourne Road at the northward end of the village of Swannington, together with four branches, extending to the Bagworth, Ibstock, and Whitwick collieries, and from the ancient Fosse Road to the North Bridge, Leicester. The three former branches were constructed at the expense of the owners of those collieries, but the North Bridge branch was never made, another branch to Soar Lane being afterwards constructed in lieu thereof. The main line (exclusive of branches) was 16 miles 5 chains in length to the junction with the proposed Coleorton Railway, and 16 miles 12 chains if the coalyard at Swannington be included.

No sooner did Robert Stephenson commence the work of the railway than he formed the opinion that there was coal at Snibston, and requested his father to come over. "Old George" was of the same opinion; he therefore induced his Liverpool friends, Joseph Sanders and Sir Joshua Walmesley, to join him, and in 1831 they purchased land and commenced to make the Snibston collieries.

The better to look after this important work George Stephenson, in 1833, left Liverpool and came to reside at Alton Grange, Leicestershire, and to this fact may be traced several of the railways in the Midlands of England.

The line from Leicester to Swannington was commenced in October, 1830. A large slate slab, forming the doorstep of the railway offices and directors' board room at West Bridge, Leicester, was used as the starting point for measuring distances. Its position on the ground was calculated to be 180 feet above the mean water-level at Liverpool, and hence it was used as the datum for the heights in the construction of the line. Ordinance datum marks are now recorded on buildings all over the country; but at the period when this railway was made they did not exist, and the engineers had accordingly to provide their own datum line from which to work. This datum forms the base-line, and although it is an imaginary one, yet on the contour or profile it forms the horizontal line from which all the vertical heights are measured.

Leaving the West Bridge Station, Leicester, the railway runs past Glenfield, the Groby branch junction, Ratby, Desford, Merry Lees, Thornton Lane, to the old Bagworth Station, thence up a self-acting incline to the incline house and station, then continuing past the junction of the Bagworth Colliery branch, and the Ibstock Junction to the summit at the Staunton-under-Bardon road-crossing, now known as Ellistown. The gradients were severe, but this was of little importance, as they were in favour of the loaded coal trains, the line having risen no less than 391 feet in a distance of 11 miles



WEST BRIDGE STATION, LEICESTER
(Opened July 17th, 1832. Closed March 13th, 1893).

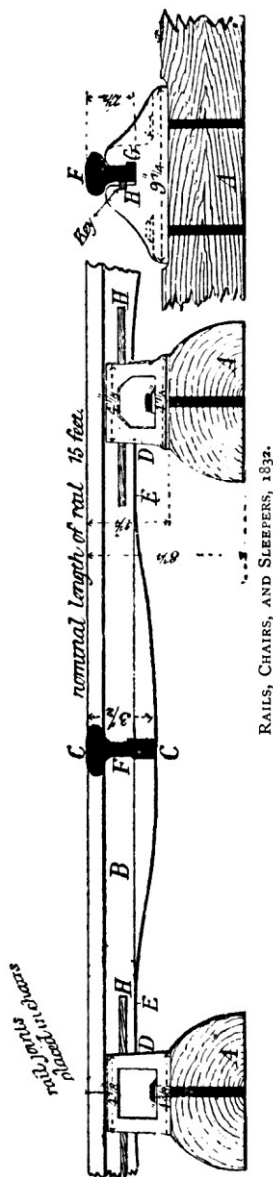
55 chains. Leaving the summit level, the railway passes Ashby Road Station (now known as Bardon Hill), the junctions of the Whitwick and Snibston No. 2 Colliery lines, the Long Lane Hotel and Station (now Coalville), and the Snibston No. 1 Colliery, to the fixed engine at the commencement of the Swannington incline, thence down the incline of 1 in 17 to the junction with the Coleorton Company's line and to the Swannington coalyard. The gradients from the summit to Swannington were so unfavourable that a portion had to be worked by a fixed engine and rope, and the other portion required the most powerful locomotives in existence at that period.



GLENFIELD TUNNEL
(Opened July 17th, 1832).

The principal work on the line was the Glenfield Tunnel, which commenced at a distance of a mile and fifty chains from Leicester. This tunnel is 1 mile and 36 yards in length, straight, level, built of brick, and has a single line of rails passing through it.

The course of this tunnel for more than 500 yards, near the Glenfield end, lay through loose running sand, the presence of which rendered it necessary for Mr. Robert Stephenson to construct a wooden tunnel to support the sand while the brickwork was being erected. So heavy did this work prove that the contractor was ruined, and he was unable to complete it. A second contractor declined to



continue the work, which the Company had themselves to complete at a largely increased cost.

The line was single throughout, except at stations and upon the Bagworth incline, and the gauge was 4 feet 8½ inches, this being one of the few early railways which had the gauge limited outside, the clause in the Act being as follows :—

“ LIII. And be it further enacted, that the distance between the inside edges of the rails of the said railway shall not be less than four feet eight inches, and the distance between the outside edges of the rails of the said railway shall not be more than five feet and one inch.”

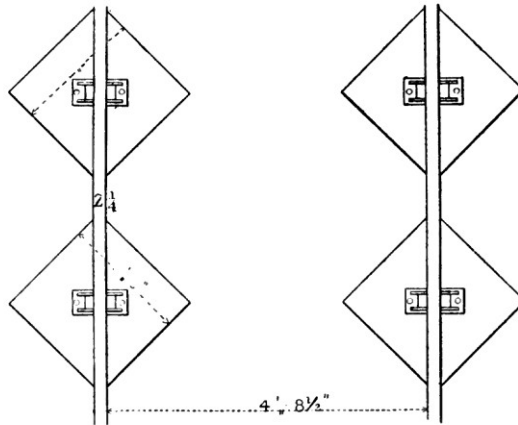
The rails were of wrought iron, of the elliptical, or more generally known as the “ fish-bellied ” pattern, nominally 15 feet in length, and when new weighed 35 lbs. per yard. They had a single head only, 2¼ inches in width, but the most peculiar feature was that the under side of the rail was curved, as shown in the accompanying diagram.

The extreme depth of the rail between the chairs (at C) was 3½ inches, tapering away in a semi-elliptic curve to 2½ inches at the chairs (D). At that time fish-plates were unknown, the rail joints being made in a chair. On the one side of the rail a lateral swell was rolled and continued throughout the whole length of the rail ; but on the other side it terminated (at E) before reaching the chair.

The chairs were of cast iron, a cavity being formed in each corresponding to the lateral projection on the rail. On the opposite side a similar cavity was cast for the purpose of receiving a long, thin,

wrought-iron key (H), which pressed the projection on the rail into the cavity in the chair, thus preventing the rail from rising upwards.

For $7\frac{1}{2}$ miles upon embankments the chairs were spiked to cross-sleepers (*A*), these being of oak of half-round section, bound at each end with an iron hoop. In cuttings for $7\frac{1}{2}$ miles the chairs were supported on stone blocks, 20 inches square and 10 inches thick, and through the Glenfield Tunnel the chairs were fastened to longitudinal timbers, held to gauge by cross-ties. It is an interesting fact that fully a mile of "longitudinal timber" road was here in use in the year 1832, or several years before the opening of the Great Western Railway in June, 1838—a fact which demonstrates that longitudinal timbers were first introduced by Stephenson and not by Brunel, as has been claimed.

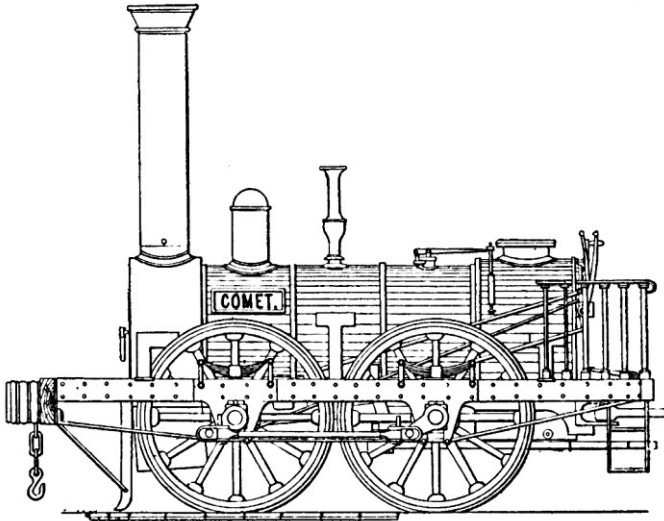


PLAN OF STONE BLOCKS.

It was soon found in practice that the stone blocks "required constant attention—lifting, packing, and keeping to gauge"; also that the riding over them was "harder than on the wooden sleepers." However, some of the stone-block road remained in use on the main line for a period of nearly forty years, and some even exists in sidings at the Swannington end of the line at the present day. The points were all of the old "slide" pattern.

The Bagworth incline was self-acting, the loaded waggons descending by gravity, pulling up the empty ones by means of a rope passing round a wheel at the top. This incline was 43 chains in length, and the gradient 1 in 29, and commenced at a distance of about 10 miles from West Bridge Station. A grooved wheel, 6 feet in diameter, was fixed horizontally in a square space under the rails at the top, round

which a hempen rope, 1,000 yards in length, passed. This rope weighed 2 tons, was 5 inches in circumference, and cost £60. The speed of the two sets of waggons upon the incline was regulated by a man riding on each train, and a brake could also be applied to the large wheel at the top. In the middle of the incline there was a loop, or passing place, and from this loop to the top there were three rails, the centre one being common to both up and down traffic. The object of this was to account for the width of the wheel and



THE "COMET" OPENED THE LEICESTER AND SWANNINGTON RAILWAY.

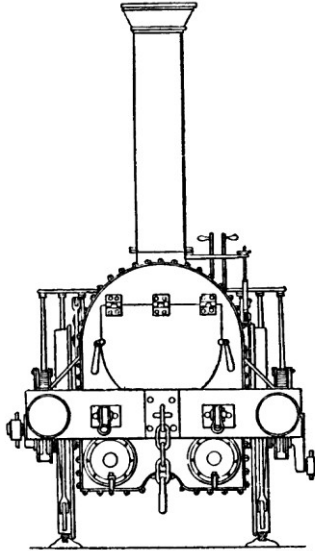
position of the rope; also to save the cost of a fourth rail, and yet not to have facing points.

The first locomotive engine for this railway was named "Comet," and was built by Messrs. Robert Stephenson and Co., of Newcastle-upon-Tyne. It was shipped by sea from Newcastle to Hull, thence by canal, and as the embankment close to Leicester was not completed, the engine was put upon the rails at the Fosse Road siding, and on the morning of Saturday, May 5th, 1832, handed over to the Company "in steam." To see the starting of the first locomotive which had ever run in the Midland Counties of England was a great event. Mr. John Ellis remarked to his son on that morning, "Edward, thou shalt go down with me and see the new engine get up its steam." Ten

Directors, the Secretary, Treasurer, Manager, Solicitor, and Mr. Robert Stephenson, Engineer and the maker of the engine, were also present.

Several satisfactory runs as far as the tunnel and back having been made, Mr. Stephenson formally handed over the engine with the remark that it was larger and more powerful than any he had previously built.

The Chairman of the Company, Mr. Winstanley, himself then took hold of the "regulator," and ran the party up to the tunnel and back. He then handed the engine over to Mr. Henry Cabry, the Company's "Engine Superintendent," and appointed Robert Weatherburn, an experienced driver, who had come from the Liverpool and Manchester Railway, as the driver of the "Comet."



THE "COMET" (front view).