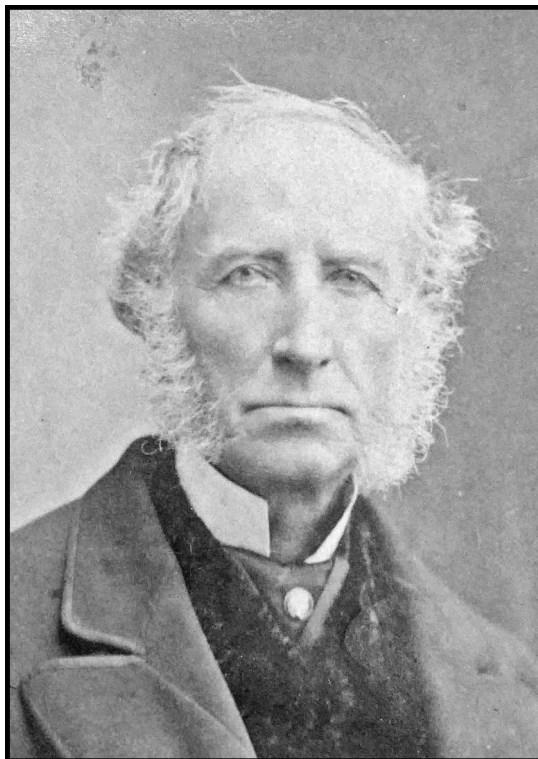


Luncarty's Engineer



George Turnbull

1809 to 1889

A short biography

John Andrews

Introduction

George Turnbull was a prominent engineer who spent his working life in nineteenth century Britain and in India. A man who was born into a family of Scottish industrialists, he became involved in a number of major engineering schemes in England and Wales before taking on the major task of surveying and constructing the East Indian Railway.

On his retirement to England he became actively involved in the life of the local community and the work of several important organisations. He was a deeply religious man whose memory is preserved by a memorial window in the parish church of the Hertfordshire village where he spent his final years.

I was motivated to find out more about the life of George Turnbull because he was born in the village of Luncarty, where I have lived for the past 10 years. His name seems to be almost unknown to most of the local people and little has been written about him, except on various specialist websites.

In writing this short biography, I have paid particular attention to aspects and episodes which will probably have more interest for the residents of the Perth area than any wider group, but make no apology for that. I have also highlighted some of the events of his life about which he himself wrote and which seem to me to be of a more general nature and shine a contemporary light on matters which to us are now merely 'history'.

My main sources have been George's memoirs and diaries, which are largely contained in the '*Autobiography of George Turnbull*', printed in London by Cooke & Co. in 1893. This volume consists of three distinct sections. The first is written in narrative form as memoirs and is clearly based on his own diaries and memories. When he died in February 1889, the task was continued by his widow, Fanny, basing her account on the diaries. This covers the period until the end of 1882 - at which point she decided that the final section should be a greatly curtailed account, reproducing only the most interesting parts of his later diaries. There are copies of this book in the National Library of Scotland and in the British Library. I have also made use of a small collection of George's original diaries and notebooks which are held in the Centre for South Asian Studies, which is part of Cambridge University.

I have used "*italics*" to show direct quotes from any of the above sources.

John Andrews

2018

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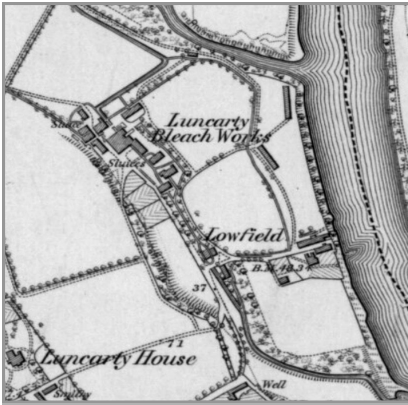
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Early life:1809-1827

Family connections

If you think about what kind of start in life might be helpful for a man destined to become an engineer, George Turnbull could hardly have been more fortunate. Being born in the early years of the Industrial Revolution into a family whose business depended heavily on constant improvements in machinery would appear to have been an almost ideal beginning.

In 1752 his maternal grandfather, William Sandeman, had established a bleachfield in the village of Luncarty.



Extract of Ordnance Survey 6 inch map of 1867

This was initially intended to be for the bleaching of thread, but soon expanded to treating cloth and, as the business thrived, large numbers of 'spinning jennies' were brought in to spin the cotton on site.

By the end of the 18th century the Luncarty operation was said to be the largest of its kind in Britain.

Before then, however, Sandeman had taken on a new partner, Hector Turnbull, who became the Operations Manager of the business. The two had such close links that there were five marriages between the admittedly large families of these two men.

In 1814, William Turnbull moved his family to live a relatively short distance away at Huntingtower, where another of the Perth area's bleachfields had been established some years previously, in order to manage that business.

A time for education

From George's diaries we know that he had no formal education until the age of ten, but was taught to read and write at home, largely by his oldest sister, Mary. However, shortly after his tenth birthday in **1819**, he was enrolled at the Grammar School in Perth, which had about 100 boys in attendance and whose headmaster was Mr Dick.

George spent five happy years at the Grammar School. He travelled the three miles from Huntingtower on a pony and was often accompanied by his father when he had business to carry out in the town.

These years were clearly successful as well as enjoyable, since he records that he carried off the first prize for Latin and Greek in every one of them.

At the Annual Examination of the different Classes belonging to the Public Seminaries of this City, which took place yesterday, in presence of the Magistrates, and the Presbytery of Perth, Prizes were awarded to the following young persons, in testimony of their general good conduct, and the distinguished proficiency which they had made in their respective studies, during the course of the last session :

I.—ENGLISH.

PRIVATE CLASS.

Miss Isabella Gray, . . . dux.
Catherine Wedderspoon, 2d.

PUBLIC SCHOOL.

1st CLASS.—Master Andrew, Hill, dux.
Mis' Ann Hunter, 2d.
2d do. Master Peter Davidson, dux.
Stewart Farney, 2d.
3d do. Miss Jessy Hepburn, dux.
4th do. Miss Helen Duncan, dux.
5th do. Master Andw. Morton, dux.
6th do. Master Robert Ramsay, dux.

II.—GRAMMAR SCHOOL.

→ 1st CLASS.—George Turnbull, 1st prize,
William Luke, . 2d do.
2d do. Alexr. Marshall, 1st prize.

Extract from the Perthshire Courier

In later years he looked back at this period of life in a loving family with a sense of regret that he had seen so little of his parents in the years that followed.

In **November 1824**, at the age of 15, he was sent to Edinburgh University, where he continued to study Latin and Greek - as well as a certain amount of Mathematics. In the second year he added a class in Natural Philosophy to his studies. It was at this time, that a family friend offered him a post in the East India Company, which certainly attracted him. However, his parents were strongly opposed to his going to India, so he declined the offer.

First steps in the world of work

In **March 1827** he took on the task of keeping the books of the Bleachfield Company at Huntingtower, a job that he worked at for a year and which gave him a good insight into business accounts. This served him in good stead for the rest of his life.

Nonetheless, he was growing restless, not really enjoying the nature of his work, "*nor the prospect of settling down as a Bleacher*". In addition, the combined team of his father and his brother William left no real opportunities for him to play a significant role in the business.

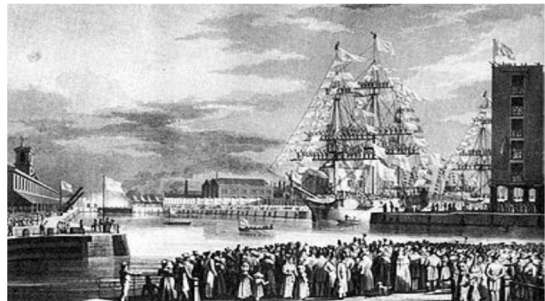
When his friend David Hogarth went to London to study engineering in 1828, George wrote to ask David how he liked the subject and if he thought that he himself might have the capacity to become an engineer. The reply was friendly and positive and included a plea to come and join him at the St Katherine's Docks. George reflected on the feeling that he must have had a natural bias in that direction, as he had always delighted in being around the machinery in the works and had already learned how to use many of the tools of the trade.

So, on **28th June 1828**, he left Dundee by ship for a 10-day voyage to London, where he took up lodgings with David Hogarth and discovered his new place of work.

At this point in his life he encountered for the first time the renowned Thomas Telford, who was the Engineer - in - Chief and creator of the St Katherine's Docks

project. He recorded that the Docks were partially opened shortly after his arrival, but that some work was well behind schedule.

George quickly familiarised himself with the London scene - seeing the sights and going for long walks with David Hogarth. One of these was said to have been about 35 miles.



The opening of the St Katherine's Docks In 1828

Career in England : 1828-1850

In **November 1829** he decided to make a trip home to visit his parents at Huntingtower. While he was there he received a letter from Telford's office saying that there was now a vacancy and that Telford suggested that he might like to take advantage of this opportunity. So, in **March 1830**, he took up the job of draughtsman and clerk to Telford, whom he described as a "*fine, hale and hearty old man*". This arrangement meant that he had to live in Telford's house.

Amongst the many well-known visitors to the house was the poet Robert Southey, a firm friend of Telford, who admired the design of the Clifton Suspension Bridge.

Perhaps surprisingly, one of the earliest tasks he was given by Telford was to make the drawings for the copperplate engravings which were to feature in the latter's memoirs or autobiography.

His artistic skills revealed.

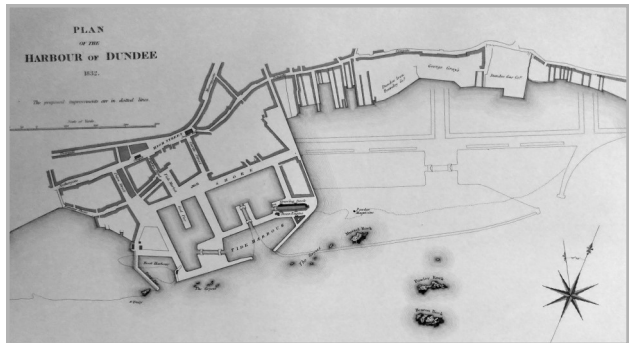
This proved to be a considerable piece of work and he was involved in making these drawings for the next two years.

The results can be seen in the substantial volume of plates which was published in 1838 to accompany Telford's autobiography. It contains a total of 83 plates of a remarkable variety of subjects. Most of the plates are large, having dimensions of approximately 13-14 inches by 18 – 20 inches. Many of them are copies of detailed plans for the construction of bridges, canals, harbours etc. Some even show such detail as small items of ironware and minor mechanisms.

Others are more truly works of art – skilfully detailed compositions which set the main subject in its landscape context.

Of this collection, 65 of them bear the information that they were drawn by

G Turnbull and a few more unattributed ones may also have been created by him.



George's plan of the harbour at Dundee

Career in England : 1828-1850

He soon found himself involved in a variety of on-going engineering projects. These included the Birmingham & Liverpool Canal, the Ellesmere Canal, Dean Bridge in Edinburgh, the pier at Herne Bay and the improvements to the London to Holyhead Road. However, his actual contribution to any one of these projects is not clear.

By this time he had been made an Associate of the Institution of Civil Engineers and found himself having to keep the Minutes of that organisation, which annoyed him greatly.

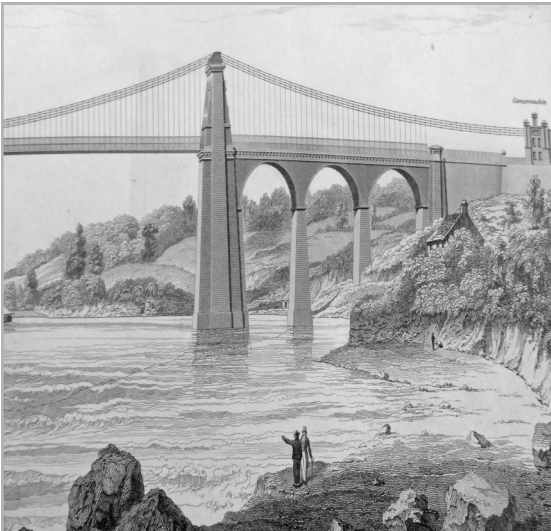
When Telford was asked to prepare a survey and report on the best way of supplying London with pure water, George was delighted to get out of the office and play his part in this work.

The scheme to provide fresh water for London made encouraging progress with the cooperation of a Parliamentary Select Committee.

The team was also engaged in a number of surveys of Scottish roads and in the design and construction of the reportedly handsome Broomielaw Bridge over the Clyde in Glasgow.

In the summer of **1832** he travelled north to visit family and friends in the Perth area, returning via a remarkable tour of the north of England, Wales and the Midlands. In doing so he viewed some of the great engineering

projects of the day including the Manchester to Liverpool Railway, the Menai Bridge and the Birmingham and Liverpool Canal.



Detail from a drawing by George Turnbull of the Menai Bridge

Career in England: 1828-1850

An item which appeared in the Perthshire Courier on **8th November 1832** suggested that this was a young man who had already acquired a wide range of skills and interests. It was there reported that, at the Anniversary Meeting of the Literary and Antiquarian Society of Perth, several donations were received. Among these was one from George Turnbull, associate of the Institute of Civil Engineers. It is described as *“Part of the oak pile, with the iron shoe, taken from the foundations of Old London Bridge”*.

During the following spring he spent some time working with Telford on an interesting scheme to produce craft referred to as ‘swift-going canal boats for passengers’. It was hoped that these might be introduced in many parts of the country, in order to compete with the railways. One experiment on the Paddington Canal made use of a long, light boat with 52 on board. However, nothing came of these experiments when the proponents were forced to conclude that it was futile to hope to compete with the railways in this way.

In **July 1834**, worried by reports from his mother of his father’s poor health, George once again headed north to Perth, where he was relieved to find things were much better than was first thought.

Heading for pastures new

Whilst there he received a letter from the prominent engineer, William Cubitt, inviting him to accept an appointment as resident engineer for the Marquis of Bute’s proposed ship canal and docks at Cardiff.

He agreed to this offer without

hesitation, but with some regret at the inconvenience that the move would cause to Telford, whose poor health was now a real cause for concern. Shortly after that Telford was taken seriously ill and died on 2nd September 1834, the only people present in the house then being George and a servant. George was closely involved in the subsequent arrangements and was one of a number of people who received a legacy via the will of Thomas Telford. These included Telford’s friend, the poet Robert Southey.

To William Charles Rickman, his son	- - -	Five hundred pounds	500	-
To Alexander Milne, of the Land Revenue Office	-	Five hundred pounds	500	-
To Colonel Pasley, of the Royal Engineers, Chatham	-	Five hundred pounds	500	-
To Robert Southey, Poet Laureate	- - -	Five hundred pounds	500	-
To Thomas Campbell, Poet	- - -	Five hundred pounds	500	-
To Thomas Stanton, Ellesmere, formerly my clerk	-	Four hundred pounds	400	-
To William A. Provis	- - - ditto	Four hundred pounds	400	-
To Joseph Mitchell, of Inverness	- ditto	Four hundred pounds	400	-
To George May, of Inverness	- ditto	Four hundred pounds	400	-
To Alexander Gibb, of Aberdeen	- ditto	Four hundred pounds	400	-
To William Anderson, Paddington	- ditto	Four hundred pounds	400	-
To John Pollock, Road Surveyor, my deputy	-	Four hundred pounds	400	-
To John Macenil, - ditto	- ditto	Four hundred pounds	400	-
To George Turnbull, my present clerk	- - -	Four hundred pounds	400	-
To the widow and family of the late John Mitchell, of Inverness, my deputy on Roads	- - -	Four hundred pounds	400	-
To the widow of Thomas Denson, on Canal	- ditto ditto	Four hundred pounds	400	-
To Alexander Easton,	- - - ditto ditto	Four hundred pounds	400	-

Extract from Telford’s will

Career in England:1828-1850

A brief note for 18th November records that on that same day he was made a 'Master Mason' in the Freemasons' Lodge at Cardiff.

After Telford's death George was offered employment by a number of friends and acquaintances, but would not be dissuaded from taking up the post in Cardiff, where he duly arrived in **September 1834**.

The intention was to create a new dock a short distance from the sea – to which it would be connected via a canal to be cut across an area of tidal mudflats. Plans were soon completed and preparations for the necessary works began. In the interim, George was asked to take time off to make a survey and plans of the ruins of Caerphilly Castle, to the evident satisfaction of the Marquis.

At the end of the year he took on a new pupil in the Cardiff office; this was Thomas Stevenson, son of the lighthouse builder Robert Stevenson.

The canal at Cardiff was opened in **February 1836**, but after that the work continued with some caution because of concerns about just how effective it would prove.

In **August 1836**, whilst back in London, he attended one of the first meetings of the British Association for the Advancement of Science and returned via Bristol, where he witnessed the laying of the foundation stone of the Clifton Suspension Bridge.

The first entry in his 'Memoirs' for **1837**, describing the journey to London, is worth quoting in full, as it paints such a vivid picture of the nature of road travel at that time :-

Having got formal leave from the Marquis to pay a visit to my friends in Scotland, I started on the 2nd January, looking forward with delight to seeing my dear father and mother, brother and sisters. Those were the coaching days, and very pleasant it was in fine weather, to sit on the box seat by the coachman, and see the four high bred horses driven along sometimes at the rate of a mile in four minutes, or 15 miles an hour. That was a rarity, but ten miles an hour was quite common.

The mail left Cardiff, having come from Milford Haven, at one p.m. I went with her, and stopped all night in Bristol, and off by Cooper's Coach from the Bush Inn early in the morning. There was heavy snow on ground, about 10 ft. deep near Marlboro', and cold work it was, sitting all day as I did on the top of the coach."

Career in England:1828-1850

In **February 1838** he had an attack of smallpox, which he calmly noted as having been just a slight one, since he was only in bed for 8 days. A short time later Robert Stevenson paid a visit to the Cardiff office to find out not only how his son was getting on, but also to inspect the works for his own interest.

In May he watched with many others an event which '*excited immense interest*'. This was the passage through the Bristol Channel of the 'Great Western' steam ship, returning from her maiden voyage to America.

Family life

A letter written in March by his father gives us an insight into the family's beliefs and approach to life. He wrote:-

"When you were here (at Huntingtower) I forgot to ask you how you disposed of yourself on Sundays. I cannot help thinking that it is a proper thing to attend some place of worship regularly on that day, and that you should go where you hear what you think is likest the doctrines of the Scriptures; and when I mention the subject of religion, I would recommend to you to allot a certain portion of time, daily (morning or evening, as most convenient), for reading a few chapters of both the Old and New Testament.

We see daily how true it is that our life here is but as a vapour, etc., and that it is appointed unto man once to die, and as it is only in the Scriptures (in what is there revealed to dying sinners), that a Door of Hope is opened to man in the view of death and judgment, it is well worth our while to keep in mind who it was that said; 'Search the Scriptures; for in them ye think ye have eternal life: and they are they which testify of Me.' This is that sort of consolation which is within your reach at Cardiff or elsewhere ; wherever your lot may be cast, and as long as you have your Bible, you may have access to that comfort of the Scriptures by which there is hope for sinners, even the chief."

On **12th May 1838** a report of a meeting of the Cardiff Literary and Scientific Institution included the information that, amongst donations made to the its museum was "*from George Turnbull Esq., civil engineer, a very fine specimen of the Ring-necked Pheasant (Phasianus Torquatus) in a glass case*". Reports from home in **1839** were that his father was in poor health and had retired from the business and that his parents were now living in Barossa Place in Perth.

Career in England : 1828-1850

October of that year saw the opening of the Bute Ship Canal, from that time to be known as Cardiff Docks, and George recorded the information that the total expenditure on the scheme to date had been £204,806 6s 2d.

The circumstances surrounding the opening had become somewhat difficult because of one or two practical difficulties and some friction between various parties concerning financial aspects of the scheme. It is clear that George was by now keen to move on and this wish was increased by outbreaks of Chartists' riots in parts of South Wales.

Chartists' Riots

He reported that large masses of rioters had come into Newport, where they had fought with soldiers posted there, and that 17 of them had been killed.

Moving northwards again

Fortunately, he almost immediately received an invitation to go and build a large new dock in Middlesbrough. After spending the early part of **1840** winding up his affairs in Cardiff, he learned that his father's health was once again giving cause for concern. His parents had moved to Barossa Place in Perth and his brother William was now running the Huntingtower business.

He broke his journey to Middlesbrough to admire the excellent stone in a quarry near Leeds, but reached there in April. The dock scheme required the construction of a large 'entrance lock' in the River Tees. George examined the already prepared plans and had to persuade his new colleagues that the design of the scheme was not the best one. Fortunately, he managed to obtain their approval for his alternative arrangement. He found the men who were the project leaders to be particularly sensible and agreeable, notably the local MP, Mr John Pease, and John Harris, the engineer of the Stockton and Darlington Railway.

In **August 1840**, becoming once again worried about his father, George returned to Perth, where he found him in an apparently good physical state, but suffering from "*a sad depression*" and imagining all sorts of non-existent problems and disasters. He took the opportunity to make a short tour of the Highlands in September with some friends, but was called back to Middlesbrough - leaving Perth in the expectation of never seeing his father again.

Career in England 1828-1850

In December his mother wrote him “*a beautiful . . . pleasant and cheerful letter*” that reveals more of the family’s habits and way of thinking. In this letter much emphasis is placed on the importance of their Christian faith and its practice. She explained that one of their relations had sent her three bibles and psalm books and that she would keep one of each of them for him “*as a memento of our pleasant and much regretted Millwynd meetings*”.

An increasingly busy life

A trip from Middlesbrough to Stirling in **January 1841**, to meet a business associate, was jeopardised by harsh winter weather.

He travelled by the ‘Chevy Chase’ coach from Newcastle, which stuck in the snow on Carter Fell, leaving the passengers to fight their way through the snow on foot to the White Leys Tollhouse. There they spent an uncomfortable night and had to wait for their luggage to be brought to them in carts before continuing to Edinburgh.

A further indication of George’s wide range of interests comes from the revelation that, in **April 1841**, he started to keep a meteorological register and continued to do so until he moved away from Middlesbrough.

Having had further news about his father’s failing health, he left for Perth on 17th August, but arrived too late to find him still alive.

In **January 1842** a detailed description of his observations of both the weather and the tides was published. He had been making tidal observations at Middlesbrough for over a year, as well as measuring the temperature, air pressure and rainfall. This enabled him to put together a publication which contained local tide tables. It also included such useful information as sailing directions for the river, navigation dues and pilotage charges. It sold for 6d a copy.

The Glasite Connection

Both the Turnbolls and the Sandemans were members of a small non-conformist sect known as the Glasites. They took their name from a Presbyterian minister, John Glas, whose parish was at Tealing in Angus.

In the early years of the 18th century he established a small 'breakaway' sect of Christians who believed in a very simple lifestyle and were opposed to any connection between church and state. He began by setting up a church in Dundee and shortly afterwards, in 1733, the first meeting house in Perth was built.



The former Glasite Meeting House in Perth High St.

The community became popularly known as the 'Kail Kirk' on account of the meal shared by all which followed the morning service. According to an article which appeared in the Perthshire Advertiser in February 1949 :- in the early years of the 19th century the Perth congregation split apart on doctrinal grounds and worshipped in two

locations in the High Street. The larger group met in the building on the corner of Mill Wynd which is still there. A plaque on its wall records that it served that purpose from 1839 to 1929.

The smaller remnant met in a hall which, as a 19th century Ordnance Survey map shows, was to the rear of the present Brown's chemist's shop in the High Street. This group became known locally as the 'Bread and Cheese Kirk'.



John Glas's daughter Agnes married Hector Turnbull, grandfather of George.

A key member of the Perth congregation was Robert Sandeman, the son-in-law of John Glas. Robert Sandeman later emigrated to America and there practised the same faith, his followers becoming known as Sandemanians.

A newspaper advert dated **February 1842** refers to the 'Tees Tide Table and Mariners' Almanac for 1842' by George Turnbull, Engineer, as "*a very valuable little manual to the many amongst our nautical friends who have occasion to frequent the ports on the Tees and adjacent ports in the North of England.*"

THE TEES TIDE TABLE AND MARINERS' ALMANAC FOR 1842. By George Turnbull, Civil Engineer, Middlesbro'-on-Tees. Printed and published by John Jordison.

This is a very valuable little manual to the many amongst our nautical friends who have occasion to frequent the ports on the Tees, and adjacent ports in the North of England. It is not necessary to say anything in favour of the utility of such a publication, for that is unquestionable; and for its accuracy, the name of Mr Turnbull is a sufficient guarantee; the tables being constructed from observations made by him during his residence at Middlesbro' superintending the construction of the Wet Dock and other important public works lately completed there. Besides the Tide Tables, it contains Sailing Directions for the River Tees, Navigation Dues, Rates of Pilotage, Rates of Towage to or from Stockton and Middlesbro', and much other information of the greatest value to the masters of vessels visiting the river. It is neatly got up, and altogether does great credit to the publisher, Mr Jordison, who will meet we trust, with that encouragement which he deserves.

From the 'Dundee Warder' 15 February 1842

The Middlesbrough Dock was opened on **12th May 1842** "*with the usual rejoicings and display of flags, and firing of guns great and small*". In August it became known that the Queen was to visit Scotland, travelling in a 'man of war' steamer, accompanied by a small squadron. A large party from Middlesbrough, George included, hired a tug boat and went out to look for those vessels. Unfortunately, the weather was bad and they had to return to port without seeing either Queen or squadron.

Railways take centre stage

The first passenger railway in Britain – as we understand the term – was the Liverpool and Manchester Railway which opened in 1825. This swiftly led to the period of ‘railway mania’ in the 1830s and 1840s, which saw the construction of thousands of miles of line across the country.

In September **1842**, George was taken on by William Cubitt to assist with the construction of the last stretch of the South Eastern Railway railway line from London to Dover. This part of the line encountered various engineering problems and did not reach Dover until 1844.

A rather amusing incident heralded his arrival in Dover with John Harris, on which occasion “*we had some difficulty in getting a conveyance to take us from Ashford to Dover, as the contractor’s people had hired most of the carts and carriages, but at last we got one – a sort of spring-wagon on four wheels, with a high rail all round and open at the top. When we came near to Folkestone the driver informed us that we were in the van that carried the prisoners to jail at Ashford*”.

The major work at Dover involved a deep cutting and two tunnels. He found the tunnels about half-finished. Mr Cubitt, it appears, had expected that the chalk roof of the tunnel would not need any lining, but when the line was opened, it was found that “*lumps of chalk occasionally fell from the roof on the passing trains – not a very pleasant contingency for the passengers!*”

The spring of **1843** saw him back in the north of England, where he and John Harris made a preliminary survey of a rail route to extend the Stockton to Darlington Railway to Carlisle. Accommodation in those parts was in short supply and they were forced to spend one night on a couple of chairs in a workman’s hut.

From that trip they arrived in Newcastle just in time for a meeting of the Anti-Corn Law League. After the Napoleonic wars there was a period of severe depression in the agricultural industry, during which the price of corn dropped by nearly 50%, thus causing severe losses in farming incomes. Consequently, laws were introduced which raised the prices of corn. This, however, had a serious effect on the lives of the many ordinary people who were unable to grow their own food and had to pay the high prices in order to stay alive.

Their cause was taken up by the 'League' and the situation remained a major nationwide topic for some years, until these laws were repealed in 1846. The speakers at the Newcastle meeting were the two 'leading lights' of the League, Richard Cobden and John Bright. George revealed in his diary that he and Harris were both of "*that persuasion*" and members of the League and that they "*greatly enjoyed the speechifying and proceedings.*"

Pulled in various directions

There followed another survey for the route of a prospective railway line, once again in the company of John Harris. This one was to be taken through Weardale into Cumberland – which gave them the opportunity for an excursion into the Lake District, where they climbed Helvellyn and enjoyed the grand view.

George now came under considerable pressure from William Cubitt to return to Dover and take on the challenging task of building the Shakespeare Viaduct and the associated sea defences, which would enable trains to reach Dover Harbour. The problem was to find a way of creating a wooden viaduct to carry the line along the seafront from the point where it emerged at the eastern end of the Shakespeare Tunnel – so as to reach the harbour. The plan in place was to drive wooden piles through the shingle of the beach so that they rested on the chalk beneath.

George knew from his experience at Middlesbrough that this was certain to fail because of the density of the material to be penetrated. Against strident opposition from almost all others involved, he insisted on carrying out an experiment to prove his point. He brought in the heaviest ram available and tried to drive stout pine logs, shod with iron tips, through the shingle.

The result was that the logs splintered under the tremendous pressure, so that their heads looked like 'broom besoms' - thus dramatically proving his point. His solution was to sink pits into the shingle and then dig out mortice holes in the underlying chalk to accommodate the vertical timbers.

An event of some interest was the visit by the Duke of Wellington in **November 1843** - to see how work was progressing. *"He walked over the ground where the viaduct was going on and seemed interested about it; he was very pale and old looking, and shaky on his legs, but in fairly good spirits. He went as far as the place where the great explosion of gunpowder took place and many thousands of tons of chalk were detached and sent forward into the sea."*

Ups and downs of family life

A distressing event occurred in **April 1844**, when he received news that his mother was dangerously ill, but she died before he could get home to see her. He wrote movingly of her *"sweet and loving disposition and her strong love and anxiety for her unworthy son."*

It was in **August 1844** that he first became acquainted with Jane Pope, a niece of Mrs Cubitt. They were married at St Margaret's Church, Westminster on 8th January 1845 and followed that with a honeymoon in Paris, before settling in to a house in Dover that he had purchased a few weeks earlier.

A rather extraordinary event in **February 1845** was the grounding of a Spanish schooner at low tide in Dover harbour – with the result that *"the beach was curiously strewn with bales of cloth and miscellaneous things; there were said to have been fifty pianos."* They were sold off for fifty shillings each.

Career in England : 1828-1850

Life goes on

In May a Mr Tucker, who was a director of the East India Company, came to dine with him. It soon became clear that Mr Tucker was “*most interested about railways for India*”. Whether or not George realised at the time the significance of this conversation for his future career, he does not say.

They talked over some of the potential hazards of constructing railways there, e.g. the likelihood that embankments would be washed away by floods and that sleepers would be eaten up by the white ants. George expressed the view that such problems could be overcome and added that “*I would like very well to go out to India to make a railway.*”

A new project in the north required him to serve as the engineer for a complicated task later in **1845** - to construct the Seacombe Wall sea defence which helped drain the marshes behind the town of Seacombe.

After holidaying in Scotland for some weeks in the summer of **1846**, he accepted an important new commission, joining William Cubitt in London,

where he had agreed to be resident engineer for a 20-mile stretch at the London end of the planned Great Northern Railway.



King's Cross
Station

This was to involve him in constructing

various cuttings, a number of tunnels and overseeing the drafting of designs for King's Cross Station. He found temporary accommodation in a house that had belonged to William Wilberforce and bought a horse to make it easier to take trips along the route of the proposed line when necessary.

For the next few months he was very busy making drawings for all the various works to be carried out in the section for which he had responsibility.

Career in England : 1828-1850

The entry for **June 1847** describes a set of circumstances “*which caused some stir and amusement amongst my relations.*” This was the surprising discovery that he and a number of his closest relatives were ‘heirs of entail’ to the estates of Castle Huntly, near Dundee. The explanation for this curious state of affairs was that the grandfather of George Paterson, the owner of Huntly, had rather fancied the woman who was to marry George Turnbull’s grandfather and had gone to the unusual length of including her name in the original deed of entail.

The first news of this fact came in the form of a letter from George Paterson, asking for his cooperation in supporting a bill in Parliament, whose purpose was to cut off this potential inheritance. There followed a “*grand meeting of the “Turnbull clan’ in Edinburgh*”, on which occasion they happily surrendered these rights, in view of the fact that the chances of their ever profiting from the situation were extremely remote.

The Great Northern Railway

One of the early problems with the work on the Great Northern Railway was that the quality of the bricks coming from their suppliers was found to be very poor, so George and his colleagues set up their own brick works at Enfield.

In September he found it necessary to buy a new horse, called ‘King of the Belgians’, because the old one was suffering too much from the harsh conditions associated with being constantly out around the works in all kinds of weather. George commented that he could only afford second rate animals, but a clear indication that he was making his mark in ‘Society’ came when he was invited to attend the Cutlers’ Corporation Dinner, which he found very interesting and at which the Lord Mayor presided.

This was followed by the completion of Holloway Bridge, which he had designed and of which he was proud, though admitting later that its construction was unnecessarily heavy.

In November, accompanied by his brother William and a friend called John Lindsay, he embarked on a holiday in France. One of the highlights was a visit to Mons. Marrast, President of the National Assembly [Armand Marrast 1801-1852], who arranged for them to observe a session of the Assembly. The following day they took part in a ‘grand fete’ to mark the Proclamation of the Constitution of the Republic.

Career in England : 1828-1850

The description of the events of December gives us much detail about progress on the railway and associated projects. One of the more challenging aspects was the digging out of a vast amount of clay to accommodate the new Copenhagen Tunnel. It was so named because a former residence of the Danish Ambassador had stood on the hill above. George also had to devise a method for taking the railway under the Regents Canal.

A major difficulty now arose in relation to the cement being used for the Tottenham and South Mimms tunnels. Because the demand for cement was now so great, it was proving almost impossible to obtain good quality material, with the result that only 'inferior stuff' could be found.

Consequently, the use of cement in the tunnels was abandoned and an alternative substance was created. This was done by drying and grinding into powder the blue clay which was being excavated for the tunnels and then mixing that with lime. It took longer to set, but became very hard. This was later marketed as Portland Cement.

In addition to pursuing his many other interests, George had become a Fellow of the Royal Astronomical Society and in December he attended a meeting of the Society at which Prof. Airey read a paper on the 'Electric Telegraph'.

The final entry for the year reads: "*And so closed 1849; not a year of many events, except that an enormous quantity of work was done on the railway, and no doubt I was overworked, especially on account of the tunnel works going on at considerable distances apart.*"

A big decision

One can sense from the Memoirs, written of course with hindsight, that he was beginning to feel that a change of course would be no bad thing. It was to come very soon and was a career-defining one. In **January 1850** he received a letter from William Cubitt asking if he would like to go out to India to be Chief Engineer of the projected East Indian Railway. His first thoughts were whether or not this would be right for his wife, who had become rather unwell in a general way and was easily fatigued. A visit to her doctor, however, produced the opinion that a move to a warmer climate would probably be to her advantage. With much encouragement from family members, the decision was taken to accept the invitation.

Life and Work in India : 1850 – 1863

At this time the East India Company was still, in effect, the government of India and its members had been leading discussions about starting to build railways in various parts of the country. The East Indian Railway Company had been set up in 1845 - about 20 years after the building of the first railroad in England.

Preparing the way

Much time was spent in agreeing and establishing the financial basis of the project - which was keenly promoted by Mr R Macdonald Stephenson. In 1845 he had taken a small party to India to survey a route from Calcutta to Delhi and this led to a lengthy period of deliberations about the best way of financing the scheme. Finally, in August 1849 a contract was signed between the East India Company and the East Indian Railway Company. The agreement reached was that the Railway Company should put up £1 million and that the East India Company should select the route and direction of the line.

It was decided that the line would be only a single one, but a number of other matters had to be settled, not least of which was the question of what gauge, i.e. distance between the rails, was to be chosen. This had been the cause of much friction in England, with disagreement about whether the dimension should be 7 feet or 4 feet 8 1/2 inches. Eventually it was laid down that a 5 feet 6 inches gauge was to be used.

In a long letter to the Secretary of the East India Company, William Cubitt set out in glowing terms the achievements and qualifications of George Turnbull and stated that the minimum salary that could be accepted was £2,000 per annum, not including expenses. He also sought agreement that George would have a right of veto as to the appointment of all the subordinate officers in his department.

Before he could depart for India, however, George needed to spend some time in making arrangements to hand over the work on the Great Northern Railway, in particular the design of the scheme at and around King's Cross Station. He found a particular interest in carrying out an inspection of the ancient underground watercourse known as the Fleet Ditch, with which the new drains would have to be connected. He noted that it was about 12 feet wide, had a depth of about 18 inches and was running at about 4 miles per hour and also that "*There was no offensive smell, the drainage was so good.*"



An extract of the 'Map of the East Indian Railway' which was made in 1846 by J & A Walker .

Reproduced with the permission of the National Railway Museum

The passage to India

George was now sufficiently well-known that on **23rd March 1850** the Hampshire Chronicle announced that “*Amongst the passengers by the steamer for India of the 20th instant was Mr George Turnbull, the resident engineer of the East Indian Railway Company, and his staff. A vigorous prosecution of the works is now looked for*”. The report went on to mention that a sum of a half a million pounds would be required for the first section of the line.

The memoirs describe the journey out in considerable detail, arriving at Alexandria, where they transferred to canal boats for an uncomfortable trip to reach the Nile and then a delightful sail up that river to Cairo. They were then disappointed to be bundled into cars almost immediately for a drive across the desert – the cars starting at 6 am “*at a furious pace.*” The ‘cars’ are described as “*simply wooden boxes mounted on one pair of wheels to each*”.

The distance covered along a rough track from Cairo to Suez was about eighty-four miles. Having departed at six in the morning they arrived in Suez at ten pm, shaken up and exhausted. The party eventually reached Calcutta on 30th April, just under 6 weeks since they had embarked at Southampton.

George set about the new challenge without delay. Initially, he was to take responsibility for constructing a line from Calcutta which largely followed the Ganges to Benares (now Varanasi) - a distance of about 550 miles.

The general direction of the line had been agreed, but the precise route would have to be arrived at by a more detailed investigation of the terrain.

Immediately at work

A few days were spent in meeting up with key people in the area and liaising with Government officials, but on 7th May George and two companions set out on an expedition to “*see the country*” between Calcutta and the town of Burdwan. This was the district to be crossed by the first section of the new railway. It took them from 4 am to 10 pm to cover the first ten miles, for which the blame was largely attached to the fact that the horse they had been provided with proved so feeble that they walked almost all the way.

The journey to Burdwan, a distance of 66 miles, and back again was undertaken in uncomfortable heat and humidity and they returned to Calcutta on 11th May, having achieved very little. The experience of this first foray must have given George a clear idea of the physical demands that he and his team would be facing in such a new and unfamiliar environment.

In an account of this nature it is unnecessary and would be tedious to attempt to describe the day-to-day progress of the work which occupied the 'railway builders' during the following 12 years. All I can reasonably do is try to relate some of the most significant problems which faced them and their achievements, whilst touching on the other more interesting aspects of their life in that period.

Facing up to hazards and personal disaster

The main purpose of the line was to connect a number of major cities situated along the plain of the Ganges and its tributaries on its way from Calcutta to Delhi. The nature of the land to be crossed, though mostly flat, presented enormous challenges in the form of vast swathes of unstable mudflats, numerous large rivers to be crossed and constant threats from flooding. The climate also left its mark on the progress and all those involved found themselves overtaken from time to time by bouts of fever and comparable health difficulties.

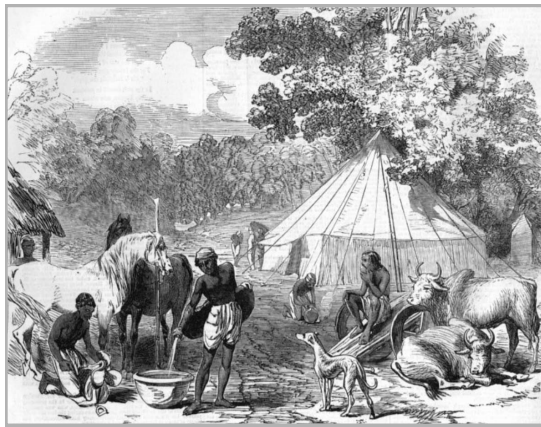
One of the most infuriating early obstacles was the lack of cooperation from Government officials. The need to survey and mark out on the ground the route to be followed necessitated the cutting down of trees and the removal of other barriers along one stretch, but this was frustrated by the failure of the Government to give permission for entry onto private property.

Whilst grappling with this problem George was suddenly overwhelmed by the death of his wife, Jane, from an attack of fever. He later wrote: "*I shall make no attempt to describe her, nor how much I loved her, how we were married, how happily we lived together for a few short years, and how I lamented her death.*"

Solving early problems

The deadlock over the lack of right to go onto private property was effectively threatening the progress of the entire project, with an additional prohibition on cutting down any trees or damaging native huts or buildings. The matter came to a head when George, exasperated beyond measure, decided to take matters into his own hands. Having concluded that there would be no risk to anybody other than himself, he gave orders for a strip of land 100 feet wide to be cleared through the trees. This was done in a very short time and, although he was warned not to do it again, no other unwanted consequences resulted.

One of the most daunting obstacles to be faced was the crossing of River Soane, a major tributary of the Ganges. On reaching the location which appeared to be the best one for a bridge, they calculated that the width of the river was a fraction over one mile. This was done on a trip from Calcutta to Patna, a distance over about 400 miles.



A surveyor's camp

For much of this journey they each travelled in a palkee, which was a kind of litter attached to long poles and carried by men. George noted, with evident relief, that these men appeared to be perfectly untroubled and happy in their work.

For obvious reasons, the availability of coal was of some importance. Whilst visiting a colliery in the area, they found that the work of bringing up the coal from the mine was being done by women and observed that *“they all seemed well-fed, fat and merry; they had brass bangles on their legs or ankles, bracelets, nose rings etc. and very slight clothing”*.

Life and Work in India : 1850–1863

Overcoming challenges

An issue of considerable concern was the matter of suitable wood for the sleepers, since there was a general expectation that they would be attacked by white ants and rapidly destroyed. An attempt to avoid that outcome by impregnating the wood with mineral oil proved unsuccessful.

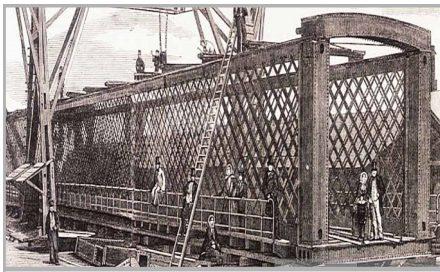
In the end the decision was taken to use a very hard, dense Indian timber known as sal. However, it was later discovered that the ants could not tolerate the disturbance and shaking cause by the passage of trains, so the potential difficulty was greatly diminished.

The siting of the terminus station at Calcutta was a cause of much debate. It was, however, decided that it could not be built on the same side of the mighty Hooghly river as the city, because no viable method could be devised to bridge the river in view of the ground conditions. As a result, the location chosen for this was on the opposite bank at Howrah.

George himself was closely involved in the design of this building, but he had first to overcome the opposition of the local Government representative, who was outspokenly antagonistic to the development of the railway network and went out of his way to put as many obstacles as he could in the way of the scheme.

The creation of the railway was not going to be solely for the benefit of travelling passengers. Its arrival was eagerly awaited by the owners of collieries upstream, whose trade was much hampered by having to send their commodity down to the port of Calcutta in small boats. These were frequently prevented from making the trip because of insufficient depth of water. Their optimism proved well-founded as it was reported in 1879 that the amount of coal transported by the railway was ten times that which had been the norm before its construction.

Sourcing the materials needed was a major difficulty. The local Indian iron was found to be of unsatisfactory quality and most of the rolling stock and the superstructures of the bridges were manufactured in England and shipped out to India, as were all the rails.



Span of a railway bridge being built at Dudley, near Birmingham, in 1858

Life and Work in India : 1850–1863

Not surprisingly, therefore, advertisements seeking tenders to supply the essential commodities were to be found in a variety of British publications. One such, which was placed by the Secretary of the East Indian Railway Company in the London Daily News on 20th March 1855, sought tenders for the supply of 30,000 tons of rails.

On 11th July 1856 the Chelmsford Chronicle published a description of a visit to the Orwell Iron Works in Ipswich, in which the following account is to be found.

"The RAILWAY FITTING SHOP is devoted to the manufacture of turn-tables, wrought iron rails, switches, and crossings for every railway at home and abroad. There are as many as 20 iron turn-tables in this shop for the East Indian Railway, forming between Calcutta and Delhi, - in fact all the cast iron work for this railway has been executed by Messrs. Ransomes and Sims."

It was not only materials and equipment which were in demand back in Britain. In the Newcastle Courant on 19th September 1856 there appeared:

WANTED, BRICKLAYERS and BRICK BURNERS. Messrs. John Ward and Co., Contractors for a section of the East Indian Railway, want FOUR GOOD BRICKLAYERS and FOUR GOOD BRICK BURNERS, single men under 30, to proceed to India for three years.

On 26th June in that same year the columns of the Morning Advertiser contained :-

EAST INDIAN RAILWAY COMPANY.

WANTED, FIVE thoroughly qualified INSPECTORS of BRICKWORK, to superintend the construction of large Railway Bridges. Salary 6l to 7l, per week. Age not to exceed 35. None need apply but those who have had considerable experience in works of this nature, are of sound health, and can give unexceptionable references. Apply to J. M. Rendel Esq., 8, Great George-street, Westminster.

Not all that was sent out to India actually arrived at its destination. The hazards of sea travel at that time were very great. Until the opening of the Suez Canal, ships had to undertake the long sea voyage around the Cape of Good Hope, and this resulted in some considerable losses. One shiplot of railway carriages went down in a storm with the ship that was carrying them.

Life and Work in India : 1850–1863

Nonetheless, by 1859 the line was operating with 77 engines, 228 coaches and 848 freight wagons.

Another major obstacle was the difficulty of moving huge volumes of materials from Calcutta up the Ganges on primitive boats, particularly during the period of the Indian Mutiny when many boats were sunk and materials stolen.

A fascinating glimpse of the way in which the Railway Company eventually addressed this particular problem can be obtained from the following item, featured in the London Daily News on 23rd September 1859.

STEAMERS AND BARGES FOR THE GANGES.

On Wednesday there was a trial trip on the Tyne and at sea of one of a series of eight steamers which, with a barge each, are being built for the East Indian Railway Company. The eight steamers and two of the barges are being built by Messrs. Charles Mitchell and Co., Low Walker Iron Shipbuilding-yard, the remaining six barges being built on the Mersey.

Both steamers and barges are of a peculiar construction. They are designed for the navigation of the rivers of our Indian empire, especially of the Ganges; and as in dry season the waters of these rivers are in many places not more than 2 ½ or 2 feet deep, the vessels are being constructed on a principle which will combine the maximum amount of power in the steamer, and of freight in the barges, with the minimum amount of draught of water in each.

The line starts to take shape

It was in a distinctly understated way that George noted in his diary that, on the **19th April 1852**, “*the first piece of permanent-way was laid at Serampore.*”

Exploratory journeys further inland brought them to the city of Patna, described as, inter alia, “*the emporium of the opium trade*”. This was a Government monopoly. He observed that “*cultivation of the white poppy is here, in Behar, strictly under Government supervision, brought in in a crude state by the cultivators and manufactured by a simple process into balls ready for market, and sent down to Calcutta for shipment.*”

George had soon to turn his attention to the small matter of the Soane crossing, a particular challenge because of its unstable banks and the fact that it could at times of flooding become as much as three miles wide.

Life and Work in India : 1850–1863

In that locality he found much to admire in the design and durability of some of the very old bridges that had been built “*mostly by Mohammedans*” and made sketches of one or two. As with many of his trips, made normally on horseback, this one was punctuated by bouts of fever, which both he and his companions were having to learn to manage.

In **April 1853** he made his first visit to the ‘Taj mehal’, which he described at considerable length, observing that “*no description can convey an idea of the extreme beauty of this building*”.

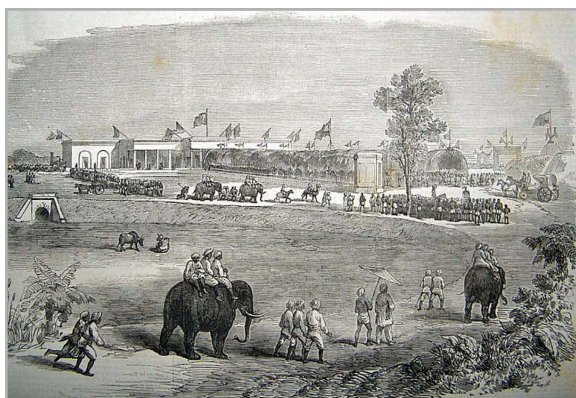
Rapid progress

By the spring of **1854** the operations were in full swing and he was very busy designing bridges and other structures. The Memoirs describe an important event on 28th June as follows:- “*On the 28th June a first trip was made with a locomotive . . . from Howrah to Pundoah, 27 ½ miles, and back to Howrah. This was the first appearance of a locomotive on an East Indian railway and was considered to be an event of some importance.*”

In August, “*On the 15th the railway was opened for public traffic to Hooghly, 23 ½ miles without any attendant ceremonial, very successfully, great crowd of natives, especially at Serampore, who took the matter very coolly to all appearance.*”

During the first 16 weeks, the company carried 109,634 passengers: 83,118 third class, 21,005 second class and 5,511 first class.

It is an interesting observation that this was only six years later than the arrival of the railway in Perth.



Opening of the East Indian Railway at Burdwan in 1854

Life and Work in India : 1850–1863

In **April 1855**, following the opening of further stretches of the line with much celebration and in the presence of the Governor General, Lord Dalhousie, George successfully applied for leave of absence and set off for home. He spent a few days in London dealing with business matters before heading north and arriving in Perth on 25th June.

Back in London a short while later, he took the decision to propose marriage to Fanny Thomas, with whose family he had been friendly for some time – *“having many doubts whether she would accept me.”* His fears were, however, unfounded.

Because Fanny was a half-sister of his former wife, Jane Pope, there were some concerns whether a marriage taking place in England would be legally valid, so, to avoid any risk of challenge, they resolved to be married in Switzerland, *“where such marriages are not unusual”*.

On 26th September, accompanied by many friends and relations, they were married in a civil procedure in the Hotel de Ville in Neuchatel. The religious ceremony took place on the following day in the cathedral. The journey onward to India began with a traverse of the St Gotthard pass and included a visit to Venice before they reached Calcutta in early November.

Shortly after his return George found his responsibilities increased when the Bengal Government appointed him Commissioner for the drainage and sewerage of Calcutta.

Family life also took a new turn with the birth, on **14th July 1856**, of a daughter whom they christened Mary Ellen, but whom he always referred to as Nelly.

Troubled times

In **1857** the country was shaken by the events of the ‘Indian Mutiny’ and this had a huge impact on the Ganges region between Calcutta and Delhi. In June George found himself drafted into the Calcutta Volunteers. He recorded the death of his locomotive superintendent and a few companions at Allahabad, where they had been imprisoned by the mutineers, and that they had received the news of the fall of Delhi very soon after that. Worse was to follow with the massacre of many Europeans at Cawnpore.

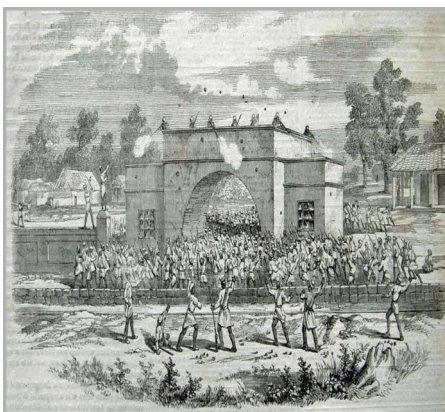
Life and Work in India : 1850–1863

On **12th September 1857** the Leeds Intelligencer published a letter from a young Irish soldier serving at Allahabad, which paints a stark picture of the horrifying events :-

“There were four of the railway officers killed and some others grievously wounded, while trying to escape from their houses. One of the railway officers killed about five of his assailants and escaped, but much injured. A party of fifteen gentlemen, ladies and children, took refuge for some days on the top of a little building thirty miles from this. They were surrounded by the villagers, who threw stones at them, called on them to renounce Christianity, and become Mussulmans.

At last they burnt a lot of wood and straw round the building to try and worry down the refugees, who were in the last extremity, when a party of forty Oude cavalry arrived, whom we sent out to their relief.

One lady, the wife of Major Rynes, died after coming down off the little perch on which they held out for so long. The rest of the party, including Mr. Snow, of the East Indian Railway, were conducted in here without casualty by the cavalry. This is one of many similar instances of great risk and suffering. I cannot say more - the heat is intolerable. Just try your foot in water while the thermometer is 118 degrees, and then think of us who are surrounded with and breathe for days in succession an atmosphere of that heat.”



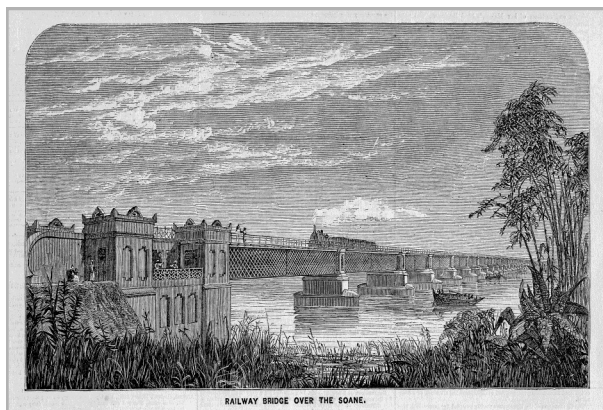
East Indian Railway water-tank at Barwarie, defended against the mutineers for thirty-two hours. From the Illustrated London News, 2nd January 1858

Life and Work in India : 1850–1863

The following report appeared in the 'Illustrated News of the World' on the **17th April 1858** :-

“RAILWAY BRIDGE OVER THE SOANE

The accompanying engraving represents the bridge now in course of erection on the East Indian Railway across the river Soane not far from its junction with the Ganges.



The bridge will consist of twenty-eight clear spans, of 150 feet each, and its total length will be 4,700 feet, or seven-eighths of a mile. The superstructure is entirely of wrought iron and has been manufactured in this country by Messrs. W. G. Armstrong and Co. of Newcastle.

The rails are laid on the tops of girders, which are of a lattice construction, specially designed with a view to their easy transport to, and re-erection in India. The space beneath the rails forms an excellent way for foot passengers.

The piers are founded on the Indian method, on wells sunk through the sandy deposit, which forms the bed of the river for some depth, to a lower stratum of clay. Each pier will be supported on twelve such wells, domed over and built up together solid above the lowest water level.”

Progress, but not fast enough

George now came under pressure from the Government to push ahead with the railway construction as fast as possible to facilitate the movement of troops. There appears to have been growing dissatisfaction in some quarters at what was perceived to be the slow progress made in taking the line further.

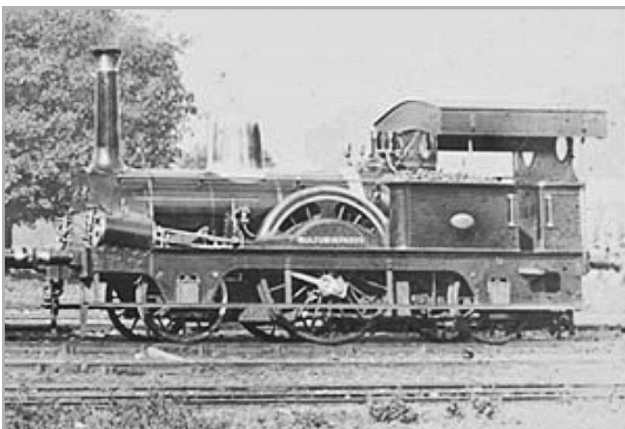
Life and Work in India : 1850–1863

This is an extract from a somewhat scathing letter which was published in a journal called the Homeward Mail on **16th January 1857**:-

“The Indian journals contain the report of Mr. Turnbull, the chief engineer of the East Indian Railway Company, on the works executed in the official year ending the 30th April, 1856, We give a summary of the contents of this document in another column. The impression upon the spot is still far from favourable as regards the progress of the works. A local journal remarks, somewhat disparagingly “It will be seen that those who calculate on travelling to Rajmahal by rail in the year of our Lord, 1860, may yet possibly be gratified, and as other parts of the line are also in progress of construction, the whole road may be available before the present generation has been removed from this vale of sorrows.”

The matter was also being discussed in the British Parliament and in July 1857 the House of Commons debated a motion which read:

“The slow progress of the East Indian railways involved danger to the military occupation of India, and retards the development of the industrial resources of that country.” The motion, however, was defeated.



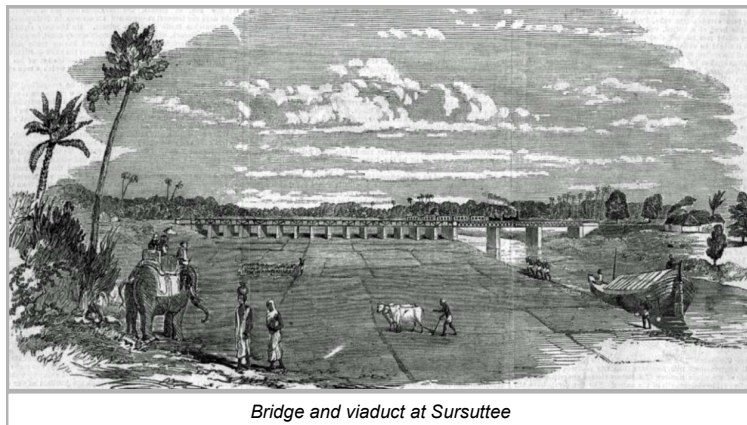
One of the earliest locomotives used on the East Indian Railway.

One might wonder to what extent those back in Britain truly appreciated the effects of the construction of the line that must inevitably have resulted from the turmoil of the uprising. However, by the **beginning of 1859**, things were gradually returning to normal.

On 10th February Fanny gave birth to a second daughter, Rose, but the child was far from strong and, in August of the same year, she died from whooping cough.

Life and Work in India : 1850–1863

George set out on a lengthy tour of inspection during the summer months, being anxious that the extension to Rajmahal should be expedited, but gravely troubled by the knowledge that, in the building of a part of this stretch, in the form of a cutting at a place called Seetapuhar, many of the workers had died.



Outbreaks of cholera were now causing enormous numbers of deaths amongst the Indian population and, on one inspection trip, many bodies were to be seen lying around, numbers of them very close to their tents in the jungle.

It was during such a tumultuous period and in such a such an inhospitable environment that, on **17th March 1860**, their first son, George, was born.

Successes and rewards

Eventually, however, the extension to Rajmahal was completed. On **15th October 1860** a train, carrying a contingent including the Governor General and about 200 gentlemen from Calcutta, left that city at 8.30 am and, with pauses for meals etc., covered the 200 miles to Rajmahal by 5 pm.

A grand dinner followed, during which *“The Governor General made me sit on his right hand, and I had to make a speech in reply to the toast of my health. I took the precaution to prepare my speech, wrote it down and conned it well. So when it came to the push I found no difficulty about speaking it.”*

Life and Work in India : 1850–1863

George's achievements were now bringing about new developments unconnected with his immediate duties. The Assam Tea Company had a Board of Directors in Calcutta and he was invited to join the Board, but his enthusiasm for this role rapidly waned as he found the Board's proceedings "*unsatisfactory*", and he soon resigned. This was not, however, before he had purchased fifty shares in the Company at £20 each – a move which he later described as "*the best investment I ever made; the shares now sell at about £85.*"

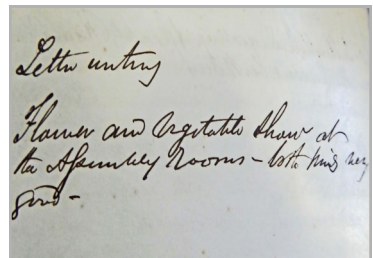
Further recognition came in his appointment as a member of the Syndicate of the Calcutta University, which he considered a high honour.

Aspects of life in India

That this was a man of many interests and talents is made even more apparent by looking at the small collection of some of his diaries and notebooks which have survived and are kept in the Centre for South Asian Studies in Cambridge. They also tell us more about the nature of the daily life of those with whom he and Fanny associated whilst living in India and about the environment by which they were surrounded.

The diaries reveal that it was almost unheard of for them not to attend church on a Sunday, but it was by no means always to the same place that they went. Often they were present at the cathedral in Calcutta, but on many other Sundays they went to the 'Free School Church'. There is no evidence of any Glasite meeting house in India and in the later years of their lives they were steadfast adherents to the Church of England. On some occasions George took the trouble to record the subject matter of the sermon.

Visits to and by a range of other British residents were frequent and we gain occasional glimpses of a rich social life from such discoveries as that friends often called for 'tiffin' and from diary entries such as "*Ball at Gov't House given by Lord & Lady Canning*" and the extract on the right for 28th March 1861, which reads "*Flower and Vegetable Show at the Assembly Rooms – both being very good.*"



Life and Work in India : 1850–1863



There was a huge amount of travelling around that needed to be done, often in very trying circumstances, and the variety of means of transport used was rather remarkable. In addition to those methods previously referred to, we find that river boats were sometimes employed.

Once the rails had been laid, some journeys were undertaken on one

of the Company's locomotives and, not infrequently on a 'trolley' – a kind of cart on rails as shown in the photograph above.

The many and varied entries in his notebooks include numbers of pencil sketches, mostly crude and evidently hurried, but some show greater attention to detail and provide further evidence of his ability in drawing, which, in view of his profession, was not surprising.

His descriptions of the sights and sounds of the natural world in India at that time may be particularly fascinating to us, for examples:-

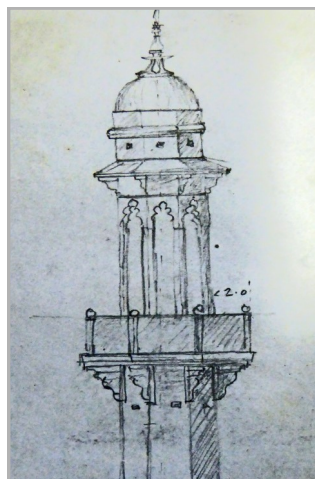
"The dogs troublesome at night – Jackals as usual making a disturbance."

"Heard Hyenas howling, but saw none. The large dun coloured monkey is plentiful."

"There are few or none of tigers (in the area), but a few of Leopards and Bears."

"The Country seems to swarm with white ants."

"There are snakes of various kinds – the Cobra and one called the whip snake are most venomous."



This sketch of a minaret is a typical example of a pencil sketch

The task nearing completion

There is a particularly fascinating account in the Memoirs of his ideas for constructing a bridge which could in the future bring the railway across the Hooghly into Calcutta. He explains that, for such large spans a suspension bridge is not possible because “*the undulating motion is almost a fatal objection*”. He strongly advocates a system using ‘lattice girders’ and expresses interest in having found out that this system will be used for the railway bridge that is to be built across the Forth at Queensferry. He comments that patents have been taken out, but that in fact this is no novelty at all as the method was used long ago in Egyptian temples and in little wooden bridges in Tibet.

In **December 1862** the line reached Benares, some 550 miles from Calcutta, but, by that time George had already arranged his retirement from the Company.

Earlier that year, in April, the entire workforce had presented him with an ‘address’ which is reproduced in full in his Memoirs. It says much about the character of the man that the address includes the following:- “*our chief object in addressing you now is to mark the sincere respect and esteem felt by all of us . . . for the constant kindness, and for the unfailing zeal in promoting the good of us all, shown by you for a period of nearly twelve years.*”

In a clearly heartfelt response George observed: “*You have alluded to the success with which those works have been executed. It would ill become me to take all the credit for that success . . . I may truly say that in carrying into effect the construction of these great works your efforts have been indefatigable . . . These exertions with engineering skill have combated and overcome difficulties of no ordinary kind.*”

Homeward bound

It was on the **9th of April 1862** that George and family sailed from Calcutta on the homeward journey, arriving in England on 21st May. There followed a few months of meetings and visits to friends and family. However, in September he again set sail for India and, on arriving, found himself having to deal with some awkward disputes about the management of the railway.

Rather more enjoyable was the visit to the recently completed great Soane Bridge, "*which we carefully examined and found all in beautiful order.*"

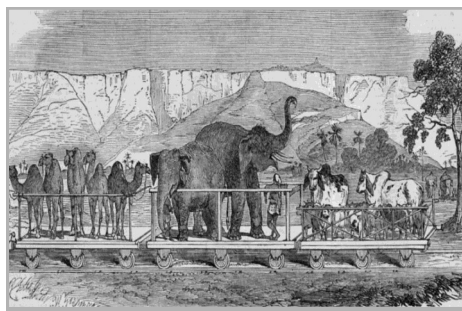
Further tours of inspection took him along many sections of the line, but not all was work. On **1st January 1863** he wrote "*Ascended Parisnauth from the north. It is 4,483 feet high; a grand mountain; view is magnificent*".

A few days later George was informed by Lord Elgin, the Governor of Bengal, of the proposal that he should be knighted on the opening of the railway to Benares. He avoided giving an immediate answer, explaining that he wanted first to discuss the matter with his wife when back in England, but also confiding to his diary that he "*was not particularly desirous of it*".

Late in January he received a letter conveying the recognition of his services from the Government of Bengal, referring to "*The magnificent series of works forming this important railroad . . .*".

Another important event followed soon afterwards:- "*February. Official trip to Benares. On the 5th a special train started from Howrah with the Governor-General, Lord Elgin, the Government Secretaries and a large party; we had tiffin at Rampore Haut, and arrived at Jumalpore at 8. 30 pm. All went well.*

Next day we went on to Benares arriving at 5 pm. Lord Elgin and the Lieut.-Governor, Sir Cecil Beadon and others got out at the Soane and inspected the bridge, (completed three months previously). It was much admired."



Sketch of a baggage train

“On the 7th Feb. a grand festival at Benares - a grand durbar – a splendid sight, impossible to describe here (about thirty Rajahs, and other native dignitaries); followed by a grand dinner at the theatre, given to Lord Elgin by the Company, Edward Palmer in the Chair. Speeches were delivered by the Governor-General, the Lieut.-Governor, Gen. Campbell, Starkey, Sibley and myself. I was happy that I did not break down in my speech, and happy when it was all over; and thankful to Almighty God for all his undeserved mercies and blessings.”

After this event he hurried to leave India and journey home, arriving to hear the news of the birth of a son, Duncan, a few days previously on the **10th March 1863**.

Retirement in England : 1863–1889

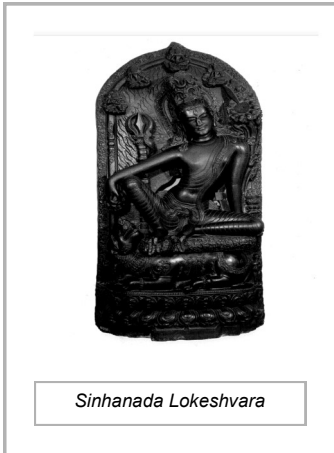
Shortly after his return there came a more formal offer of a knighthood, about which he consulted Fanny and took some time in coming to a decision. Eventually he responded by saying:

Offered a knighthood

“With respect to a knighthood, there is no disgrace in owning that I am not rich enough to sustain the title in the way that it should be sustained, as I think; and I am not even sure that I would be very ambitious of it even if I had money enough.”

Being no longer in paid employment, George was now keen to find new work to take on, but, having been so long abroad, his contacts in the engineering world of Britain had largely been lost. In July the family moved into a new home in London. He made a number of visits in the following months, including one to look at the Cardiff docks, where he was pleased to find his own work in good order.

On **4th June 1864** their third daughter, Katie, was born.



The memoirs record a somewhat surprising set of events in **November 1864**. It seems that he had brought home from India “a very fine stone figure of Buddha”, which he had found “in a hillock”. It weighed about 4 tons. This he offered to the British Museum, but the offer was declined because they did not have enough room for it.

However, an acquaintance of his, a Mr Thornton, was a director of the Birmingham Small Arms Company and George persuaded the latter to take it to Birmingham, where it was duly exhibited.

An article about the statue, which is still on display in the Birmingham Art Gallery, explains that the figure is not in fact of Buddha, but of one of the Buddhist ‘Bodhisattvas’. These are beings whose virtues are so great that they are deemed capable of reaching a state of enlightenment. This particular deity is Sinhanada Lokeshvara, which means ‘Lord of the Lion’s Roar’. The figure was sculpted in stone, probably in the eleventh or twelfth century

Retirement in England : 1863–1889

George took a keen interest in national politics and the Memoirs contain an interesting piece of self-assessment, penned in **April 1866** :

“There was a great political meeting at the Guildhall, passing resolutions in favour of the Great Reform Bill of that year, in which I took much interest, my instincts and connections making me a staunch Whig and Reformer, having been a member of the Anti-Corn Law League in Cobden’s time, and I may say in John Bright’s early days. I write myself down as a ‘man of progress’ who has no wish to repose under the cold shade of the aristocracy and to stand still”.

A brief note in **July 1866** records the fact that on the 28th of that month the Atlantic cable was completed and telegraphic communication with America began.

In **May 1867** they moved to a new home in London at Cornwall Gardens.

An unscheduled return to India

Towards the end of that year George found himself once more engaged with affairs relating to railways in India, but this time the problems concerned another line, the Great Indian Peninsular Railway. Numbers of the bridges had collapsed - amidst disputes about whether this was a result of faulty design or some other cause. In **February 1868** he was offered £2000 to go out to India, carry out a detailed investigation, submit a report of his findings and try to settle the matter. This he agreed to do, arriving in Bombay in mid-March.

In a specially provided set of carriages he and his party spent the next few days travelling along the line from Bombay *“getting down and inspecting every bridge and large culvert”* and covering a distance of 242 miles. After a brief period of sight-seeing he returned to Bombay and busied himself with looking at accounts and related papers and writing *“a long and exact statement of the facts of the case.”* His conclusions were, broadly, that the contractors had made many mistakes and that a lot of the problems had arisen from their incompetence. A settlement was made on this basis.

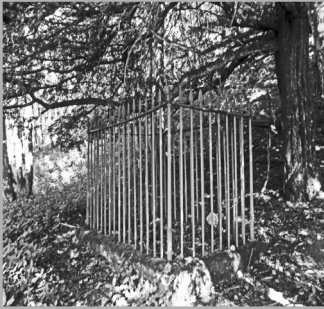
More sight-seeing in and around Bombay preceded a 22-day voyage home, which he reached on 23rd May.

Retirement in England : 1863–1889

Journeying around

In the autumn the family enjoyed a three-month tour of Holland, Belgium and France.

In **January 1869** George had to hurry north to attend the funeral of his brother William, who had died very suddenly, but in July of that year the opportunity was taken for a more leisurely trip to Scotland, to spend time with friends and relations.



The long-neglected grave of Bessie Bell and Mary Gray in a lonely spot on the banks of the River Almond.

One event of that stay will be of particular interest to those familiar with the Perth area:

“We made up a picnic-party to Lynedoch, the beautiful residence of the late Lord Lynedoch, on the banks of the River Almond. Here we saw what is called ‘Bessie Bell and Mary Gray’s grave’. It was then merely a white stone slab, of good size, surrounded by an iron railing, all overgrown with weeds, wild plants and

shrubbery, with Bessie Bell and Mary Gray inscribed on the slab of white marble.”

The legend was said by George to be so well-known as not to need reciting, but he wrote out his version of the ballad that he had heard the servant lasses singing at Huntingtower.

Note

The two versions of the spelling of Grey are both as written by George.

Oh Bessie Bell and Mary Gray
They were twa bonnie lasses
They biggit a bower by yon burn brae
And theek't it ower wi' rashes.

They theek't it ower wi' rashes green
They theek't it ower wi' heather,
But the pest cam' out o' the Borough's toon
And slew them baith the 'gither.

They werna laid in Methven Kirk,
Beside their noble kin,
But they're sleeping sound by yon burn brae,
That beeks forenent the sun.

Oh, Bessie Bell I loved yestreen,
And thought I ne'er could alter,
But Bessie Bell's twa pankie e'en
Have made my fancy falter.

Retirement in England : 1863–1889

George's description of the first part of the tour of the Highlands that followed is worth reading for the reminder it provides of how these things could once be organised:

“First day by train to Dunblane, Callinder; coach to the Trosachs; steamer on Loch Katrine; coach to Inversnaid ; steamer on Loch Lomond, where we slept at Tarbet, a beautiful place on the edge of the loch.

Second day, by coach through Glencoe, by pass of ‘Rest and be Thankful’ to Cairndow on Loch Fyne, round the north end of the Loch and on to Inverary, where we dined; then by coach to Loch Awe, and by a small steamboat to the place where the river leaves the loch; then by coach to Oban through wild, romantic scenery”.

Once more to India

India must have still been exerting a strong influence on George and Fanny because, in

November 1869, they left for a holiday there. On the outward journey they sailed from Marseilles to Suez, arriving four days after the opening of the Canal, and observing the large fleet of ships that had just passed through the Canal - including men-of-war ships of various nations.

Soon after reaching Bombay they decided to take a journey by train to Nagpore – a distance of 519 miles. George's reflections on the 27-hour trip at a speed of 19 miles per hour and with many stoppages, are interesting:

“This, from the circumstances of Indian railways, should not be accounted too slow. High speed is very expensive; the number of European passengers is relatively small, and the natives, so far as my observation goes, do not appreciate high speed, if they have to pay more for it.”

Despite occasional near misses from tiger attacks, they spent much time visiting old friends and colleagues - trying out various parts of the railway network, as well as more primitive means of transport.

It was not until **April 1870** that they eventually returned to London, having this time sailed through the Suez Canal and been absolutely fascinated by the experience.

Retirement in England : 1863–1889

Settling down

During the remainder of that year George spent much time making a plan of Port Talbot Harbour or, as it was more popularly called, Aberavon. He explained that it was called Port Talbot after the owner and local MP - Mr Talbot “*a very courteous man, of refined manners*”.

In the next few years, from their home base in Cornwall Gardens, Fanny and George toured widely in Britain and in parts of Europe – beginning with an extensive visit to France and Germany.

In writing about the later years of his life, I will only make brief references to events of some importance or incidents which seem to me to be of some interest.



In **August 1872**, whilst in the north of England, George left the family to go to Barrow in Furness. His purpose was to visit the iron and steel works there, so as to see for himself the Bessemer process of manufacturing steel.

He wrote “*I was both gratified and astonished; the process was magnificent. They were casting steel ingots of half a ton each and rolling them into rails . . . I found it an almost exciting scene*”.

Despite the fact that they were so often away from home, the Turnbull family must have been feeling the need or wish to move out of London.

On the move again

In June 1875 George went to look at a house called Rosehill, which was in the Hertfordshire countryside near the village of Abbots Langley.

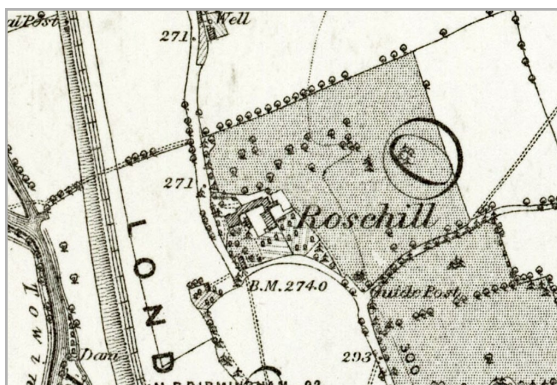
He quickly agreed to buy it, but not until after that did he take Fanny and daughter Nelly to see it and subsequently wrote “*They liked it, which was satisfactory.*”

Retirement in England : 1863–1889

Perhaps the proximity of the house to the main line of the London and North Western Railway had an influence on the decision.

Although the family had clearly found Rosehill to their liking, the accommodation must have been in some way inadequate, since they found it necessary to have some extensions built, which included new bedrooms. They soon became frustrated with the slow pace of work and were not able to move in until the following spring.

Rosehill, thought to have been built in 1820, was a country house of some size and with a respectable amount of land around it.



Extract of the Ordnance Survey 6 inch map of 1883

This can be seen from the drawing on the previous page and from contemporary Ordnance Survey mapping.

It was demolished in 1952 to make way for housing developments.

The 1881 census entry - below - reveals that, in addition to George, Fanny and Nelly, the house was

occupied by a lady visitor and four servants :- a cook, parlour maid and two housemaids.

No. of Schedul.	ROAD, STREET, &c. and No. or NAME of HOUSE	HOUSES Inclusive of the date of building (18)	NAME and Surname of each Person	RELATION to Head of Family	CON- DITION as to Marriages	AGE last Birthday of Male Females	Rank, Profession, or OCCUPATION	WHERE BORN
163	Upperidge Way P. House	1	Isabella Hodgson	Head	Widow	70	No Occupation	Wilt (St. Stephens St. Wilton)
			Margaret do	Wife	Widow	24	do	Wiltshire Wilton
			Elizabeth Hughes	Servt	Widow	48	Servant Connected	Dorset Swanhoe
164	Rosehill P. House	1	Geo. Turnbull	Head	Mar.	40	Civil Engineer	Scotland Perth
			Fanny do	Wife	Mar.	37	do - Wife	Dorsetshire
			Mary do	Servt	Widow	25	do	Wiltshire Calverton
			Esther Ann Rendell	Servt	Widow	27	Lady	Hampshire
			Eden Hope	Servt	Widow	21	Coth. Dom	Wiltshire
			Esther Ann & Hope	Servt	Widow	26	Parlourmaid Dom	Wiltshire
			Elizabeth Freeman	Servt	Widow	22	Housemaid	Wiltshire
			Sarah Arnold	Servt	Widow	16	do	Wiltshire

Retirement in England : 1863–1889

Country life

From that point in his life George took on something of the character of a country gentleman - immersing himself wholeheartedly in the life of the village and local society. In the summer of **1876** he acquired a horse named 'Beauty' and shortly after that he and Fanny set off on a tour in their dogcart; this took them through Buckinghamshire and to Oxford.

Life was, however, not solely one of leisure and George played a full part in the more serious aspects of community life. In **April 1877**, as one of the representatives of the parish of Abbots Langley, he was elected a member of the Poor Law Guardians of Watford Union.

The Memoirs contain regular reports of their attendance at the parish church, coupled with comments on such matters as the quality of the sermon or characteristics of the preacher, e.g. the observation in **October 1878** that the new vicar - a younger man than his predecessor – had delivered “*A good, sensible sermon*”.

His professional expertise was called upon when he became an important member of the committee set up to promote a drainage and sewerage scheme for the village and recorded in **June 1880** that he had written out a report for the Abbots Langley drainage scheme.

The family was evidently also involved in a small way in farming, as is revealed by a variety of brief references to matters such as “*The Alderney cow gave us a calf today*” and “*all the hay is in now*”.

A visit to Scotland

In describing a number of events in a lengthy holiday in Scotland in the autumn of **1880** he wrote that, on visiting Edinburgh: *“We went to see the castle and I put Geordie and Duncan inside ‘Mons Meg’, the great gun.”*

Thereafter to Luncarty where they: *“Went to little burying ground at Kirkhill with Fanny and Nelly and Mary Wedderspoon. A large stone slab with my grandfather, Hector Turnbull’s name on it and his mother, Jean Byres and others. One pedestal out of place. Fine view; returned by Luncarty. Sailed up the Tay from Waulkmill Ferry with Fanny and the girls.”*

Then, describing a visit to Pullar’s dye works in Perth: *“Above one thousand five hundred hands and above forty steam engines. They have six electric lights and a granary machine. The order and methodical arrangements very clever.”* - after which they went to Dundee to see the ruins of the Tay Bridge.

Almost exactly a year later found him back in Perth for the funerals of a brother and a sister, the latter having died on the day of the former’s funeral.

These sad events prompted the family to finally sever its connection with the cloth trade by selling the Huntingtower works.

The Turnbull grave in the Kirkhill cemetery at Luncarty



The inscription reads :

To the memory of HECTOR TURNBULL, bleacher at Luncarty who died Nov. 7. 1788 aged 55. Near this stone are also interred JEAN BYERS his mother died Jan. 26. 1786 aged 79, AGNES GLAS his first wife died Jan. 28. 1761 aged 22 and the following children JEAN of the first and CATHARINE, ARCHIBALD, GEORGE and HECTOR of the second marriage as also a grandson HECTOR WILLIAM TURNBULL, who all died in infancy.

Retirement in England : 1863–1889

Busy to the last

As time went on George began to suffer from repeated bouts of severe headache - which he and his doctor attributed to concussion following an accident a few years previously, but he remained busily contributing to the life of the village and parish church. His wide interests are reflected in his frequent attendance at lectures and discussions held by learned societies and his love of theatre and the arts.

In one burst of activity between **20th January and 12th February 1882** George:

- *completed his accounts for 1881*
- *hosted a large dinner party at Rosehill*
- *attended a ball at the house of friends*
- *went to see a play at the Globe Theatre*
- *attended a meeting of the Burlington Geographical society*
- *took part in a discussion at the Civil Engineering Institute*
- *attended a meeting at the Mansion House to protest against the persecution of Jews in Russia*
- *went to the Haymarket Theatre to see 'She stoops to conquer'*
- *visited the Grosvenor Gallery*
- *attended a meeting of the Assam Board*
- *had his sextant repaired and bought a rain gauge*
- *went to a concert at the Victoria Hall*
- *attended a display at the Agricultural Hall and*
- *chaired a meeting of the Assam Board.*

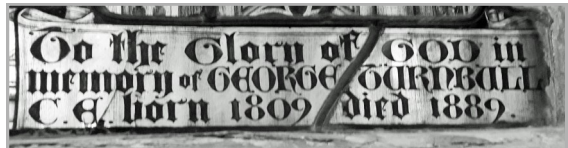
Retirement in England : 1863–1889

On 22nd February **1889** he made his final diary entry – recording a day's visit to London on business and to meet his son, but died very shortly afterwards on **26th February**.

He was buried in the churchyard at Abbots Langley, where his tombstone is still to be found, and is commemorated by a large memorial window in the church, which was a gift from Fanny.

Fanny continued to live at Rosehill for some years and died in 1903.

Despite the fact that George and Fanny had four children who lived to become adults, there are no known direct descendants of their branch of the Turnbull family.



*Photos courtesy of
Pam Rastall*

Acknowledgements

I owe an enormous debt of gratitude to Janice Mason - Duff, not only for her invaluable input into the design and layout of this booklet, but also for her encouragement and constructive observations on how my text might be improved.

I am also very grateful to Pam Rastall, of Abbots Langley Parish Church, for providing me with photographs and useful information about the house called Rosehill.

I acknowledge the help of the National Railway Museum in locating the copy of the 1846 map of the proposed railway and permitting me to reproduce part of it without charge.

I am similarly obliged to the staff of the Centre for South Asian Studies in the University of Cambridge for making available to me their collection of diaries and notebooks and for allowing me to make and use copies of some items.

Finally, I much appreciate the enthusiasm of the West Stormont Historical Society in supporting me in this project and in agreeing to publish this booklet.

George Turnbull

1809 to 1889

Member of the Institute of Civil Engineers

F.R.A.S. F.R.G.S. M.S.A.

Member of the Senate of Calcutta University

Published by the West Stormont Historical Society