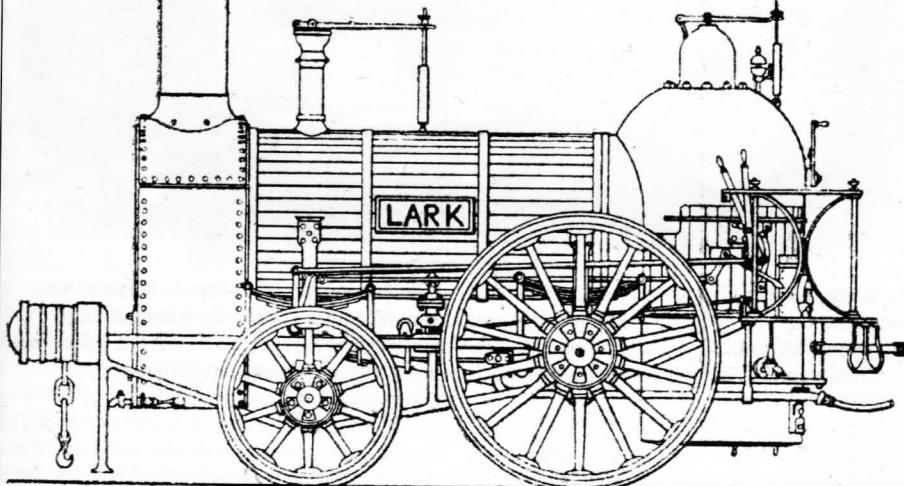


**Edward Bury & Co. Lark for the London & Southampton Railway.** This drawing first appeared in *The Locomotive Magazine and Railway Carriage and Wagon Review*, Vol.8, p120, 14th February 1903, and has been reproduced many times since. The accompanying text states "The first engine shown on the Company's books was a small one built by E. Bury & Co. in 1835, numbered 24 on the makers' list, and named the 'Lark'." It was a four-wheeled passenger engine with single driving wheels 5ft 6in diameter and a small leading pair 3ft 6in diameter." It is not Lark as that had 4ft diameter leading wheels. (Author's Collection)



## NASMYTH GASKELL, EDWARD BURY AND LOCOMOTIVES FOR THE LONDON & SOUTHAMPTON RAILWAY

BY STEPHEN DUFFELL

The coming of the railways in the 1830s gave entrepreneurial engineers the chance to try their hand at building steam railway locomotives. Some companies, such as Robert Stephenson & Co. and Charles Tayleur of the Vulcan Foundry, were established with the sole aim of locomotive construction, but for others it was an additional product to their established business. The greatest concentration of the early locomotive builders lay in the Lancashire area and whilst some built only for a few years (eg Rothwell, Mather Dixon, Jones Turner & Evans), others continued to the end of steam (eg Sharp Brothers as part of the North British Locomotive Company and the Vulcan Foundry). The initial entry into locomotive building did not always produce the most successful machines, but within a short space of time designs settled down and most builders were producing products along the lines of those built by Robert Stephenson & Co. (six wheels with plate frames) and Edward Bury (four wheels with bar frames).

One of the Lancashire builders who entered into steam locomotive building in the late 1830s was Nasmyth Gaskell, & Co. and surviving letter books allow an insight into the trials and tribulations of such a venture. It was not an easy, nor initially profitable, path to follow. The Nasmyths were the brothers James and George, born in Edinburgh, the sons of Alexander Nasmyth a landscape painter. Educated at the High School, their father had a hobby of mechanics and had his own workshop. This, together with a friendship with a local iron founder, encouraged James to become a

mechanical engineer. He had heard of the fame of Henry Maudslay's workshop in London and became a private workman in the establishment, having demonstrated his abilities with a small steam engine he had constructed. After a couple of years he returned to Edinburgh intent on establishing his own business and in 1834 had decided Patricroft, near Eccles in Lancashire, was the place for his factory. The elder brother George assisted James in this venture. The first workshop was in a building in Dale Street on the first floor, but new premises were required when heavy equipment they were constructing caused the floor to give way and crash into the workshop below.<sup>1</sup>

The site chosen for the new works, the Bridgewater Foundry, was located to the east of the Bridgewater Canal and north of the Liverpool & Manchester Railway (L&MR) in the angle between the two. Initially there was a collection of wooden huts, but between 1836 and 1838 the main structure was built, being a five-storey mill building and smaller workshops. Such rapid expansion of the business was assisted by financial backing, first from the Birley family,<sup>2</sup> cotton manufacturers and then George Humphrys<sup>3</sup> and Henry Garnett.<sup>4</sup> The initial company was known as Nasmyth, Gaskell & Co. (NG) and comprised the two Nasmyth brothers and Holbrook Gaskell. Holbrook Gaskell<sup>5</sup> had worked in the iron trade in Liverpool where he obtained experience in the counting house, correspondence and monetary matters, before joining the Nasmyths. Thus the business settled down with James the engineer, George<sup>6</sup> the salesman and Holbrook Gaskell running the office.

**B**usiness was good and the firm had many orders for steam engines and machine tools but wanted to enter the steam locomotive building market. It planned to build three locomotives of a 2-2-2 'Stephenson' type, speculating it could sell them on the open market. The letter books indicate they took a long while to be disposed of and in the meantime the firm had the opportunity to build locomotives for specific companies. The first order was for three engines for the London & Southampton Railway (L&SR, soon to become the London & South Western Railway, LSWR).

Many of the shares of the L&SR had been taken up by people living in the Manchester and Liverpool areas and in August 1834 at the Royal Hotel in Manchester they formed a committee to represent their interests, with Thomas Cooke as chairman.<sup>7</sup> Initially they were agreeable to the finances of the company and the work of Francis Giles (the L&SR engineer<sup>8</sup>). By December 1836, however, the Lancashire proprietors were very concerned with the slow progress and Giles's methods of working and Thomas Cooke, Robert Garnett<sup>10</sup> and William Hill came down to meet the directors from London & Southampton and survey the line. The outcome was the dismissal of Francis Giles (to save face he was allowed to resign) and the appointment of Joseph Locke as the L&SR engineer.<sup>9</sup> Cooke was elected a director of the L&SR in 1837 along with Robert Garnett and they had authority as directors to order locomotives on the company's behalf.

Robert Garnett was heavily involved with the promotion of new railways and was a principal investor and director of the London & Birmingham Railway, the Deputy Chairman of the Lancaster & Preston Railway and a director of the Midland Counties Railway. He was Chairmen of the London & South Western Railway directors by 1842. Robert Garnett was a supporter of Edward Bury and his locomotives and he promoted their build for companies with which he was associated. They were the primary source of power on the London & Birmingham and besides the L&SR order which NG completed of the Bury type, the company also built six for the Midland Counties Railway. There was another reason why Robert Garnett was keen to see NG get an order which was that his son Henry invested money in NG in 1838 and was later to be a partner in the firm. When James Nasmyth retired in 1856 Henry Garnett continued the business as 'The Patricroft Ironworks'.

Informal discussions took place between Garnett, Bury and NG, with Bury considering their proposed tender price for locomotives to be too high. NG wrote to Bury agreeing to supply engines at the same price as Bury.<sup>11</sup> Further discussions between Thomas Cooke and NG led to Cooke deciding to order three engines and this was tendered on 7th August 1838 for the supply of three 'Locomotive Engines for the Southampton Railway Co. of the four-wheeled construction after the specification and detailed drawings to be furnished (free of charges) by Edward Bury Esq. of Liverpool. The Engines to be delivered at our works in six months from the confirmation of the order or as near thereto as possible for the sum of Thirteen Hundred and eighty Pounds each inclusive of tenders. Payment to be made in three instalments of  $\frac{1}{3}$  called for during the progress of the Engines,  $\frac{1}{3}$  on the delivery of the Engines and the remaining  $\frac{1}{3}$  in three months after delivery thereof.<sup>12</sup> The order for the three locomotive engines was

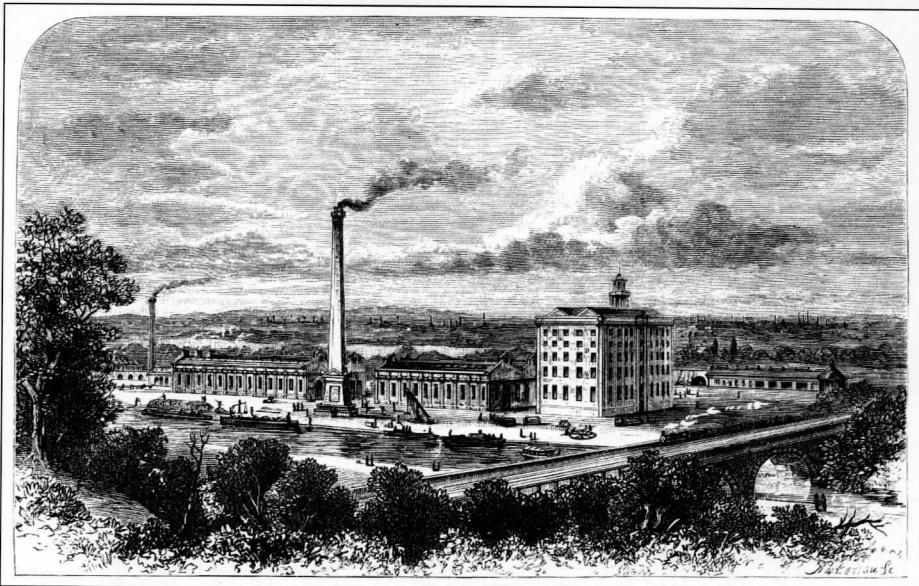


signed on 11th August 1838 between NG and the L&SR and Thomas Cooke of Manchester.<sup>13</sup> Edward Bury was informed and a request made for the specifications and drawings,<sup>14</sup> and also a complete set of brass and iron castings with as little delay as possible.<sup>15</sup>

**H**ere was the start of trouble for Nasmyth Gaskell as Edward Bury was to supply drawings and castings but there was no contract to say when he would do so, nor were the costs given of parts Bury was to supply. Repeated requests for drawings were made by NG until September 1838 and request for brass castings and other parts continued throughout the build.<sup>16</sup> In December 1839 Bury stated that he was desirous of making the tenders, and NG acceded to this on the basis that they cost £180 each,<sup>17</sup> but later pointed out the tenders were the only profitable part of the contract and they made no profit from the engines.<sup>18</sup> NG outsourced some of its materials. Boiler plates were supplied by the Bowring Iron Company of Bradford.<sup>19</sup> The crank axles were forged by the Mersey Steel Company of Liverpool, but its deliveries were slow and quality was poor.<sup>20</sup> Springs were made by Thomas Penketh of Warrington, again not without problems for NG.<sup>21</sup>

The first of NG's speculative 'Stephenson' 2-2-2 locomotives was ready by March 1839, before any of the L&SR locomotives had been completed, and it was tried out on the Liverpool & Manchester Railway. This produced a stinging rebuke from Henry Booth (Treasurer of the L&M), accusing NG of not having obtained permission before such a trial. NG apologised and said it had sought permission, but this was given by a deputy of Mr. Woods (the engineer of the L&M) in Mr. Woods' absence, and the engine took several trains and made itself useful to the company.<sup>22</sup> In April NG requested the L&M to lay a siding into the Bridgewater Foundry from the L&M main line.<sup>23</sup>

With the L&SR engines nearing completion NG wrote to Bury requesting he sent one tender immediately, the second in two weeks and the third soon after.<sup>24</sup> At the beginning of May 1839 NG wrote to Joseph Woods, locomotive engineer to the L&SR, informing him that two of the engines were ready for delivery and would be sent off as soon as the tenders were delivered by Bury.<sup>25</sup> It was decided to give the locomotives a trial on the L&M railway before they were delivered. To formalise the trial of new locomotive engines on the L&M, the board of directors of that company had produced a set of orders to regularise their use and the first of the L&SR engines underwent a three-day trial. On the first day it ran between the Moss and Manchester. On the second it took four trips of goods trains between Liverpool and Manchester, and on the last day it was used on four passenger trains. The trial was deemed a success and details sent to Bury.<sup>26</sup> The trials were supervised by Mr. Edward Woods, engineer to the L&M.<sup>27</sup> There was a further delay in delivery of the L&S engines as Joseph Woods had requested that numerals and nameplates were to be provided and these had to be sourced from a brass founder. At the beginning of July two engines were despatched by the Grand Junction Railway to Nine Elms, but they had not been received by 19th July and it was suggested the L&S should enquire of the London & Birmingham Railway as to their whereabouts.<sup>28</sup> The engines were *Hawk* and *Falcon*, numbers 28 and 29. They had arrived



**The Bridgewater Foundry, Patricroft.** This engraving appeared in James Nasmyth's 'autobiography' by Samuel Smiles and was taken from a painting by Alexander Nasmyth, father of James. The Bridgewater Canal shows busy activity on the wharf and the Liverpool & Manchester Railway runs from left to right. (Author's Collection)

by the last week of July, but Joseph Woods was surprised to find there was only one tender for the two engines. As with everything with this order it was Bury's fault in failing to deliver the last tender in time and NG had retained one of the two tenders that had been built to allow the third engine to be tested. On 21st August 1839 a letter to Mr. Read (Secretary to the LSWR) informed him that the third engine had been forwarded by the Grand Junction Railway, following successful trials on the L&M, and was named *Raven*, number 30.<sup>30</sup> It is not known if the third tender went with this locomotive to Nine Elms, or whether Bury forwarded it direct.

With the engines delivered to the LSWR, NG now had to contend with the charges that Bury proposed in invoices for the castings and fittings he supplied to NG. It was in July 1839 that NG became aware of the of Bury's excessive charges and asked for them to be revised to a more acceptable level.<sup>31</sup> NG found the prices to be double those of similar items manufactured elsewhere and not always of the required quality. NG had agreed to pay Bury's asking price for castings, but considered Bury had made more profit out of them than NG had done with the engines altogether. NG suggested some deductions to the invoice but Bury would not agree to this and complained to Robert Garnett about NG's refusal to pay.<sup>32</sup> A final remittance was sent to Bury in mid-February 1840 with the note that the partners thought it better to submit to the imposition of the exorbitant charges than to be annoyed by the trouble and expense of a lawsuit.<sup>33</sup>

Edward Bury's treatment of NG was cavalier and it begs the question whether other locomotive builders were treated in a similar fashion when building Bury-type locomotives. Bury subcontracted work to various other firms including the Haigh Foundry, Hawthorn & Co., Hick & Co., Jones, Turner & Evans, Maudsley and Rothwell. Bury circulated drawings and was most specific that they be adhered to, but spent a lot of time ensuring accurate parts were made by these other builders.<sup>34</sup> There was a lot of animosity between the two styles of locomotive building and it would have been in Bury's interest to promote his designs and assist

any builder of his type as much as possible. The Stephenson faction had frozen Bury out of the market for selling engines to the L&M and Bury supporters had denied the Stephensons any sales to the London & Birmingham. The Bury engines were not well received on the L&SR. Joseph Locke was firmly in the Stephenson camp and favoured six-wheel engines and was opposed to four-wheel, as he considered these more dangerous and most destructive of the railway, and he doubted Robert Garnett's claims that they were more powerful and used less fuel. However, Locke had no objection to the directors, *on their own responsibility*, using any engines they might think fit.<sup>35</sup> These comments were made in June 1838 before Thomas Cooke placed the orders with Bury and NG, suggesting that the supply of four-wheel engines had been the subject of discussion between Robert Garnett, Cooke and Locke for some while.

### Putting the record straight

The facts and dates relating to the Bury-type engines are not always in agreement with other published texts or the NG letter books. First references to NG Bury-type locomotives on the LSWR appear in *The Locomotive Magazine* which suggested they were introduced in the early part of 1838 and followed on from Bury's *Lark*. This latter was supposedly built in 1835 and had been used in ballasting work for the contractors, being handed over to the company in 1838.<sup>36</sup> Hamilton Ellis in his book on the LSWR presents a similar story for both Bury's *Lark* and the Nasmyth engines.<sup>37</sup> There was a Bury engine working as a contractor's locomotive (or ballast engine) on the L&SR, delivered in 1836 and named *Tramp*. Apparently Bury was displeased when an order for a second engine later that year was cancelled and given to Jones of the Viaduct Foundry, Newton-le-Willows, later to be increased to three engines on order.<sup>38</sup> *Tramp* and *Lark* were two separate engines.

Two authoritative texts on LSWR locomotive history were written by Bradley. In the RCTS book an order date of 11th August 1838 is given for both the Bury engine and the three from Nasmyth's, with the order being placed by the directors Richard Garnett and Thomas Cooke.

The Bury engine was ready on 13th February 1839 and arrived via the London & Birmingham Railway. The first two Nasmyth locomotives (*Hawk*, *Raven*) were reported ready on 5th June 1839 and delivered later in the month and fitted with tenders supplied by Bury. The third engine, *Falcon*, was delivered on 22nd August. However, an anomaly in this text is the statement in which the Nine Elms Register gives the following information:

September 1837 Locomotives on order:  
E. Bury: 1 four-wheeler at £1,200 each.  
Nasmyth Gaskell: 3 four-wheelers at £1,380 each.<sup>39</sup>

This is incorrect and it might be that after the Nine Elms fire in 1841 that destroyed many records the register was erroneously reconstructed from memory.

In the Bradley Wild Swan book the four locomotives were ordered from Bury on 11th August 1838, with three being sub-contracted to Nasmyth Gaskell (which they were not). The Bury engine (*Lark*) arrived February 1839 and cost £1,380 (locomotive £1,200, tender £180). The first Nasmyth engine (*Hawk*) was delivered on 29th October 1838 and £1,380 was paid the following month. The second engine (*Falcon*) arrived in May 1839 and *Raven* on 9th August 1839, both costing £1,200. These dates are incorrect and probably arose because Bradley assumed that payment was made upon delivery, but this contract was unusual as a third of the price was paid during construction, a third on delivery and a third three months later.<sup>40</sup>

The dimensions quoted in the Wild Swan book are those from Wishaw.<sup>41</sup>

Cylinders	12in x 18in
Leading wheels	4ft 0in
Driving wheels	5ft 6in
Wheelbase	7ft 0in
<b>Heating surface:</b>	
Tubes	495sq ft
Firebox	59sq ft
Total	554sq ft
Working pressure	50lb
Weight	12½ tons

In all texts except Hamilton Ellis there is a line drawing which purports to be Bury's *Lark*; but it is not – see text under illustration for an explanation.

### Was there a numbering scheme for London & Southampton locomotives?

The perceived wisdom of the authors of L&SR/LSWR locomotive history was that numbers were not allocated to engines and only nameplates were carried. The request from Joseph Woods for Nasmyth Gaskell to supply brass numbers to be mounted on the chimney together with nameplates suggests that numbers were present on at least some L&SR locomotives. When reference was made to a specific locomotive in L&SR documents at the National Archives only the name was used and it is this, together with a lack of contemporary illustrations of L&SR stock, that has led to the assumption that numbers were not allocated or carried.

It can be speculated that there was a list and it would make sense to assume that Joseph Woods allocated numbers to locomotives by builder and date of delivery. Thus the twelve Tayleur engines would be numbers 1–12, the nine Sharp Roberts locomotives numbers 13–21

and the five Rennie engines 22–26. At this stage the Bury-type locomotives were ordered and *Lark* was delivered first, becoming No.27, and the three NG locomotives were 28–30. The 1841 fire at Nine Elms destroyed the locomotive storehouse and the whole of the workshops of the locomotive department, together with records.<sup>42</sup> It was probably in this blaze that evidence of an initial numbering scheme for L&SR locomotives was destroyed.

### The locomotives

Ordered 3rd August 1838 – three locomotive engines of four-wheeled construction as per drawings and specifications to be furnished by Edward Bury, including tender at £1,380 each – total £4,140.

Payment ⅓ when called for

⅓ on delivery

⅓ in three months

Four wrought iron wheels, one pair 5ft 6in diameter and one pair 4ft diameter.

Two cylinders, 12 inches diameter, stroke 18 inches

*Hawk* No.28 – delivered July 1839

*Falcon* No.29 – delivered July 1839

*Raven* No.30 – delivered August 1839

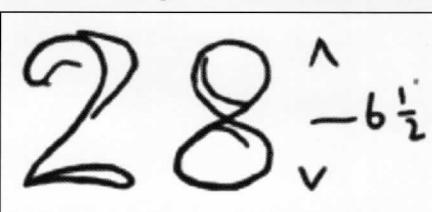
### References

Much of this article is based on the surviving letter books of Nasmyth, Gaskell & Co. which provide an insight into the problems associated with the construction of these locomotives and, together with the contemporary order book, clarify details in published accounts. The letter books contain all the outgoing correspondence of the firm in reply to letters received. The incoming letters were not preserved making the account somewhat one sided but enough information is provided to understand events. The letter books consist of flimsy sheets of paper bound into books. They were made by pressing the original handwritten letter with a dampened copy sheet in a press, the copy sheet picking up enough pigment from the ink to register the contents of the letter. Most results of the process are readable but others range from the challenging to impossible. The letter books are kept at Salford City Archives, Ref U268/C1/1–6.

Details of the life and business history can be found in J. A. Cantrell's book *James Nasmyth and the Bridgewater Foundry – a study in entrepreneurship in the early engineering industry*, published 1984 by the Cheetham Society, Manchester.

1. Cantrell 1984.
2. The Birleys financed NG for about two years during building of the Bridgewater Foundry (Cantrell 1984). One of the family Hugh Hornby Birley was second in command of the Manchester Yeomanry that led the charge into the crowd at Peterloo, Manchester, 1819. (Reid, *The Peterloo Massacre*, Heinemann 1989).
3. George Humphrys was an American and practising solicitor in England. He offered legal advice to NG until his retirement in 1848. (Cantrell 1984).
4. The Garnett family were initially investors and with the retirement of James Nasmyth in 1856. Henry

**Hand-drawn numeral from letter to Mr. Gordon of Manchester (5th June 1839, LB5, 50), ordering one number for each engine about 6½ inches deep, similar to those on the chimney of the Liverpool & Manchester engines. (Author's Collection)**



Garnett continued the business as The Patricroft Ironworks, becoming Nasmyth Wilson & Co. Ltd. in 1882. (Cantrell 1984).

5. Holbrook Gaskell left NG in 1850 due to ill health, although relations between James Nasmyth and Gaskell had begun to deteriorate. (Cantrell 1984).
6. George Nasmyth left NG in 1843 and moved to London as a consulting engineer. In 1856 he was appointed first curator of the Patent Museum, where he misappropriated public funds and was dismissed and left the country. James Nasmyth had no wish to be tainted by the activities of his brother and there is only one reference to George in James Nasmyth's Autobiography. (J. A. Cantrell, *Transactions of the Newcomen Society* (2003), 257–264).
7. *Manchester Times* 6th September 1834.
8. Manchester meeting of 1st December 1835 – *Manchester Guardian* 5th December 1835.
9. *The London & South Western Railway, Vol.1, The Formative years*, by R. A. Williams, David & Charles 1968.
10. *A Royal Road* by Sam Fay, published Drewett 1882.
11. NG to Edward Bury 27th July 1838 (LB2, 348).
12. NG to Thomas Cooke 7th August 1838 (LB2, 383).
13. NG Order Book Number 2 1836–1848.
14. NG to Edward Bury 7th August 1838 (LB2, 388).
15. NG to N. H. Brankner, Clarence Foundry, Liverpool, 29th August 1838 (LB2, 440).
16. NG to Edward Bury 19th September 1838 (LB3, 41); 26th October 1838 (LB3, 174); 31st October 1838 (LB3, 174) 20th November 1838 (LB3, 273); 29th November 1838 (LB3, 296); 8th February 1838 (LB4, 118).
17. NG to Edward Bury 17th December 1838 (LB3, 367).
18. NG to Edward Bury 11th February 1840 (LB6, 143).
19. NG to Bowring Iron Co., Bradford 5th September 1838 (LB2, 476).
20. NG to Mersey Steel Co. of Liverpool, 22nd and 28th December 1838 (LB3, 401 and 439); 12th January 1839 (LB4, 9).
21. NG to Mr. Thomas Penketh, Warrington 17th and 22nd December 1838 (LB3, 369 and 391); 9th February 1839 (LB4, 133).
22. NG to Henry Booth Esq. Railway Station, Liverpool 11th March 1839 (LB4, 227).
23. NG to Henry Booth, Treasurer to Liverpool & Manchester Railway, Lime Street, Liverpool 16th April 1839 (LB4, 342).
24. NG to Edward Bury 17th April 1839 (LB4, 349).
25. NG to Joseph Woods, Engineer to the London & Southampton Railway 3rd May 1839 (LB4, 430).
26. NG to Edward Bury 5th June 1839 (LB5, 43).
27. NG to Joseph Woods London & Southampton Railway 29th July 1839 (LB5, 275).
28. NG to Joseph Woods, London & Southampton Railway, Nine Elms Station 19th July 1839 (LB5, 242).
29. NG to Joseph Woods, London & Southampton Railway 29th July 1839 (LB5, 275).
30. NG to Mr. Read, Secretary to the London & Southampton Railway, Nine Elms, London 21st August 1839 (LB5, 337).
31. NG to Edward Bury 15th July 1839 (LB5, 238); 31st July 1839 (LB5, 282); 20th December 1839 (LB6, 311).
32. NG to Robert Garnett 17th February 1839 (LB7, 134).
33. NG to Edward Bury 19th February 1839 (LB7, 187).
34. Harry Jack, *Locomotives of the LNWR Southern Division, London & Birmingham Railway, London & North Western Railway and Wolverton Works*, RCTS, 2001.
35. Letter of Mr. Locke to L&SR Court of Directors 8th June 1838 National Archives Rail 412/1.
36. *The Locomotive Magazine and Railway Carriage & Wagon Review* (Vol.8, 14/2/1903, p120).
37. Hamilton Ellis, *The South Western Railway*, George Allen & Unwin 1956.
38. Bradley D. L., *LSWR Locomotives – the early engines 1838–1853 and the Beattie classes*, Wild Swan 1989 p11.
39. Bradley D. L., *Locomotives of the LSWR – Part 1* RCTS 1965 pp26–7.
40. Bradley D. L., *op cit* pp11–12.
41. F. Whishaw, *Railways of Great Britain*, John Weale 1842 (David & Charles reprint 1969).
42. *The Times* 18th March 1841.