JAMES NASMYTH AND THE LIVERPOOL IRON TRADE

BY R. DICKINSON, B.Sc., Ph.D.

James Nasmyth, the nineteenth-century engineer, popularly remembered for his association with the invention of the steam hammer, has been neglected by latter-day historians possibly because his autobiography is so well-known and has perhaps been regarded as authoritative and definitive. This book, *James Nasmyth, Engineer: An Autobiography*, was edited by Samuel Smiles and like that author's other works, particularly his *Self-Help*, in its day was very popular. First issued in 1883, it was repeatedly reprinted without revision, the eighth and last time being in 1912. Most of the material had been available to Smiles as early as 1863, for he quoted from it in his *Industrial Biography*, first published in that year. After Nasmyth's death later editions did not even record the fact that the autobiographer had died. Recently, new material has come to light which adds detail to the *Autobiography*, particularly in regard to Nasmyth's early business ventures, and this new material throws an interesting light on the Liverpool iron trade in the fourth decade of last century.

Nasmyth was born 19 August 1808 in Edinburgh, the youngest son of the artist Alexander Nasmyth (1758–1840). A brother was Patrick Nasmyth (1787–1831) the well-known artist. Alexander was interested in mechanical subjects and this fact may have decided James to become an engineer. In 1829 he became an assistant in London to Henry Maudslay (1771–1831), the inventor of the screw-cutting lathe and the slide rest mechanism on which it was based. He visited Liverpool for the opening of the Liverpool and Manchester Railway in 1830. Later Nasmyth decided to set up business on his own account, starting in Manchester in 1834. Two years later he moved to Patricroft where he was joined in partnership by Holbrook Gaskell. Nasmyth, Gaskell & Co. manufactured engines and machine tools, often inventing the mechanism required. Having prospered, Nasmyth was able to retire in 1856. He died in 1890. His *Autobiography* shows him

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JAMES NASMYTH
1808–1890

I. NASMYTH’S FIRST VISIT TO LIVERPOOL

According to his Autobiography Nasmyth was granted a holiday after working with Maudslay for a year. Reports of the locomotive trials held at Rainhill in October 1829 made him determined to visit Liverpool, see Stephenson’s “Rocket” for himself, and be present at the opening of the Liverpool and Manchester Railway. He said he left London on Saturday 9 September 1830 (the 9th was actually Thursday) and arrived in Liverpool on Sunday evening. The next day, Monday, 13 September, he went to the terminus of the Liverpool and Manchester Railway where he inspected the “Rocket” and saw it driven by George Stephenson, whose son Robert acted as fireman. He was particularly impressed by the locomotive attaining a speed of thirty miles per hour. The line was officially opened two days later, on Wednesday, 15 September 1830.

The first object of his visit accomplished, Nasmyth presented a letter of introduction from Maudslay to the latter’s old friend, William Fawcett, head of Fawcett and Preston of the Phoenix Iron Foundry, York Street, Liverpool. At that time, Fawcett and Preston were making sugar mills, and the engines to drive them, for the West Indies. This foundry had a distinguished career; being established in 1758 as a branch of the great Coalbrookdale Iron Works which was operated by the Darby family from the beginning of the eighteenth century. The Liverpool branch was managed by George Perry (1719–1771), a Somerset man who had trained as an engineer under Abraham Darby at Coalbrookdale. The Liverpool establishment was known as the Coalbrookdale Iron Foundry until about 1816 when the name was changed to Phoenix Iron Foundry. George Perry had interests outside engineering: he was responsible for the excellent map of Liverpool published in 1769 and the collection of material from which Enfield compiled his History of Liverpool. After Perry’s death, the management of the foundry was taken over for a time by

[2] p. 155. All references to this work are to the first edition of 1883.
[3] A warehouse for the export of goods made at Coalbrookdale was opened in Liverpool in 1745 by Charles Craven.
Joseph Rathbone. Joseph, who was a son of the first William Rathbone of Liverpool (1696–1746), had married in 1748 Mary Darby, daughter of Abraham Darby II (1711–1763) the head of the Coalbrookdale concern. In 1790, the management passed from Joseph Rathbone to his nephew William Fawcett, who three years later purchased it for £2,300. According to Wardle, Fawcett turned to marine engineering and as early as 1816 fitted his first engine to a Mersey river steamer; later he engined the wooden paddler Conde de Palmella, the first ocean-going steamer to leave this country and which went from Liverpool to Lisbon in four days. William Fawcett, who lived next to the foundry in Lydia Ann Street, named thus after George Perry’s wife, died unmarried 2 January 1845, aged eighty-three, and was buried in the Necropolis. Nasmyth’s description of Fawcett is worth quoting for its local interest:

“His peculiar courteous manner, both in speech and action, reminded me of ‘the grand old style’ which I had observed in some of my father’s oldest noble employers, and the representations given of them by some of our best actors. There was also a dignified kindliness about his manner that was quite peculiar to himself; and when he conducted me through his busy workshops, the courtly yet kindly manner in which he addressed his various foremen and others, was especially cheering. When I first presented my letter of introduction from Henry Maudslay, he was sitting at a beautiful inlaid escritoire table with his letters arrayed before him in the most neat and perfect order. The writing table stood on a small Turkey carpet apart from the clerks’ desks in the room, but so near to them that he could readily communicate with them. His neat old-fashioned style of dress quite harmonised with his advanced age, and the kindly yet dignified grace of his manner left a lasting impression on me as a most interesting specimen of ‘the fine old English gentleman, quite of the olden time’.”

Doubtless Nasmyth met other Liverpool people, but he does not record them; after visiting the docks and making a trip to Birkenhead, he returned to London on foot, by way of Manchester, taking a fortnight over the journey.

II. NASMYTH’S SECOND VISIT TO LIVERPOOL

Maudslay died in 1831, his business being continued by his partner, Joshua Field (1787–1863). Shortly after, Nasmyth

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(5) Raistrick, op. cit., p. 212.
(6) Evening Express, 4 September 1944.
(7) Autobiog., p. 158.
(8) In 1822, Field and Maudslay’s eldest son had been taken into partnership, the firm being known as Maudslay, Son and Field (J. W. Hall, Trans. Newcomen Soc. (1925–6), Vol. VI, p. 1.).
left London and returned to Edinburgh, where he operated a small foundry and workshop in order to accumulate a little capital in preparation for setting up in business on his own account. The railway activity he had witnessed on the occasion of his 1830 visit decided Nasmyth to seek his future in Lanca­shire. His choice of site lay between Liverpool and Manchester.

Early in 1834 he visited Liverpool again and presented a letter of introduction “to Mr. Roscoe, head of the Mersey Steel and Iron Company”⁹. Edward Roscoe (1785–1834) was the second son of William Roscoe, the distinguished Liverpool citizen who associated with Clarkson, Rathbone and Wilberforce in the movement for the abolition of slavery. He had been in business as an iron merchant from about 1810, and in partnership in the same business with his uncle William Waln (see pedigree) from about 1820. The firm became Mather, Roscoe and Finch in 1829 and Mather, Roscoe, Thomlinson and Company in 1834. The manufacture of nails, which were required for building the wooden ships of the day and which were exported in enormous quantities to America for the construction of log cabins, was an important part of their business. They had works in Sefton Road, Toxteth Park, and offices in the East Side, Salthouse Dock. After Roscoe’s death, the Mersey Iron Works continued its operations under the name of Mersey Steel and Iron Company.¹⁰

William Fawcett received a further call, and visits were paid to an engineer named Edward Berry, and to Dr. Sillar, who had received his medical training in Edinburgh and knew the elder Nasmyth.¹¹

Nasmyth was introduced to John Cragg (1767–1854), the proprietor of the Mersey Iron Foundry in Tithebarn Street, Liverpool, whom he described as “a most intelligent and enterprising ironfounder. He was an extensive manufacturer of the large sugar-boiling pans used in the West Indies”.¹²

¹⁹ Autobiog., p. 182. Edward Roscoe died 11 July 1834, so that Nasmyth’s visit must have been earlier than that. For the Roscoe pedigree, see F. W. Dunston, Roscoeana (privately printed, 1906).

¹⁰ The Mersey Steel and Iron Company should not be confused with the Mersey Iron Foundry, the concern of John Cragg which operated in Marybone and Tithebarn Street.

¹¹ Apparently this Berry was no connection of Henry Berry (1720–1812), Liverpool’s second dock engineer. The only Edward Berry in the directories of that time was a watchmaker.

¹² Autobiog., p. 183.
Cragg was a man of culture; the young Thomas De Quincey (1785–1859) found interest in his society. In a letter of 20 May 1801, Mrs. Quincey wrote to her son giving instructions for his journey to Everton where the family was to lodge with Mrs. Best: (13) "opposite to Mr. Clarke's the banker's. Of Italian, French and English books he seems to have store also, and in the town there is really a noble library to which Mr. Cragg will introduce you." At Mr. Clarke's, (14) De Quincey met members of the Liverpool Literary Coterie, including Roscoe, Dr. Shepherd of Gateacre and Dr. Currie. With Clarke he read Aeschylus in the original Greek. In 1802, when De Quincey holidayed in Everton for the second time, his mother wrote to him care of Mr. Cragg, merchant of Liverpool. From March to July 1803 he once again lodged with Mrs. Best and dined daily as the guest of Mr. Cragg. (15)

Cragg also played a part in the introduction of iron as a building material. The eighteenth-century spinning and weaving mills were constructed with timber floors; these absorbed oil from the machinery and were a serious fire hazard. The replacement of timber by iron and masonry was a logical step towards the construction of fire-proof buildings. The earliest known example in England of the use of iron as a structural material was in St. Anne's Church, Liverpool, built 1770–72, where cast iron columns support the galleries, (16) but the first iron-framed building was a mill built at Derby in 1792–93. (17) About 1790, John Wilkinson, that believer in iron who kept a selection of cast-iron coffins at his home as presents for his friends, assisted his workers in building their Wesleyan Chapel at Bilston, Staffordshire, by casting at his Bradley Works iron columns, window frames and pulpit. (18) The combination of these structural and decorative trends was appropriately accomplished in Liverpool where, in the period 1813 to 1816, Thomas Rickman and John Cragg built three churches almost entirely of iron. Rickman (1776–1841), prior to becoming an architect, was an accountant, who had long studied Gothic churches and summed up his findings in a paper entitled, "Distinctive Principles of Grecian and Gothic Architecture",

(13) The Liverpool directories for 1800 and 1803 record "Best, Arabella, lodging house, Everton."
(14) William Clarke, junior, of William Clarke and Sons, bankers. At that time William Roscoe was also a partner. John Hughes, Liverpool Banks and Bankers, 1760–1837, (Liverpool, 1906), pp. 56–9.
(15) H. A. Eaton, De Quincey, a Biography (1936), pp. 63, 70 and 88.
read to the Literary and Philosophical Society of Liverpool, 3 April 1812. Following this, he prepared designs for St. George’s Church, Everton, and building was commenced in 1813. The whole of the interior was made by Cragg using iron, and the building was consecrated 30 October 1814. St. Michael’s Toxteth Park (1813–1815) and St. Philip’s, Hardman Street (1816) completed the trio, and launched Rickman on his successful career as an architect. (19) John Cragg died 17 July 1854, aged 87, and was buried in St. James’s Cemetery, nearby his residence in St. James’s Walk. (20) Nasmyth relates how Cragg invited him to enter his business and become his successor. He declined this “very tempting” offer, preferring mechanical engineering to purely foundry work. (21)

Nasmyth eventually decided against Liverpool as the site for his enterprises, considering that there the emphasis was on shipbuilding and export goods. He moved on to Manchester nearer to the centre of gravity of manufacturing industry where there was less preoccupation with foundry work and more scope for engineering. There he rented a flat 130 feet by 27 feet in Dale Street, Piccadilly, in which he made machine tools and engines and rapidly became established, business expanding so quickly that after two years a move to more commodious premises became essential.

III. YATES AND COX

Having decided to build his own premises, Nasmyth considered it essential to take a partner who would provide some capital and deal with the office side of the business. “My friend, Mr. Thomas Jeavons, of Liverpool . . . found the man likely to suit me. . . . The young man became my worthy partner, Holbrook Gaskell. He had served his time with Yates and Cox, iron merchants, of Liverpool”. (22)

The friend, Thomas Jevons as the name is more usually spelled, was an important person in the Liverpool iron business. His father, William Jevons (1760–1852), came to Liverpool about 1800 from Old Swinford, Worcestershire, a town some ten miles west of Birmingham and set up as an iron merchant

(22) Ibid., p. 212.
THE ROSCOE—JEVONS RELATIONSHIP

Joshua Lace = Elizabeth Waters
of Liverpool
d.c. 1734

Ambrose Lace = Mary Stanley
sailmaker,
Liverpool
1728–1794

Elizabeth Waters

Ann Lace = William Griffies
draper & merchant,
Liverpool
1720–1788

Mary Stanley
1740–1811

Mary Lace = William Wain
builder & timber
merchant, Liverpool
m. 1791
1788–1840
d. 1832

William Roscoe
of Liverpool
1753–1831

Joshua Lace = Margaret Griffies
attorney,
Liverpool
1740–1811

Mary Ann Roscoe = Thomas Jevons
nailmaker,
Liverpool
1795–1845

William Jevons =
nailmaker,
Liverpool
1760–1852

Jane Griffies = William Roscoe
of Liverpool
1731–1831

William Stanley Jevons
economist of Manchester
1835–1882

Mary Lace =
1720–1788

Margaret Griffies
niece of the above
William
d. 1830

Edward Roscoe
iron merchant,
Liverpool
1785–1834

Mary Ann Roscoe
1795–1845

William Stanely Jevons
economist of Manchester
1835–1882
and nail-maker. Nail making has been established in Birmingham and district from the sixteenth century;\(^{(23)}\) splitting mills for the first stage in nail making were first installed, in the seventeenth century, at Stourbridge, close to Old Swinford.\(^{(24)}\) About 1807 he took as partner Richard Vaughan Yates, but the partnership lasted only four years, Yates starting a separate concern (see below). William Jevons was, from 1818, joined in partnership by his sons, the first of whom was Thomas. Although the firm failed in 1848 it was revived again, and, as Jevons and Company of Rumford Place, survived until 1939. The father died in January 1852 aged 91 and was buried in the yard of Renshaw Street Unitarian Chapel. Thomas Jevons (1791–1855) was an iron merchant and nail maker like his father. He is recorded in the *Dictionary of National Biography* as the husband of Mary Anne the eldest daughter of William Roscoe (1753–1831) whom he married in 1825, as the father of William Stanley Jevons (1835–1882) the economist and logician, and as the builder of the first iron boat that sailed on sea water.\(^{(25)}\) He died in November 1855 at Pisa and was buried in the Protestant Cemetery at Leghorn. A tablet to his memory was placed in Renshaw Street Chapel.

Richard Vaughan Yates (1785–1856) was born in Liverpool, the third son of the Reverend John Yates (1755–1826) minister of Benn's Garden Chapel, the congregation of which later removed to Paradise Street. His mother was Elizabeth, daughter of John Ashton of Woolton (1711–1759). As brother-in-law of John Ashton of Woolton (1742–1833), the minister had business opportunities which enabled him to acquire a sizable fortune. All his sons had notable careers.\(^{(26)}\) Richard married, as his first wife, Sarah, daughter of Richard Mills, a Liverpool merchant by his wife Esther, daughter of Roger Gaskell, sailcloth maker of Warrington. Sarah Yates died without issue in 1828, aged 35, and was buried in the yard of Toxteth Chapel. His second wife was Anne Simpson who survived him. Richard Yates is best known for his gift to Liverpool of Princes Park, where an obelisk stands to his memory. He was a patron of the arts and a friend of John Gibson (1790–1866) the sculptor, who was responsible for the statue of Huskisson in St. James's


\(^{(25)}\) John Wilkinson must be credited with the first iron boat ever built. (Dickinson, *op. cit.*, pp. 26–7).

Cemetery and of George Stephenson in St. George’s Hall. He travelled much and on one visit to Egypt and Palestine in 1846 his guests included Gibson, Harriet Martineau and Henry Cox. Miss Martineau on her return, wrote and published *Eastern Life, past and present* (3 vols. 1848), which was based on that tour.

In 1811 Yates and William Jevons dissolved their partnership in the iron merchanting and nailmaking business, and each started a separate business. In 1816 Yates was joined in partnership by two of his brothers, John Ashton Yates (1781–1863) and Pemberton Heywood Yates (1791–1822), together with George Lissant Cox. Their premises were in Nottingham Buildings, Brunswick Street, Liverpool. The two brothers dropped out of the firm at the end of 1827 and the business then became Yates and Cox. Yates retired at the end of 1854 after many years in which he devoted only a small fraction of his time to the business, Cox being the active partner. He died 30 November 1856 and was buried in the family grave at Toxteth Chapel. The “descent” of the company is shown in chart form.

**LIVERPOOL IRON MERCHANTS AND NAIL MANUFACTURERS**

William Jevons 1800–1807

Jevons and Yates 1807–1811

<table>
<thead>
<tr>
<th>William Jevons 1812</th>
<th>R. V. Yates 1812–1815</th>
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<tr>
<td>William Jevons &amp; Co. 1816</td>
<td>Yatees &amp; Cox 1816–1827</td>
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<tr>
<td>William Jevons &amp; Son 1818</td>
<td>Yates &amp; Cox 1828–1839</td>
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<tr>
<td>Jevons, Sons &amp; Co. 1835 (failed 1848)</td>
<td>Yates, Cox &amp; Cox 1840–1845</td>
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<tr>
<td>George &amp; Henry Jevons 1848</td>
<td>Yates, Cox &amp; Co. 1846–1854</td>
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<tr>
<td>Jevons &amp; Co. 1855 (survived until 1939)</td>
<td>George Lissant Cox &amp; Sons 1855 (failed c. 1860)</td>
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The partnership agreements relating to Yates and Cox were, until October 1956, in the possession of Dr. George Lissant Cox, a great-grandson of Yates’s partner, to whom the writer is indebted for permission to examine and quote from them. They are now in the Lancashire Record Office, DDX 280.
HOLBROOK GASKELL
1813-1909
George Lissant Cox was born 4 September 1782 at Nottingham; his father, of the same name, was a hosier in that town. About 1804, because of friction with his step-mother, the son left his native place and came to Liverpool where he was employed by William Jevons as book-keeper. It is said that when Jevons and Yates dissolved partnership, about 1811, "they had a law-suit as to which was entitled to their clerk young George Lissant Cox . . . finally it was decided that Mr. Yates should have the treasure". When Yates in 1816 took two of his brothers into partnership, Cox was included as junior partner with a salary and a small share of the profits. After 1839 Cox introduced two of his sons as partners and, after Yates retired in 1854, became head of the firm, which failed in 1860.\(^{(27)}\) Cox was a Unitarian, attending Renshaw Street Chapel; he died at Conway 1 July 1860, aged 78, and was buried in Toxteth Cemetery.\(^{(28)}\)

IV. HOLBROOK GASKELL

Nasmyth's Liverpool-born partner was the eldest son of Roger Gaskell (1776–1837), a Liverpool merchant descended from a Nonconformist Warrington family of sailcloth weavers. His mother was Ann (1789–1872) daughter of Roger Hunter (1763–1837), a sailmaker who lived in Seel Street, Liverpool; Roger Hunter's mother was Elizabeth Gaskell of the same Warrington family (see pedigree).

Holbrook Gaskell, who was born 5 March 1813 and baptised at Paradise Street Chapel by Rev. John Yates already mentioned, was educated at Norton near Sheffield before being apprenticed in 1827 to Messrs. Yates and Cox of Brunswick Street. Richard Yates was his cousin by marriage (see pedigree). His duties were mainly clerical, keeping books and doing the accounts, but towards the end of his apprenticeship and after, he undertook some travelling, visiting his employers' customers in Cumberland, Westmorland and the Scottish Lowlands. The earnestness and enthusiasm of this young man is well illustrated by his becoming, while still an apprentice, a pupil of the celebrated Reverend James Martineau (1805–1900). With a few others, they met at six o'clock in the morning and

\(^{(27)}\) Hand-made nails were progressively displaced by the machine-made commodity from 1830 onwards. This may have been a factor in the bankruptcies suffered by the Liverpool nailers.

\(^{(28)}\) The History of the Cox family of Normanton on Soar, by a Lissant kinsman; (privately printed, 1914).
THE GASKELL—YATES RELATIONSHIP

Roger Gaskell = Elizabeth Barnes
maltster,
Warrington
1701-1772
aunt of Zachariah Barnes,
the Liverpool potter
1701-1765

Roger Gaskell = Esther Woodcock
sailcloth maker,
Warrington
1737-1803
m. 1761

Elizabeth Gaskell = Rowland Hunter
mariner, Liverpool
m. 1757
1728-1808

Roger Hunter = Ann Murray
sailmaker,
Liverpool
1762-1837

Esther Gaskell = Richard Mills
b. 1762
merchant, Liverpool
m. 1792
d. 1828

Sarah Mills = Richard Vaughan Yates = Ann Simpson
only surviving
child
1793-1828

Roger Gaskell = Ann Hunter
merchant,
Liverpool
1776-1837
m. 1789-1872

Ann Simpson d. 1891

Holbrook Gaskell
partner of Nasmyth
1813-1909
spent two hours studying political economy and moral philosophy, before breakfast. (29)  

Coming of age in 1834, Gaskell had doubts about his future with Yates and Cox; the possibility of a partnership seemed remote, especially as sons of Mr. Cox were growing up and one had already served his time with the firm. Gaskell seriously considered reading for the Bar despite cautionary advice from Yates who, on 21 December 1834 wrote from Rome:

"I confess if the case were my own I should still hesitate much . . . I observe your objection to being a clerk and if you were likely to continue so for a long series of years, it would not perhaps be very pleasant; but is it not probable that if you remained steady to business, something might occur (perhaps before many years) which might be advantageous for you? . . . However, in these things it must be confessed, a good deal depends on what we call good fortune and you might have to wait a long time. Whether you might not have to wait longer for success at the Bar is a matter for consideration."

The matter of Gaskell’s future was still undecided six months later when settling in the East Indies now seemed to be his only alternative to becoming a barrister. Holbrook’s uncle, another Holbrook Gaskell (1771–1842), who seems to have been the family oracle and was consulted on all matters, wrote on 7 July 1835 from Prospect Hill, Warrington:

". . . Hasty decisions are never wise ones. You appear to me to have come to the new resolve mentioned by you on the spur of the moment . . . Could I bring myself to believe that the estimate you have made of £1,000 in 8 years was a correct one, my objection on the score of money would not have been so great. I still think it must be much more. . . . As regards the last conclusion you have come to of settling in the East Indies, I must pronounce this a more strange project than the other and one which will I think give your parents much uneasiness. You lose sight I fear, that you are the oldest son and with a father incapacitated by infirmity from much exertion of body or of mind. . . . Rather than you should be lost to your family in another country, I will undertake, if your expenses will not exceed the sum you mention, to lend you the money myself . . . if your parents and yourself on mature deliberation come to the conclusion that of all the plans . . . the law is the best."

The councils of “wait and see” prevailed and Gaskell was still employed by Yates and Cox when, in 1836, Thomas Jevons considered him to be a suitable partner for Nasmyth.

(29) Funeral sermon by Rev. J. Crowther Hirst, printed in In Memoriam, Holbrook Gaskell. Martineau was minister of Paradise Street Chapel from 1832.
The precise date on which Jevons introduced Nasmyth to his future partner Gaskell is not known, but negotiations for the partnership agreement were in full swing by the middle of July 1836. In that month, Nasmyth wrote to Gaskell:

"... I went down to Humphreys on receipt of your letter and he then read over to me his scrawl draught of the terms which I was glad to find had most fully embodied all the points you named in your last and I think he has made all very distinct and proper. He is having it clean copied today and as soon as done will be forwarded to you for your perusal and remark. He is a very judicious man and altho a Lawyer is a very decent man, but I hope you will very soon have an opportunity of judging ..." (30)

Nasmyth was particularly anxious to get the matter settled as soon as possible, for he added to this letter: "We are very anxious for you to come to us as soon as you can for the quantity of work will require full 3 heads. These are indeed glorious times for the Engineers, only if one had a little more time to think cooly (sic)".

On the next day, the draught agreement was sent to Gaskell, suggesting that any remarks should be written on a blank sheet, and proposing a "council" at Barton to discuss any outstanding points in order to reach final agreement. Having to go to Ireland to install a 25 h.p. engine, Nasmyth continued: "I shall be in L'pool on Friday morng. by the 7 o’cl. train and proceed from there to the Clarence Dock to the Robert Napier. If you had leasure we might have a chatt (sic) before starting." (31)

Apparently this meeting did not take place, for Nasmyth wrote from 31 Dale Street, Manchester, on 30 July:

"I was sorry we did not meet lately, the more so as I fear you had been put to inconvenience by waiting for me. I came down by the last train the eveh. before as I had some business to transact with the capt. of the Robt. Napier. I looked out for you at the Clarence Dock, but no H.G. vizable (sic). I had a pleasant but very hurried trip but job all done and was again in Manchester Tuesday 12 o’cl. ... I saw our 20-horse (32) at full work in Derry, working so sweetly that you can not hear it going. The parties are quite pleased. It made me feel very happy as it was, considering our then means, rather a bold undertaking. ... I expect a call to Liverpool during the week when I shall not fail to pay my respects to you. . . ."

(31) Letter dated "1 o’clock, July 12th/36."
(32) It is not clear whether this engine is the same as the one described previously as 25 h.p. Both were installed at Derry.
These letters to Gaskell also furnish valuable evidence of Nasmyth's views and principles. In particular, he formulated his important idea of having a range of machine tools ready made for sale and not making each after it had been ordered as was then the custom. He said in his letters dated 11 and 12 July:

"... I will do all in my power to bring about what I am certain is the true view of the Business viz. to have such as planing machines and lathes etc. etc. ready to supply the parties who come every day asking for them. If we had such a stock ready made we could in every instance sell them at 20 per cent better price and please the parties much more and avoid all sort of unpleasant work of hurrying on the work. ... We could at once take the lead in the Business if we put it in force. It is now as foolish to wait for orders for such machines as to wait for orders for a ton of iron bars and tell the parties when they apply to you that you must have 4 months as the ore has to be got out of the ground before you can supply and that you will write to the mine to smelt their order. Such machines are now become as much articles of currant (sic) demand as files or anything else of that nature." \(^{(30)}\)

"... What a noble business we might become if we only could establish the ready made concern... Its the true view of the business and would make twice the return with not ½ the annoyance arising from being made to promise time for Delivery with the continual risk of Dispointing (sic) the parties. ..." \(^{(31)}\)

The first partnership agreement was signed sometime between July and November 1836. Its general terms may be deduced from subsequent agreements of 1838, 1843 and 1850. The partners were James Nasmyth and his brother George (two years older than James), Holbrook Gaskell and Messrs. Birley & Co. They were to engage in business as machine makers and engineers at Manchester and Patricroft for a term of sixteen years under the name of Nasmyths, Gaskell & Company.

The Nasmyth and Gaskell families were soon on terms of intimacy. Roger Hunter wrote to his grandson Holbrook Gaskell from Liverpool, 6 December 1836:

"... We hope to see Miss Nasmyth, her two brothers and yourself at our family Christmas days dinner. As the 25th falls on Sunday, we mean to exhibit our Plumb pudding (not a Haggis) on the following day Monday the 26th. I have seen your mother who desires me to say she can accommodate the two Gentlemen with a Bed. Will you give Mrs. Hunter's and my own kind love to Miss Nasmyth and say we hope she will come over on the Saturday and take a Bed at our House. She will then have the opportunity of hearing Mr. Martineau on the Sunday and it will give us pleasure to have her company. ..."

The factory at Patricroft, later called the Bridgewater Foundry, was built on two adjoining plots of land, 13,536 and 5,030 square yards respectively, bounded, in part, by the
Bridgewater Canal and by the Liverpool and Manchester Railway. The land was leased for 999 years from Thomas Joseph Trafford at a rent of £112. 16s. 0d. and from George Cornwall Legh at a rent of £36.13s.6½d. The leases were dated respectively 31 December 1835 and 30 May 1836. Later, two further plots containing respectively 46,463 and 1,000 square yards were leased 25 June 1841 at a rent of £345.14s.0d. from Thomas Joseph Trafford. (33)

That erection of the new establishment was in progress in July 1836 may be inferred from a passage in the letter dated 11 July:

"With regard to Bellhouse's progress (34) had we only known that he would have proceeded as he has been doing he should have been the last person to whom we should ever have applied to. He has behaved very badly but we must bear with him now as the building is so near finished as regard the brickwork that we cannot do otherwise . . . but we are suffering as well as our neighbours for such is the demand for work that hands are very ill to be had and when had very ill to keep, but it will be a noble shop when done . . . . if we can commission the means we shall certainly put up another 100 feet all in line with the present building and employ it as a foundry".

Evidently "means" became available. In the letter dated 30 July Nasmyth wrote: "We have commenced another 100 feet of Building for a distinct foundry. We are dooing (sic) it all our selves this time and shall save much time and money by so dooing . . . ."

The Birleys withdrew from the partnership in 1838 and their places, as sleeping partners and financial backers, were taken by Henry Garnett, a Manchester merchant, and George Humphrys, the lawyer who had prepared the 1836 partnership agreement. The new partnership deed was signed on 30 June 1838 (35) It is interesting to note that by its terms the Nasmyths and Gaskell were not to take more than half their share of the profits, the remainder being placed to their credit as increase in capital. On 25 February 1843, George Nasmyth withdrew from the partnership and settled in London as a consulting engineer. (36) The remaining partners continued as Nasmyth, Gaskell and Company, until 1850.

(33) Details of these leases are cited in an indenture dated 30 June 1850 by which George Nasmyth and Holbrook Gaskell assigned their shares in these leases to James Nasmyth. (Lancashire Record Office, DDX 260/4).

(34) Gaskell's future wife (married 28 December 1841 at Manchester Collegiate Church) was Frances Ann, daughter of Henry Bellhouse of Manchester, gentleman. It is not known whether this Bellhouse was related to Nasmyth's building contractor.


(36) L.R.O., DDX 260/3. He was elected an Associate of the Institute of Civil Engineers in 1844.
Birley and Company mentioned above were cotton spinners and manufacturers in Manchester. At the time of the Nasmyth partnership, the firm consisted of two brothers, Hugh Hornby Birley (1778–1845) and Joseph Birley (1782–1847), sons of Richard Birley of Blackburn, merchant, and his wife Alice, daughter of Hugh Hornby of Kirkham. It is of particular interest to note that in 1824 the brothers Birley became partners with Charles Macintosh in the manufacture of “mackintoshes” at Manchester. In Summer 1838, the Manchester works of Macintosh and Company, now part of Dunlop Rubber Co. Ltd., were burned down, and almost immediately rebuilt. It may be that this fire, resulting in a need for ready money, was the reason why the Birleys withdrew their investment in Nasmyth, Gaskell and Company. The coincidence of date is certainly suggestive, but evidence is lacking.

Intimacy between the Nasmyth and Gaskell families continued to be close. Mrs. Gaskell, writing from Liverpool to her son Holbrook 27 September 1840, promised: “. . . I will send a basket on Tuesday for you with the curtains, bed tick and George’s shirts.” (Presumably George Nasmyth). Later that year, 4 November, writing from Madeira where she was staying with her son Roger who was suffering from tuberculosis: “. . . Give my kind love to all at the House and to James and his wife. . . .”

Probably to some extent fired by the example of Nasmyth’s restless drive, Gaskell, to the concern of his brothers and sister, greatly overworked himself. Thus, Holbrook’s sister Annie wrote from Bristol 28 January 1841: “. . . We had a tedious journey . . . I looked very particularly to see if the engine was your’s but alas I was disappointed each time and I had not the pleasure of thinking I was, at last, in a train which your engine moved. . . . When was the time that you fixed for relaxing a little from your dreadfully hard work, I do hope it will be soon . . .” Roger Gaskell, at Funchal, Madeira, wrote to his brother two days later: “. . . You ask me whether I think you an ass for overworking yourself in your business. I do not. An ass has more sense . . . Holbrook, I charge thee fling away ambition . . . Mama wishes me to say that she will be obliged to your making selection for her of one of Mr.

[39] Twenty locomotives for the Great Western Railway had been made in Patricroft by 1840 (Autobiog., p. 237).
Nasmyth's paintings which she engaged to purchase . . . please give our kind regards to the Nasmyths. . . .”

A glimpse of discord between the partners appears in a letter Holbrook received from his brother Hunter:

“. . . I am glad to hear you have had your flare up with J.N. and that his conduct was not quite so bad as we thought. Don’t you think his explanation rather inconsistent with the expression ‘our joint interest’ in his letter unless it be that £1,000 was not to be paid unless the patent were granted. Mr. Humphrys came in just the nick of time and acted I think in a sensible manner, if J.N. was really prepared to break up the concern rather than surrender this money. Better lose a gain of £250 than hazard such event just now. He promised I suppose to abjure his evil ways for the future, but will need close surveillance. It must be a most unpleasant task to work with a man in whom you have no confidence, but the credit side of your profit and loss account would reconcile me to the task and for my own part, were I in your place, neither J.N. nor Tom the Devil should induce me to leave the concern now, when I hope you are about to receive an ample recompense for eight years fearful drudgery. God knows you deserve to be rich Holbrook and you will be, as sure as eggs is eggs, if you stick to the big chimney. . . .”

It is unfortunate that this letter lacks its first page and is, therefore, not directly dateable. If the statement of “eight years drudgery” refers to the duration of Holbrook’s partnership, this letter was written in 1844. The possible cause of the quarrel, however, deserves closer study. Nasmyth had invented his steam hammer in 1839 but did not then realise its value. As Gaskell stated in 1864: “That to Mr. Nasmyth is due the original conception of the direct acting steam hammer I have frequently testified and am prepared to maintain, but that either he or anyone else to whom it was communicated had any conception of the great future which awaited his invention I distinctly deny.”(40) It is not surprising, therefore, that a patent was not applied for. Three years later, in April 1842, when on a visit to France, Nasmyth was surprised to discover a steam hammer in action at M. Schneider’s ironworks at Le Creuzot. Schneider explained that some time previously he had visited Bridgewater Foundry. There, in Nasmyth’s absence, Gaskell had shown him what machines and tools they could offer, including, as was their custom, a view of Nasmyth’s Scheme Book in which was a sketch of the steam hammer. Impressed by its potential utility (so far not one had been made), Schneider took notes and sketches and after his return to France, had one made in his own workshops.

(40) Letter from Holbrook Gaskell, Birkdale Park, Southport, 4 December 1864 to Robert Wilson, Bridgewater Foundry, Patricroft. Wilson was the manager of the Foundry and the inventor (in 1843) of the self-acting mechanism which was necessary to bring the steam hammer to perfection.
Nasmyth now sought belated patent protection. "I had not yet taken out a patent for the Steam Hammer", he wrote in his Autobiography, page 247. "The reason was this. The cost of a patent, at the time I invented it was little short of £500, all expenses included. My partner was unwilling to lay out so large a sum . . . and I myself had the whole of my capital embarked in the concern. . . . As my partner declined to help me, I applied to my brother-in-law, William Bennett . . . The patent was secured in June 1842. . . ."

Nasmyth's views on his personal rights in his inventions vis-à-vis the firm were outlined in a letter written to Gaskell 12 July 1836, before the partnership was signed. He wrote:

"Being a bit of a schemer, I hope I am to have a certain latitude allowed me for cogitating upon matters which may perhaps not be within the immediate actual province of the concern, but which may in the end have much material effect in advancing its welfare, but in all such matters you would be the first person to whom I should think of communicating my 'bright idea' so that there should be nothing but bona fide transactions, only I must have a certain liberty of conscience secured to me. In the case of any new plan which I might propose requiring to be tried, such as a new machine or such like, I think it would be proper that the proposal should be submitted to the approval of the concern, viz: yourself and my Brother, and if so sanctioned that the expense of tryal (sic) should be at the joint cost of the Firm, they to equally share in whatever the results were. I trust you will find me no wild schemer, but in these times if we expect and strive to attain and maintain our position in the van of the profession, we must take care to keep up with the day, but in all such cases the approval of the Firm is what I should ask for and hope to obtain but I feel very much in your hands on this head, but it is proper that we should understand each other at the beginning. As to any decided invention which I might hit upon, I would consider that that was my own property, that is in the case of its becoming the subject of a patent".

In view of these statements which are mutually inconsistent, it is not surprising that Holbrook Gaskell was unwilling to lay out money for the patent and amply accounts for the "flare up" referred to by Hunter Gaskell. The latter's letter must, therefore, have been written before June 1842.

VI. THE END OF THE PARTNERSHIP

Holbrook Gaskell retired from the Patricroft partnership in 1850, because of impaired health, either, according to family

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(41) In Industrial Biography, p. 288, the cost of the patent was given as about £280. Even this was exaggerated; before 1852 the cost of obtaining a British patent was between £100 and £200. (Information from the British Patent Office, 10 April 1956).
tradition, the effect of a head injury in the works, or possibly he suffered a breakdown due to his years of "fearful drudgery". The agreement for dissolution of the partnership is dated 11 June 1850; under its terms Gaskell was paid his capital (amount not stated) plus a sum of £4,500 by way of bonus. He retired to the family home at Prospect Hill, Warrington, and later to Southport. Recovering his health, he re-entered business as partner of Henry Deacon (1822–1876) in a chemical manufacturing concern at Widnes. Deacon had trained as an engineer with Nasmyth, Gaskell & Co. and later spent several years as a glass technologist before his entry into chemical industry as partner of his former employer. Gaskell, Deacon & Co. became, in 1890, part of the United Alkali Co. Ltd., one of the companies which in 1926 merged as Imperial Chemical Industries Ltd. Holbrook Gaskell died 8 March 1909 at the age of 96 years and left an estate valued at £450,000.

James Nasmyth himself began to suffer from the strain of intense activity and, having ample means, retired at the end of 1856, then being only 48 years old. He removed to Penshurst in Kent where he interested himself in astronomy, drawing, painting and engineering work. He died 8 May 1890 at Bailey's Hotel, South Kensington, two months short of being 82 years of age. He directed that his ashes were to be placed in the grave he had made for his father and brother in Edinburgh. Nasmyth had no children and most of his estate, proved at £244,000, was left to charity, including a bequest to the Royal Society of Arts of Edinburgh to found the Alexander Nasmyth fund.

The writer is indebted to Mr. Roger H. Gaskell of Wolverhampton, by whose permission the various letters addressed to his grandfather are quoted.

[45] His will, dated 2 February 1889, was proved 6 August 1890 at the Principal Probate Registry. His widow, Ann Elizabeth Nasmyth (*née* Hartop) died 22 October 1893 at Scarborough and her will was proved at the Principal Probate Registry 6 December 1893.