Nasmyth Group was founded in 2003 when the Group established by investor and entrepreneur Peter Smith, acquired Nottinghamshire-based Bulwell Precision Engineers Ltd and Bulwell’s share in a second company, Metal Process Services Ltd - both of which were, and are, specialist suppliers to the aerospace industry.

In naming his new business, Peter Smith took inspiration from his long-term admiration of the pioneering Victorian inventor and industrialist, James Nasmyth. Just as Nasmyth, the man, built his reputation on the precision engineering of parts for steam locomotives and ships, so Nasmyth, the new precision engineering group, would start to build its business on the precision engineering of parts for aircraft. Today, the Group comprises the collective expertise, resources and technology of 12 customer-oriented businesses serving not just the aerospace industry but also the defence, energy, medical, specialist automotive, marine and space sectors.

With its range of complementary disciplines, the Group can offer its customers all the benefits of a truly optimised, single source, supply chain. From the smallest individual machined components to large, complex, multi-part assembled products and structures, the in-house capabilities of Nasmyth Group include:

- Design and reverse engineering, supported by CAD/CAM and the latest analytical techniques and technologies
- Precision machining and shaping of high performance metals and materials – from aluminium, titanium and Inconel 625 to steels, Nimonic and super alloys
- Construction, testing and certification of both simple and complex structures using the most advanced welding and assembly techniques
- System engineering and total product or component solutions
- Plasma, plasticized, chemical and thermal treatments and repairs
- Global supply chain management and logistical solutions
- Best-in-class after-sales support.

Nasmyth Group continues to invest heavily in each of its constituent businesses (outlined on the following pages) to ensure the delivery of integrated, practical and market-leading solutions to the specific business and product requirements of its customers.

www.nasmythgroup.com
Nasmyth Group Evolution


West Middlesex Plating Company founded in 1913.


JS Chinn Group acquired Coledge & Morley in 1956.

Technical Metal Finishing Co. Inc. founded in 1955.

Technical Metal Finishing relocates to Burbank, California.

Alden Precision founded in 1925.

Doughty Precision Engineering renamed Limited Company in 1990's.

Doughty Precision Engineering acquired by Bodycote in 2005.

Arden Precision Ltd founded in 1980.


Nasmyth India founded 2011.

和技术金属表面处理有限公司于2018年成立。

Technical Metal Finishing Corporation Inc. in 1955.

Technical Metal Coating Inc. in 2014.


Chinn Ltd, Chinn Engineering Ltd, Henton Engineering Ltd and Colledge & Morley Ltd.

Nasmyth Technologies formed 2016.

Technical Metal Coating Inc. in 2018.

Nasmyth Metallics formed 2015.

Nasmyth Technologies formed 2016.

Technical Metal Coating Inc. in 2018.

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**Metallics**

Nasmyth Metallics incorporates all of Nasmyth’s key precision machining businesses, manufacturing critical performance components and assemblies in all types of materials.

With state-of-the-art twin spindle, twin turret capabilities and multi-axis machining centres, they have the capacity to deliver one-operation turnkey products.

**Technologies**

Fabrication, forming and welding are undertaken by the Nasmyth Technologies division.

Collectively, these companies have the expertise to manufacture test rigs and heavy assembled structures through to lightweight fabrications and low volume, specialist components.

They can also provide reverse engineering solutions for current and legacy products.

**Systems & Defence**

By combining the comprehensive experience and expertise of the Nasmyth Group of companies we are able to provide bespoke solutions to meet the demand of our customers.

The key skills we offer include small to large sheet metal and fabrication, machining, mechanical/electronic and electro-mechanical assembly, test, composites, hydraulic and pneumatics.

**Specialist**

With four NADCAP-approved process houses in the UK and one in the US, Nasmyth Group provides a comprehensive range of wet and dry metal surface finishes.

Heat treatments, adhesive bonding and de-scaling are complemented by electro-plating expertise in a range of metals as well as unique masking and NDT capabilities.

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**West Middlesex Plating Company**

begins life in a backyard backing onto Uxbridge High Street

**Henton Engineering Ltd**

founded by Mr AO Henton

**Doughty Precision Engineering**

founded by Alan Shaw Doughty

**IEC Ltd**

founded by Saville-Sneath family

**JS Chinn**

founded by Joseph Samuel Chinn. It was the seed company for JS Chinn Group

**JS Chinn Engineering**

founded as part of the JS Chinn Group in Burbage

**Colledge & Morley**

founded and named after owners' wives' maiden names
Originally founded as a general purpose engineering business by Leonard Sedgwick, in 1956, Bulwell Precision Engineers was named after the Nottinghamshire town in which it was initially based. By the 1960’s, Bulwell had become a major player in the aerospace industry with a customer base that included Rolls-Royce. The early 1970’s saw the company expand its business, including the purchase of land in Pinxton where the company is still based today. In the mid 1980's, growth continued with the setting up of a facility for non-destructive testing and the development of Metal Process Services that specialises in coating and spraying components for demanding applications. In the mid 1990’s it purchased Swift and Wass, a Nottingham-based engineering company. The business was relocated to Pinxton and renamed Manor Engineering. The acquisition opened a relationship with BAE Systems and, ultimately, another with Airbus that led to significant growth in the business. Following the purchase of Bulwell in 2003, Simon Beech, Managing Director of Bulwell, joined the Nasmyth Group and is now a Director of the Group supervising a number of the UK Companies on behalf of Peter Smith its Chairman and CEO.

Investment in the latest 4 and 5 axis machining technology has positioned Bulwell at the forefront of precision machining producing quality assured components in the most demanding metals and super alloys. Fine tolerance grinding, water jet cutting, heat treatment, and non-destructive testing are also undertaken to manufacture complex airframe or engine components and finished equipment assemblies.

The latest addition to the Group, Nasmyth Arden, formerly Arden Precision Ltd, was acquired in 2014. Based in Solihull, the company offers a wide range of engineering, manufacturing and finishing services.

In addition to CNC turning, CNC Milling, 4 and 5 axis milling and 3D machining, the company provides CMM inspections as well as a range of prismatic components. With its ability to add value, from concept through production to ‘point of use’ delivery, the company has earned an enviable reputation with such high profile clients as Rolls-Royce sub-contractors Aero Engine Controls and Meggitt. Established 33 years ago, this company has long respected the values and standards that are core to the Nasmyth Group. Quality, accuracy, performance, and delivery, all are considered equally critical to success and customer satisfaction. This combination of the company’s facilities, capabilities, professionalism and customer reputation made Arden an ideal fit with the other specialist businesses that already made up the Nasmyth Group.

Metallcs
Nasmyth Bulwell

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AS Doughty, named after its founder, Alan Shaw Doughty, began manufacturing components for the diesel, marine, and motorsport industries back in 1925, involving processes such as turning, milling, honing, grinding, and lapping, and working to what were then very fine tolerances measured in microns. By the 1970’s, the company was supplying new parts, as well as providing service, repair and other engineering services, for diesel fuel injection pumps for major companies such as Lucas CAV and British Rail in Derby.

During the 1980’s, Doughty diversified, re-branded as Doughty Precision Engineering, and developed a specialist capability in the manufacture of electrical connector shells, manufactured in stainless steel or titanium for aerospace and other demanding markets. The company continued to expand, became a leading global supplier, and was acquired by Nasmyth Group in 2005.

Today, Doughty Precision Engineering is a world-leading manufacturer of components for electrical connectors for the aerospace, transportation, oil, medical and sensor markets. Intricately machined transducer and electrical connector components can be precision engineered from a wide range of materials, including stainless steels, non-ferrous metals, titanium, Nimonic, Hastelloy and high performance plastics. Doughty has also invested heavily in advanced coordinate measuring and optical profile measuring equipment to manufacture components and connectors to the most exacting industry standards.

Henton Engineering can trace its history back to 1920, just two years after the end of the First World War, when AO Henton founded the business in Burbage, Leicestershire. In 1960, the company became part of the JS Chinn Group, specialising in the manufacture of component parts for the fast-developing aerospace, automotive and nuclear industries. Along with the other JS Chinn Group companies, Henton Engineering joined Nasmyth Group in 2008, specialising in the machining and fine grinding of large sectioned ring and prismatic components for engine and structural applications. These are tested and assembled at the company’s Hinckley site, at which the company was consolidated in 2010, before being delivered to its customers across global aerospace, marine and satellite industries amongst others.

With the expertise and capability to produce parts in a variety of materials, including exotic and high temperature alloys, Henton Engineering is equipped with CNC technology and full 5 axis continuous path machining equipment. Taking advantage of the most advanced production management technology, the company is also able to import customer schedules into its ERP system and react immediately to ever changing requirements.

### Nasmyth Doughty

**1925**
- Doughty began manufacturing components for the diesel, marine, and motorsport industries.
- Processes included turning, milling, honing, grinding, and lapping, with very fine tolerances.

**1960**
- Doughty diversified, re-branded as Doughty Precision Engineering.

**2005**
- Doughty was acquired by Nasmyth Group.

### Nasmyth Henton

**1920**
- AO Henton founded the business in Burbage, Leicestershire.

**1960**
- The company became part of the JS Chinn Group.

**2008**
- Henton Engineering joined Nasmyth Group, specialising in machining and fine grinding.

### Other Events

**1971**
- Bulwell Precision Engineers Ltd purchases two parcels of land in Pixton, Nottinghamshire to help expand its business.

**1973**
- Warren Powers takes over controlling interest of Technical Metal Finishing with Ronald Dark and Betti Sellwood.

**1974**
- Ron Dark Inc. purchases all of the shares of Technical Metal Finishing.

**1975**
- IEC Engineering Ltd formed, under Managing Director Christopher Saville-Sneath (son of group founder), through the acquisition of an existing local business Comark Precision.

**1976**
- JS Chinn Ltd begins work on the development of the Tornado Aerospace, manufacturing the afterburner casings for the Tornado’s RB199 engines.

**1977**
- JS Chinn Engineering manufactures Ariane Release Gear.
Nasmyth Coventry

The founding company of what was to become the JS Chinn Group. The company, now named Chinn Ltd, was established by Joseph Samuel Chinn in December 1953, in Coventry, and rapidly established itself with an RAF contract to design cowls for the Blackburn Beverley military transport aircraft.

Success continued throughout the 1960’s when the company became a key player in the development of supersonic air travel, pioneering with others the use of the Vulcan strategic bomber as a flying test bed for the development of the Olympus engines that would be used to power Concorde.

An increase in defence expenditure, resulting from the Falklands and the first Gulf Wars, resulted in new contracts for Chinn Ltd for the development of engine parts for the Harrier Jump Jet and the Tornado.

Chinn Ltd, and its three sister companies, was acquired by Nasmyth Group in 2008. With new investment, the company was able to expand its customer portfolio beyond aerospace applications to specialist parts for industrial gas turbines and the nuclear power industry. Indeed, Chinn Ltd recently became the first UK company to be awarded approval under the ‘Fit for Nuclear’ standard.

Today, as the UK’s most technically advanced precision fabricator, Chinn can produce structural components to 2.0m cube and turned components to 1.0m diameter and 1.4m length as well as aluminium, stainless steel, titanium and rare alloy fabrications up to 8m x 4m and 5 tons in weight. Fully conversant with the latest reverse engineering techniques, Chinn Ltd also works with customers to provide quality assured repair and overhaul services.

Nasmyth Ferndown

In 1984, two employees at the Bournemouth-based British Aircraft Company took the decision to launch their own welding business, targeting the aerospace industry. Ten years after its founding, PWS was employing 20 people and playing a critical role in the development of the Agusta Westland Apache attack helicopter.

Located in Wimborne, Dorset, PWS was acquired by Nasmyth Group in 2006, and now specialises in sheet metal fabrications, welding and prismatic machining to manufacture components, sub-assemblies and large structural fabrications for the aerospace, defence and associated industries. Fine limit, high quality, sheet metal assemblies can be produced in all alloys as well as aluminium, lithium, mild steel, stainless steel, titanium, zinc and most plastics.

Advanced TIG welding systems are used to precision engineer sheet metal assemblies and fabrications up to 3.5m long and 32 inches in diameter while the company’s 5 axis CNC equipment can machine components to 1.7m in length.

In 2015, amalgamated into Nasmyth Technologies (as Coventry CE Site) to ensure collaboration, increased investment and stronger skills base.
Nasmyth IEC
With roots going back to the 1930’s - when IEC Ltd was formed to act as the UK representative for a Swiss manufacturer of miniature bearings - IEC Engineering was established in 1975 to manufacture rotating gyroscope assemblies for military guidance systems and weaponry. It also manufactured precision rollers and tape guides to move magnetic tape inside computing machinery with both military and music industry applications.
With the introduction of solid state technology, IEC Engineering began to diversify and having been acquired by Nasmyth Group in 2005 now specialises in assembly, system assembly and CNC machining to manufacture complex parts, major sub-systems and assemblies for the aerospace, defence, marine, instrumentation, oil, gas, nuclear and medical industries.
From 2000 to 2012, IEC was a key supplier of cockpit flying controls for a range of business jets built in the UK and USA.
Equipped with full 6 axis CNC machining, supported by advanced CAD/CAM systems, the company works with a wide range of metals and super alloys as well as high performance plastics and also has a major specialist assembly and test facility for systems used in marine and submarine environments. Based in Rustington, West Sussex, IEC Engineering has extensive expertise in direct line feed, vendor-managed inventory, Ken Ban, Fax Ban, blanket and multi-drop order, rapid response and e-procurement planning.

Nasmyth CE
Chinn Engineering Ltd, another member of the JS Chinn Group was established to address a niche requirement. This niche market it leads today, as a high-end welding and heavy fabrication business.
During the 1960’s, Chinn Engineering produced radar and tracking equipment for Marconi and aero engine test beds for British Aerospace, while in the 1970’s and 80’s, the company was involved in a number of pioneering aerospace projects for EADS Astrium, including the release gear for the Ariane rocket and the development of the Skynet project to launch a suite of military communications satellites.
Subsequent contributions to a number of other high profile projects, including the undercarriage for the Airbus A310 and involvement in the construction of the F-111 fighter-bomber, were followed in the 1990s by further contracts from EADS Astrium, for designing ground support equipment.
Part of the Nasmyth Group since 2008, Chinn Engineering has the capability to design, manufacture and supply test rigs and heavy fabricated structures, weighing up to 20 tonnes, for specialist applications within the aerospace, defence, satellite, nuclear, marine and associated industries.
In 2015, amalgamated into Nasmyth Technologies (as Coventry CE Site) to ensure collaboration, increased investment and stronger skills base.
West Middlesex Surface Treatments Ltd, the oldest company in the Nasmyth Group, began life over one hundred years ago as West Middlesex Plating Company, plating and anodising business originally located in a yard that backed onto Uxbridge High Street. From its modest beginnings, the company diversified its capabilities and customer base and now serves the aerospace, defence, motorsport and medical equipment industries. Notable customers include Bugatti, Brown and Miller Racing Solutions (a key player in the design of F1 cars) and Martin Baker, manufacturers of the eponymous ejector seats that have saved the lives of many pilots.

Acquired by Nasmyth Group in 2005, the company, which is still located in the outskirts of Uxbridge, provides metal surface treatments, electroplating, anodising and non-destructive testing of intricate components for the mechanical engineering industry. Its facilities enable the company to provide high quality zinc, alocrom, chromic acid and sulphuric acid anodising as well as cadmium, copper, chrome, silver, tin and nickel treatments. Stainless steel passivation and hydrogen de-embrittlement can also be provided.

As a NADCAP certified metal finisher, what sets Nasmyth TMF apart is its unique anodize masking processes and non-destructive testing services.

Our 55 year reputation for reliability, precision and speed combined with lean certified project management ensures that your parts are delivered right on time, every time for a smooth, stress-free experience from start to finish. When you need a quick and reliable metal finisher for even your most complex parts, look no further than Nasmyth TMF: we finish what others won’t even start.
Specialist

GEB Surface Treatments Ltd

GEB Surface Treatments Limited is a joint venture company established by the Nasmyth Group and GE Treatments Ltd in 2005 to provide specialist metallic component treatment, protection and lubrication services to the aerospace and engineering industries.

To support key customer growth and increase capacity, GEB moved in 2007 to a newly-built factory on the Wharf Road Industrial Estate in Pinxton, Nottinghamshire. It shares its site with two of its Nasmyth Group sister companies: Bulwell Precision Engineers Ltd and MPS Ltd (Metal Process Services).

The company has developed a range of critical metal surface treatments, specialising in treating small and large complex components that carry aircraft fuels, and is one of the UK’s leading silver platers. In addition, GEB works with its customers to provide electroplating, non-destructive testing, painting, dry film lubrication and anodising to the most stringent aerospace specifications, including tarteric anodising and zinc plating.

The presence within Nasmyth Group not just of GEB but also of Towerfield Plating and West Middlesex Surface Treatments, each with its own specialist surface treatment expertise, provides the Group with an unsurpassed capability in this field.

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Nasmyth Group acquires PWS Ltd

Nasmyth Group acquires West Middlesex Plating Ltd. Re-named West Middlesex Surface Treatments

2006

Nasmyth Group acquires JS Chinn Group (Chinn Ltd, Chinn Engineering, Colledge & Morley and Hentons)

Towerfield acquired as a joint venture between Nasmyth Group and two industry specialists

2008

Nasmyth France established to provide sales support to French and European markets

Henton Engineering Ltd relocates to new facility on the Harrowbrook Industrial Estate in Hinckley

Colledge & Morley move into a modernised facility in Coventry

Chinn Engineering moves to be adjacent to Chinn Ltd

2010

Nasmyth India formed

2011
Established in 2010 to provide sale and support resource for the French and European market in the aerospace sector.

Offers access to all Nasmyth Group skills and technology through the operation based in Toulouse.

Nasmyth India

After more than 10 years of supplying high integrity aero engine gas turbine engine components to the Indian Government’s Gas Turbine Design and Research facilities (GTRE) and Hindustan Aeronautics (HAL), Nasmyth launched Nasmyth India in 2011, located in Bangalore, to enhance the Group’s ability to provide cost-effective precision engineering solutions to the region’s aerospace, energy, industrial gas turbine and related industries.

In addition Nasmyth India importantly provides its customers with the opportunity to achieve cost-effective manufacturing that is fully supported the Group’s proven global supply chain management skills and machining technology. Precision parts can be produced in most engineering materials to the highest industry quality and manufacturing standards using modern CNC machining facilities.

The company has the ability to manufacture complex, quality assured, fabricated assemblies and deliver professional CAD/CAM design and engineering (including reverse engineering) services.

Nasmyth France

Established in 2010 to provide sale and support resource for the French and European market in the aerospace sector.
The life of

James Nasmyth

Inventor
Engineer
Industrialist
Pioneer
Entrepreneur
Astronomer
Photographer
AMES NASMYTH
His Family Heritage

When he was born in Scotland in 1808, the tenth child of Alexander Nasmyth and Barbara Foulis, James Nasmyth joined a family that already had a lineage of both mechanical and artistic talent.

His grandfather, Michael Nasmyth, had been a notable architect. One of his houses, built on the southwest corner of Edinburgh’s St. Andrews Square, was the home of the renowned Scottish philosopher David Hume.

Alexander Nasmyth, James’ father, became a distinguished painter of watercolour portraits and landscapes. One of his paintings, a portrait of the poet Robert Burns, can be seen in the Scottish National Gallery. Alexander’s outspoken liberal views caused him to fall out of favour as a portrait painter for the aristocracy and he turned to landscape painting. He is now considered the father of Scottish landscape art.

More than just an artist, however, Alexander also proved himself to be a skilled mechanic. Indeed, he was the inventor of the ‘bow and string’ bridge, the first of which was erected over a deep ravine on the island of St Helena. Given its apparent slightness, there were those who doubted its sturdiness but their doubts were dispelled when a herd of wild oxen ran over it without any damage to the structure.

James drew a lasting philosophical lesson from his father— the notion of drawing as a ‘graphic language’ which was superior to the written word and, of the greatest importance to our story, essential for the recording of scientific observations.

James’ Early Years
Point towards his Future

Although an established artist, Alexander Nasmyth devoted most of his spare time to his consuming interest in mechanics.

He had his own workshop and encouraged his younger son, James, to work with him on a wide range of projects. Sent to the Royal High School in Edinburgh, James befriended the son of a local iron founder and, with his interest already stimulated by the time he had spent in his own father’s workshop, he made regular visits to the foundry, learning to work with wood and a variety of metals including brass, iron and steel.

At the age of 17, he made full use of the facilities in his father’s workshop to build his first steam engine. At the age of 20, he made a complete steam carriage that was capable of running a mile carrying 8 passengers, an accomplishment that only intensified his desire to become a mechanical engineer.

By this stage in his life, James had become aware of Henry Maudslay, considered by many to be the father of machine tool technology, and resolved to find employment in his workshop. James’ father, unfortunately, did not have the resources to fund an apprenticeship there for his son. So James, demonstrating the initiative and commitment for which he was to become famous, determined to demonstrate his skills at Maudslay and produced a model of a high-pressure steam engine, complete with working drawings.

Portrait of James Nasmyth
Copyright © 2002 George Eastman House, Rochester, NY

‘View in Callendar Park’, Stirling, Scotland, c1817. Coloured aquatint etched by EC Lewis after Alexander Nasmyth (1758-1840) showing ‘part of the track of the injurious deviation from the Parliamentary Line of the Edinburgh and Glasgow Union Canal’ as it passes through the grounds of Callendar Park, home of William Forbes at that time.
© Science Museum/Science & Society Picture Library. All rights reserved.
In 1829, James made the journey to London and presented his work to Maudslay, resulting in James being engaged as an assistant workman at the rate of 10 shillings a week. Two years later, following the death of Maudslay, James was employed as a draughtsman by Maudslay’s partner. But it wasn’t long before James, having managed to save nearly £70, took the decision to set up his own business. 

After an unfortunate mishap at his first premises in Manchester—massive castings on a wooden floor resulted in an engine beam arriving unexpectedly in the flat below— he moved to Eccles in Lancashire where he established the Bridgecaster Foundry together with his business partner, Holbrook Gaskell, in 1836. They traded under the name of Nasmyth, Gaskell & Company. These new premises were adjacent to both the Bridgewater Canal and what was then the new Liverpool and Manchester Railway. And in 1840 – the year in which he married Anne Hartop, the daughter of one of his customers – James’ company started receiving orders for locomotives from the newly formed, and forming, railway companies that were driving the Industrial Revolution as their tracks criss-crossed the country. Indeed, it was through the connection he established with the Great Western Railway that he was asked to design and build a specific machine tool of exceptional size and power that was needed for the construction of SS Great Britain, the latest and largest steamship designed by the renowned Isambard Kingdom Brunel. 

As it happened, his new invention was never used for the ship that had inspired it. Brunel solved his own problem by converting the propulsion system of the SS Great Britain from steam-driven paddles to steam-driven screw propellers, the feasibility and efficiency of which had only recently been demonstrated. Despite this apparent setback in the application of this technology, steam hammers were subsequently proved to be essential to the development of a wide variety of industrial processes well into the 20th century until mechanical and hydraulic presses slowly displaced them. Use of steam hammers not only improved the quality of the forged product but could cut production costs by over 50 percent. James Nasmyth sketched out his working drawings for the steam hammer in 1839 but, as a result of Brunel’s re-design, he didn’t build his first working machine, nor patent his design, until 1842. By then, however, the French engineer, Francois Bourdon, had already built the world’s first working steam hammer for the Schneider factory at Le Creusot - in 1840. So who really invented the steam hammer?

An acrimonious dispute broke out between Nasmyth and Bourdon in 1843. But given that Bourdon had been shown Nasmyth’s original drawings on a visit to the latter’s works prior to building his machine, many would argue that whilst Bourdon may have built the first working steam hammer, it was Nasmyth who invented it.

**Nasmyth and the Steam Hammer**

The problem that the builders of SS Great Britain faced was that the paddle shaft was too large to be forged by existing manufacturing technology. James considered the problem and, it is said, sketched out the design for a steam hammer in just half an hour. 

Indeed, it was through the connection he established with the Great Western Railway that he was asked to design and build a specific machine tool of exceptional size and power that was needed for the construction of SS Great Britain, the latest and largest steamship designed by the renowned Isambard Kingdom Brunel. 

As it happened, his new invention was never used for the ship that had inspired it. Brunel solved his own problem by converting the propulsion system of the SS Great Britain from steam-driven paddles to steam-driven screw propellers, the feasibility and efficiency of which had only recently been demonstrated. Despite this apparent setback in the application of this technology, steam hammers were subsequently proved to be essential to the development of a wide variety of industrial processes well into the 20th century until mechanical and hydraulic presses slowly displaced them. Use of steam hammers not only improved the quality of the forged product but could cut production costs by over 50 percent. James Nasmyth sketched out his working drawings for the steam hammer in 1839 but, as a result of Brunel’s re-design, he didn’t build his first working machine, nor patent his design, until 1842. By then, however, the French engineer, Francois Bourdon, had already built the world’s first working steam hammer for the Schneider factory at Le Creusot - in 1840. So who really invented the steam hammer?

An acrimonious dispute broke out between Nasmyth and Bourdon in 1843. But given that Bourdon had been shown Nasmyth’s original drawings on a visit to the latter’s works prior to building his machine, many would argue that whilst Bourdon may have built the first working steam hammer, it was Nasmyth who invented it.

**Nasmyth and the Steam Hammer**

The problem that the builders of SS Great Britain faced was that the paddle shaft was too large to be forged by existing manufacturing technology. James considered the problem and, it is said, sketched out the design for a steam hammer in just half an hour. 

As it happened, his new invention was never used for the ship that had inspired it. Brunel solved his own problem by converting the propulsion system of the SS Great Britain from steam-driven paddles to steam-driven screw propellers, the feasibility and efficiency of which had only recently been demonstrated. Despite this apparent setback in the application of this technology, steam hammers were subsequently proved to be essential to the development of a wide variety of industrial processes well into the 20th century until mechanical and hydraulic presses slowly displaced them. Use of steam hammers not only improved the quality of the forged product but could cut production costs by over 50 percent. James Nasmyth sketched out his working drawings for the steam hammer in 1839 but, as a result of Brunel’s re-design, he didn’t build his first working machine, nor patent his design, until 1842. By then, however, the French engineer, Francois Bourdon, had already built the world’s first working steam hammer for the Schneider factory at Le Creusot - in 1840. So who really invented the steam hammer?

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Later Inventions

In addition to the steam hammer, James Nasmyth was responsible for the development of a number of other machine tools. He adapted the principle of the steam hammer to build the first ever pile-driving machine. He invented the shaper, an adaptation of the planer which is still used in tool and die making. He invented a hydraulic press which used water pressure to force tight-fitting machine parts together. He was also highly influential in bringing about the principle of standardisation. Prior to Nasmyth, manufacturers had typically built tools to the specific requirements of individual clients, creating problems of compatibility, not to say waste. But Nasmyth introduced the principle of manufacturing machine tools in a set of standard sizes.

Although he never patented most of them, he did patent 27 inventions and beyond those Nasmyth can be credited with a remarkable range of inventions related to machine tooling - the transmission of rotary motion via a flexible coiled wire shaft; a machine for cutting key grooves; the screw ladle which enabled just two men, rather than the traditional six, to move molten metal. He was also the first to tool a milling machine specifically to mill the six sides of a hex nut.

Nasmyth, the Industrialist

James Nasmyth was not just a brilliant inventor, he was also an outstandingly practical industrialist and, despite his failure to take advantage of all the patenting opportunities he had, a very successful businessman.

Having established Nasmyth, Gaskell & Company in 1836, he maintained his business partnership with Holbrook Gaskell lasted until the latter’s retirement due to ill health in 1850. Thereafter the company’s name was changed to J. Nasmyth and Co.

Over the course of his working life, Nasmyth was responsible for the manufacture of literally hundreds of railway locomotives, exporting a significant proportion of them, in addition to a total of no less than 490 steam hammers, many of which also were sold abroad, from Europe to Russia, India and even Australia. By 1856, his works had also built 236 shaping machines.

Even after his retirement, Nasmyth’s legacy as an industrialist continued. Robert Wilson, who had helped develop the gearing for Nasmyth’s steam hammer, together with Henry Garnet became the principal partners of the company and its name changed to Nasmyth, Wilson and Co. It acquired Limited Liability status in 1882 and became a Public Limited Company in 1919. The company’s days as an industrial enterprise finally came to an end in 1940 when it was bought by the Ministry of Supply and turned into a Royal Ordnance Factory.
James Nasmyth first began studying the stars in 1827 when, at the age of 19, he constructed a six inch reflecting telescope and was struck by the wonders of the heavens that it showed.

Soon afterwards, he planned a 24 inch reflecting telescope for the private observatory of his mentor and first employer, Henry Maudslay, but Maudslay’s death in 1831 prevented the project from coming to fruition.

James Nasmyth, the Astronomer

Nasmyth found a new astronomical partner in William Lassell and, beginning in 1840, he was to construct telescopes for Lassell for another 40 years.

Even before his retirement in 1856, James had established a track record of high quality astronomical research. In 1843, he had written a paper on a comet which was published in the Royal Astronomical Society Monthly Notices and, in 1851, was awarded a medal from the Great Exhibition for his meticulous and accurate drawings of the lunar surface. But it was after his retirement that his astronomical research reached its apotheosis.

The Retirement Years

Retiring from industry in 1856, at the age of 48, James Nasmyth devoted his creative energies to pure scientific research, including his longstanding passion for astronomy.

In 1874 he published the results of research with his collaborator James Carpenter assiduously mapping the lunar surface in his book “The Moon Considered as a Planet, a World, and a Satellite.”

This beautiful 294 page astronomical volume was one of the most advanced of its age. Remarkable photographs of the lunar surface were reproduced by a novel “photomechanical” printing method which allowed hundreds of beautifully produced, picture-filled copies of the volume to be distributed.

The photographs of the Moon are by far the most detailed of their time. His ambition to capture the fine detail of the lunar surface, however, far exceeded the resolution that direct photography could achieve. But he circumvented this problem by drawing observed lunar features on paper and using these as the basis for building models which were then photographed.

In addition to the Moon, James Nasmyth turned his astronomical gaze to the Sun, and he can be credited with the observation that the Sun’s surface, far from being smooth and relatively featureless, was in fact granulated with features that he himself termed “willow leaf objects.”
The Nasmyth Heritage

There are so many terms that could be applied to describe and define James Nasmyth: inventor, mechanic, industrialist, pioneer, entrepreneur, astronomer, photographer.

He was, in so many ways an exemplar — and possibly an underrated one — of the archetypal Victorian scientific and commercial pioneer.

But his name lives on.

It lives on in the Nasmyth Group

Founded by Peter Smith in 2003, the Group is focused on precision engineering of the highest quality, a goal which drove James Nasmyth throughout his working life, a goal which not only drives Nasmyth Group today but will continue to drive it into the future.

Serving global markets through providing the best in precision engineering