



A Free Course on the History of Western Art

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Unknown
A Roberts loom
in a weaving
shed
1835

23-04 THE ART OF THE INDUSTRIAL REVOLUTION

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Britain's Industrial Revolution reshaped not just its economy but the very landscape painters chose to depict. This talk traces how artists from Wright of Derby to Turner responded to factories, forges, steam engines, and swelling cities — sometimes head-on, more often obliquely. We will examine how scientific enquiry, industrial labour, and social upheaval entered British art, and what those images reveal about a society transforming itself at extraordinary speed.



Unknown
A Roberts loom in a weaving shed
1835

Unknown, A Roberts loom in a weaving shed, 1835

The Industrial Revolution reshaped Britain's economy, society, and landscape across the eighteenth and nineteenth centuries, and understanding it is essential for reading the art produced in its wake. Agriculture and industry advanced together. Rising food productivity freed labour from the land, swelled urban populations, and created consumer demand that manufacturers were eager to meet. **Britain's agricultural revolution**, running roughly from 1650 to 1900, pushed England and Wales from five and a half million people in 1700 to over nine million by 1801, driven partly by smarter crop rotation using turnips and clover rather than leaving fields fallow. Industry accelerated through a sequence of decisive inventions. **James Hargreaves** transformed yarn production with the **spinning jenny** in 1764. **Edmund Cartwright's power loom** of 1784 automated weaving. **James Watt's steam engine**, refined through the 1760s and beyond, liberated factories from riverside locations entirely. **Abraham Darby's coke-fired blast furnace** of 1709 made cheap iron available at industrial scale. The results were dramatic: between 1815 and 1914, textile output rose fifteenfold and pig-iron production twentyfold. Artists rarely depicted these changes head-on. Eighteenth-century patrons wanted portraits and landscapes, not factories.

The revolution appears instead in images of wealthy entrepreneurs and an altered rural terrain — visible if you know where to look.

Notes

The Industrial Revolution

The eighteenth century was the beginning of both the British agricultural and industrial revolutions. The two went hand-in-hand as the agricultural revolution enabled more food to be produced at lower prices and with fewer workers. The surplus food meant lower prices and the excess money saved could be used to purchase more manufactured goods. The population increase and the exodus of labour from farm to town meant a pool of new labour for the manufacturers.

Capital investment. Britain also had well developed financial institutions, including a central bank, which provided the capital needed to develop new factories using loans paid back using the profits generated. The English revolutions (the Civil War and the 'Glorious Revolution') fostered a Protestant work ethic and supported the risk-taking English entrepreneur.

Slave trade. Some historians point to British slave trading in the eighteenth century as the source of profits that provided the investment to fund the industrial revolution. One and a half million slaves were transported to the British Caribbean and to British North America in the eighteenth century out of a total of six million slaves brought to the Americas as a whole. Bristol, Liverpool and London extracted vast wealth from the trade and Britain benefitted from cheap slave-produced imports. Britain played a leading role in stopping the slave trade in the nineteenth century, abolishing the trade in 1807 and stopping the use of slaves in British territories in 1833. France stopped its slave trade in 1816 and Portugal and Spain continued until the mid-nineteenth century.

Mineral wealth. Britain had a vast supply of minerals, such as iron and coal and as the country is relatively small transport costs were low.

Transport. From 1750 road transport was assisted by the building of turnpike roads followed from 1761 (with the building of the Bridgewater Canal) by an extensive canal system suitable for the transport of bulk goods. In the nineteenth century railways became the transport method of choice and the 'Railway Mania' of the 1840s provided a nationwide transport network. By 1847 250,000 people worked on the railways. In 1700 it took four days to get

from London to Manchester and in 1880 four hours.

Laissez Faire. The British government passed law protecting private property and there were few restrictions placed on private business owners. Children were used as a cheap labour force.

Ready markets. The main market for British goods was Europe but the British merchant fleet transported goods to foreign markets and Britain's colonial empire provided a ready market for the goods.

Industry. The key industry was wool but the booming cotton industry funded an investment in new means of production, such as factories and machinery.

Technological advances. Without key technological advances the industrial revolution would not have been possible. In the 18th century, Britain's cotton industry developed rapidly ahead of many other countries and James Hargreaves's invention of the spinning Jenny in 1764 enabled yarn to be produced much more efficiently. In 1787, Edmund Cartwright's power loom revolutionized the speed of cloth weaving. In 1830, using an 1822 patent, Richard Roberts manufactured the first loom with a cast iron frame, the Roberts Loom. In 1842 James Bullough and William Kenworthy, made the Lancashire Loom, a semi-automatic power loom. It became the mainstay of the Lancashire cotton industry for a century. In around 1712 Thomas Newcomen built the first commercially successful steam engine to pump water out of mines. In the 1760s, more efficient steam engines (developed by James Watt) further transformed the cotton industry. Unlike early devices powered exclusively by water, these steam engines were powered by coal. This meant that factories no longer needed to be located next to sources of water. Another change occurred in the production of iron. During the early 18th century, a new method of smelting iron by using coke (coal baked in an airless furnace) was introduced. Since the coke could heat iron more quickly than charcoal, production rates increased. This iron was instrumental in creating industrial machinery and railroad lines. Communication improved with the invention of the telegraph in 1837 and by 1902, the whole British Empire was linked together by a network of telegraph cables called the 'All Red Line'.

Science: Inventions and the scientific revolution allowed for new technology to increase and cheapen production.

1709, Abraham Derby built the first coke-fired blast furnace to produce inexpensive cast iron.

1764, James Hargreaves invented the spinning jenny, a multi-spindle spinning frame that produced yarn cheaply.

1784-5, Edmund Cartwright's power loom automated shedding, picking, battening and taking up.

1765, James Watts had his critical insight that eventually resulted in an efficient steam engine that could be used to power factories and make their location independent of a water source.

Resulting in rapid growth. Number of Looms in UK

Year	1803	1820	1829	1833	1857
Looms	2,400	14,650	55,500	100,000	250,000

There was very rapid growth between 1815 and 1914:

Textile output increased 15-fold,

'Pig' iron production increased 20-fold,

Coke production increased 20-fold.

The British agricultural revolution (note that the term 'agricultural revolution' refers to the invention of farming about 12,000 years ago) was an unprecedented increase in agricultural productivity between 1650 and 1900. Agricultural output grew faster than the population between 1670 and 1770, and productivity continued to be among the highest in the world. Britain was called the 'Granary of Europe'. This increase in the food supply contributed to the rapid growth of population in England and Wales, from 5.5 million in 1700 to over 9 million by 1801. One important element in this change was the move in crop rotation to turnips and clover in place of leaving the land fallow. Turnips can be grown in winter and are deep rooted, allowing them to gather minerals unavailable to shallow rooted crops. Clover fixes nitrogen from the atmosphere into a form of fertiliser. This permitted the intensive arable cultivation of light soils on enclosed farms and provided fodder to support increased livestock numbers whose manure added further to soil fertility. But how did artists represent these revolutionary changes taking place where most lived and made their living? Most artists did not represent the changes directly as they were not relevant to the type of painting requested by eighteenth century patrons. They were represented indirectly through portraits of wealthy entrepreneurs and the changing agricultural landscape.



Joseph Wright of Derby (1734–1797)
*Three Persons Viewing the
'Gladiator' by Candlelight*
1765
Private collection

Joseph Wright of Derby (1734–1797), *Three Persons Viewing the 'Gladiator' by Candlelight*, 1765, Private collection

Born into a professional Derby family, Wright trained under **Thomas Hudson**, then London's foremost portraitist and teacher of **Joshua Reynolds**, before returning to the Midlands where he built a thriving career on local commissions rather than pursuing the London path his contemporaries urged. As **Francis Klingender** argued, Wright was the first professional painter to express the spirit of the industrial revolution, and his social connections bear that out: he moved in the orbit of the **Lunar Society of Birmingham**, that remarkable dinner club of Midlands Enlightenment figures including **Erasmus Darwin**, **James Watt**, and **Josiah Wedgwood**, even though he lacked the scientific knowledge for full membership. Portraiture funded his career, but his real innovation lay in candlelight scenes exhibited from **1765** onwards at the Society of Artists, where roughly half his submissions used a hidden light source to dramatic effect. This technique drew on the tradition of tenebrism, the intensified form of chiaroscuro, and Wright deployed it with exceptional precision in rendering textures and surfaces. The finest of these early works, **Three Persons Viewing the Gladiator by Candlelight**, shows three men examining a reproduction of the Hellenistic **Borghese Gladiator**, and it made

his reputation immediately.

Notes

Joseph Wright of Derby has been described as 'the first professional painter to express the spirit of the industrial revolution' (Francis Klingender, *Art and the Industrial Revolution*).

He was the third of five children of a solidly professional family in Derby (his father was a lawyer) and he was educated at Derby Grammar School teaching himself to draw by copying prints. When he was 17 he went to London for two years and trained under Thomas Hudson, then the most highly reputed portraitist in London and master of Joshua Reynolds from 1740-44. He returned to Derby and painted portraits for three years before going back to London to complete his training.

His colleagues believed that a career for an artist could only be found in London but Wright chose to spend most of his life in Derby among his friends and family and he received abundant commissions from Midlands society.

Early Portraits: 1760-1773. Portraits were to become the mainstay of his career but he eventually found the greatest pleasure in landscape painting. Wright rarely flatters and some of his most sympathetic portraits are of children. It was at this time that he learned to concentrate on the play of light over faces and objects.

Wright was connected with but not a member of the Lunar Society as he lacked scientific knowledge but it meant that he socialised with some of the greatest minds of the industrial age. He exhibited at the Society of Artists and later at the Royal Academy. He was called Wright of Derby in 1768 to distinguish him from Richard Wright of Liverpool as first names were not used. Even though Richard Wright is now unknown the name has stuck until the present day.

Candlelight: 1765 onwards. He exhibited about 35 pictures at the Society of Artists from 1765 onwards and about half of them were 'candlelights', in which a hidden source of light illuminates the painting. They were known as 'fancy paintings' in the late eighteenth century. They were not initially dramatic scientific experiments but included scenes such as this with girls dressing a kitten or boys blowing bladders. In these paintings Wright demonstrates his knowledge of the well-known technique of chiaroscuro, or more accurately tenebrism, a dramatic form of chiaroscuro. Wright was known for his attention

to detail and precision in the representation of textiles, texture, and surfaces. Four of these early candlelights were more elevated of which this (Three Persons Viewing the 'Gladiator' by Candlelight) is the first. All four made Wright's name. This one includes three men, including Wright in profile, looking at a reproduction of the Borghese Gladiator a Hellenistic statue by Agasias of Ephesus. In Wright's time it was in the Borghese Collection but it was sold and is now in the Louvre. The original is 1.9 metres tall and is now thought to be a soldier not a gladiator.

Society of Artists: from 1769 to 1771 Wright served on the board of directors of the Society of Artists. He later exhibited at the Royal Academy but like Thomas Gainsborough he quarrelled over the hanging of his paintings and in a radical display of independence he withdrew them and set up a one-man show at Covent Garden in 1785. Gainsborough had withdrawn his work from the Royal Academy and display his work at Schomberg House, his home and studio in Pall Mall, the previous year.

Notes

The Lunar Society of Birmingham was a dinner club and informal learned society of prominent figures in the Midlands Enlightenment, including industrialists, natural philosophers and intellectuals, who met regularly between 1765 and 1813 in Birmingham, England. At first called the Lunar Circle, "Lunar Society" became the formal name by 1775. The name arose because the society would meet during the full moon, as the extra light made the journey home easier and safer in the absence of street lighting. The Society started through a friendship between Erasmus Darwin and Matthew Boulton and their regular meeting to discuss science and the latest inventions grew over time. The members cheerfully referred to themselves as "lunarticks", a pun on lunatics. Matthew Boulton, Erasmus Darwin, Thomas Day, Richard Lovell Edgeworth, Samuel Galton, Jr., James Keir, Joseph Priestley, William Small, Jonathan Stokes, James Watt, Josiah Wedgwood, John Whitehurst and William Withering attended the Society over a long period. A larger group including Joseph Wright were associated with the Society.

Joseph Wright of Derby (1734–1797)
Two Girls Dressing a Kitten by Candlelight
c. 1768–70
90.8 × 72.4 cm
Kenwood House



Joseph Wright of Derby (1734–1797), *Two Girls Dressing a Kitten by Candlelight*, c. 1768–70, 90.8 × 72.4 cm, Kenwood House

Wright of Derby painted this scene in the late 1760s, when he was an unmarried man in his thirties, prone to depression and, by his own account, unlucky in love. He did not marry until he was 38. That biographical context matters here, because art historians read this picture not as innocent play but as a meditation on cruelty. The girl on the left points at her sister with an expression bordering on the maniacal, and the lighting — Wright's signature dramatic **chiaroscuro** — gives the scene an unsettling, almost supernatural charge. The girls are dressed as adults and are approximately 12, the **age of consent** at the time. The doll's lifted skirt and the aroused posture of the cat carry deliberate erotic suggestion. The reading proposed by scholars is that the girls are rehearsing, cruelly and consciously, the power they will soon wield over men. **William Hogarth** had addressed children's cruelty to animals in **The Four Stages of Cruelty** of 1751, but his moral was about barbarity toward animals. Wright's concern is different: he consistently shows girls governed by emotion — whether horror in **An Experiment on a Bird in the Air Pump** or pleasure in torment — while boys engage actively and rationally with the world.

Notes

This innocent scene is thought by historians to have a deeper meaning. The theme is cruelty. The girl on the left is pointing to her sister and her maniacal expression and the sinister lighting suggest something unnatural. When it was painted the age of consent was 12 and these girls are about that age and dressed as adults. The male kitten's tail suggest arousal and the lifted skirt of the doll is suggestive. The suggestion is that the girls are cruelly playing with a helpless male animal in the same way they will soon play with real men. Wright painted this picture when he was in his thirties, an asthmatic bachelor who suffered from bouts of depression, and wonder if the cruelty of the girls reflected his own romantic trials. He did not marry until he was 38 and it has been speculated that the picture in some way reflects his frustrations with the opposite sex. There may also be an element of interest in the developing sexuality of the adolescent girls. Cats were often used in eighteenth-century painting as devices to indicate female sexuality. Wright's depiction of boys is very different from the way he depicts girls. Boys are involved with and actively engaged with scientific experiments but girls are shown acting emotionally, either in horror, as in *An Experiment on a Bird in the Air Pump* or enjoying cruelty.

Notes

William Hogarth also illustrated the cruelty of children in his *The Four Stages of Cruelty* (1751, Plate 1, children watching two cats fighting) and Netherlandish painters illustrated the proverb 'Whoever plays with a little cat will be scratched.' Hogarth loved animals and was making a moral point regarding the barbarous treatment of animals.

The cat appears to be a calico cat (also called a tortoiseshell-on-white) which, because the colouration is linked to the X-chromosome is nearly always a female. This seems to undermine the sexual interpretation.



Joseph Wright of Derby (1734-1797)
*A Philosopher Giving a Lecture on
 the Orrery, in Which a Lamp is Put in
 the Place of the Sun*

1766

147 x 203 cm

Derby Art Gallery, Derby

Joseph Wright of Derby (1734-1797), *A Philosopher Giving a Lecture on the Orrery, in Which a Lamp is Put in the Place of the Sun*, 1766, 147 x 203 cm, Derby Art Gallery, Derby

Wright of Derby's painting **A Philosopher Giving a Lecture on the Orrery**, completed in **1766**, provoked more controversy than his earlier candlelit works because it was the first time he depicted a scientific instrument as the centrepiece of a major composition. By flooding the scene with light from a hidden oil lamp standing in for the sun, Wright granted scientific demonstration the visual solemnity previously reserved for religious subjects, directly challenging the French hierarchy of genres. The painting operates with the scale and moral weight of a history painting, yet its subject is entirely contemporary. **Isaac Newton's** gravitational theory underpinned most eighteenth-century astronomy lectures, and here a lecturer in red gestures as a young girl points toward **Saturn**, suggesting an explanation of eclipses. The figures gathered around the **orrery** include Wright's friend the cartographer **Peter Perez Burdett** taking notes at the left, and the seated figure is identified by **Judy Egerton** as possibly **Washington Shirley**, the fifth Earl Ferrers, an amateur astronomer who purchased the work for two hundred and ten pounds. Remarkably, the adult faces around the instrument trace the lunar

phases from new moon to full. Candlelight binds biography, science, and theatre into a single, charged image.

Notes

This painting caused a greater stir than the previous painting as Wright illustrated scientific instrument for the first time. Wright depicts the awe produced by scientific 'miracles' which previously had been reserved for religious events. The Orrery, which is concerned with the laws governing the movements of the heavens. In this painting the central, hidden oil lamp was justified as a central light source was often used in place of the sun during such demonstrations of the movements of the planets. The mechanism was clockwork and the planets revolved around the central light source. A young girl points to Saturn and the shadow of one of its moons on its surface suggesting the lecturer in red might be describing the cause of eclipses. Isaac Newton's theory of gravity formed the foundation of most 18th-century lectures on astronomy confirming the Sun as the centre of the solar system rather than the Earth. This changed the way many people viewed their relationship with God and the world around them.

This painting challenged the authority of the French 'hierarchy of genres' as it invokes the status of a history painting but with respect to the latest scientific wonders. It therefore elevates a genre or subject painting to the level of a history painting. In some respects the Orrery and the next painting, the Air Pump, resemble conversation pieces, then largely a form of middle-class portraiture, though soon to be given new status when Johann Zoffany began to paint the royal family in about 1766. However, none of the figures is intended to be a portrait although the figure on the left is a portrait of Wright's friend the cartographer Peter Perez Burdett, taking notes. The figure seated next to the orrery could be Washington Shirley, 5th Earl Ferrers, an amateur astronomer who had his own orrery and who bought the painting for £210. The lecturer could be based on a portrait of Isaac Newton by Godfrey Kneller although the likeness is questionable.

Wright depicts people of his own times, of both sexes and various ages, listening and watching intently as scientific knowledge (of a kind not in itself new in the 1760s, but new to ordinary people) is imparted to them. Candlelight heightens the tension and solemnity in each scene. The adult faces in the picture demonstrate the main phases of the moon – new moon, half moon, gibbous moon and full moon.

References

Judy Egerton, Oxford National Dictionary of Biography



Joseph Wright of Derby (1734-1797)
An Experiment on a Bird in the Air Pump
 1768
 183 x 244 cm
 National Gallery

Joseph Wright of Derby (1734-1797), *An Experiment on a Bird in the Air Pump*, 1768, 183 x 244 cm, National Gallery

Wright's *An Experiment on a Bird in the Air Pump*, painted in **1768**, is his best-known work, and the **Gazetteer** reviewer who saw it that May declared him "a very great and uncommon genius in a peculiar way." Wright painted it without a commission, and it was purchased by **Dr Benjamin Bates**, an Aylesbury physician and committed member of the **Hellfire Club** who, despite considerable excess, lived past ninety. The price was negotiated awkwardly: Wright asked Bates for £130 yet acknowledged in writing that he would record a higher sum in his accounts to protect his market reputation. The painting stages a natural philosopher — the forerunner of the modern scientist — recreating **Robert Boyle's** air-pump experiments of **1659**, in which a living creature is deprived of air. Wright shows a white cockatoo fluttering in the vacuum chamber while the lecturer holds the viewer's gaze directly, demanding a moral verdict. The two girls recoil; most onlookers let curiosity override compassion. **Joseph Wright of Derby** frames this tension through candlelight that isolates each face with forensic clarity, placing scientific reason and human feeling in direct confrontation. The full moon visible through the window carried private meaning for Wright's circle: the **Lunar**

Society met by its light.

Notes

At the time, the Gazetteer's reviewer singled out Wright's handling of candlelight as evidence that 'Mr. Wright, of Derby, is a very great and uncommon genius in a peculiar way' (23 May 1768). It has become his best known work and it shows a lecturer holding the power of life and death over a white bird. A well-known art historian described it as 'one of the wholly original masterpieces of British art'.

The painting depicts a natural philosopher, a forerunner of the modern scientist, recreating one of Robert Boyle's air pump experiments, in which a bird is deprived of air, before a varied group of onlookers. The group exhibits a variety of reactions, but for most of the audience scientific curiosity overcomes concern for the bird. The central figure looks out of the picture as if inviting the viewer's participation in the outcome.

In 1659 Robert Boyle commissioned an air pump (then called a pneumatic engine) which was so successful he donated it to the Royal Society and commissioned two more. There were only a handful of such pumps in existence at the time and Boyle's pumps were designed, built and operated by Robert Hooke as they were so temperamental. Boyle carried out 43 experiments of which two were on animals. One tested the ability of insects to fly in rarefied air and the other tested the ability of many different animals to survive with rarefied air. By 1768 air pumps were relatively common and were used by itinerant lecturers in natural philosophy who toured the country entertaining audiences in town halls and wealthy person's homes. One of the best known was James Ferguson, a Scottish astronomer who was probably a friend of Wright. Typically a small bladder was used to simulate the lungs as using a live animal was regarded as 'too shocking to every spectator who has the least degree of humanity'. Wright shows a white cockatoo fluttering in panic and the lecturer looks out at the viewer as if to ask us to judge whether the pumping should continue, killing the bird, or whether the air should be replaced and the cockatoo saved. The boy on the right is either lowering the cage to replace the bird or raising the cage as he knows it will die.

Alternatively, it has been suggested he is drawing the curtains to block out the full moon. In an earlier sketch the lecturer is reassuring the girls and the bird does survive. The cockatoo was a rare bird at the time, 'and one whose life would never in reality have been risked in an experiment such as this'.

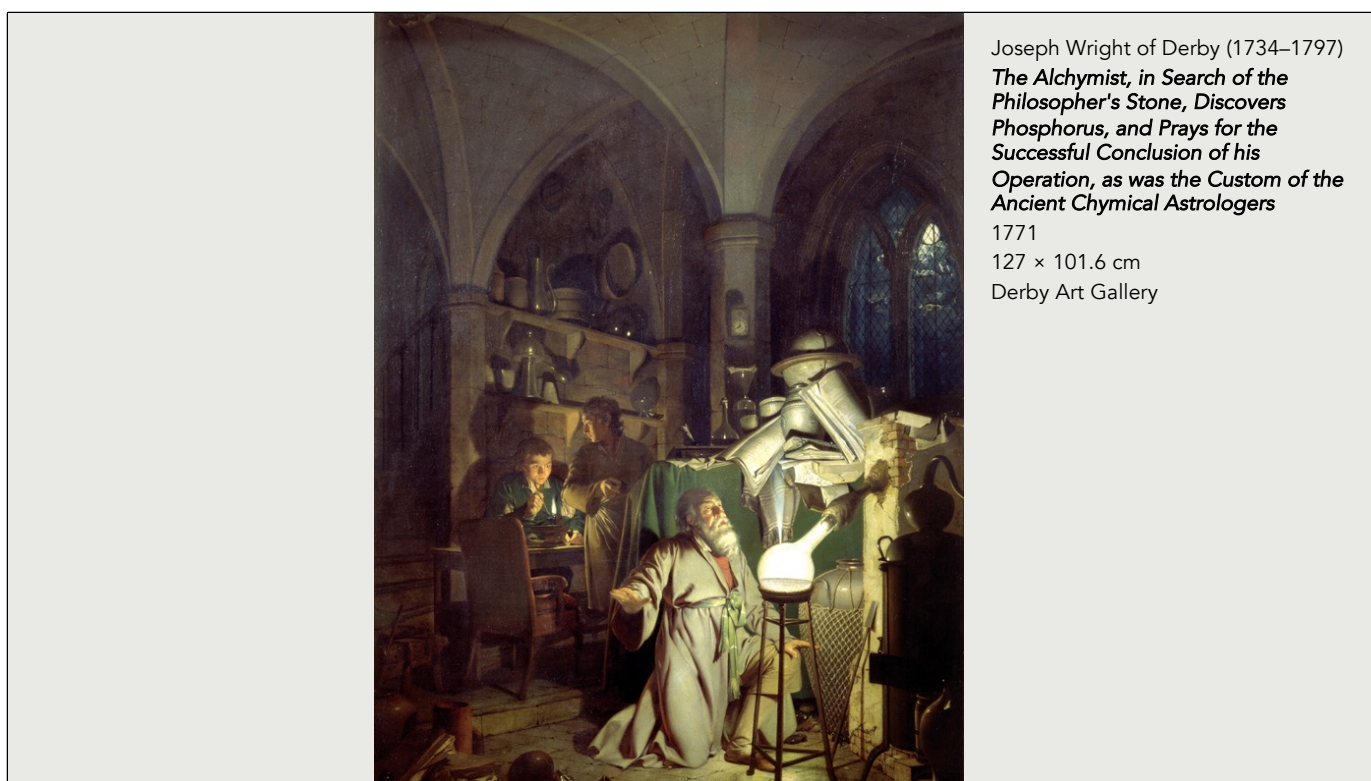
The full moon could suggest the Lunar Society to his friends as it met every full moon.

The arrangement of figures has been linked to the last plate of Hogarth's *The Four Stages of Cruelty* showing the audience gathered around the dissection of the corpse. The painting has also been compared with Early Netherlandish paintings of the Holy Trinity which show the Holy Spirit as a dove, God the Father pointing and Christ gesturing in blessing to the viewer.

Wright painted *Air Pump* without a commission and the picture was purchased by Dr Benjamin Bates. An Aylesbury physician, patron of the arts and hedonist, Bates was a diehard member of the Hellfire Club who, despite his excesses, lived to be over 90. Wright's account book shows a number of prices for the painting: £200 is shown in one place and £210 in another, but Wright had written to Bates asking for £130, stating that the low price 'might much injure me in the future sale of my pictures, and when I send you a receipt for the money I shall acknowledge a greater sum.' Whether Bates ever paid the full amount is not recorded; Wright only notes in his account book that he received £30 in part payment.

Wright worked in Liverpool between 1768 and 1771 and his main income was from portraiture. His portraits have an uningratiating realism far removed from the 'polite' portraiture of his contemporaries.

Hellfire Clubs were established for 'persons of quality' who wished to engage in immoral activities. The most famous was set up by Sir Francis Dashwood and engaged in mock religious ceremonies, drinking, wenching and banqueting. It was a popular fashion at the time to ridicule religion and commit acts of blasphemy.



Joseph Wright of Derby (1734–1797)
*The Alchemist, in Search of the
Philosopher's Stone, Discovers
Phosphorus, and Prays for the
Successful Conclusion of his
Operation, as was the Custom of the
Ancient Chymical Astrologers*
1771
127 × 101.6 cm
Derby Art Gallery

Joseph Wright of Derby (1734–1797), *The Alchemist, in Search of the Philosopher's Stone, Discovers Phosphorus, and Prays for the Successful Conclusion of his Operation, as was the Custom of the Ancient Chymical Astrologers*, 1771, 127 × 101.6 cm, Derby Art Gallery

When Wright turned away from industrial subjects, he found new territory in literature and the medieval past, though several of these later paintings went unsold in his lifetime. "**The Alchemist**" of 1771 depicts a moment drawn from the story of **Hennig Brandt**, the Hamburg alchemist who discovered **phosphorus** in 1669 — a tale widely circulated in popular chemical texts. The actual process required some fifty buckets of urine and bred worms; Wright strips away the squalor and replaces it with sublime, otherworldly light. The kneeling figure mirrors devotional images of a disciple receiving communion, fusing scientific experiment with religious awe. This ambiguity disturbed contemporary viewers, and the painting remained unsold at its first exhibition, travelling with Wright to Italy in 1773, reworked in 1795, and finally auctioned at **Christie's** only after his death. The canvas stands at a turning point: alchemy, long entangled with prayer and mysticism, was giving way to modern chemistry, and that burst of phosphorescent light signals the transition from faith to empirical enquiry. Yet enlightenment science soon

attracted violent reaction. **Joseph Priestley** fled Britain in **1794** after a mob burned his Birmingham laboratory. In France, **Antoine Lavoisier** died on the guillotine. Wright's glowing experiments were, in retrospect, politically charged acts.

Notes

Instead Wright turned to literature and the medieval period although some of these paintings did not sell in his lifetime.

It has been suggested that "The Alchymist" refers to the discovery of phosphorus by the Hamburg alchemist Hennig Brandt in 1669. This story was often printed in popular chemical books in Wright's lifetime, and was widely known. The process for making phosphorus has been glamorised as it involved 50 or 60 buckets of urine and was putrid and 'bred worms'.

The Philosopher's Stone was a substance with the power to bestow immortality and turn base metals into gold. The practice of alchemy was tied up with religion and ancient mystical practices and experiments were often combined with prayers. Alchemy died out in the 17th century with the arrival of modern chemistry and this painting shows one of the key experiments conducted in 1676 that led to the development of modern chemistry and the end of alchemy.

The picture has a religious interpretation as the figure is similar to pictures of one of Christ's disciples receiving communion.

Since its exhibition in 1771, the picture has provoked many contradictory interpretations. Its mystery obviously disturbed 18th-century viewers, and although Wright was an internationally recognised artist, the painting was not sold when he first exhibited it. The picture travelled with Wright to Italy in 1773–1775, came back to England, was reworked in 1795, but was only sold four years after his death when his possessions were auctioned at Christie's.

These factual paintings are considered to have metaphorical meaning too, the bursting into light of the phosphorus in front of a praying figure signifying the transition from faith to scientific understanding. These paintings represent a high point in scientific enquiry which began undermining the power of religion in Western societies. By the 1780s, scientists found themselves persecuted in the backlash to the French Revolution of 1789, itself the culmination of enlightenment thinking. Joseph Priestley, a member of the Lunar Society, left Britain in 1794 after his Birmingham laboratory was

smashed and his house burned down by a mob objecting to his outspoken support for the French Revolution. In France, the chemist Antoine Lavoisier was executed by the guillotine at the height of the Terror. The politician and philosopher Edmund Burke, in his famous *Reflections on the Revolution in France* (1790), tied natural philosophers, and specifically Priestley, to the French Revolution; he later wrote in his 'Letter to a Noble Lord' (1796) that radicals who supported science in Britain 'considered man in their experiments no more than they do mice in an air pump'. A comment which presents Wright's painting of the bird in the air pump in a new light.



Joseph Wright of Derby (1734–1797)
An Iron Forge
1772
121.3 x 132.0 cm
Tate Britain, London

Joseph Wright of Derby (1734–1797), *An Iron Forge*, 1772, 121.3 x 132.0 cm, Tate Britain, London

Portraiture never diverted **Wright of Derby** from his experiments with artificial light. Painted in **1772** and exhibited that same year, **An Iron Forge** was purchased by Lord Palmerston, while its companion piece, *An Iron Forge Viewed from Without*, went to agents collecting for **Catherine the Great** and now hangs in the **State Hermitage Museum** in St Petersburg. That both sold confirms a genuine market for industrial subjects, though Wright chose not to pursue them further at this stage. The painting centres on an iron-founder who pauses from his work to survey his wife and children, his faintly dandyish striped waistcoat hinting that **water-powered tilt-hammer** technology has eased his physical burden. A white-hot iron bar, dragged from the furnace, floods the compressed scene with warm light — Wright deliberately shrinks the space, because in reality the heat would have made such proximity impossible. As Diane Perkins argues on the Tate website, three generations of the family introduce the theme of the **Ages of Man**, anchoring an industrial subject within respectable humanist tradition. The dramatic chiaroscuro and monumental composition lend the scene a near-religious grandeur, elevating ordinary working life to the dignity reserved for grand-style history painting.

Notes

Portraiture did not stop him experimenting with candlelights. In 1771 he painted *The Blacksmith's Shop* and the following year he painted this, *An Iron Forge*.

Wright's iron forges, though installed in old buildings, depict the new technology of tilt hammers driven by water power. *An Iron Forge*, exhibited in 1772, was purchased by Lord Palmerston. *An Iron Forge Viewed from without*, exhibited in 1773, was purchased by agents for the collection of Catherine the Great, empress of Russia (it remains in the State Hermitage Museum, St Petersburg). The fact that both were bought showed a market for industrial scenes but, surprisingly, Wright did not supply more at this stage.

"*An Iron Forge* is one of five 'night pieces' which Wright made between 1771 and 1773, taking as his subject the blacksmiths' shops and forges of Derbyshire. In this scene of a small iron forge at work, an iron-founder and his family are bathed in the warm light cast by a newly forged white-hot iron bar, which has been dragged out of the nearby furnace by an assistant. Wright adapted the scale for dramatic effect, compressing the scene to accommodate the machinery and the figures. In actuality, the heat and sparks would have made their proximity impossible.

The central figure of the picture is the iron-founder, presented in a commanding pose as he pauses in his work to cast a proud eye towards his wife and children. The workman, or 'finer', with his back to the viewer, holds the glowing metal over the anvil with a pair of tongs, ready to be hammered. The iron-founder's role as overseer and his relaxed attitude - even his faintly dandyish striped waistcoat - suggest that the introduction of new machinery in his forge has brought about a lightening of his workload. The combination of his muscular physique and his place amidst his contented family, reinforce the middle-class value of honest labour as a prerequisite to domestic happiness.

Most forges were still family operations and the inclusion of the extended family is not necessarily out of place. However, the presence of the iron-founder's wife and children, one of whom has run to the elderly man seated on the left, suggests that Wright may have deliberately introduced the theme of the 'Ages of Man', showing three generations of the family. The old man appears to be his father, perhaps himself once the smith and a link to the methods of the past.

The power-driven machinery of the forge is as much the hero of this picture as the iron-founder himself. While Wright's slightly earlier paintings of blacksmiths' shops depict a craft that had scarcely changed for centuries, both this painting and *An Iron Forge Viewed from Without* (1773, Hermitage Museum) show a more modern process, using water-powered forges driving tilt-hammers. Wright illustrates the machinery in the forge very clearly here, showing the large drum which is turned by the water-wheel outside to lift the tilt-hammer beam. The water-powered hammer obviously saved much of the effort seen in the 'blacksmiths' shop' subjects, where the blacksmith himself wields his hammer.

Although this painting is often used as an illustration of the Industrial Revolution, the technology that Wright depicts was not especially advanced. Rather, the modernity of the painting lies in its heroic treatment of a theme from common life. According to the high-minded art theories of the period, such a prosaic scene of ordinary working men did not warrant such a dignified treatment. The extraordinary light effects and dramatic composition endow the scene with an almost religious grandeur, while the subtle allusion to the noble theme of the 'Ages of Man' adds a 'history' element to the subject that is worthy of a 'grand style' masterpiece." (Diane Perkins, Tate website, 2001)

References

Diane Perkins, Tate website, 2001



Joseph Wright of Derby (1734–1797)
*Vesuvius in Eruption, with a View
over the Islands in the Bay of Naples*
c.1776–80
Tate, London

Joseph Wright of Derby (1734–1797), *Vesuvius in Eruption, with a View over the Islands in the Bay of Naples*, c.1776–80, Tate, London

Wright's Italian journey of **1773** came later in life than for most artists of his generation, but he embraced it with extraordinary discipline, filling sketchbooks with drawings in the **Sistine Chapel**, recording the fireworks displays over Rome, and sketching the lava flows of **Mount Vesuvius** in Naples. That direct encounter with volcanic spectacle proved decisive for his subsequent work. He married **Ann Swift**, daughter of a lead miner, in the same year, and she accompanied him on the journey alongside his student and a fellow artist. The move to **Bath** in **1775** was intended to build a portrait practice, but Wright found himself in the shadow of **Gainsborough's** recent success there, lamenting that he had not had one portrait bespoke. The failure was commercially bruising yet creatively productive: freed from commissions, he completed his large canvas of Vesuvius, translating the Naples sketches into a finished work of volcanic drama. His one significant connection made during those Bath years was with **John Milnes**, a cotton manufacturer from Wakefield, whose patronage would sustain Wright after his return to Derby. Bath confirmed that Wright's true audience lay not in fashionable society but among industrialists and natural philosophers.

Notes

Italy (1773-75) and Bath (1775-77)

In 1773, when Wright was 38, he married Ann Swift, the daughter of a lead miner, who was later described as 'a person in an inferior situation in life'. He went with his wife, his student and another artist to Italy. He was older than most artist who went to Italy but he threw himself into it, drawing constantly in the Sistine Chapel. In Rome he drew the fireworks display and in Naples lava flow from Vesuvius.

In Bath he did not receive the success of Gainsborough and wrote that he had 'not had one Portrait bespoke' but this enabled him to complete the painting of Vesuvius. Apart from meeting John Milnes a cotton manufacturer from Wakefield his time in Bath was unprofitable.



Joseph Wright of Derby (1734–1797)
Arkwright's Cotton Mills by Night
1782-83
99.7 x 125.7 cm
Private collection

Joseph Wright of Derby (1734–1797), *Arkwright's Cotton Mills by Night*, 1782-83, 99.7 x 125.7 cm, Private collection

Back in Derby after his travels, Wright built a strong portrait practice before turning increasingly to landscape — a transition that set the stage for his most searching engagement with the industrial world reshaping his region. Around **1782 to 1783**, Wright painted **Arkwright's Cotton Mills by Night**, showing **Cromford Mill** glowing with pinpoints of candlelight at every window. The work was neither commissioned nor bought by **Richard Arkwright**. Wright made no recorded statement about its meaning, and **F. D. Klingender**, writing in **Art and the Industrial Revolution**, read it as a romantic view — the mills emerging from cloud, nestled within enclosing hills beneath a vast, sublime sky. That reading fits, though the painting equally reflects Wright's longstanding appetite for nocturnal subjects. Cromford was no novelty by then. Arkwright had built the world's first successful water-powered cotton spinning mill there in **1771**, and a second in **1776**. By the time Wright put them on canvas, they had been running for over a decade. Wright later painted Arkwright himself, around **1789 to 1790**, on a commanding scale, showing him beside a set of spinning rollers — the technology, however acquired, that made Arkwright's fortune and transformed British

manufacturing.

Notes

On his return to Derby he spent many profitable years painting portraits of local people. In his later years his interest in landscape increased. He painted many scenes of Italy from his sketches twenty years before and inspired by Claude and Richard Wilson.

From about 1789 new sitters in the shape of Midland industrialists were eager to sit to him—and for portraits generally on a much larger scale than those commissioned by the Derbyshire middle classes.

About 1782–3 Wright had painted this view, Arkwright's Cotton Mills by Night (priv. coll.) of Cromford Mill with little points of candlelight showing from every window of the many-storeyed buildings. The view was neither commissioned nor purchased by Arkwright. Wright's own reaction to this eruption of the factory system into the Derbyshire countryside is not easy to conjecture. F. D. Klingender considered that Wright's picture, showing the mills emerging from a bank of clouds, was 'a romantic view' (Art and the Industrial Revolution, rev. edn, 1968, 61). The factories nestle within the enclosing hills and the sky is vast and sublime in the Romantic tradition. Arkwright's mills (built at Cromford, 1771 and 1776) had been operational for many years before Wright painted them and so the painting could simply reflect Wright's continuing interest in 'night pieces'.

Wright's portrait of Richard Arkwright, painted some 6–8 years later, c.1789–90, was on a very large scale; it included Arkwright's attribute, a set of spinning rollers (possibly not his invention but one that made his fortune). Wright's first portrait of Richard Arkwright was painted in 1783–85 (126 x 102 cm) and is now in the National Portrait Gallery.

Notes

Cromford Mill, the world's first successful water powered cotton spinning mill, was built in 1771 by Sir Richard Arkwright.

In 1783 William Pitt the Younger became the youngest Prime Minister ever at the age of 24 and the highwayman John Austin became the last person ever to be publicly executed at Tyburn. The last person to be hanged in public in England was Michael Barrett in 1868, an Irishman convicted of killing seven people with a bomb. The Times reported an huge crowd of men, women and

children some of whom had slept there overnight to be at the front. Britain's last public hanging was in 1875 in the Channel Islands as they had been overlooked in the drafting of the Act to ban public hangings.

Child Labour

Reported in the Independent: "Oxford's Professor Jane Humphries found that child labour was much more common and economically important than previously realised. Her estimates suggest that, by the early 19th century, England had more than a million child workers (including around 350,000 seven- to 10-year-olds) – accounting for 15 per cent of the total labour force" ... "Her work has revealed that during most of the 18th century only around 35 per cent of ten year old working-class boys were in the labour force while the figure for 1791-1820 (when large scale industrialisation started) was 55 per cent, rising to 60 per cent for the period of 1821-1850. The number of eight-year-old working-class boys at work also rose substantially in that period – with around a third of them being part of the work force between 1791 and 1850 compared to less than 20 per cent before 1791."



Thomas Gainsborough (1727-1788)
Holywells Park, Ipswich
c. 1748-50
48.5 x 65 cm
Ipswich Borough Gallery, Ipswich

Thomas Gainsborough (1727-1788), *Holywells Park, Ipswich*, c. 1748-50, 48.5 x 65 cm, Ipswich Borough Gallery, Ipswich

This painting stands among the earliest depictions of an industrial site in British art. **Thomas Gainsborough**, born in 1727, spent much of his career resisting the demand for straightforward topographical commissions. The tension that resistance created is visible here. The ponds were engineered structures, built by the brewer **John Cobbold** to supply spring water to his brewery, yet Gainsborough refuses to treat them as mere documentary record. A grey dappled sky, bright reflections across the water, birds wheeling overhead, and a bucolic labourer resting on a fallen tree all pull the industrial subject toward something warmer and more atmospheric. His own words illuminate the conflict. Writing to the **Earl of Hardwicke** in the mid-1760s, Gainsborough stated that if Hardwicke wanted anything worth having, the subject "must be of his own Brain; otherwise Lord Hardwicke will only pay for Encouraging a Man out of his way and had much better buy a picture of some of the good Old Masters." The remark is not false modesty — it is a direct assertion of creative ownership. Gainsborough's strength lay in invention, and even a commission rooted in a patron's commercial landscape he bent firmly toward his own vision.

Notes

One of the earliest paintings of an industry.

Thomas Gainsborough (1727-1788) disliked painting topographical landscapes and this scene is industrial. The ponds were constructed by the brewer John Cobbold to provide spring water for his brewery. Although this is topographical Gainsborough has imbued it with a romantic feeling through the grey dappled sky, the bright reflections on the ponds, the birds wheeling in the sky, the encompassing trees, the bright pool of light in the foreground and the bucolic labourer resting on a fallen tree.

Gainsborough wrote to the Earl of Hardwicke in the mid-1760s,

"Mr. G. hopes Lord Hardwicke will not mistake his meaning, but if his Lordship wishes to have anything tolerable of the name of G, the subject altogether, as well as the figures etc. must be Of his own Brain; otherwise Lord Hardwicke will only pay for Encouraging a Man out of his way and had much better buy a picture of some of the good Old Masters."

William Hicks
The Manufacture of Linen in Ireland
1783
British Library, London



William Hicks, *The Manufacture of Linen in Ireland*, 1783, British Library, London

This image shows the textile industry at the moment before mechanisation transformed it entirely. Under the **putting-out system**, merchants supplied raw materials to workers in their own homes, where carding, spinning, and weaving were carried out across three generations of a single family. Notice how **carding** — the disentangling of fibres before spinning — required only human hands and simple tools, making it simultaneously labour-intensive and ripe for replacement. Growth in productivity was structurally constrained by this dispersal. Processes were specialised and scattered, and early innovations such as **John Kay's flying shuttle** of 1733 still depended on a single pair of hands. The system had an inherent ceiling. That ceiling broke as demand expanded and machinery grew larger and costlier. The **cotton spinning industry** proved especially suited to mass production concentrated under one roof, financed by industrialists willing to invest in new technologies. The **factory system** that emerged did not merely accelerate output — it ended centuries of domestic manufacturing as the dominant mode of production. Supporting all of this was a revolution in road infrastructure. Innovations by **John McAdam** and **Thomas Telford**, driven by the **Turnpike Acts**, reduced the

journey from London to Edinburgh from two weeks to two days within fifty years.

Notes

The roots of industrialisation in 18th-century Britain can be located in small-scale manufacturing enterprises based in small private workshops, village outbuildings and the homes of domestic workers. The early textile industry is typical of these arrangements. Until mid-century most preparation, spinning and weaving of worsted and woollen threads (and occasionally cotton) was carried out as part of the 'putting out' system, where merchants supplied raw materials to workers in their own homes to be worked into thread or woven cloth for the domestic market.

In this early image we see typical textile industry activity based in the homes of workers: the process of 'carding' that involved the disentangling of woollen or cotton fibres in preparation of spinning into yarn or thread. Note how three generations of the family take part in the process. Out-working such as this was by definition small-scale and labour intensive and was thus ripe for mechanisation.

Before the industrial revolution any growth in productivity or output was limited by the small-scale nature of many manufacturing activities. In the woollen textile industry for example processes were highly specialised and scattered across the country, centred on domestic manufacturing carried out in the homes of workers. Early technical innovations continued to depend on this 'putting-out' system as a form of commercial organisation. Initial technical developments in spinning and weaving (such as John Kay's 'flying shuttle') thus remained relatively small-scale, with new machinery still operated by just one pair of hands.

As demand for textiles developed however, and technical innovations continued to develop, manufacturing machinery became larger and more expensive to purchase and maintain. The cotton spinning industry in particular was highly suited to mass-production carried out by large workforces located in one place, all of which was financed by a handful of wealthy industrialists capable of investing in these new technologies. This situation prompted the emergence of the familiar factory system and signalled the end for many centuries-old modes of production.

Most roads were in a terrible state and one key to the success of the industrial revolution in Britain was the 'Turnpike Acts'. New road construction pioneered by John McAdam and Thomas Telford led to the 'road boom' of the 1780s. Within 50 years the journey time from London to Edinburgh had been reduced from two weeks to just two days.

References

British Library



Philip James de Loutherbourg (1740-1812)

Coalbrookdale by Night

1801

68 x 107 cm

Science Museum

Philip James de Loutherbourg (1740-1812), *Coalbrookdale by Night*, 1801, 68 x 107 cm, Science Museum

Coke smelting along the **River Severn** offers a striking contrast to Loutherbourg's nocturnal vision of industrial hell. Here, in daylight, the mood shifts toward the **Romantic**: industrial detritus lines the path, yet a worker on horseback, his dog at his side, rides toward the roaring furnaces with an almost pastoral ease. A figure waits ahead to greet him, and a group in the distance observes the smoke and flame — the scene holding together pollution and grandeur without resolving the tension between them. **Philip de Loutherbourg**, born in Strasbourg in **1740**, trained first as a minister before turning to art in Paris, where he rose swiftly through fashionable society to membership of the **French Academy**. Arriving in London in **1771**, he was hired by **David Garrick** at £500 a year to design scenery and machinery at **Drury Lane Theatre**, developing illusions of moonrise, shifting cloud light, and running water that drew admiration from artists including **Joshua Reynolds**. His mechanical theatre, the **Eidophusikon**, extended these experiments beyond the stage. Elected to the **Royal Academy** in **1781**, he balanced theatrical innovation with painting throughout his career, dying in Chiswick in 1812.

Notes

This is coke smelting taking place near the River Severn. It is unlike Loutherbourog's Coalbrookdale by Night with its awe inspiring furnaces looking like a vision of hell. This scene is a hand-coloured print based on a drawing by Loutherbourog of Coalbrookdale during the day. There is industrial detritus lining the path but the worker on his horse with his dog alongside creates a Romantic scene with the polluting but awe-inspiring furnaces ahead of him. Someone is waiting on the path to create him and a group in the distance seem to be observing the roaring furnaces.

Philip de Loutherbourog (1740-1812) was a Franco-British painter who became known for his large naval works, his elaborate set designs for London theatres, and his invention of a mechanical theatre called the "Eidophusikon". He also had an interest in faith-healing and the occult.

Loutherbourog was born in Strasbourg in 1740, the son of an expatriate Polish miniature painter. He was trained as a minister but rejected religion and trained in Paris as an artist, quickly becoming a well-known figure in fashionable society. He became a member of the French Academy and then travelled through Switzerland, Germany and Italy, distinguishing himself as much by his mechanical inventions as by his painting. One of these, showing quite new effects produced in a model theatre, was the wonder of the day, with its use of lights behind canvas representing the moon and stars, and the illusory appearance of running water produced by clear blue sheets of metal and gauze, with loose threads of silver. In 1771 he settled in London, where David Garrick paid him £500 a year to design scenery and costumes and oversee the stage machinery at the Drury Lane Theatre. His stage effects attracted the admiration not just of the general public, but also of artists, including Joshua Reynolds. He devised scenic effects in which, for instance, green trees gradually became russet and the moon rose and lit the edges of passing clouds: illusions achieved through the use of coloured lantern-slides and the ingenious lighting of transparencies. He continued to work at the theatre until 1785. Despite being involved in many projects and business ventures, such as the Eidophusikon, he still found time to paint and his most famous paintings are Destruction of the Armada, the Great Fire of London and Coalbrookdale by Night. He was made a member of the Royal Academy in 1781 and he published two sets of drawings entitled Picturesque English

Scenery in 1801 and 1805. In 1789 Louthembourg temporarily gave up painting, in order to pursue an interest in alchemy and the supernatural. He and his wife took up faith healing and a pamphlet claimed they cure two thousand people. He died in Chiswick in 1812.



James Eckford Lauder (1811–1869)
*James Watt and the Steam Engine:
the Dawn of the Nineteenth Century*
1855
147.3 x 238.7 cm
Scottish National Gallery

James Eckford Lauder (1811–1869), *James Watt and the Steam Engine: the Dawn of the Nineteenth Century*, 1855, 147.3 x 238.7 cm, Scottish National Gallery

Here is the rewritten narration text: **James Watt**, born in 1736 in Greenock, Scotland, transformed industrial production not by inventing the steam engine outright, but by making it genuinely efficient. The **Newcomen engine**, which preceded Watt's work, wasted enormous energy by repeatedly heating and cooling its single cylinder. Watt's critical insight, developed during his time as an instrument maker at the University of Glasgow, was to introduce a separate condenser — keeping the cylinder hot continuously and dramatically reducing fuel consumption. The **Watt steam engine**, patented in **1769**, cut energy costs so substantially that factories, mines, and mills could scale up operations in ways previously impossible. His long business partnership with **Matthew Boulton** proved equally important; Boulton's financial backing and commercial drive turned Watt's engineering into an industrial force. Historian **Jenny Uglow** argues that this Boulton-Watt alliance exemplifies how the **Industrial Revolution** depended on networks of talent and capital, not lone genius. The unit of power we call the **watt** is named in his honour, a recognition that his contributions extended into scientific measurement itself.

Watt died in 1819, by which point steam power had already begun reordering the economies of Britain and the wider world.

Notes

James Watt (1736–1819) was a Scottish inventor, mechanical engineer, and chemist whose Watt steam engine, an improvement of the Newcomen steam engine, was fundamental to the changes brought by the Industrial Revolution in both his native Great Britain and the rest of the world.



Joseph Mallord William Turner
(1775–1851)

***Llanstephan Castle by Moonlight,
with a Kiln in the Foreground***

c.1795

Graphite and watercolour on paper
21.3 x 28.1 cm

Tate, London

Joseph Mallord William Turner (1775–1851), *Llanstephan Castle by Moonlight, with a Kiln in the Foreground*, c.1795, 21.3 x 28.1 cm, Tate, London

This watercolour derives from a pencil drawing in **Turner's South Wales sketchbook**, and it announces concerns that would define his career. The collision of medieval ruins with working industry directly prefigures his celebrated view of **Dudley, Worcestershire**, produced around **1832** for the *Picturesque Views in England and Wales* series. The nocturnal mood — moonlight competing with firelight — connects just as directly to **Fishermen at Sea**, the oil painting Turner first exhibited at the **Royal Academy in 1796**, marking his public debut in the medium. Both works treat darkness not as absence but as an active pictorial force. The sheet itself has a remarkable material history: a varnish spill caused severe damage, and the work was effectively abandoned and overlooked within the **Turner Bequest** for the better part of two centuries. Conservation treatment, including careful varnish removal, finally restored it to a displayable state, and it appeared publicly for the first time in the exhibition **Young Turner in 1988**. That recovery matters, because the watercolour demonstrates how early Turner was thinking across media, across time, and across the competing claims of the picturesque and

the industrial — ambitions that would only grow more urgent as his career advanced.

Notes

This is based on the pencil drawing in the South Wales sketchbook (Tate D00571; Turner Bequest XXVI 18). The contrast of medieval ruins with modern industry prefigures various later works, notably the view of Dudley, Worcestershire executed in about 1832 for the Picturesque Views in England and Wales series (Lady Lever Art Gallery, Port Sunlight).¹ There is a more direct connection, as well, with the subject of Turner's first exhibited oil painting, *Fishermen at Sea*, which appeared at the Royal Academy in 1796 (305) (Tate T01585).² It is a night scene, with both moonlight and firelight.

The sheet is stained. Having been severely damaged by a spill of varnish, it had evidently been abandoned. It remained effectively ignored in the Turner Bequest until conservation including the removal of the varnish rendered it fit for display for the first time in the exhibition *Young Turner* of 1988.



J. M. W. Turner (1775–1851)
Leeds
 1816
 Watercolour
 29.2 x 43.2 cm
 Yale Center for British Art

J. M. W. Turner (1775–1851), Leeds, 1816, 29.2 x 43.2 cm, Yale Center for British Art

Rooted in the Romantic fascination with modernity, Turner's 1816 watercolour **Leeds** stands as one of British art's most searching engagements with industrial transformation. Commissioned through a Yorkshire tour gathering material for **Thomas Dunham Whitaker's** *History of Yorkshire*, Turner made meticulous graphite sketches on site before elaborating them into this watercolour back in London. As **Stephen Daniels** has argued, the image is not straightforward topography but a richly allusive amalgam of sources: Turner drew on **Samuel Buck's 1720 engraved prospect** of Leeds and on **John Dyer's** allegorical poem **The Fleece**, which frames wool manufacture as a vision of Britain united through labour. Viewed from **Beeston Hill** roughly a mile and a half south of the city, the composition adopts the prospect or panorama convention long associated with urban prosperity. Turner places **John Marshall's flax mill** at the centre, and populates the foreground with figures whose occupations he carefully differentiates — tentermen hanging cloth, masons, milk carriers, and a millworker bearing a roll of fabric. The work celebrates Britain's resilience in the immediate aftermath of the **Napoleonic Wars**. Never included in Whitaker's conservative publication, it reached the

public in **1823** through lithography — a fittingly modern medium for an unambiguously industrial subject.

Notes

"Of all the British landscape artists of the Romantic period, Turner was the most fascinated by modernity, and many of his images chronicle technological advances. While touring Yorkshire in 1816 to gather material for Thomas Dunham Whitaker's 'The History of Yorkshire', Turner visited Leeds, the hub of the nation's wool and flax industries, and made meticulous graphite sketches of the city, which he elaborated into this watercolour on his return to London. Turner's remarkable drawing celebrates the economic success and resilience of Leeds—and by extension, that of Britain—in the immediate aftermath of the wars with Napoleon. As Stephen Daniels has noted in his penetrating analysis of the watercolour, to which this entry is indebted, Turner's image is a complex and richly allusive portrayal of a rapidly developing industrial city, an amalgam of sources rather than a straightforward topographical record (Daniels, 1986, 1993).

The watercolour, which depicts the city from Beeston Hill, about a mile and half south of the city, draws on the conventions of the prospect or panorama, a well-established genre for representing urban development and prosperity. Daniels has suggested convincingly that Turner used two eighteenth-century sources, Samuel Buck's 1720 engraved prospect of Leeds and an allegorical poem by John Dyer, 'The Fleece', which details the processes of wool manufacture and offers a vision of Britain united through labour. With similar patriotic intention, though perhaps not without ambivalence, Turner mapped the smoky industrial landscape of Leeds, placing John Marshall's flax mill at the centre of his composition and carefully differentiating its figures' occupations—tentermen hanging cloth to dry, masons, milk carriers, and a millworker carrying a roll of cloth. It is likely that Turner intended 'Leeds' to be engraved for Whitaker's publication, but it was not included, perhaps because its industrial subject matter was considered unsuitable for this somewhat conservative publication. The watercolour was published in 1823, translated, appropriately, into the modern medium of lithography. "

References

Yale Center for British Art website, Gillian Forrester, 2007



Joseph Mallord William Turner
(1775–1851)

Newcastle-on-Tyne

c.1823

Watercolour on white wove
watercolour paper

15.2 x 21.5 cm

Tate, London

Joseph Mallord William Turner (1775–1851), Newcastle-on-Tyne, c.1823, 15.2 x 21.5 cm, Tate, London

Turner's watercolour of Newcastle upon Tyne, made around **1818**, grows directly from studies taken during his journey north to support the *Provincial Antiquities and Picturesque Scenery of Scotland* project, initiated by publisher **Robert Cadell** and novelist **Walter Scott**. The city was celebrated at the time as the great emporium of the coal trade, and Turner frames it accordingly — looking west across the **River Tyne**, with Gateshead on the opposite bank and a skyline built from landmark after landmark: the **Tyne Bridge of 1772**, the Elswick shot tower, the eleventh-century castle keep, the elliptical Church of All Saints, and the medieval steeple of **St Nicholas**. The river teems with keelmen, barges, steam-boats, and docked colliers whose cruciform masts layer across the composition. In the foreground, a marine, a sailor, and women waving at passing boats anchor a cross-section of working life. Above it all hangs the weight of industry — smoke from lime kilns, fumes from collieries, vapour from steam engines. As art historian **Alice Rylance-Watson** notes, the grey haze is relieved only in the foreground by flashes of brown, white, and red. Turner builds this atmosphere through minute stippling and hatching, achieving chromatic richness through painstaking

accumulation of tone.

Notes

"This watercolour is worked up from a study in the Scotch Antiquities sketchbook, drawn when Turner made his way up to Scotland in 1818 to research the Provincial Antiquities and Picturesque Scenery of Scotland project initiated by the publisher Robert Cadell and novelist Walter Scott.

One author wrote that Newcastle offered 'to the eye the most striking and pleasing objects' which 'characterise the wealth, science, and enterprising spirit of the place'. The city was 'well known as the great emporium of the coal-trade, and for its possession of almost illimitable collieries'. It had 'a fine Exchange, splendid assembly rooms, numerous charitable institutions, and literary ones'. In essence, the city possessed all the signifiers of prosperity and gentility which spoke of 'the intellectual taste and the advanced civilization of its inhabitants'.

Turner depicts the city and the adjoining town of Gateshead, looking west, with the River Tyne running between. The river is 'crowded with shipping, keels, wherries, steam-boats, and other small craft'. From the left to right are the city's most conspicuous historic landmarks: first, the tower of St Mary's, Gateshead and next to it, the Tyne Bridge of 1772. Above the bridge is Elswick shot tower, for the manufacturing of lead 'sheets, pipes, shot, white-lead, red-lead, and litharge. The metal was mined in the nearby towns of Stella and Swalwell and then transported to the tower for processing. To the right of Elswick is the keep of the eleventh-century castle, and next to this is the spire of the late eighteenth-century elliptical Church of All Saints'. The last landmark to be featured is the medieval steeple of St Nicholas Church.

Turner has peopled the staithes (a landing stage for loading and unloading boats) and steep hillsides of the river with a 'cross-section of the town's population'. A marine, a sailor, and a pair of women waving at the boatmen on a barge laden with cargo populate the immediate foreground. Beyond them labourers haul timbers next to an iron pulley towards a Union Jack at full mast and keelmen transport coal from the moored colliers. The masts of dozens of docked ships line the banks of the Tyne, the finely wrought lines of their cruciform frames layered and interspersed with the slack trapezoid shapes of white sails. The atmosphere is heavy with the effluvia of industry: smoke from Elswick tower and local lime kilns; fumes from the collieries and coal fires at the riverside; and dirtied vapour from the stationary steam

engines pumping water from the mines. Indeed, as the art historian William Rodner writes, Turner here:

gives greater play to the theme of an old city-district engulfed by the choking atmospheric effects of modern industrial development...the gray haze over the far and middle ranges of the watercolour [are] relieved only in the immediate foreground by elements of colour – brown on the sloping riverbank, the ships' white sails, red for the soldier's uniform.

The colouring in Newcastle is complex: it is built up of minute stipples and hatching of multiple tones, creating a chromatic and textural richness." (Alice Rylance-Watson, Tate website, 2013)

References

Alice Rylance-Watson, Tate website, 2013



J.M.W. Turner (1775–1851)

Dudley

1832

Watercolour

29.3 x 43.2 cm

Lady Lever Art Gallery, Liverpool

J.M.W. Turner (1775–1851), **Dudley**, 1832, 29.3 x 43.2 cm, Lady Lever Art Gallery, Liverpool

Turner's industrial landscapes were never simple condemnations, and **Dudley**, painted around **1830**, shows exactly why. Situated between Birmingham and Wolverhampton in the heart of the **Black Country**, Dudley was synonymous with industrial invention — the first steam engine operated near **Dudley Castle** in **1712**, and the **Horseley Ironworks** produced the first iron steamship just nine years before Turner's visit. **John Ruskin**, who owned the work, read it as Turner's expression of horror at industrialisation, writing in **1878** that the ruined castle and half-visible church spire signalled the passing of baron and monk alike. That interpretation tells us more about Ruskin's own deepening hostility to industry than about Turner's intentions. The **Reverend Luke Booker**, Vicar of Dudley from 1812 to 1835, published a celebratory account of the region in 1825, praising its forges and steam engines as signs of "almost exhaustless wealth" and worthy human activity. Turner's watercolour mirrors that confidence rather than Ruskin's anxiety. The accompanying text by **Hannibal Evans Lloyd** reinforced this reading, emphasising local mines and the employment they generated. Turner omits social hardship entirely — the scene is energetic, luminous, and purposeful.

Notes

Throughout his career, Turner visited and sketched towns and cities which were centres of manufacturing industry, including London, Newcastle, Sheffield and Leeds. He visited Dudley, Worcestershire in the late summer and autumn of 1830. The town is situated half-way between Birmingham and Wolverhampton in the heart of England's Black Country, so called because of 'the dense clouds of smoke which belched continuously from thousands of coal-fired hearths and furnaces'.

Dudley was associated with the invention of the steam engine (it was first operated near Dudley Castle in 1712) and in 1821 the first iron steamship was built in the Dudley area at the Horseley Ironworks. If Turner wanted to capture the essence of English industrialisation, he could hardly have chosen a better subject than Dudley.

For the writer and painter John Ruskin (1819-1900), who owned the work at one stage, 'Dudley' represented Turner's own hatred of industrialisation. In 1878, he wrote that he found it a clear expression 'of what England was to become', with its 'ruined castle on the hill and the church spire scarcely discernible among the moon-lighted clouds, as emblems of the passing away of the baron and the monk'. In fact, Ruskin's interpretation is distorted by his own increasing antipathy towards industrialisation and probably had little to do with Turner's real intentions.

By the 1830s Dudley had become the place to visit to observe the industrial revolution in action. Charles Dickens visited the Black Country in the 1830s and described it as a 'cheerless region' in which 'tall chimneys, crowding on each other and presenting that endless repetition of the same, dull, ugly form poured out their plague of smoke, obscured the light, and made foul the melancholy air'. However, just as many other observers found the vision of modern industry surprisingly appealing.

The Reverend Luke Booker, Vicar of Dudley (1812-1835) published in 1825 'A Descriptive Account of Dudley Castle' which celebrated Dudley's ancient past along with its present. Booker wrote that this land of forges, coal fires and the 'wonderful phenomenon' of steam engines, represented 'a region of almost exhaustless wealth' and was 'alive with worthy human activity'.

Whilst we have no evidence to suggest that Turner ever read Booker, his watercolour can be seen to mirror these sentiments. The text that

accompanied the engraving of the work, written by Hannibal Evans Lloyd, wrote of the economic benefit of this industrialisation: 'The neighbourhood abounds in mines of coal, iron-stone, and limestone, which furnishes employment for a great number of the inhabitants'. Indeed, in 'Dudley', the artist omits any suggestion of the social and economic problems associated with industrialisation which would preoccupy later critics like Ruskin.



George Childs (1800-1875)

Dowlais Ironworks

1840

Watercolour over pencil on paper

23.9 x 34.9 cm

National Museum of Wales

George Childs (1800-1875), Dowlais Ironworks, 1840, 23.9 x 34.9 cm,
National Museum of Wales

The Dowlais Ironworks, north-east of Merthyr Tydfil, stand as one of the defining industrial subjects in British art of the nineteenth century. **Dowlais** began production in **1759** and ran continuously until **1930**, eventually surpassing the rival **Cyfarthfa** works nearby to become, by the mid-nineteenth century, the largest ironworks in the world. At its peak, the site operated **18 blast furnaces** and employed over **8,000 workers**, drawing immigrants from across Britain and beyond, giving the community an extraordinarily diverse character that artists and social commentators alike found compelling. That human density and industrial scale shaped how painters approached the subject: the sheer physical drama of molten iron, smoke, and massed labour demanded compositional ambition. Works depicting Dowlais rarely treat the factory as backdrop; the industrial infrastructure becomes the subject itself, asserting a new kind of sublime rooted not in nature but in human organisation and iron. This shift — from landscape to industrial landscape — marks a pivotal moment in Welsh visual culture. Painters working at Dowlais were not documenting decline but recording a landscape at the height of its global power, which gives these images their particular charge and

confidence.

Notes

The iron works at Dowlais, just north east of Merthyr Tydfil, began production in 1759 and continued until 1930. The works here eventually surpassed those at nearby Cyfarthfa, and by the mid 19th century had become the largest in the world, operating 18 blast furnaces and employing over 8,000 workers. The works attracted large numbers of immigrants from within Britain as well as from other countries.

References

http://thomasgenweb.com/industrial_art.html



A.B. Clayton
*Inaugural journey of the Liverpool
and Manchester Railway Crossing the
Bridgewater Canal at Patricroft*
1830

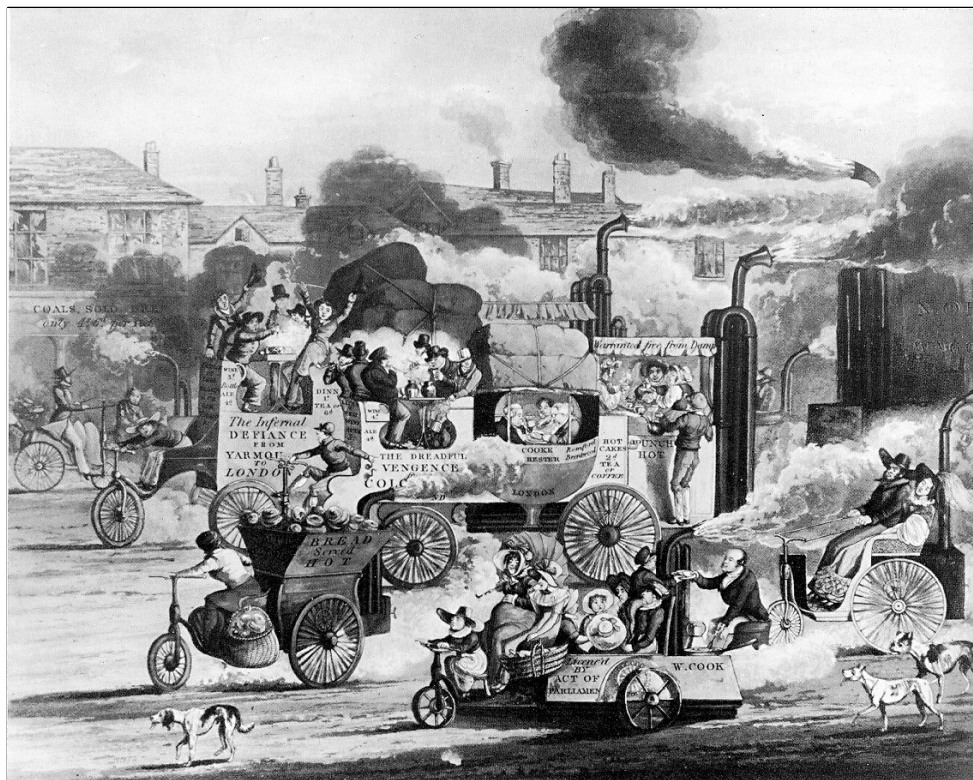
A.B. Clayton, Inaugural journey of the Liverpool and Manchester Railway Crossing the Bridgewater Canal at Patricroft, 1830

The **Liverpool and Manchester Railway** opened on **15 September 1830** and immediately redefined what a railway could be. It was the first line to run entirely on steam power, with no horse-drawn traffic permitted at any stage, and the first to operate as fully double track throughout its entire length. It introduced the first functioning signalling system, ran to a published timetable, and carried the Royal Mail — achievements no earlier railway had combined. **John B. Jervis** of the Delaware and Hudson Railway later wrote that it must be regarded as opening the epoch of railways which revolutionised the social and commercial intercourse of the civilised world. That verdict holds. Within its first years of operation, the line demonstrated that steam haulage was not an experimental curiosity but a reliable, schedulable, publicly accountable transport system. Engineers across Britain and America studied its operating methods directly. The railway connected two of the most economically significant cities in the industrialising world, and in doing so it established the template — double track, steam power, timetable, signals — that virtually every subsequent main line railway followed. **Lancashire**, and through it the global railway network, was

transformed by a single stretch of **thirty-five miles**.

Notes

The Liverpool and Manchester Railway (L&MR) was a railway opened on 15 September 1825 between the Lancashire towns of Liverpool and Manchester in the United Kingdom. It was the first railway to rely exclusively on steam power, with no horse-drawn traffic permitted at any time; the first to be entirely double track throughout its length; the first to have a signalling system; the first to be fully timetabled; the first to be powered entirely by its own motive power; and the first to carry mail. John B. Jervis of the Delaware and Hudson Railway some years later wrote: "It must be regarded ... as opening the epoch of railways which has revolutionised the social and commercial intercourse of the civilized world".



Henry Thomas Alken (1785-1851)
A View in Whitechapel Road
 1831

Henry Thomas Alken (1785-1851), *A View in Whitechapel Road*, 1831

Emerging from the Georgian satirical tradition, **Henry Thomas Alken** stands as the dominant sporting artist of the early nineteenth century, and this engraving — published under his pseudonym **Ben Tally Ho** — shows exactly why his eye for social comedy outlasted his reputation for draughtsmanship. The image imagines a London already choking under **steam coach** traffic, years before public railways existed. Two coaches bear the gloriously threatening names "**The Infernal Defiance**" and "**The Dreadful Vengeance**", their routes chalked to Yarmouth and Colchester. Banners promise bread served hot and coal at four shillings sixpence a pound — Alken skewering the optimism of early industrial commerce with precise, affectionate mockery. The joke carried a serious edge. As **Paul Johnson** documents in *The Birth of the Modern*, established British railway companies lobbied actively to kill off free-running steam coaches as rival transport, snuffing out a technology that this print imagines thriving. Dorothy George, whose scholarship on Georgian satirical prints remains foundational, places Alken within a tradition running from **Hogarth** through **Cruikshank** — artists who used popular engraving to make prophetic visual arguments. Alken's prophecy here is remarkably clear-eyed: congestion, pollution, and the chaotic energy of mechanised streets are

all already present, waiting only to be recognised.

Notes

A far-sighted view of the possibility of steam-driven vehicles drawn before the public railway was developed.

The two large steam coaches are named 'The Infernal Defiance — From Yarmouth to London' and 'The Dreadful Vengeance — Colchester, London'. On the rear of the coach in front is a banner proclaiming 'Warranted free from Damp', the small delivery wagon has 'Bread served Hot' on its side, and the service station proclaims 'Coals Sold Here: only 4s. 6d. per Pound(?)'.

As documented in Paul Johnson's book *The Birth of the Modern*, the early British railroad companies used their political influence to preclude possible competition from free-running steam coaches.

A futuristic view of the traffic and pollution problems to come.

The Alken family were architects and artists from 1745 to 1894. Henry Thomas Alken was the dominant sporting artist of the early nineteenth century and he had many engravings published, like his two (possibly three) brothers and their father before them. He used the pseudonym Ben Tally Ho for his mildly satirical engravings. He was also a prolific designer, engraver and lithographer of scenes relating to racing, shooting, coaching and other sports. He was described as 'oddly old fashioned' and in later life he became ill and was cared for by his unmarried daughter.

References

Scanned by H. Churchyard from Dorothy George's *Hogarth to Cruikshank*
Oxford Dictionary of National Biography



Eyre Crowe (1824–1910)
The Dinner Hour, Wigan
 1874
 76.3 x 107 cm
 Manchester Art Gallery, Manchester

Eyre Crowe (1824–1910), *The Dinner Hour, Wigan*, 1874, 76.3 x 107 cm, Manchester Art Gallery, Manchester

Eyre Crowe trained under **Paul Delaroche** in Paris before returning to London, where a rejection from the Royal Academy sent him to its Schools — a setback that sharpened rather than diminished his ambitions. Through his family's friendship with **W. M. Thackeray**, he joined the novelist on a six-month American tour, during which his attention fixed on the enslaved community, resulting in ***Slaves Waiting for Sale, Richmond, Virginia***. That documentary instinct never left him. ***The Dinner Hour, Wigan***, exhibited at the **Royal Academy in 1874** and now held at **Manchester City Galleries**, grew from his visit to Thomas Taylor's Victoria Mills during an inspection tour. The **Athenaeum** condemned his subject as unappealing; rivals called the scene unpictorial and vulgar. The **Art Journal** disagreed, praising his refusal to flinch from reality. Later critics split over idealisation: the women are healthy and content, yet the high enclosing walls, a central policeman, a barefoot girl holding the viewer's gaze, and a bottle of alcohol on the left edge all invite a more unsettled reading. **Julian Treuherz** called the work the ancestor of **L. S. Lowry's** northern townscapes. The canvas sold at Christie's in 1921 for three pounds and one shilling — and was acquired by Manchester the following

year.

Notes

Eyre Crowe was born in Sloane Street, the son of an author and journalist. He spent his childhood in Paris as his father worked as a foreign correspondent for the Morning Chronicle. He was educated at home by his father and taught drawing and enrolled at the atelier of Paul Delaroche. He returned to London with his family but the Royal Academy rejected his submission so he enrolled for the Royal Academy School. His work was accepted and he became better known and worked for W. M. Thackeray, a close family friend. He went on a six month study tour in America accompanying Thackeray. He showed a strong interest in the appearance and condition of the black community and painted *Slaves Waiting for Sale, Richmond, Virginia*. When he returned he achieved success as a genre painter and history painter. Modern criticism has paid greater attention to his unsentimental excursions into social realism, such as the depictions of foundrymen in *The Foundry* (exhibited as *Shinglers RA*, 1869; Milwaukee School of Engineering) and women millworkers in *The Dinner Hour, Wigan* (exhibited RA, 1874; Manchester City Galleries). From 1859 he acted as occasional examiner and inspector of the government schools of art. He exhibited every year at the Royal Academy from 1857 to 1908 and became an associate but never a full Academician. He was a sociable bachelor who attended the Reform Club and he died of heart failure following a hernia operation.

The Dinner Hour is Crowe's best known work today, partly as it is displayed in a major public gallery. It was one of the clearest and most unsentimental pieces of social realism to appear in the 1870s, and was the first painting of contemporary urban industrial life to appear at the Royal Academy exhibition. Poverty and industrialism were themes in novels by Dickens, Mrs Gaskell and Benjamin Disraeli, among others, and the factory and coal mining areas of Lancashire could be visited by curious middle-class tourists. Nevertheless, it was an unusual subject for artists and he was criticized by the Athenaeum for choosing such an unappealing subject and other critics regarded the scene as 'unpictorial' and even 'vulgar'. The Art Journal wrote, 'He is not afraid of reality, and does not shrink from scenes that less robust minds would consider vulgar.'

The scene was inspired by his visit to Thomas Taylor's Victoria Mills in Wigan – during a trip to the provinces in his capacity as an Inspector of Schools of

Art. He had tackled difficult subjects previously and he was unafraid to tackle unusual or idiosyncratic topics.

The scene has been idealised as the women are healthy, contented and attractive and some historians have criticized the way he glossed over the conditions and painted the fictional 'happy worker' and have cast him in the mould of the wealthy upper-class. In reality Crowe struggled to earn enough yet painted controversial pictures rather than saleable 'pot boilers'. It has been noted by other commentators that the policeman, situated near the centre of the painting, symbolises the authority under which the girls worked; that the walls are high and forbidding; that one of the girls on the left hand side appears to be brandishing a bottle of alcohol; and that the prominent girl in the middle of the picture is both barefoot and the only figure to be looking directly at the viewer; all of which suggest in subtle ways that the viewer should analyse the real stories behind the apparently happy scene. Other modern critics, while acknowledging some idealisation, are united in their praise for the painting, noting its modernity, realistic detail, lack of 'run-of-the-mill sentimentality', and perception. The verdict of Julian Treuherz is that it is 'the ancestor of the Northern townscapes of L.S. Lowry'; that of Christopher Wood, that it is 'a unique picture in Victorian art'.

The painting was purchased by Manchester City Art Galleries from A.E. Knight in 1922, after being sold at auction by Christie's the previous year for just £3 1s 0d.

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Oxford Dictionary of National Biography

<http://eyrecrowe.com/pictures/1870s/the-dinner-hour-wigan/>



John Leech (1817–1864)

Father Thames Introducing His Offspring to the Fair City of London. (A Design for a Fresco in the New Houses of Parliament.)

1858

Caricature (published in Punch)

John Leech (1817–1864), *Father Thames Introducing His Offspring to the Fair City of London. (A Design for a Fresco in the New Houses of Parliament.)*, 1858

The **Great Stink** of 1858 connects Parliament directly to the broader Victorian obsession with cleanliness and bodily reform. The smell of untreated sewage from the Thames was so overwhelming that parliamentary business ground to a halt. The Times reported that Parliament was compelled to act by sheer stench, and by 2 August 1858 a bill had passed authorising three million pounds for **Joseph Bazalgette's** sewer system. Construction began in 1859, with the Thames Embankment following by 1865. That same year, **Samuel Smiles** published **Self-Help**, arguing that individual character and thrift mattered more than legislation. The book was swiftly called the bible of mid-Victorian liberalism and elevated Smiles to celebrity overnight. Running alongside this was **Muscular Christianity**, developed in the 1850s by **Charles Kingsley**, who argued that sport built Christian morality and manliness in equal measure. He traced Anglican decline to what he saw as the effeminacy promoted by the **Tractarians**, and looked to schools like **Rugby under Thomas Arnold** as models of physical and moral discipline. The direct connection to design is this: excessive ornament was thought to trap dust and dirt, so the

same instinct driving bodily hygiene also drove the demand for cleaner, leaner decorative forms.

Notes

As we are discussing Parliament it is a good time to add that in the 1860s there was a movement for cleanliness, physical health and self-improvement. This was a reaction to the appalling pollution shown here in the Punch cartoon of the Thames. The miasma theory was that disease was spread by bad air.

In July and August 1858 the smell of untreated human sewage and industrial effluent was so bad that the business of Parliament stopped. The leading article in *The Times* observed that 'Parliament was all but compelled to legislate upon the great London nuisance by the force of sheer stench'. It became known as the 'Great Stink' and by 2 August Parliament had passed a bill authorising £3 million to be spend on Bazalgette's plan to build a sewer system for London. The sewers were started in 1859 and the Thames Embankment was under construction by 1865.

Samuel Smiles (1812-1904) published *Self-Help* in 1859. Smiles was a Scottish author and government reformer who campaigned on a Chartist platform but he concluded that more progress would come from new attitudes than from new laws. His masterpiece, *Self-Help* promoted thrift and claimed that poverty was caused largely by irresponsible habits, while also attacking materialism and laissez-faire government. It has been called 'the bible of mid-Victorian liberalism', and it raised Smiles to celebrity status almost overnight.

In the 1850s Charles Kingsley (1819-1875) developed the basic idea of Victorian Muscular Christianity which was that participation in sport could contribute to the development of Christian morality, physical fitness, and "manly" character. It was seen as a 'counterbalance' to '... education and bookishness'. It was believed that the Anglican Church had become weakened by a culture of effeminacy. Kingsley supported the idea that godliness was compatible with manliness and viewed manliness as an 'antidote to the poison of effeminacy – the most insidious weapon of the Tractarians – which was sapping the vitality of the Anglican Church'. It was a response to the perceived puritanical and ascetic religiosity of the Tractarians, later known as the Oxford Movement. Aside from the religious motivations for the evolution and advancement of Muscular Christianity, the Victorians' preoccupation with health is arguably the most significant factor. 'No topic

more occupied the Victorian mind than Health . . . they invented, revived, or imported from abroad a multitude of athletic recreations'.

The development of Muscular Christianity is linked with the combination of physical exercise, particularly the game of rugby, and rote instruction in the Classics at the Rugby public boy's school under Rev. Dr. Thomas Arnold from the 1830s onwards. This was believed to develop a manly character and hard physical sports were regarded as a substitute for the unspoken and enervating 'sins' of masturbation and homosexuality. The motto of Rugby is 'Orando Laborando' ('By praying, by working').

The link with applied art is cleanliness. Excessive ornament was thought to harbour dust and dirt and the movement for physical health was also for clean designs with excessive ornamentation.



Ford Madox Brown (1821-1893)
Work
 1852-1865
 Manchester Art Gallery, Manchester

Ford Madox Brown (1821-1893), **Work**, 1852-1865, Manchester Art Gallery, Manchester

Ford Madox Brown spent thirteen years painting **Work**, living nearby in Hampstead in conditions of extreme poverty while the canvas grew steadily in complexity. The painting depicts navvies laying a new water main, approved by Parliament in 1852, and its central argument draws directly from **Thomas Carlyle's** book *Past and Present* of 1843, in which labour is likened to digging a river that drains a swamp of ignorance. Carlyle himself appears on the right alongside the Christian reformer **F. D. Maurice**, both cast as intellectual workers observing physical toil. Sanitation is the painting's urgent political context. When Brown was designing the work in 1853 and 1854, eleven thousand Londoners died in a single cholera outbreak. **Dr John Snow** was already advocating clean water as prevention. The ragged orphan children in the foreground lost their parents to the epidemic, and Brown's own son Arthur, who died during the painting's production, modelled the child carrying daisies, a symbol of innocence. Look closely at the partly obscured wall poster on the left and a hidden crime narrative emerges. The wanted thief wears fustian and a billy-cock hat — and Brown reveals him as the chickweed seller directly concealing the very bill that describes him, a bull

terrier pup already sold to deflect suspicion.

Notes

Lecture

This one is full of intended meaning to the extent that Brown produced a five-page catalogue describing all the symbolism.

It would take me another hour just to list all the issues raised. My bullet point notes on this ran to nearly 2,000 words. Every tiny detail has a meaning.

There is even a crime mystery.

First, it is called Work and the main theme is the ennobling nature of work an idea that references Thomas Carlyle's book Past and Present (1843).

The workers are laying a new water main which was approved by Parliament on 1852. One of Carlyle extended metaphors likens work to digging an ever widening river that drains a pestilent swamp of ignorance.

The scene is The Mount in Hampstead and Brown was living nearby in conditions of 'extreme poverty' yet he worked on this for 13 years.

Brown shows us a range of workers including, on the right, the 'brainworkers' Thomas Carlyle and F. D. Maurice holding a bible. There are unemployed, street sellers and the idle rich.

But how are the workers employed? The central reform issue at this time was sanitation and water reform and it was a dominant theme of Dickens's Bleak House which was published in 1852-3.

The noted scientist Michael Faraday wrote a letter to The Times calling for water reform and for the Thames to be cleaned.

The 'Great Stink' which closed the Houses of Parliament was not until summer 1858.

The related issue was cholera. When Brown was designing this work in 1853-4 11,000 people died in London alone in a major cholera outbreak. Dr John Snow was advocating a germ theory where the prevention was clean water but the miasmatic theory also suggested prevention based on cleanliness.

The 'ragged dirty brats' in the painting are orphans from the cholera

epidemic. Their orphan status is indicated by the black band on the baby. The father, Brown wrote, has forsaken them for alcohol. The young orphan child was modelled by Brown's son Arthur who died while he was painting the picture and he carries daisies, the symbol of childhood and innocence.

Let me skip over a few dozen other interesting anecdotes and symbols and focus on the crime.

The clue starts with the bills and advertisements on the wall at the left. The bill is partly obscured by the chickweed seller and is fragmentary. Like a detective novel it identifies a criminal wanted for robbery through a series of clues. The thief has been sighted with a bull terrier pup.

The dog is in the front. The form was changed during the 1850s and 60s to a bullet shaped heads but at this time it looked like a today's pit-bull terrier. The poster refers to 'fustian' meaning working men's clothes of velveteen, brocade or corduroy weave, olive green to burnt umber in colour. It is linked to criminals, Dickens' wrote 'the thief in fustian is a vulgar character' (Nicholas Nickleby).

In the background a likely suspects loiters against a tree. His stoic appearance is highly suspect according to Victorian physiognomy and he looks across the street to a policeman hustling an orange seller, a scene of excessive police force that was galling to Brown.

But the poster also refers to 'Billy-cock' which is a type of hat worn by the lower classes (a 'wide awake' hat). The thief is the one that obscures the poster, hiding beneath his punched out billy-cock hat and wearing fustian – it is the chickweed seller.

He lives, Brown tells us, among the worst thieves and cut-throats in London. He has sold the bull pup to one of the labourers and is worried about being caught with the pup as evidence as there is a policeman opposite and one coming down the road on a horse.

This conflicts with what Brown wrote about the chickweed seller earlier in his catalogue and it could be the man under the tree but Carlyle also 'reversed men's notions upon criminals'. So Brown can slap us on the wrist for making assumptions about 'type'.

Brown staked a lot on this painting and paid for a one-man exhibition but unfortunately it was not popular, perhaps because of the five pages text that

is required to understand it. It was never produced as an engraving. It is a visual and literary game he worked on for years as it grew in complexity but Brown was regarded as an outsider and never became an Academician.

Link: another outsider is the last before our break...

Notes

F. D. Maurice the Christian reformer gave a lecture on the 'Great Unwashed' and the relationship between cleanliness and godliness.

The Hampstead Water Company was notorious for supplying dirty water unlike the New Water Company that was digging this hole to lay new pipes. Brown was very worried about his family catching cholera and, unusually, had a bath every day.

In the middle of the road two young girls are obtaining water. Women and children would walk a quarter of a mile a day to get clean water from a public standpipe. In Hampstead the water had to be bought and it cost more than the price of strong beer.

There is a potman with the Times under his arm crying 'Beer!'. The potman sold beer and Brown notes that he is stunted from the effects of gin as a child. The man next to him is drinking a pint of ale. Some families drunk only beer as it was safer and cheaper than water. Brown's wife, Emma, was an alcoholic and Brown had to bring up the children largely without her help.

The woman distributing temperance tracts was requested by Brown's demanding patron Thomas Plint. Ironically the tract floats down into the very stream of water that was believed to alleviate drunkenness. Charles Kingsley wrote 'A man's sobriety is in direct proportion to his cleanliness', a sentiment that many believed as people drank to avoid drinking dirty water. Clean water meant sobriety.

There are four quotations from the Bible around the frame which is shaped like a proscenium arch like a stage. Top left is 'Neither did we eat any man's bread for nought; but wrought with labour and travail night and day' (Thessalonians 3:8). The pastry boy's tray represents superfluity of excess and waste and the rich couple do not need work for bread.

Top right is the quotation 'See'st thou a man diligent in his business. He shall stand before kings' which is from a passage that earlier concerns the equality of all men. Brown gives the working men nobility and a central position while the idle rich are stopped in their tracks.

The Victorians and in particular the Pre-Raphaelites were consumed by floral mania and the meaning of flowers. Brown, a keen gardener painted with botanical accuracy. However, because of the number of floral dictionaries published there were often conflicting meanings. Along the bottom of the frame is a quotation from Genesis (3:19), 'In the sweat of thy face shalt thou eat bread'. This refers to Adam and Eve's labour as punishment for eating from the Tree of Knowledge. In the centre of the painting a young red-headed labourer carries a pail of water and in his right hand is an apple held up to be seen. This is the symbol of temptation and is a reminder that labour leads from Original Sin to redemption and so the apple represents the dignity of labour.

To the right he shows a bare foot Irishman and his wife shaded by the bank of the road. The Irish were believed to be dirty and to catch and spread cholera. Brown tells us the couple are 'reduced in strength' and may have a fever.

The elm trees in the background are a symbol for dignity and reinforce the dignity of the manual labour. The potman wears a small buttonhole of fuschias meaning 'taste' and sweet peas that mean 'departure'. In other words taste has departed and Brown tells us he has 'vulgar taste'.

Brown describes the man to the left shovelling as the 'pride of manly health and beauty'. He chews upon a flower which can just be recognised as a china or species rose, a symbol of beauty that reinforces Brown's description.

The tract distributor wears a spray of Hepatica flowers in her bonnet, symbol of confidence, which reinforces her imperial nature. In front of her, a woman modelled by Brown wife Emma has a leaf-shaped parasol and Brown notes that this example of female beauty should be seen as a flower that feeds upon the sun. Brown warns that beauty fades, health may fail and pleasures through repetition pall.

In front of the beautiful woman is a 'Botany Ben' or chickweed seller. The man sells flowers, ferns, weeds and grasses for medicinal, culinary and decorative purposes. In his hat is a spray of wild grain, straw and plantain. The chickweed means 'ingenious simplicity' which matches his character of 'effeminate gentleness'. Brown notes that Botany Ben suffers from paranoia and those on the bottom rung of society often feigned madness to get sympathy and achieve greater sales. His hat may be a reference to the crown of straw in Hogarth's Bedlam Hospital. Brown admired Hogarth greatly.

All the hats and the clothing in the painting also has a meaning. The upper class on their horses wear a top hat and a silk bonnet. The workers wear hats

and kerchiefs although none wear the disposable paper hat that many labourers wore at the time. The two women wear middle-class millinery and Carlyle wears a soft felt hat, an alternative to the top hat worn by artists and intellectuals.

A poster on the wall bears the name of an estate agent William (Bill) Poster and in the background there is a bill poster going about his business.

The painting is full of puns, 'Flamstead' for Hampstead and a real coach and horses next to the Coach and Horses pub.

Beside the young orphan child, carrot in hand, is a red-haired sibling. Red hair represents the Irish (men escaping the Irish Famine) and many navies were Irish. Here four of the workers have red-hair and so are Irish. Brown called one of them 'Paddy' and we know he went looking for Irish immigrants to paint.

One of the posters is for a Boy's Home and the lady with the tract may soon place the boy playing with the wheelbarrow in the home. Another is for a Working men's College referring to F. D. Maurice's founding of that institute in 1854 for the education of working men. Brown worked there as an art tutor.

References

See [http://en.wikipedia.org/wiki/Work_\(painting\)](http://en.wikipedia.org/wiki/Work_(painting))

Iconographic Analysis thanks to Gerard Curtis



Ford Madox Brown
(1821-1893)
Work
1852-1865

23-04 THE ART OF THE INDUSTRIAL REVOLUTION

DR. LAURENCE SHAFE

WWW.SHAFE.UK



This talk traced the art born from Britain's Industrial Revolution, from Wright of Derby's candlelit scenes of scientific experiment and iron forging, through Gainsborough's reluctant topography and Turner's luminous industrial landscapes, to the social realism of Eyre Crowe and Ford Madox Brown. Taken together, these works reveal how painters negotiated a world of steam, factory, and urban growth — sometimes celebrating transformation, sometimes questioning its human cost.



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