

The Industrial Revolution

Working from home

Before 1750, most **industry in Britain was small-scale**. Most of it was literally "manufactured" by hand – shoes, nails, knives etc were **made by artisans** (craftsmen) in small workshops.

Most craftsmen worked from home, which is called the **domestic system** sometimes called **cottage industry**. The textiles industry was the best example of the domestic system, and varied between different parts of the country:

*In **East Anglia** and the **West Country**, a clothier would give the work to craftsmen in their own homes – the clothier would buy the wool, take it to one home to be washed and **carded**, to another home to be spun, then to another worker to be woven. This kind of business is called **merchant capitalism**. Nevertheless, most work took place in workers' own homes.*

*In the **West Riding of Yorkshire**, the system was different. There master clothiers worked for themselves. They would buy the wool at the market, then take it home where the whole family, perhaps helped by a few apprentices, would put it through the different processes under the same roof – the children would card it, the eldest daughter (a spinster) would spin it, the men would weave it. Then they would take the finished cloth to market to sell. Many craftsmen also owned land. When trade was busy, they spent less time working on their farm, and when trade was slack, they could spend more time on their farm. This system was called **convenience agriculture**.*

New factories

The Industrial Revolution saw the end of this way of industry, and the coming of **factories**. The first modern water-powered factory was built by **Richard Arkwright**, who also built the village of Cromford to house the workers.

At first, even though they were much bigger undertakings, **most factories were family businesses**, financed by loans and plough-back of profits. However, **many businessmen formed partnerships** (eg Arkwright with Strutt, Watt with Boulton, Robert Owen with the Dale family).

In 1825, **an Act of Parliament allowed joint-stock companies to be formed**, which were financed by shareholders who bought shares on the Stock Exchange.

In 1855, **the first limited liability companies were formed** where, if the company went bankrupt, shareholders would lose only their shares, not **all** their possessions.

The Domestic System versus Factories

Factories
Large-scale , so a much greater quantity of goods produced.
Big enough to house machinery , which meant greater quantities could be produced.
Big enough to house a water wheel or steam engine to power machinery.
Machines could be operated by unskilled labour such as women and children, which was much cheaper.
Employers could enforce factory discipline .
Machines all worked to the same standard. Overlookers could enforce quality control.
Workers travelled to the factory in their own time , therefore, travelling was not a production cost.

Domestic system
Small-scale , so not much produced.
Workers' homes were too small to hold large machines.
Hand power only.
Needed a highly skilled craftsman often serving a seven-year apprenticeship, so labour was very expensive.
Workmen could work when they wanted to , eg many took "Saint Monday" off to get over their hangovers from the weekend.
No way of ensuring consistent quality.
Workers were spread over a wide area, so time was wasted transporting materials from one to the other.

Changes in the Textiles Industry

Many historians believe that the Industrial Revolution would not have happened without the revolution in the textiles industry.

Before 1750, a lot of woollen cloth was produced, but **the textiles industry was a low-tech, labour-intensive cottage industry**. British workers were unable to spin a cotton thread strong enough to make cotton cloth, so they had to use wool thread for the warp, which **produced a half-wool, half-cotton cloth called fustian**.

After 1750, however, there was a revolution in the textiles industry. This involved:

1. **A growth in demand**, probably as a result of the growth in population, but also because of the opening up of the export market.
2. **Technological change** and innovation - the use of machinery.
3. A move to **bigger units of production** - the factory system.
4. The use of unskilled, **cheap labour**.
5. **A change in location**, away from East Anglia and the West Country. The first factories were situated in the hills of Lancashire and Yorkshire near to fast-flowing streams, which could power the water-wheels. With the invention of the steam engine, however, factories were sited on the coalfields of the north of England and Scotland.
6. **A shift from wool** - which was heavier and more difficult to wash and produce - to cotton.

By 1850, Britain was "the clothes shop of the world".

Estimated figures of output were:

	1700	1800	1900
Imports of raw cotton	900 tons	56,000 tons	780,000 tons
Exports of finished cotton cloth	£23,000	£7 million	£70 million

In 1850, textile products made up 60 per cent of British exports.

Seven Key Textiles Inventions

Date	Invention	Result
1733	Kay's Flying Shuttle	Weaving: put the shuttle on wheels and knocked it to and fro using a picker. Produced woven cloth much faster , and allowed one worker to produce broadloom cloth on his own. Created the need for a commensurate spinning invention.
1765	Hargreaves' Spinning Jenny	Spinning: by using a clamp, it allowed the spinner to spin up to 16 threads at the same time . It had limited impact because it could still be used in the home and needed a very skilled worker.
1769	Arkwright's Water Frame	Spinning: used rollers at different speeds to stretch the thread. Allowed hundreds of threads to be spun at once . It needed a factory and a water-wheel to power it and produced a coarse strong thread that allowed British firms to make cotton cloth. Limited impact until 1785, because Arkwright had a patent and sued other manufacturers who used his idea.
1774	Berthollet's bleaching process	Before this process was introduced, workers soaked cloth in urine or soda and left it stretched out in the sun on tenter frames for up to three months. Berthollet discovered that chlorine powder bleached cloth in a few hours .
1779	Crompton's Mule	Spinning: used rollers and a moving carriage to spin a fine, strong thread. Could be worked by women and children - cheap, unskilled labour. Had a huge impact because Crompton did not have a patent, and many manufacturers used his idea - there were 4 million mules at work in 1811 . One result was that there was a glut of spun thread, so hand-loom weavers were able to command high wages.
1783	Bell's Roller Printing	Before this process was introduced, workers had decorated cloth by pressing on block-prints. Bell invented a machine for roller printing that allowed hundreds of metres of cloth an hour to be printed in colour .
1785	Cartwright's Power Loom	Weaving: powered by steam engines. Did not have an immediate impact because of technological problems, but it was gradually improved and thousands were used after 1825 . This caused poverty and unemployment for the hand-loom weavers, and groups of Luddites went around smashing up the machines.

Eight Reasons Lancashire became a Cotton Industry Centre

1. **Capital** - Liverpool had made millions of pounds from the slave trade, which meant there were consumers with money to buy cloth, and rich merchants with money to invest in building factories.
2. **Port** - the port of Liverpool allowed hundreds of tons of cotton to be imported from Egypt and America.
3. **Power** - the Lancashire coalfield provided coal to power the steam-engines.
4. **Soft water** - millstone grit in the Pennines meant that the water was soft, which made it easy to wash the cotton.
5. **Climate** - the climate was damp and mild, which was necessary for spinning the cotton thread, although the mills had to be kept excessively hot and humid.
6. **Farming** - was poor, so the people of Lancashire had more time to spend on industry.
7. **Labour** - large numbers of women and children, pauper apprentices from the poorhouses and migrants from the countryside were prepared to work in the factories.
8. **Duty** - up until 1774, a duty was charged on cotton cloth to protect the woollen industry. In 1774, this was abolished, and vast amounts of cotton cloth could be produced and sold at a profit.

Note that all except the first point also applied to Glasgow/Clydeside, which explains why the cotton industry was also established there.

Arkwright and the Factory System

1769	A wig-maker who developed the water frame, although he seems to have stolen the idea from a spinner called Lewis Paul. It was too big and heavy to be used in people's homes. He moved to Nottingham to get away from the Luddism in Lancashire, went into partnership with Jedediah Strutt, and set up a horse-powered factory in Nottingham . At first, Arkwright sold thread to the Nottingham stocking-makers.
1771	Strutt lent him the money to build Cromford Mill which was water-powered. Arkwright pioneered the systems of factory rules , discipline and time-keeping, and built the village of Cromford to house his workers.
1774	When the duty on cotton cloth was abolished, Arkwright began to make cotton cloth . He built more factories and expanded his business
1779	Luddites burned down his factory at Chorley in Lancashire.
1785	Arkwright sued anyone who used his idea, but he lost his patent when it was proved that he did not invent the water frame . This allowed anyone to use the water frame.
1790	Arkwright first used a Watt steam engine to power his machinery.
1792	He died a very wealthy man worth half a million pounds.

The Iron and Steel Revolution

In the mid-18th century, **the iron industry was small-scale** and centred on the Weald in Sussex and the Forest of Dean in South Wales – places where there were plenty of woodlands to provide the charcoal needed in the smelting process. But the charcoal was running out, and half of **Britain's iron had to be imported from Sweden and Russia**. The steel industry, which used Benjamin Huntsman's "crucible" process, was also small-scale and centred on Sheffield.

In the 18th century, there was a revolution in the production of iron, and in the 19th century, a revolution in the production of steel.

The growth of the iron and steel industry involved:

- 1. Technological innovation.**
- 2. Large-scale production, centred on famous ironmasters.**
- 3. Changes in location - to South Wales, the Midlands and Scotland.**
- 4. Improvements in transport - canals and waterways.**

Estimated figures of output were:

Year	1700	1800	1850	1900
Iron (production in tons)	25,000	250,000	2.5 million	10 million
Steel (production in tons)	-	-	60,000	5 million

Why the Iron and Steel Industries Grew

There were three main reasons why the iron and steel industries grew:

1. **A shortage of wood.**
2. **Increasing demand for iron** because of the Industrial Revolution (see below).
3. **Cast iron was brittle** and broke under strain, but wrought iron was too bendable. After 1850, therefore, there was increasing demand for steel, which was strong **and** malleable, particularly for the railways.

Iron was used:

- To build factories and bridges.
- To build machines.
- It was essential for steam engines, ships, trains and rails.
- It was essential for replaceable machine parts.
- It was used for weapons of war such as cannons and rifles.
- The Rotherham plough used an iron share.
- It was used in the home for railings, kitchen ranges and bedsteads

Seven Key Developments

Date	Inventor	Invention
1709	Abraham Darby I	Discovered how to make cast iron using coke , instead of charcoal.
1784	Henry Cort	Developed the puddling process for making and then rolling out wrought iron.
1828	James Neilson	Used heated air for the blast, which cut down the amount of fuel and improved the blast.
1839	James Nasmyth	Invented a precise steam hammer to shape iron objects.
1856	Henry Bessemer	Invented the Bessemer Converter , which turned molten pig-iron into mild steel in large quantities.
1866	William Siemens	Developed the open hearth furnace to turn pig-iron into mild steel in large quantities.
1879	Sidney Gilchrist-Thomas	Learned how to produce steel from phosphoric ores by lining the converter with dolomite limestone.

Four Important Ironmasters

Abraham Darby III	Owner of Coalbrookdale ironworks. Co-operated with John Wilkinson to build the iron bridge at Ironbridge.
John Wilkinson	"Iron-mad Wilkinson" owned a number of mills in the Black Country. He built a chapel, a lavatory and a boat using iron , and was buried in an iron coffin. He learned how to bore iron accurately, and produced cannon barrels for the army, as well as cylinders for Watt's steam engines.
Richard Crawshay	Built the huge Cyfarthfa ironworks near Merthyr Tydfil in South Wales, which had 2,000 workers in 1800.
John Roebuck	Ran the huge Carron Ironworks near Falkirk

The Importance of Coal

The Industrial Revolution would not have happened without coal.

It is sometimes suggested that the key to the increase in coal production was an increase in scale, not a technological revolution. Certainly, **the organisation of the industry changed hugely**, from small-scale adit or bell pits employing about 20 miners, to deep-shaft mines run by wealthy coal magnates such as Lord Londonderry.

However, the reason that coal mining had been restricted to small surface mining was because **working deeper mines had encountered technological difficulties** such as flooding, explosions, chokedamp, roof-falls, and lifting and transporting the coal. By the 19th century, these problems had been overcome by technological changes. **Inventions led to the larger-scale operations**, which resulted in increased production.

Coal and the Steam Engine

A major **key to the increase in production was the use of the steam engine**. The steam engine was powered by coal, so as the steam engine improved and was used in more industries, this led to an increased demand for coal.

Coal and the Railways

A similar example of industries interacting to cause the Industrial Revolution is between coal and the railways. The first steam trains in the world and the first railway in the world - the Stockton and Darlington Railway 1825 - were built to transport coal to the docks. However, **railways proved so popular and grew so big that they became a major user of coal** in the 19th century, and this increased the demand for coal.

Year	1700	1800	1850	1900
Coal (production in million tonnes)	2.5	11	49	225

Five Uses for Coal

1. Domestic heating.
2. Fuel for steam engines for trains, ships, factories etc.
3. As coke to smelt iron (Abraham Darby, 1709).
4. Gas lighting (William Murdoch, 1798).
5. In the manufacture of dyes, fertilisers, ink, perfume, ammonia, sulphuric acid, explosives, pesticides, paint and the sulphonamide drugs that cured blood poisoning.

Technological developments

The following developments allowed mines to go deeper and, therefore, allowed increased production.

Problem	Solution
Flooding	- Newcomen steam engine (1712) to pump out the mines
Explosions and chokedamp	- Davy lamp or (in the north-east) the Geordie lamp invented by George Stephenson were both invented in 1815. - John Buddle developed a system of ventilation using a furnace and downcast and upcast shafts to create a through-draft. - After 1850, Nasmyth fans ventilated the mines.
Roof-falls	- The " pillar and stall " method left columns of coal to support the roof. - Iron pit props after 1850.
Lifting the coal	- Watt's steam hauling engine (1783). - Crowther winding engine (1800) and after 1832, reliable wire cables.
Transporting the coal	- The Duke of Bridgewater's canal (1763) was built to transport coal to Manchester. - Wagonways and railways were developed in the north-east of England. - Coal staithe s were an ingenious way of dropping coal into the ships.

The First Steam Engine

The Industrial Revolution would not have happened without the steam engine.

The first steam engine was **not** invented by **Thomas Savery** in 1696, as many books claim. Savery's engine filled a cylinder with steam, and then cooled it, thereby condensing it. This created a vacuum that sucked up water from the mine. **It did not work.**

The first working steam engine was **Thomas Newcomen's atmospheric engine** first used in a mine in Dudley in 1712. He used the vacuum created by condensing the steam to power a piston. The piston was attached to pump rods, which worked a pump to pump out the mines.

James Watt working in partnership with **Matthew Boulton** took the steam engine and developed it further. The improvements he made created the machine that became the basis of all the power in the Industrial Revolution. Watt's inventions included:

1765	Separate condenser	Watt cooled the steam by exhausting it into a separate chamber. The cylinder could, therefore, always be kept hot and the separate condenser always cool. This meant huge amounts of fuel were saved.
1781	Sun and planet gear	Turned the up-and-down motion of the piston into a rotary motion, which allowed the steam engine to be used to power machinery and wheels.
1782	Dual action	Abandoned atmospheric pressure and used steam pressure to force the piston both ways. This invention became the basis of the steam train.
1788	Governor	Regulated the admission of steam into the cylinder, which not only made the engines safer, but meant they could be kept at a regular speed.

Six Effects of the Steam Engine

1. **Power for industry** – in textile factories after 1785, then in distilleries, iron forges and blast furnaces, coal mines, engineering firms, waterworks.
2. **Transport** – at first, railways used stationary steam engines to wind wagons up banks. Then in 1800, Trevithick invented the steam-powered locomotive. The first steam-powered boat was built in 1802. This had significant effects, not only on industry and agriculture and the transport of goods, but on the transport of people and their mobility and social lives (eg holidays at the seaside).
3. **Agriculture** – steam ploughs, steam threshing machines.
4. **Location of industry** – the steam engines used coal, so industry was located on the coalfields.
5. **Organisation of industry** – steam engines were expensive, so mainly large firms could afford them. The steam engines allowed large-scale production.
6. **Conditions of labour** – the steam engines never flagged or stopped, so this required significant changes in the way people worked. There was now no requirement for workers to be strong or skilled and, if a person was big, it could now

be a disadvantage. The steam-powered machine did all the work, so children replaced men as the key workers in industry.

A New Way of Working

Before 1750, **most people worked in their own homes**. They were able to start and stop work when they wanted. **Many workers kept 'Saint Monday'** (ie they treated it as a holy day, taking the day off to get over their hangovers) and it was said that the looms worked to the rhythm 'Plenty-o'time' on Tuesday and Wednesday, and 'A-day-t'late' on Thursday and Friday.

The new factories ran to the unceasing, unchanging rhythm of the steam engine, and factory owners **had** to impose '**factory discipline**'.

In the past, many historians took their facts about conditions in the factories and mines from two Parliamentary investigations:

- **The Sadler Report** (1832)
- **The Mines Report** (1842) – the first report to include pictures and these reports provide the 'traditional' view of what it was like to work in a factory.

According to this view of factory work, not only men, but women and tiny children did physically monotonous and/or strenuous work in hot, damp, dusty and dangerous conditions for long hours, for next-to-nothing pay, under a regime of cruel overseers, punishments and fines.

Nine Factory Working Abuses

This is the kind of information you would get if you read an older textbook such as "**History Alive**" (1968) or "**Machine, Money and Men**" (1969):

1. **Long working hours** – normal shifts were recorded as **12 to 14 hours a day**, with extra time required during brisk times when trade was good. Workers were often required to clean their machines during their mealtimes. It was claimed that employers changed the clocks to get a few minutes extra out of their workers every day.
2. **Low wages** – a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much lower wages, with women earning 7 shillings (35p) and children 3 shillings (15p). For this reason, **employers preferred to employ women and children**. Many men were sacked when they reached adulthood and had to be supported by their wives and children.
3. **Cruel discipline** – frequent 'strapping' (it was claimed that children had been thrashed to death). **Women and children were easily bullied**. One witness claimed that he had seen an iron bar driven through the cheek of one girl. Other alleged punishments included hanging iron weights around children's necks, hanging them from the roof in baskets, nailing a child's ear to the table, and dowsing them in water butts to keep them awake.
4. **Fierce systems of fines** – fines were imposed for things like talking or whistling, leaving the room without permission, of having a little dirt on a machine. It was claimed that employers altered the time on the clocks to make their workers late so that they could fine them. **Some employers required their overseers to raise a minimum amount each week from fines**.

5. **Deformities** – many children who were forced to stand for long hours grew up with conditions such as knock-knees and bow legs.
6. **Accidents** – forcing children to crawl into dangerous, unguarded machinery - often when they were so tired they were falling asleep on their feet - led to many accidents. It was said that 40 per cent of accident cases at Manchester Infirmary in 1833 were factory accidents.
7. **Health** – cotton thread had to be spun in damp conditions at 70°F. Going straight out into the cold night air led to **many cases of pneumonia**. The air was full of dust, which led to chest and lung diseases and loud noise made by machines damaged workers' hearing.
8. **Parish apprentices** – orphans from workhouses in the south of England were "apprenticed" to factory owners, supposedly to learn the textiles trade. **They worked 12-hour shifts**, and slept in barracks attached to the factory, in the beds just vacated by children about to start the next shift.
9. **Truck system** – some employers paid their workers in tokens, which could only be spent at the employer's shop, where prices were higher.

Nine Abuses Down the Mines

1. "**Trappers**" as young as four years old sat all day in the dark, opening the doors for the truck to pass through.
2. Young "**putters**" pushed tubs and children as young as six carried coal for the hewers. Women "**hurriers**" pulled tubs with a chain that went around their middles and between their legs.
3. "**Hewers**" cutting the coal with pickaxes in seams only 18 inches high.
4. **Wages were so low** that there were stories of pregnant women giving birth down the pit one day and being back at work the next day.
5. There were stories of **brutal discipline measures**. Miners were paid by the tub and if their tub was underweight, they were not paid. There were fierce fines, and some miners ended a week's work **owing** the mine owner money.
6. **Accidents** such as roof falls, explosions, shaft accidents and drowning were frequent.
7. Men and women working semi-naked in the hot conditions underground led to **depravity**.
8. If a man joined a trade union, he was not only sacked, but was **blacklisted** by all the mine owners in the area, so he became unemployable. Many employees were required to **sign 'the document'** promising they would not join a union.
9. In some mines, especially in Scotland, a miner had to **sign 'the Bond'** before he was given a job, in which he promised not to leave for another job.

How bad were Working Conditions ... really?

Many historians nowadays question whether conditions were as bad as used to be thought.

1. The Royal Commissions took evidence from dozens of workers. It is clear from their evidence that many were **lying**. One of them, Joseph Hebergam, who claimed to have suffered many accidents, later admitted he was exaggerating. Another (the father Samuel Coulson) claimed that in the brisk times his two young daughters worked a 19½ hour day for a six-week period – clearly impossible.
2. **Michael Sadler** – chairman of the 1832 Factories Report – was a committed reformer. Even the communist, supporter-of-the-workers Frederick Engels admitted that Sadler had **lied** and misled witnesses.
3. The employer Robert Greg – known as a good employer – was **furious** at the lies in the Sadler Report. The coal owner Lord Londonderry (a very **poor** employer) was nevertheless **outraged** at the way the Mines Commission collected their evidence: ‘talking to artful boys and ignorant young girls, and asking questions which seemed to suggest the answer’.
4. The Commissions had interviewed factory owners. They had all stated their beliefs that the **working conditions were satisfactory**, that the children were not harmed in any way by the work. But historians just decided that they were biased and telling lies – they never considered that the workers interviewed may have been the same.
5. Some factory owners, such as Robert Owen, John Fielden, Titus Salt and John Wood were spectacularly good employers who made sure conditions were excellent in the factories, and took pains to care for the employers’ lives outside the factory.

Who?	Details
Robert Owen	<ul style="list-style-type: none"> • Cotton-mill owner from New Lanark in Scotland. • Provided pleasant houses, schools and a co-operative shop. • Had a shorter day and good wages. • No child under ten was allowed to work in his mills. • Supported the 1819 Factory Act. • Set up the Grand National Consolidated Trades Union (1834) for workers. <p>Robert Owen created a pleasant community for his workers</p>
John Fielden	<ul style="list-style-type: none"> • Successful cotton-mill owner from Todmorden. • Advocated a minimum wage, and always paid his workers well. • Had a 67-hour week. • No child under 9 allowed to work in his mills. • A school was attached to his mill. • Supported the unsuccessful Grand Union of Operative Spinners trade union when it was set up. • Supporter of the Ten Hours Movement.
Titus Salt	<ul style="list-style-type: none"> • Had an alpaca firm near Bradford. • Built the model village of Saltaire for his workers. • It had excellent housing (with gas and running water), almshouses, a hospital, schools, a library, a chapel, a public bathhouse and washhouse and parks. • Put smoke burners into his factories to reduce pollution, and he put the drive shafts underground to reduce the noise. • He supported the Chartists. • He opposed the factory legislation and young children worked in his factories – he believed that they needed the money.
John Wood	<ul style="list-style-type: none"> • Had a woollen-mill in Bradford. • Asked his workers to work a 12-hour day. • Had baths on the premises for his workers. • Employed children half-time, and provided a factory school for them. • Genuinely liked by the children in his factory. • Supported factory legislation.

Good Employers

Workers Resist

There is evidence that many workers hated the factory system.

- **Handloom weavers continued to work in competition against the machines**, even though they were reduced to poverty – a sign of how much they hated the new ways.
- In 1825, **the woolcombers and handloom weavers of Bradford staged a four-month strike** to try to resist the changes in the woollen industry.
- **There were many instances of machine-smashing**, particularly in 1811-1812 by a group calling themselves the **Luddites**.

However

- Many families moved from Norfolk and Suffolk, where there was high unemployment, to get work in the mills of Yorkshire and Lancashire. **Many saw the new factories as an opportunity**, not a curse (for example, Samuel Smiles' book *Self Help*, 1859).
- **The majority of workers accepted factory discipline** peacefully. Trade unions were slow to develop in the factories.

Seven Attacks on the Factory System

There were many attacks on the factories, for instance:

1. In 1753, an angry mob of weavers broke into Kay's house and wrecked his looms.
2. In 1768, a group of local spinners broke into James Hargreaves's house and destroyed his Spinning Jenny machines.
3. In 1779, workers in Lancashire smashed up Arkwright's mill at Chorley.
4. In 1779, local spinners forced Samuel Crompton to dismantle his spinning mule.
5. In 1799, a Manchester weaving factory, which had bought some Cartwright power-looms, was burned by local hand-loom weavers.
6. In 1811-1812, there was a spate of attacks on mills and machinery by groups of workers who called themselves the Luddites.
7. In 1826, the handloom weavers of Haslingden in Lancashire attacked local factories.

A Complaint about Factories

This letter was written by a woman, clearly uneducated, who nevertheless had something to say about the factories.

What were her complaints about the factory system?

"While reading in the paper to DAY on shorter houers of Labour I was Reminded of A cercomstance that came under my hone notis

"I was Minding a masheen with 30 threds in it I was then maid to mind 2 of 30 treds each and with improved mecheens in A few years I was minding tow mecheens with tow 100 treds each and Dubel speed so that in our improved condation we went as if the Devel was After us for 10 houers per day and the feemals have often Been carred out fainting what with the heat and hard work and all this is Done in Christian England and then we are tould to Be content in the station of Life to wich the Lord as places us But I say the Lord never Did place us there so we have no Right to Be content..."

Letter from an unnamed woman (1873)

Answers:

- Increased speed meant increased stress.
- There had been no commensurate increase in wages.
- The system harmed "the females" health.
- Religion was used to keep the workers in their place.
- She was content with the current system.
- Note the sarcasm in the phrase "improved condition".

Supporters of Reform

The first supporters of factory reform were caring mill-owners – many of them in the Tory Party – who were **motivated mainly by their religion**.

In 1830, **Richard Oastler wrote to the "Leeds Mercury"**, complaining that the condition of factory workers in Bradford was "more horrid than that hellish system of colonial slavery". Even so, the campaign achieved little attention until Sadler's Report was published. The report shocked public opinion.

In 1832, **Lord Shaftesbury took over leadership of the factory reform group in Parliament**. He organised the campaigns that achieved the laws, which improved conditions – especially:

- **The 1833 Factory Act** (the first act to appoint inspectors)
- **The 1842 Mines Act**
- **The 1847 Ten-Hours Act**

These acts:

- At first, **protected workers too weak to protect themselves** (eg the pauper apprentices/children).

- Later, **alleviated the worst conditions** (eg the 1878 Act bringing in health and safety rules).

Six Arguments Against Factory Legislation

1. The economist Nassau Senior argued that **increased costs would ruin the industry**, which was a major contributor to the wealth of the country. This was later found to be wrong – better fed, less tired workers produced more, not less.
2. Some people argued that **the workers were like children** and would only spend the extra time and money they were given in drunkenness and crime. This turned out to be wrong – better conditions led to less crime.
3. **Laissez-faire** – the government of the time believed it was wrong to interfere in the free working of the economy.
4. **The discipline was necessary** – domestic workers were not used to the needs of the factory and had to be trained.
5. The famous economist Adam Smith argued that **children had always been employed in the domestic system**, where they were often brutally treated, and that the poor conditions in the factories were exaggerated.
6. There were **many arguments made for the factories**:
 - Titus Salt argued that it was better for a child to work in a factory and earn a wage that would give them food and clothes, than to stay outside and starve or freeze to death.
 - The work in factories (eg pulling levers, tying threads) was less onerous than manual work and did not harm the children.
 - Henry Morton, agent for the Countess of Durham's mines, declared: "Within an experience of 14 years has not observed any instances of prejudicial effects from the hours, or the mode or place of working... Pitmen become perhaps thin, but are extremely active and muscular... They consider themselves vastly superior, in the scale of society, to farm labourers." (Mines Commission, 1842).
 - Andrew Ure (Philosophy of the Manufacturers, 1835), a professor at Glasgow University, observed factory children and described them as "lively elves at play, taking delight" in doing their work. After work, he said, they went to the local playground.
 - "If they do not like it, they can leave it."

Six Government Acts on Working Conditions

Year	Act	Main proposer	What it said...	Was it successful?
1802	Health and Morals of Apprentices Act	Robert Peel (a factory owner)	Factory apprentices only: <ol style="list-style-type: none"> 1. A maximum 12-hour day. 2. Good accommodation and medical treatment. 	Only apprentices, not enforced.
1819	Factory Act	Robert Owen	<ol style="list-style-type: none"> 1. A maximum 12-hour day. 2. No child under the age of nine to work. 	Not enforced.
1833	Factory Act	Lord Shaftesbury	<ol style="list-style-type: none"> 1. No child under the age of nine to work. 2. Children between the ages of nine and 13 years: 48-hour week, must go to school part-time. 	Four inspectors made sure the law was obeyed.
1842	Mines Act	Robert Peel	<ol style="list-style-type: none"> 1. No child under the age of ten to work. 2. No woman or child under 15 to work underground. 	Inspectors employed to report conditions.
1847	Ten-Hours Act	John Fielden	<ol style="list-style-type: none"> 1. No worker to work more than ten hours a day. 	Ineffective monitoring.
1878	Factory and Workshops Act		<ol style="list-style-type: none"> 1. No woman to work more than 60 hours a week. 2. No child under ten to work. 3. Laws on safety, ventilation and meal-times. 	Covered all factories, and workshops. More inspectors.