THE SCHOOLS HISTORY PROJECT
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OFFICIAL TEXT

MAKING SENSE OF **HISTORY**

1745–1901

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Answers to activity 2 on page 109: Marxist = A, F, Revisionist = C, D, Post-Revisionist = B, E.

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First published in 2015 by

Hodder Education,

An Hachette UK company

338 Euston Road

London NW1 3BH

Impression number 10 9 8 7 6 5 4 3 2 1

Year 2019 2018 2017 2016 2015

Cover photo © Science and Society / SuperStock

Illustrations by Barking Dog Art, Peter Lubach, Tony Randell and Sebastian Quigley

Design layouts by Lorraine Inglis Design

Typeset in PMN Caecilia Light 10/13pt

Printed in Italy

A catalogue record for this title is available from the British Library

ISBN 978 14718 05981

Contents

How did the early industrialists embody the spirit of the age?

This section introduces five individuals who embodied (meaning 'represented') the spirit of the age. Through them you will gain an insight into the themes that this book will develop. As you read this section, think about what they tell us about everyday life, power, religion and Britain's international status in the late eighteenth century.

It is the 1780s and the full moon is bright in the sky. A silence is broken by the sound of horses and carriages pulling away from a mansion house outside Birmingham. Inside the building the Lunar Society is meeting – a group of like-minded individuals who meet to discuss science, industry and politics on the Monday nearest to the full moon (so there was light to travel home). Many of them were **industrialists**. They performed experiments together, shared advice and tried to understand the world that was rapidly changing around them.

⬇This painting, *An Experiment on a Bird in the Air Pump* by Joseph Wright of Derby (1768), shows the sort of experiment the Lunar Society would have done. The man in the middle is demonstrating what happens when you remove air from a jar containing a bird. The bird is about to die but the man is holding the valve ready to let air back in and revive it.

A

Activity

1 Look at the faces of the people in painting A above. What do you think they are thinking? Write thought bubbles for each.
2 What questions does this painting make you want to ask? Write a list of them.

Matthew Boulton

In the late eighteenth century, Britain was changing dramatically. What would come to be known as the Industrial Revolution was beginning in all the major cities. Birmingham was no different.

Matthew Boulton was born in 1728. His father made small decorative metal objects, like belt buckles, which were known at the time as 'toys'. Birmingham, where Boulton lived, had become known as the 'toyshop of the world'. The production of even the tiniest of these took many different processes and involved the work of lots of different people in different parts of the city.

B

⬆ A view of the Soho Manufactory, 1781.

In 1759 Matthew took over the business and despite very little formal education he came up with the idea to house all production in one building, a 'manufactory'. Buying land on the outskirts of the city, he built the Soho Manufactory and designed it to look like a palace.

Housing all of the processes to produce the toys in one building meant that Boulton could develop an **assembly line** where each part of the production process was done in sequence. This sped up production drastically and meant far more items could be made. The modern factory was born.

C

Josiah Wedgwood (see page 13) said of Boulton in 1767:

'He is I believe the first or the most complete manufacturer in England in metal. He is very ingenious.'

D

In 1776 Matthew Boulton said:

'I sell here, sir, what all the world desires to have – power.'

E

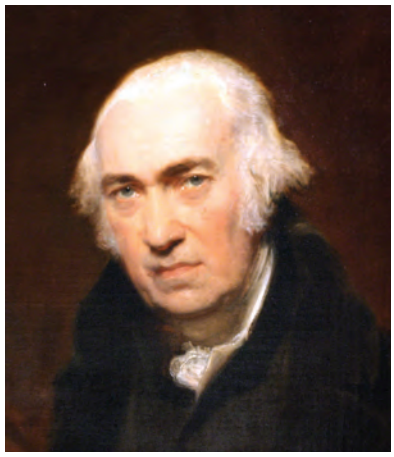
⬅ An example of a Birmingham 'toy'. A 1760 button – metal made by Boulton, ceramic inlay by Wedgwood.

Activity

3 What does this page show you about who had power in the late eighteenth century?

4 Do you think Matthew Boulton would have succeeded in a previous age?

James Watt



In the eighteenth century engineering was progressing at a rapid rate. Steam engines had been invented by Thomas Newcomen (in 1712) but all they could do was pump water out of mines. They needed a genius to realise how to make them better and kick start the Industrial Revolution!

James Watt was born in 1736 in Scotland. He went to London to study musical instrument making and returned to Glasgow, building his reputation for making precise instruments. He became fascinated by steam engines. Realising that lots of energy was lost with Newcomen's engine, Watt redesigned it and made it far more powerful.

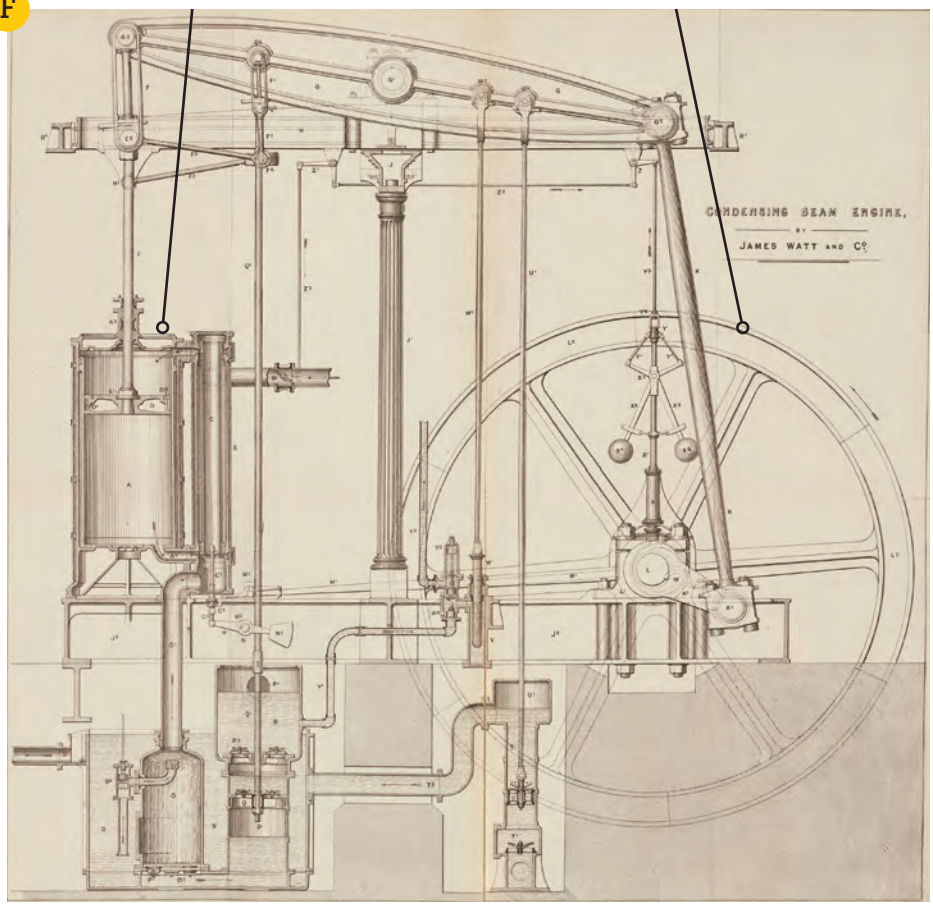
In 1775 Boulton realised the potential profit in the improved machine and invited Watt into partnership with him to produce the engines at Soho. This was very successful and the Boulton Watt Company sold engines throughout the country and even beyond (some were sold to Denmark).

Boulton realised that engines would be more useful if they could be used to power a wheel, not just pump water. Watt leapt to action and by 1784 had completed a design (picture F). Boulton Watt rotary engines were used to power a vast number of industries throughout the country including the newly expanding cotton mills in the north. The mechanisation of industry had begun.

1 Steam powers this piston to move up and down …

2 making this wheel turn using an invention by Watt called the 'sun and planet'.

F



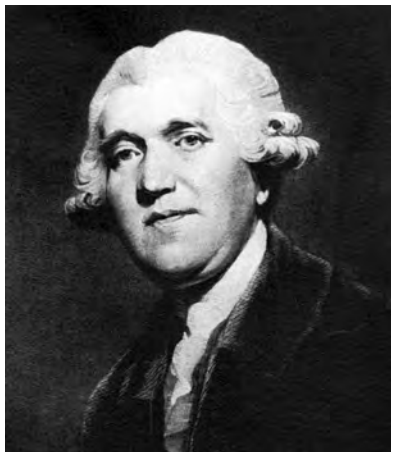
⬅ Watt's design for a rotary steam engine.

Activity

5 Boulton created a factory. Watt created an engine. Which of these was more important for the Industrial Revolution?

6 What does the work of Boulton and Watt show you about the ideas and values of some men in the late eighteenth century?

Josiah Wedgwood



Boulton and Watt were not the only successful industrialists in the Lunar Society. Josiah Wedgwood made the finest pottery Britain had ever seen.

Born in 1730, Josiah opened the world's first pottery factory in Staffordshire in 1769. Using assembly-line production, like Boulton at Soho, Wedgwood also introduced a **division of labour**, giving specific roles to individuals. This allowed them to specialise and thereby sped up the entire process.

The production of porcelain had been a Chinese secret for centuries but Wedgwood (along with others) cracked it. Experimenting for years, Wedgwood made two discoveries about how porcelain could be made. Firstly the use of Cornish china clay, and secondly a system for accurately measuring the temperature inside a kiln. For this Wedgwood was made a fellow of the **Royal Society**, the highest scientific award given at the time.

G

⬆ Trent Lock, where the Trent and Mersey Canal, River Soar and Erewash Canal form a major canal conjunction. Many members of the Lunar Society fought for the construction of canals as they allowed resources to be delivered quickly and cheaply. Wedgwood helped build the Trent and Mersey Canal, and Boulton built many others around Birmingham.

Activity

7 How would the factory and canal system created by Boulton and Wedgwood have changed the everyday life of the people at the time?

8 What do pictures H and I reveal about the way that the world viewed Britain and the way that Britain treated the world?

H

⬅ Wedgwood was strongly opposed to slavery (see Section 3). He fought for its abolition and made medallions like this saying: 'Am I not a man and a brother?' These views came from his religious opinions – he was a member of the **Unitarian Church** which argued against slavery.

Think

Are you surprised that someone from the late eighteenth century, at the height of the slave trade, argued for its abolition?

I

⬅ Wedgwood sold his plates around the world. His most famous set was the Green Frog service which was sold to Catherine the Great, Empress of Russia.

Erasmus Darwin and Joseph Priestley

Not all the members of the Lunar Society were industrialists. Two of the most prominent – Erasmus Darwin and Joseph Priestley – were a doctor and a clergyman respectively. Their work and ideas reveal even more about this period.

Erasmus Darwin, the grandfather of Charles Darwin (who features in Section 4), was a **physician** in the West Midlands. Having trained at Edinburgh University, he was one of the most educated members of the Lunar Society.

Medicine was not his only interest. Darwin wrote extensively on chemistry, geology (see Source J) and botany. In chemistry he developed a system to label elements and gave names to plants that we still use today. His views on women were particularly **liberal**. He believed that women should have the same rights to education as men – a very controversial view at the time, shared only by some French philosophical thinkers.

I

Organic life beneath the shoreless waves

Was born and nursed in ocean's pearly caves …

As successive generations bloom,

New powers acquire and larger limbs assume …

Erasmus Darwin's poem 'The Temple of Nature', 1803. At this time, the Church taught that all life had been created by God, on 23 October 4004 BC.

Activity

9 Can you work out what idea Darwin was talking about in extract I (clue: his grandson Charles developed this)? What does this show about people's ideas about religion at the time?

Joseph Priestley was a **dissenting** clergyman. He ran a Unitarian Church which had very different ideas about religion from the Church of England (for example, they did not believe Jesus had a virgin birth).

Priestley is famous for his scientific discoveries. He performed extensive experiments with electricity and chemistry; he even discovered oxygen.

However, his political views were controversial. He strongly believed in **liberty** and thought the power of the government should be limited. He also strongly agreed with the French Revolutionaries, who in 1789 had overthrown their king to establish a democracy (see Section 8).

J

Yours is one of the few lives precious to mankind, and for the continuance of which every thinking man is grateful.

Thomas Jefferson, one of the founding fathers of the USA, writing to Joseph Priestley, 21 March 1801.

Activity

10 Would Darwin and Priestley's views have been tolerated in the Middle Ages or the Early Modern Era? What does this show about the late eighteenth century?

The decline of the Lunar Society

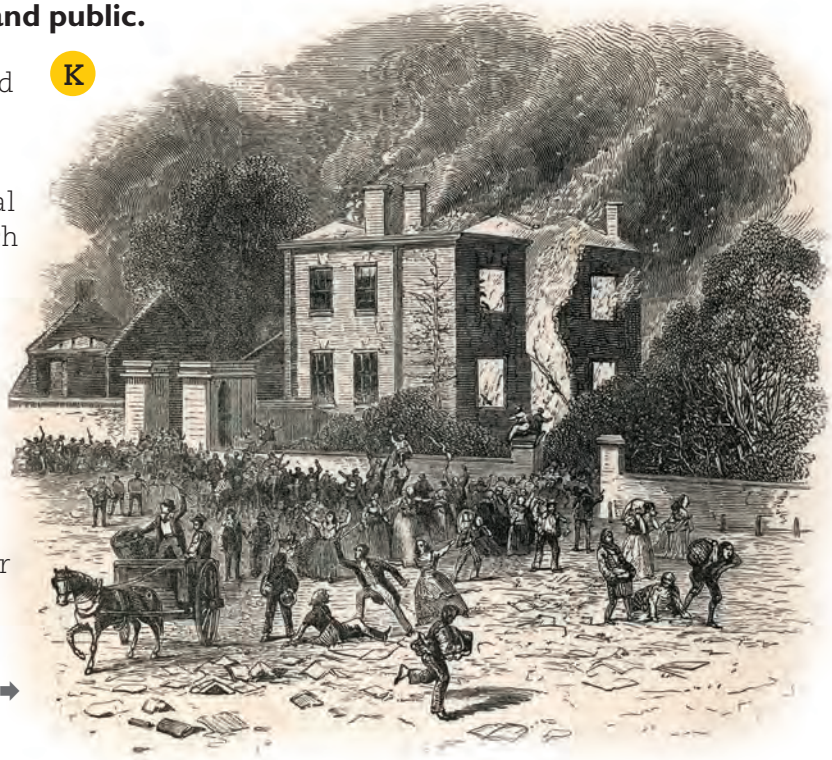
The people of Birmingham tolerated Priestley and the Dissenters (the Church most members of the Lunar Society belonged to), with their very different views, until the late 1780s. However, Dissenters were excluded from going to university or becoming politicians and they began to campaign against this in the 1780s. This angered the mainly Church of England public.

This anger grew after the **Dissenters** supported the French Revolution, which the monarchy-loving British public did not.

On 14 July 1791, the Dissenters met at the Royal Hotel to celebrate the anniversary of the French Revolution. The public had had enough and riots began. Priestley's house and many other buildings were attacked. Priestley had to flee to the USA.

James Watt wrote that the riots 'divided [Birmingham] into two parties who hate one another' and this marked the beginning of the end of the Lunar Society. Although meetings continued, the close ties between the Dissenter and non-Dissenter members were cut.

K



Rioters burning Priestley's house in Birmingham, 14 July 1791.

Activity

11 You have learned a lot about the men of the Lunar Society. Discuss as a whole class what their lives have shown you about everyday life, power, religion and Britain's international relations – the themes of this book – at the end of the eighteenth century.

12 Choose three of the following statements that best sum up life at the end of the eighteenth century. Find evidence from pages 10–15 to justify your decision.

13 Go back to picture A on page 10, *An Experiment on a Bird in the Air Pump*. After reading about the Lunar Society, which of the characters in the painting reflects how you feel about the end of the eighteenth century – would you have been frightened like the little girl or full of excitement like the scientist? Make sure you justify your decision.

- A time dominated by men
- A time of new opportunities
- A time when power was being shared for the first time
- A good time to live
- A time of wonder
- A time when the world was getting smaller
- A religious time

Did the Industrial Revolution have a positive impact on people's lives?

The members of the Lunar Society were not unique. In the late eighteenth century similar things were happening throughout Britain. The impact of these developments led to one of the greatest changes in the history of Britain – the Industrial Revolution. Pages 16–19 introduce the most significant parts of this revolution. Men like the members of the Lunar Society who led these changes greatly benefited from them and became very rich but was this the same for everyone else? Did this revolution have a positive impact?

Mechanisation

The work that Boulton and Watt began with their rotary engines developed throughout the nineteenth century as people realised they could use engines to power machines. This mechanisation of production meant larger quantities could be made, more cheaply, in less time.

Think

Do you think the spinning room in picture A looks like a nice place to work?

A

⬆ The spinning room at Shadwell Rope Works, c.1880. The vast number of machines helped to speed up the process of making the ropes which were important for shipping and hauling the goods made from industrialisation.

Activity

1 Discuss in pairs the consequences of mechanisation, urban migration, the Agricultural Revolution and steel production described on pages 16–17. Would these have been positive or negative impacts?

Urban migration

As larger factories opened, people moved from the countryside to the cities. The population in London rose by nearly 5 million between 1801 and 1901. This often resulted in cramped, poor living conditions.

B

⬅ A photo of slums in London.

Think

What problems can you see in picture B that may have been caused by the 'boom' in city population?

Agricultural revolution

As the population rapidly increased, new techniques were needed to feed these people. Using new inventions and scientific techniques like fertilisation there was a revolution in agriculture and food was produced in far greater quantities (see table C below).

C

Year	Wheat	Rye	Barley	Oats	Peas/ beans
1650–1699	11.36	14.19	12.48	10.82	8.39
1700–1749	13.79	14.82	15.08	12.27	10.23
1750–1799	17.26	17.87	21.88	20.90	14.19
1800–1849	23.16	19.52	25.90	28.37	17.85
1850–1899	26.69	26.18	23.82	31.36	16.30

⬆ A table showing the average amount of each crop that was able to be produced from a single acre of land in each period.

Steel production

Steel is very strong and does not rust, therefore it is a much needed metal in industry. The eighteenth-century methods of production the Lunar Society Men had relied on were not sufficient. In 1855 Henry Bessemer developed a new method which allowed it to be made quickly in vast quantities. Not only did this industry provide jobs but the metal helped in virtually all the aspects of the Industrial Revolution, notably helping to build the vast factories and railways (see page 110).

Transport

Probably one of the most obvious changes of the Industrial Revolution was in transport. George Stephenson took Watt's basic rotary engine and developed it to make some of the first locomotive trains. By the end of the nineteenth century railways covered the country and allowed fast and efficient travel. Shipbuilding was equally revolutionised. In 1843 Isambard Kingdom Brunel launched the SS *Great Britain*, the world's first iron-hulled ship driven by an engine-powered propeller.

D

⬆ *The Railway Station* by William Powell Frith, 1862. This scene depicts a busy platform at London Paddington railway station. The development of a railway network in the nineteenth century sped up communication, brought fresh food quickly into the growing towns, and allowed people to go on holiday to the seaside.

E

⬅ *Launch of the* SS Great Britain *at Bristol, July 1843*, painted by Joseph Walter. Britain's huge merchant shipping fleet was the basis of its worldwide trade and a cause of the growth of its empire.

Think

What evidence can you find in pictures D and E to show what the public thought about the changes to transport?

Mining

To power the Industrial Revolution, Britain needed coal. In Wales, the Midlands and the north a vast number of coal mines opened. This provided thousands of jobs but it was very dangerous work.

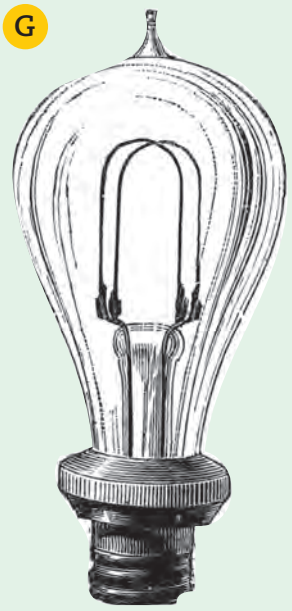
F

⬅ A photo of Blaenavon coal mine in Wales, now a World Heritage Site. The whole town of Blaenavon grew to support the mine.

Inventions

Building on the scientific and industrial principles of the Lunar Society, many inventions were discovered in the nineteenth century. Examples include the telephone, the camera, the battery and many more. These **innovations** changed people's lives.

G



A nineteenth-century light bulb as invented by Thomas Edison. ➡

Think

How did the telephone, camera and battery change people's lives?

Activity

2 It is important to think about the consequences of the changes we have just read about. For each change list all the consequences that you can think of.

Changes	What are the consequences of these changes?
Mechanisation	*Faster production meant more goods, produced cheaper.*
Urban migration	
Agricultural revolution	
Transport	
Mining	
Inventions	

3 Now get two coloured pens. For each consequence you have listed underline or highlight it in a different colour to show whether it is:
a) a positive consequence
b) a negative consequence.

4 Answer the following question:

Did the Industrial Revolution have a positive impact on people's lives?

Use all the evidence you can find on pages 10–19 in your answer.