

# The Industrial Revolution

*Causes, Events, Impact and Reactions*



# Essential Questions

1. Why was Great Britain the first nation to industrialize?
2. How did the industrialization of the continent differ from that of Britain in its pace, nature, and effects?
3. In what ways and to what extent did industrialization alter the family, society, the nature of work, and the government's relationship to the economy?
4. How (and how successfully) did governments, reformers and workers respond to the problems of industrialization?

# AP Key Concepts

**Key Concept 3.1: The Industrial Revolution spread from Great Britain to the continent, where the state played a greater role in promoting industry.**

- I. Great Britain established its industrial dominance through the mechanization of textile production, iron and steel production, and new transportation systems.
- II. Following the British example, industrialization took root in continental Europe, sometimes with state sponsorship.
- III. During the **second industrial revolution** (c. 1870–1914), more areas of Europe experienced industrial activity, and industrial processes increased in scale and complexity.

# AP Key Concepts

**KEY CONCEPT 3.2 – The experiences of everyday life were shaped by industrialization, depending on the level of industrial development in a particular location.**

- I. Industrialization promoted the development of new classes in the industrial regions of Europe
- II. Europe experienced rapid population growth and urbanization, leading to social dislocations.
- III. Over time, the Industrial Revolution altered the family structure and relations for bourgeois and working-class families.
- IV. A heightened consumerism developed as a result of the Second Industrial Revolution.
- V. Because of the persistence of primitive agricultural practices and land-owning patterns, some areas of Europe lagged in industrialization, while facing famine, debt, and land shortages.

# AP Key Concepts

**KEY CONCEPT 3.3 – The problems of industrialization provoked a range of ideological, governmental, and collective responses.**

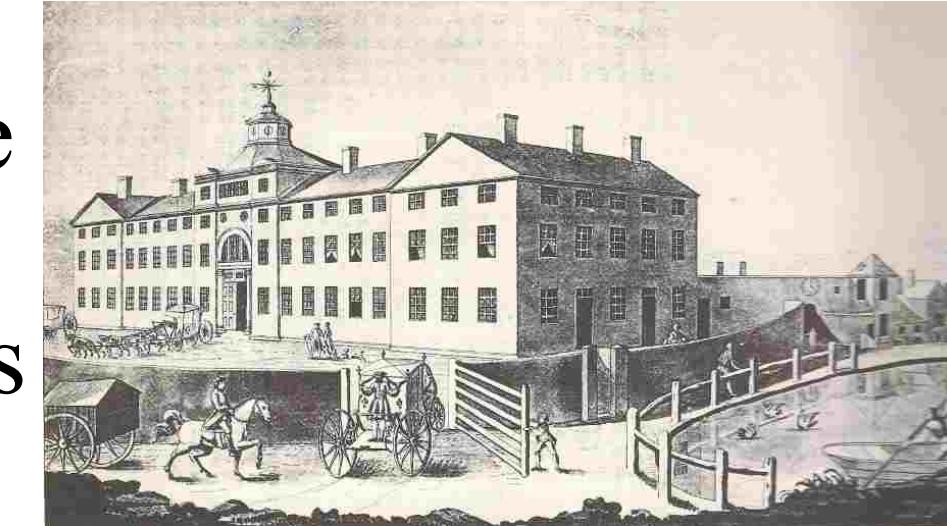
- I. Ideologies developed and took root throughout society as a response to industrial and political revolutions.
- II. Governments responded to the problems created or exacerbated by industrialization by expanding their functions and creating modern bureaucratic states.
- III. Political movements and social organizations responded to the problems of industrialization.

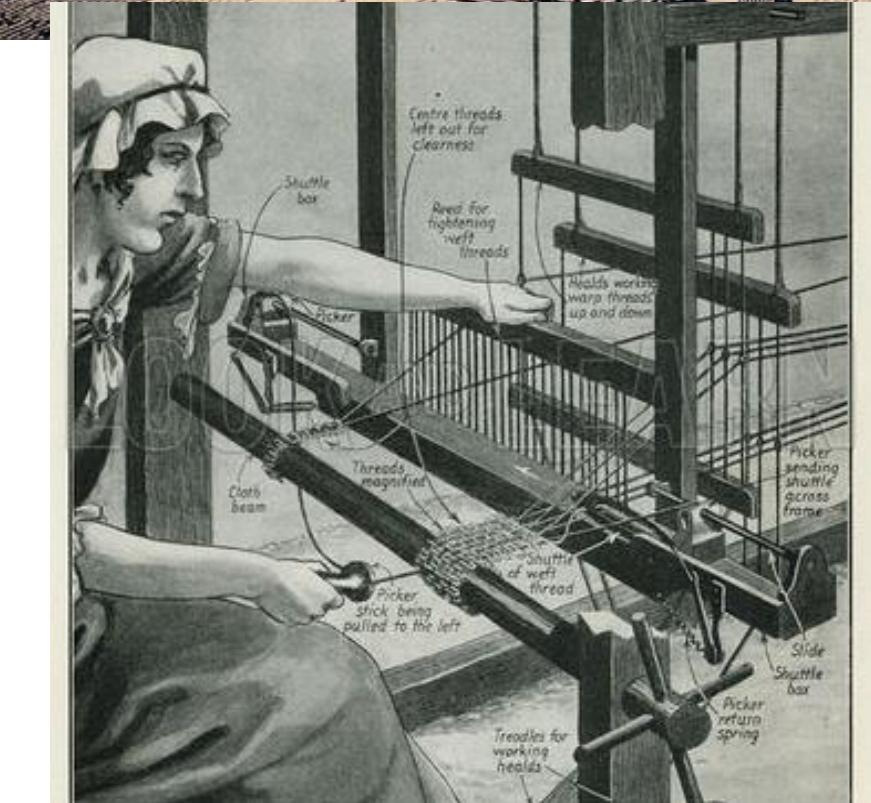
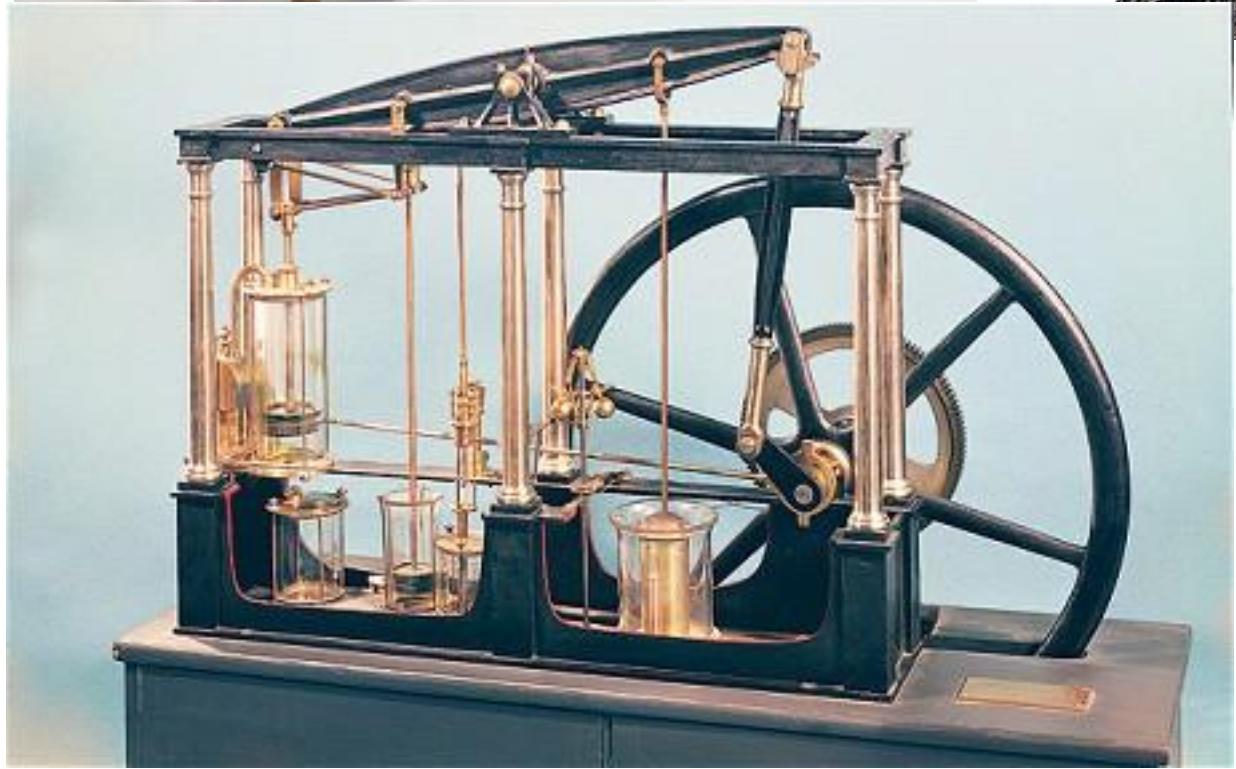
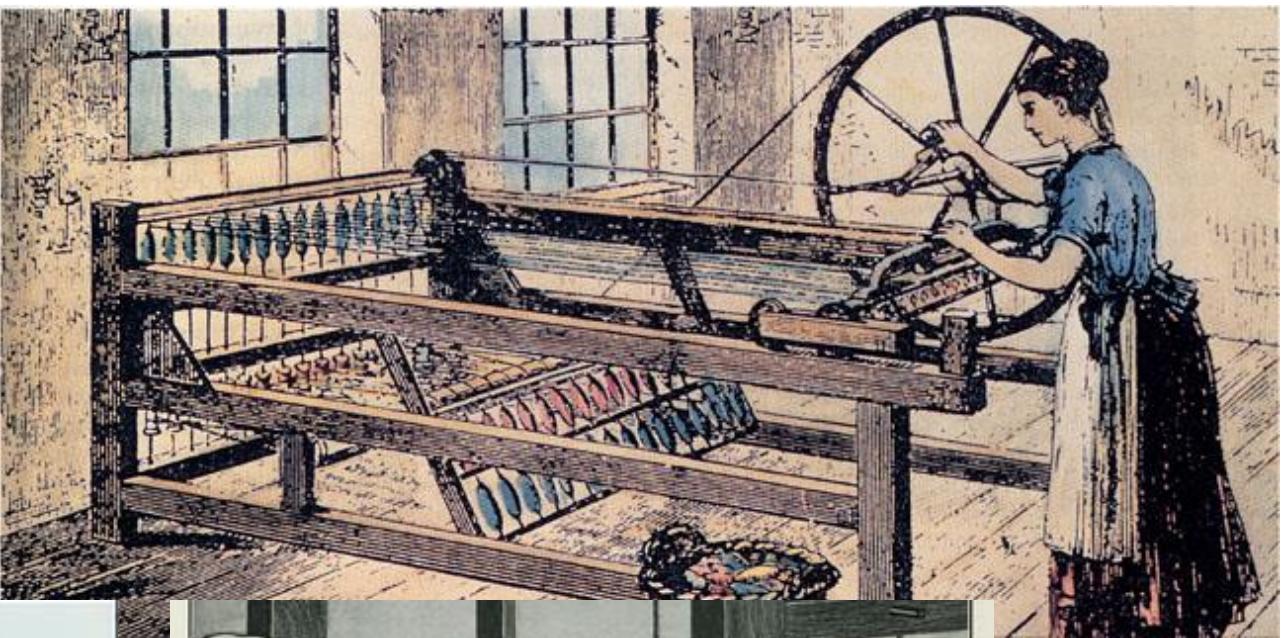
## **\*\*The Early Industrial Revolution in England**

- Began as an innovation to expand existing production, later expanded to new methods
- Required two key ingredients to take place:
  - Increased food production/farm productivity
  - Increased population to boost the work force and demand for goods (During the 18<sup>th</sup> century Europe's pop increased from 120 million to 190 million)
- The **ENCLOSURE MOVEMENT**:
  - pushed people off of farms and into towns
  - Allowed more land to be cultivated rather than left for common grazing

# Early Production Inventions

- Scientific Revolution/Method opened up new fields of knowledge and methods of production
- New iron manufacturing techniques made it cheaper
- Spinning machines (spinning jenny, water frame), weaving machines (flying shuttle,) and the “putting out system” greatly increased textile production
- The **Steam Engine** created by James **Watt** in 1769
- By 1774 The Watt and Boulton was producing engines in a factory that employed 20,000 workers





# **Advantages in England for Industrialization**

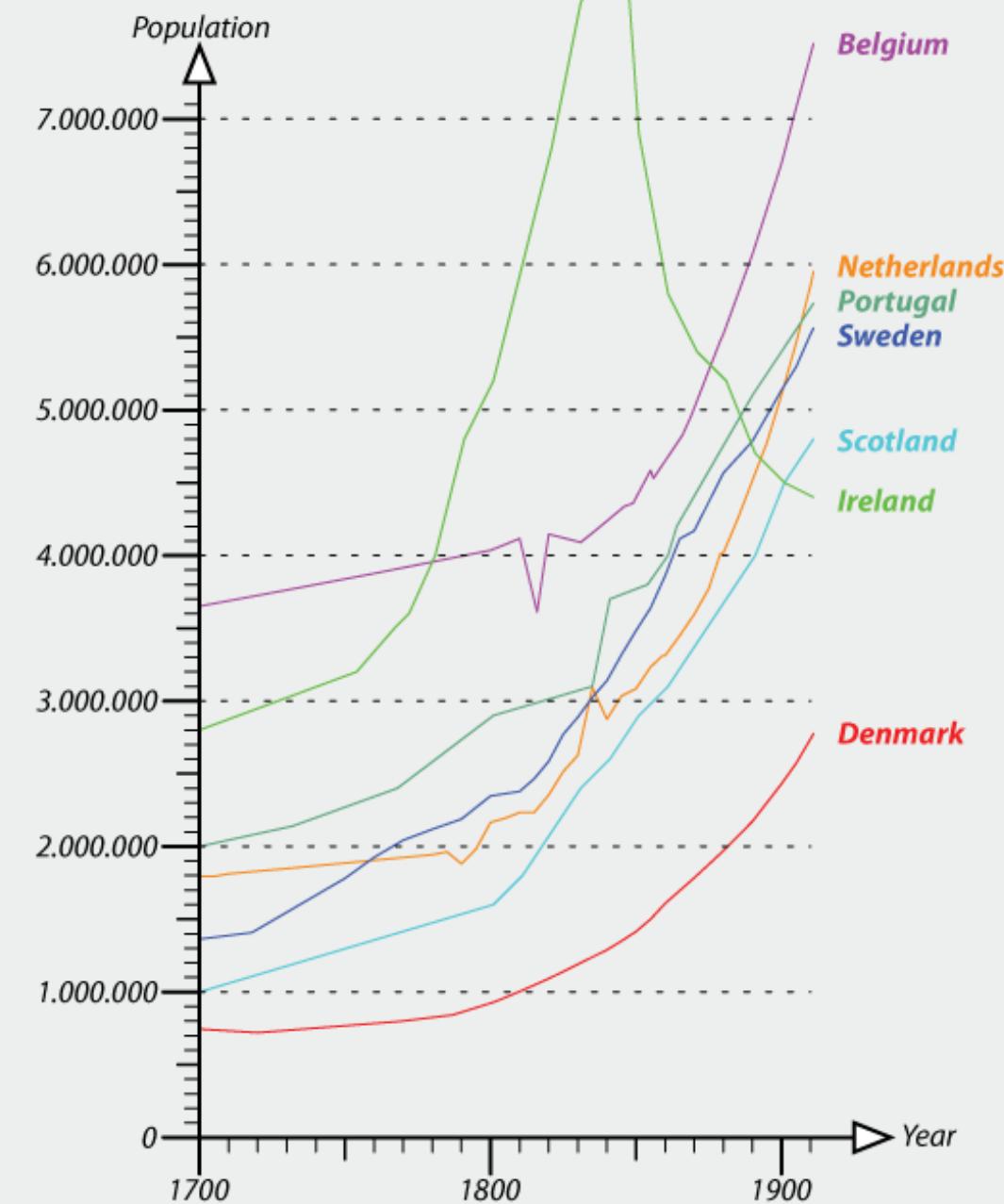
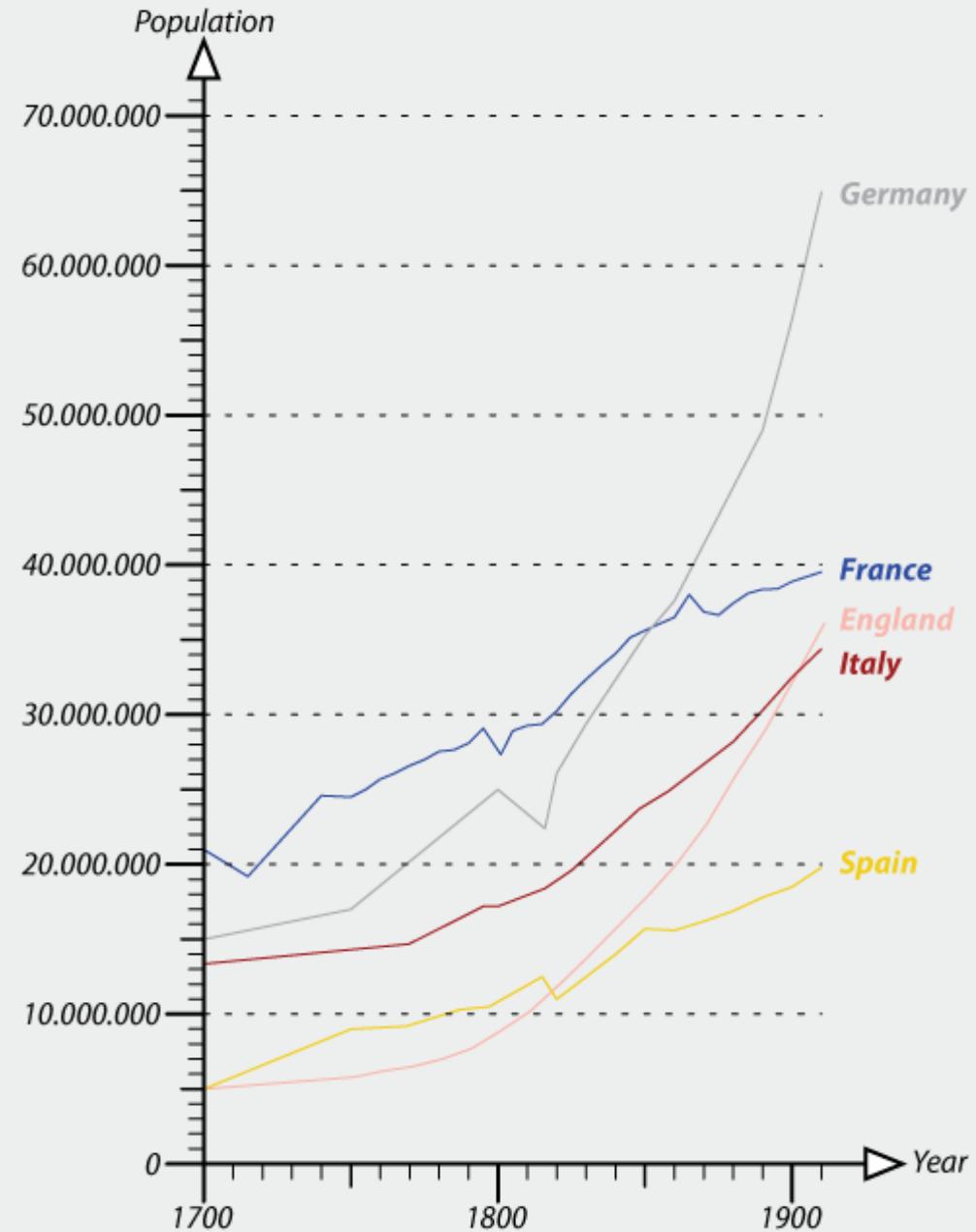
1. Fairly unified politically, linguistically
2. Limited internal tariffs/barriers to trade and a good roadway system
3. Standardized system of weights and measures
4. Wealth from colonies and international trade
5. Stable financial system
6. Cheap cotton from India (and the US)
7. Natural resources for industrialization (coal, iron)
8. Well developed shipping system for transporting raw and finished materials
9. Large population – many of which had been pushed into urban areas due to the Enclosure movement

# Chapter 14 Notes Overview

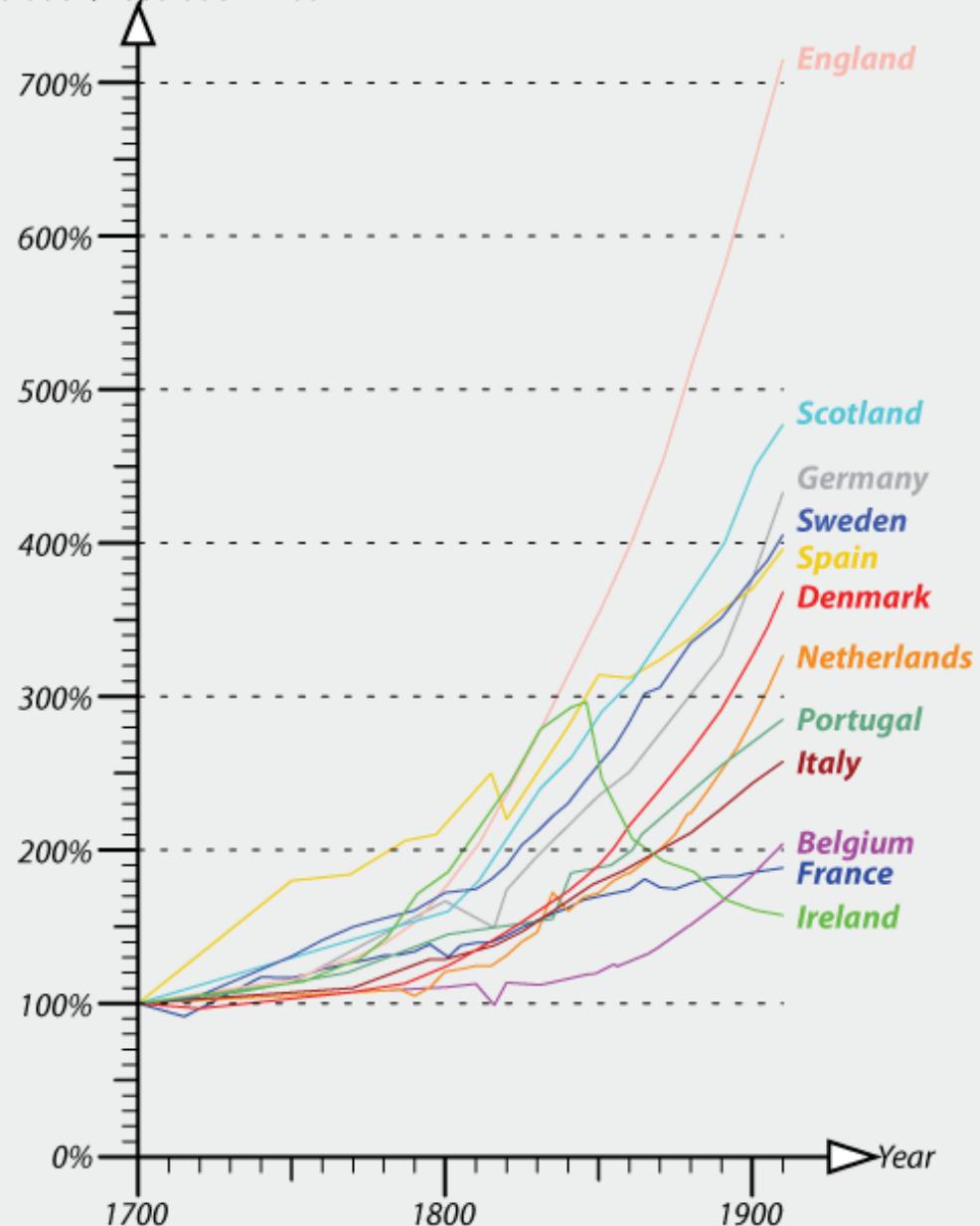
- Industrialization is arguably the most important development since the development of agriculture (10,000 years ago)
- While historians over time have emphasized the idea of rapid industrialization it in fact took place quite gradually (even in 1830's few worked in factories)
- Traditional production methods continued in many regions and in some parts of Europe (primarily Eastern Europe) life changed little
- Industrialization was fueled by new methods of production, changes & improvements to transportation, population growth, and growing urbanization
- Not everyone saw industrialization as a good thing – there were a number of reactions (Luddites, Romantics)
- Industrialization created winners and losers in society
- Calls for reforms to improve living and working conditions in factories and cities increased as the 19th century progressed

# **\*1800 to 1850 and the “Demographic Explosion”**

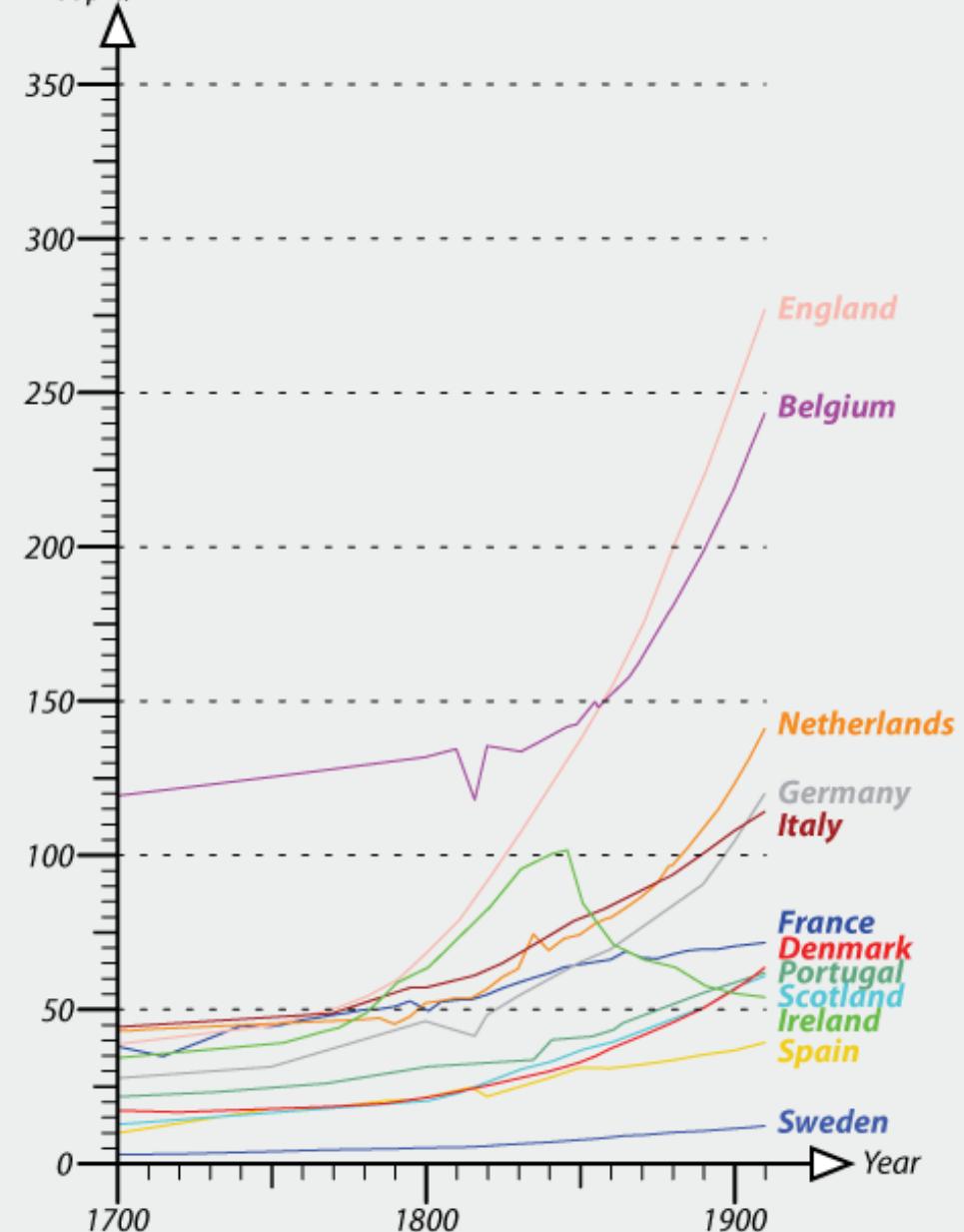
- Overall Europe's population grew from 187 million to 266 million from 1800 to 1850
  - Due to vaccination, better sanitation and increased food production
- By 1850 it was the most densely populated continent
- Northwest Europe had the greatest increases
- The relative peace of the 19<sup>th</sup> century helped population to continue to grow throughout the century
  - There were exceptions (e.g. the Irish potato famine)



Population/Population 1700



People/km<sup>2</sup>



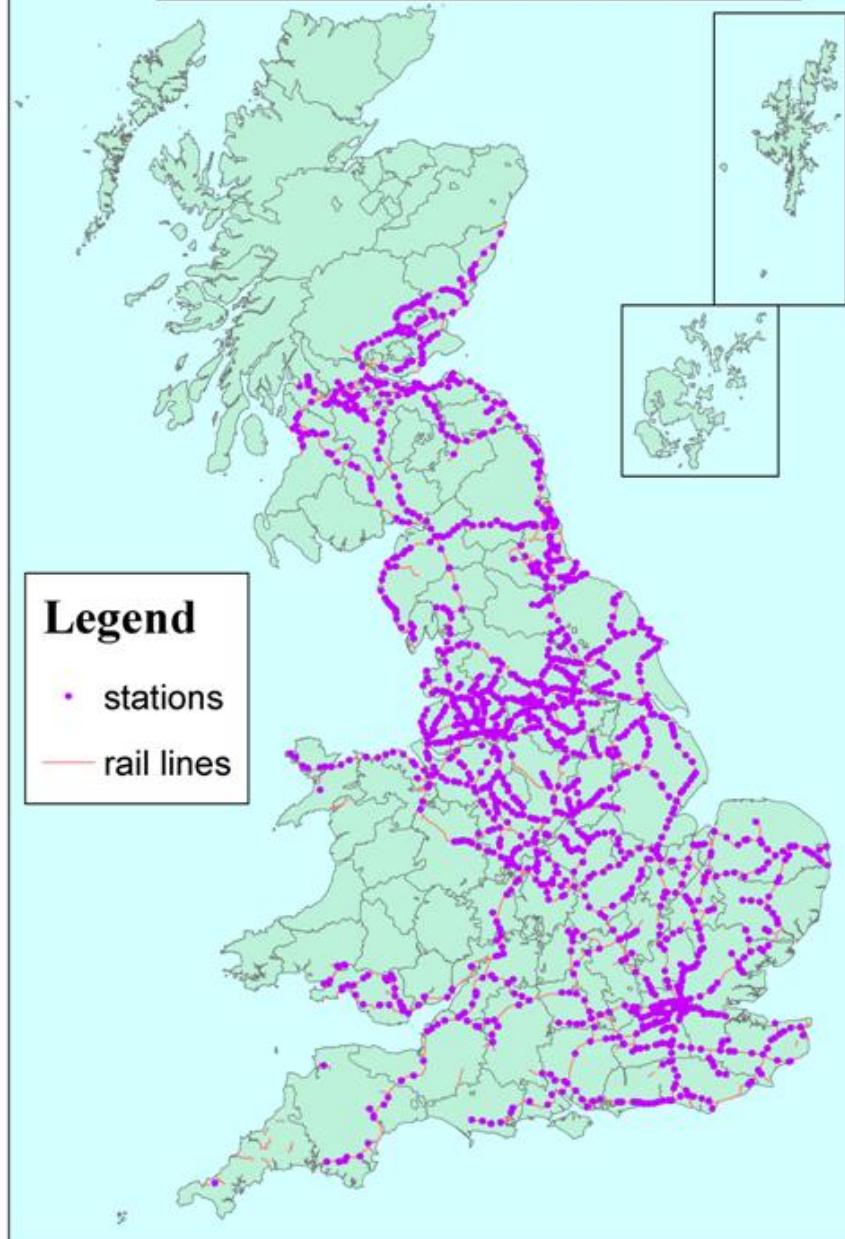
# Farms Increased in Productivity

- Grain production increased as more acreage was cultivated and farming techniques improved
- Small scale farming still dominated Europe and even in England farming remained the #1 employer
  - Life for the rural poor became increasingly less secure
- England and Northwest Europe saw the greatest gains
- In Russia serfdom still remained intact limiting innovation and holding back productivity

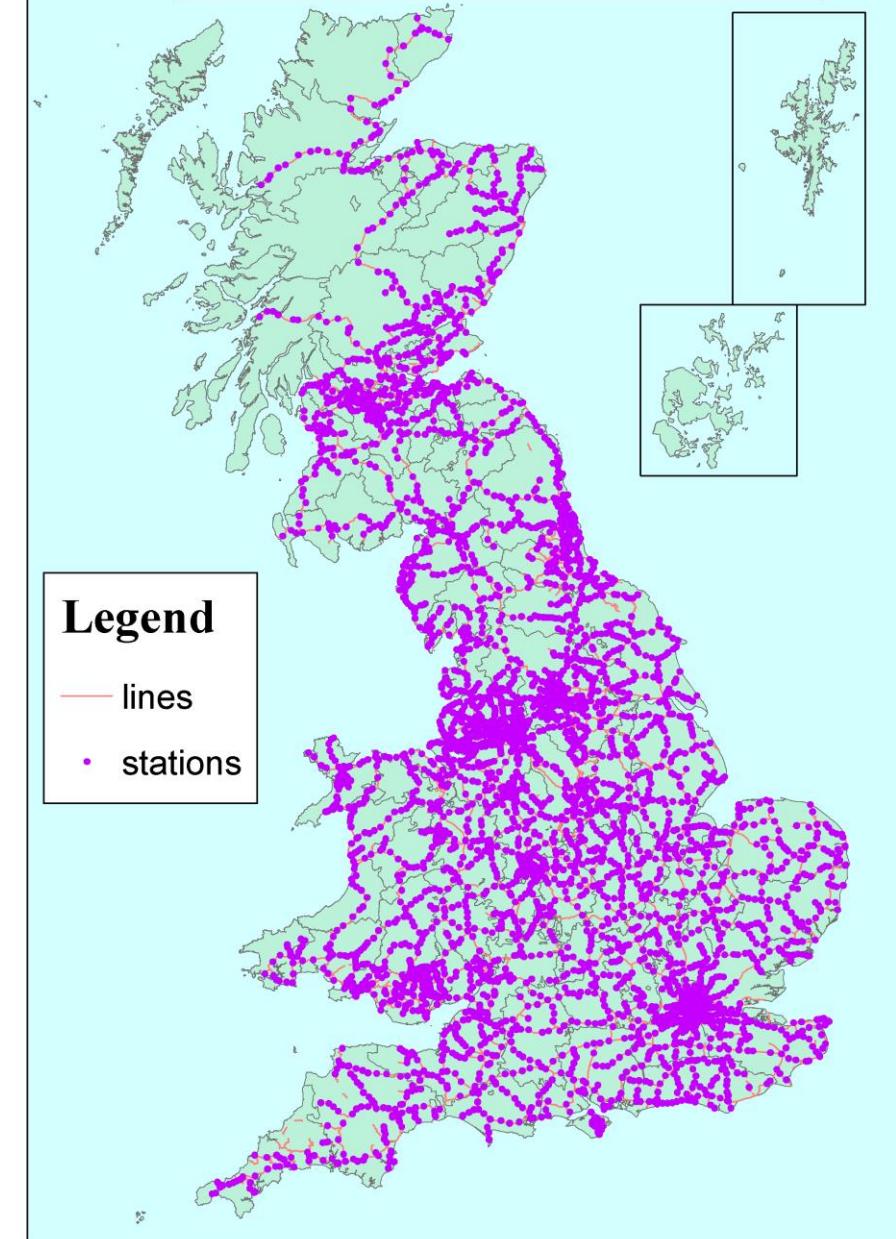
# New Modes of Transportation

- In the 1820's and 1830's canals expanded to help connect more places
- Railroad building increased dramatically after 1830 and reduced the importance of canals
- Life in the UK was especially transformed
  - New train terminals became the center of growing cities
  - People and goods could move about the country at much greater speeds
  - Cost of transportation decreased
- The development of railroads increased growth in a number of other related industries (metallurgy and other new technology)
- Transformed how cities looked and were organized

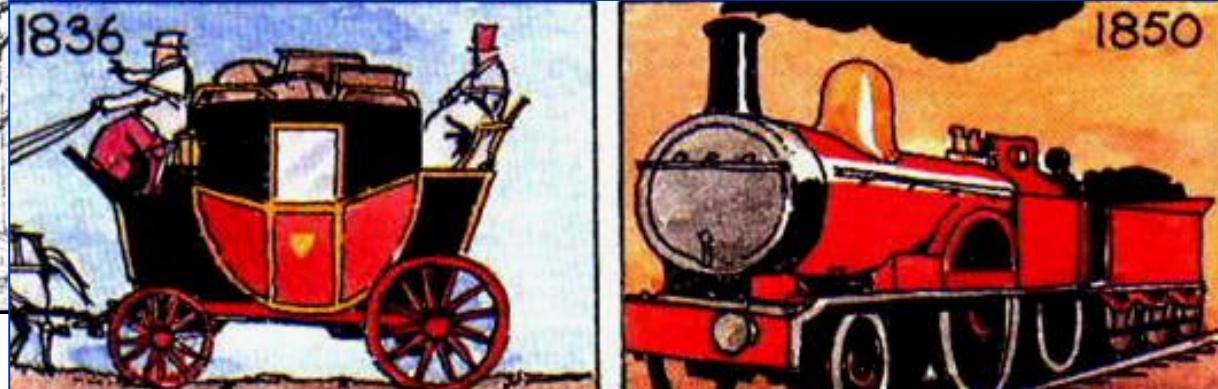
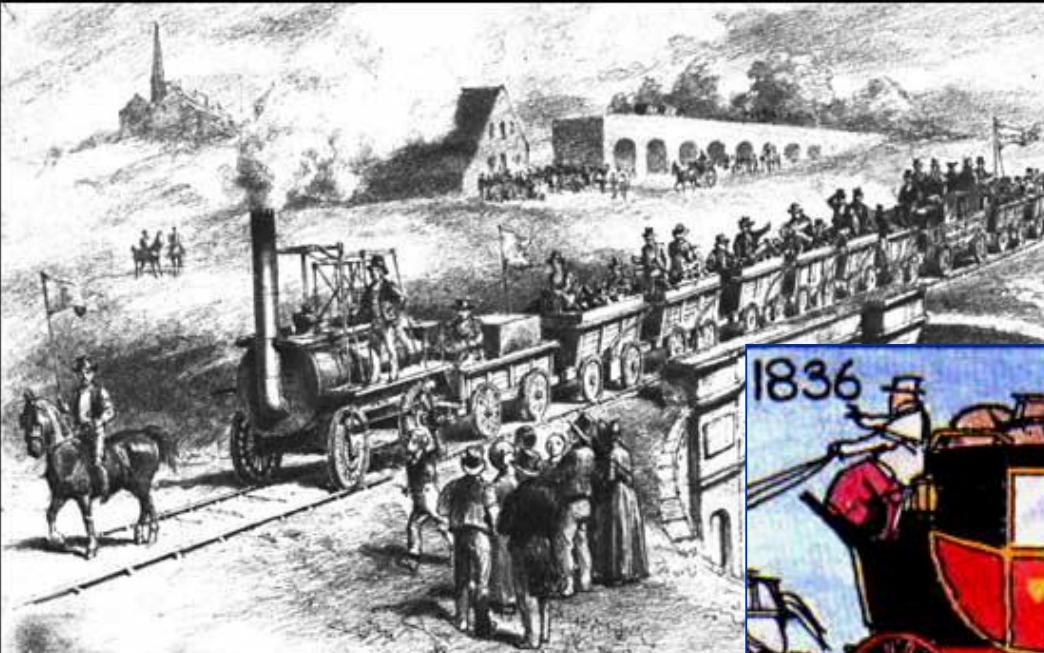
1851 Britain: The rail network



1881 Britain: The rail network



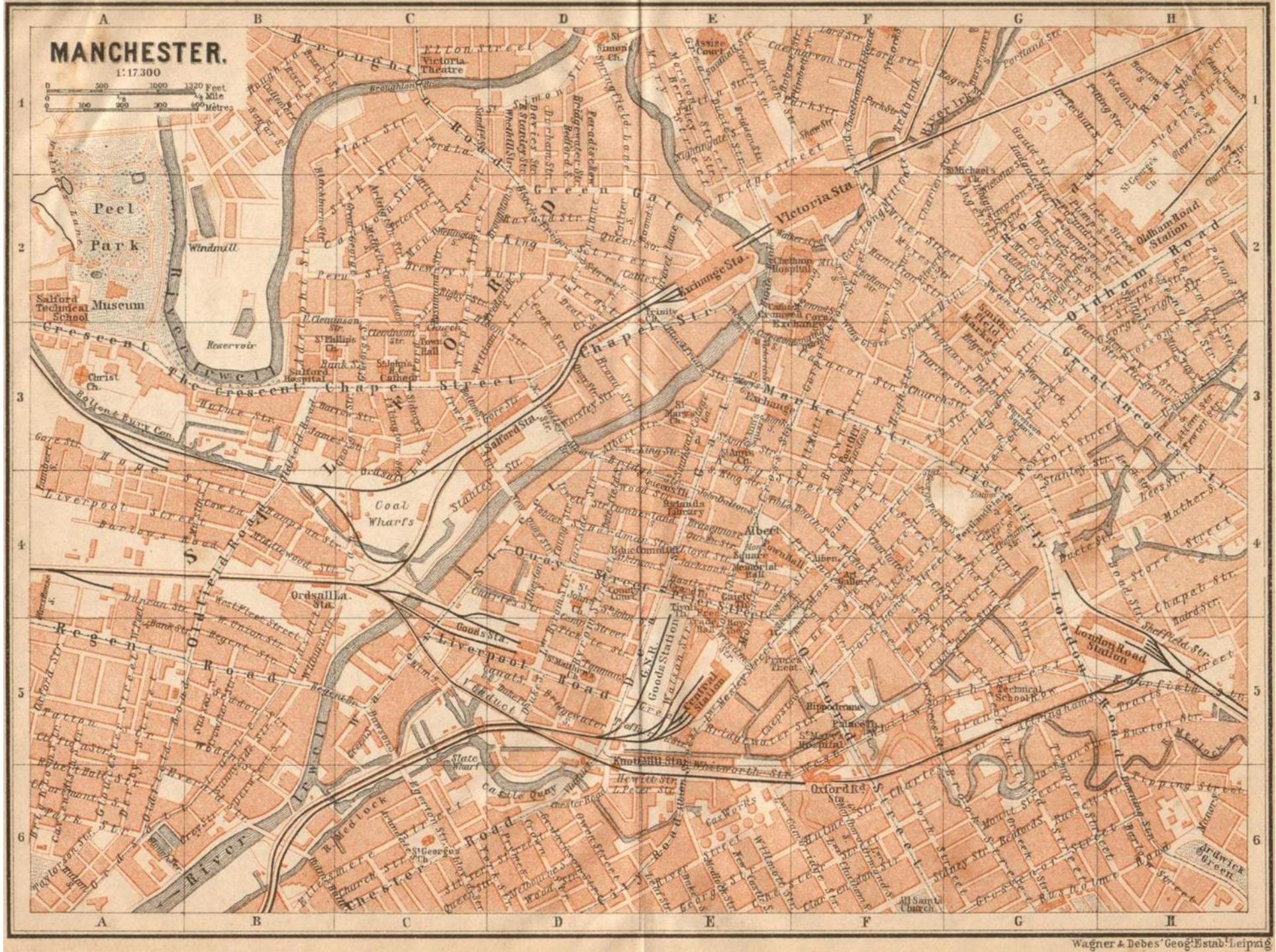
# Early Railroads



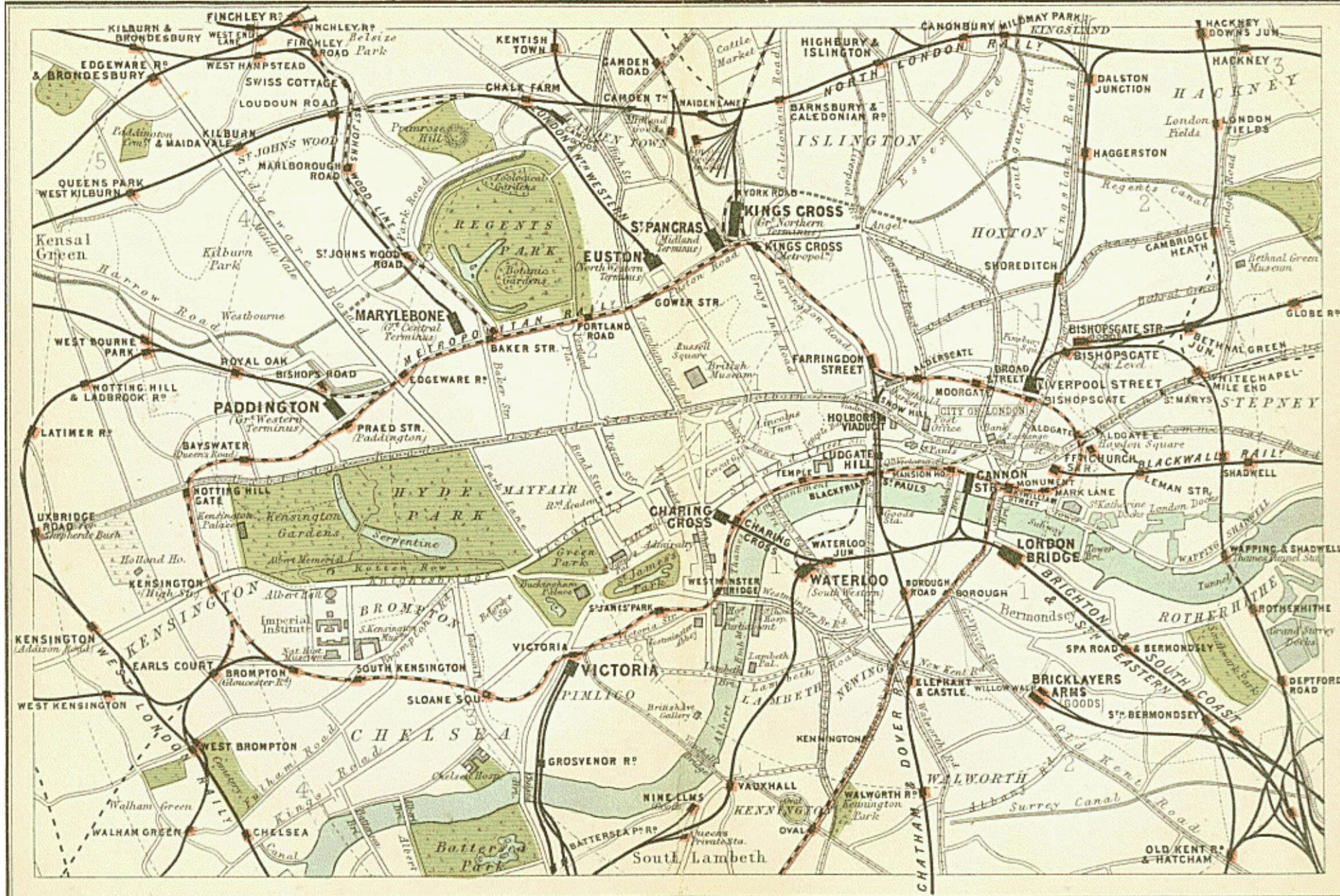
## JOURNEY TIMES FROM LONDON (IN HOURS)

4 3	EDINBURGH	12 $\frac{1}{4}$
2 4	LIVERPOOL	6 $\frac{1}{2}$
1 8	EXETER	4 $\frac{3}{4}$
1 1	BIRMINGHAM	3
6	BRIGHTON	1 $\frac{1}{4}$

# **Manchester in 1887**



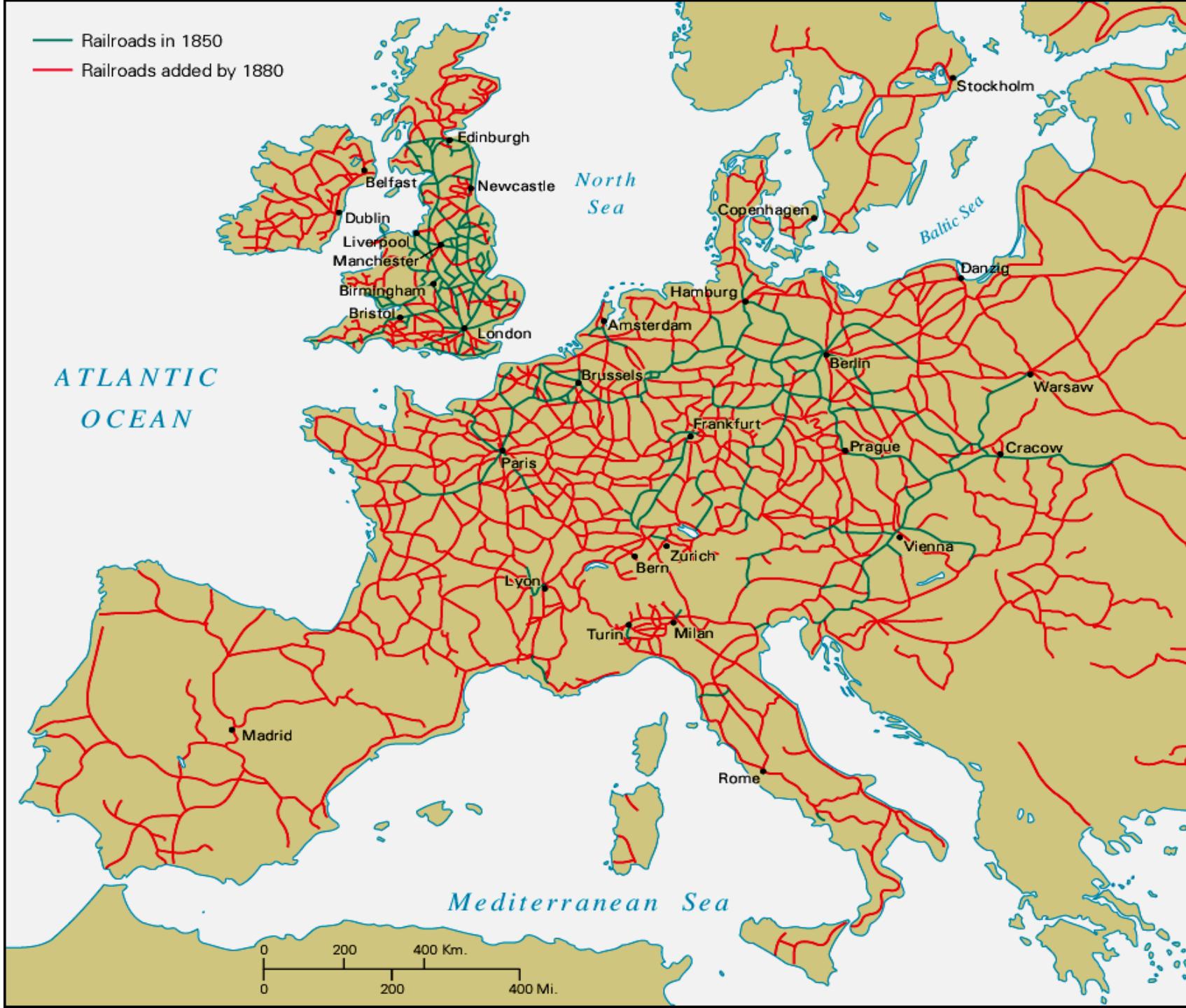
# London in 1899



# Europe Up to 1850

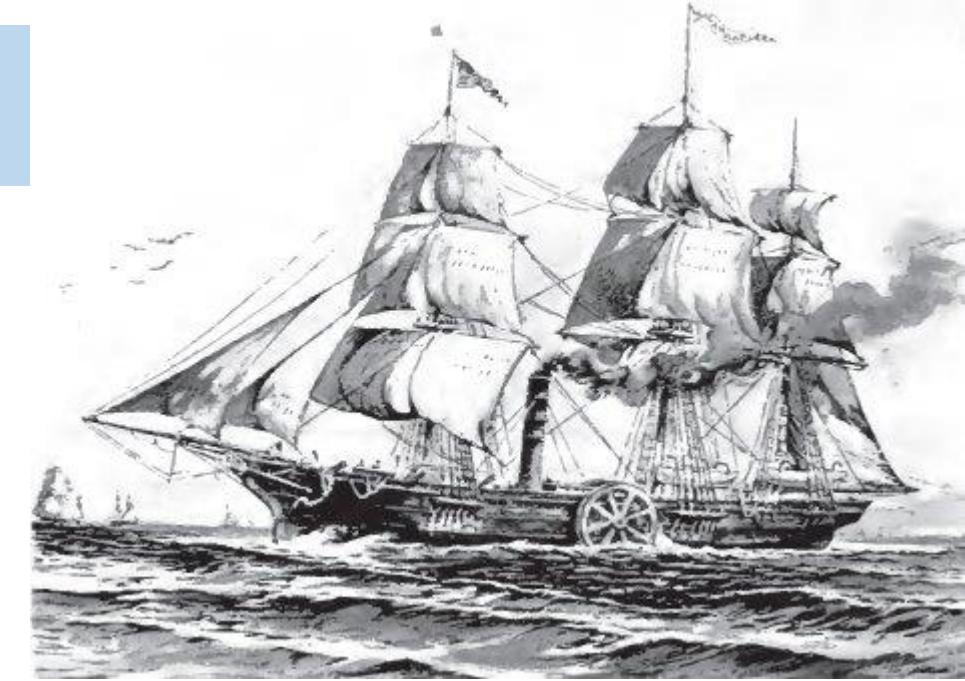


# Growth of Railroads, 1850-1880



# Steamships

- Greatly increased the speed and reliability of ocean travel
- Needed a series of refueling around the globe
- In 1816 a new record was set for a trip from Liverpool to Boston of 17 days (50% less than the previous record)
- Enabled ships to sail upriver with their goods
- By the 1840's steam transportation was regularly used



The American SS *Savannah* built in 1818

# Emigration to America (1840's onward)

- Transportation from Ireland to the Americas was on ships nicknamed “coffin ships”
- Seriously overloaded with people
- Disease often killed people along the way



# **\*Industrialization in England**

- England had the natural resources needed for industrialization
- The population growth and economic climate were favorable to industrial development
- The cotton gin and other new weaving machines made textile production highly profitable
- The number of power looms in England grew from 2,400 in 1813 to 224,000 in 1850!

# **\*Other Regions of Europe (and the US)**

- France, Prussia (the Rhineland), Belgium and the Netherlands were the other major industrializing nations starting in the 19<sup>th</sup> century
- In these regions natural resources could be found, and government policies/institutions existed to favor the growth of industry
- Outside these regions industrialization occurred only in isolated small pockets and the impact of industrialization was low

Manufacturing and industrial areas  
No peasant emancipation before 1848  
Railways by 1850  
Banks

Coal mining  
Iron industry  
Textile industries  
Silk industries

Major cities:  
1820  
1850

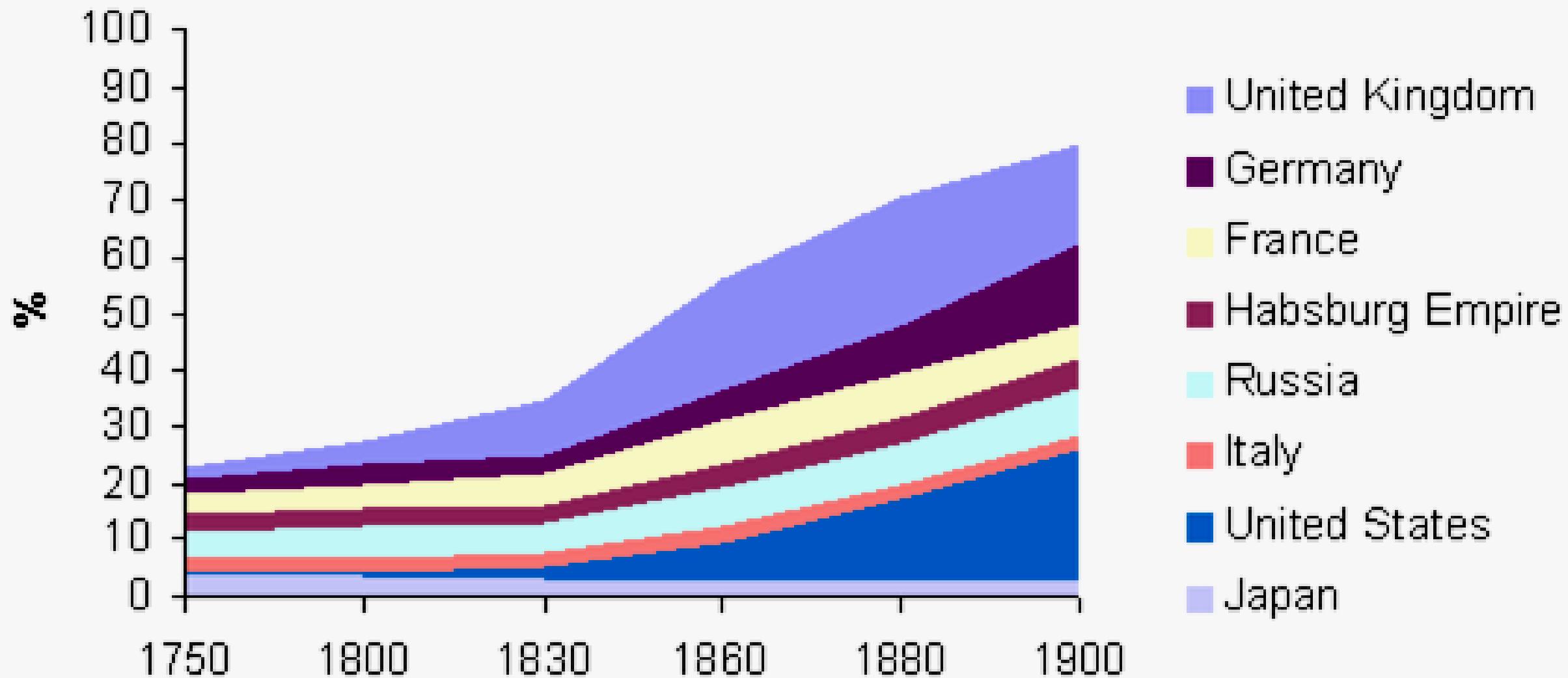


# Germany and the Zollverein

- Inside the new German Confederation economic liberalization and an end to internal trade barriers/tariffs spurred economic growth
- Large scale manufacturing developed – and increasingly united the regions of the Confederation together



# **Share in World Manufacturing Output: 1750-1900**



# **\*\*Growth of the Middle Class**

- In the western and industrializing nations of Europe the Middle class grew to roughly 25% of the population in places (in Eastern Europe it was as low as 2%)
- Not all people in the Middle Class were of the same financial means; not all shared a common outlook on life
- In places with voting rights property ownership brought with it the right to vote (enfranchisement) for men
- Protestantism, traditional gender roles, the importance of hard work and a good education were generally shared values
- Some Middle Class women challenged these beliefs and fought for equal treatment and the right to vote

# The Middle Classes

- Included between 15% of the population (Western Europe) and 2% of the population (Russia)
- Covered a wide range of people and income levels
- Owning land often gave people the right to vote (in places that had voting rights)
- Within the Middle Class traditional gender roles prevailed
- “The Entrepreneurial Spirit” was idealized (the “self made man”)
- Increasing “professionalization” of jobs (medicine, teaching, law etc.)

# Lifestyle Changes for the Middle Class

- Homes became somewhat larger and included more conveniences (e.g. flush toilets)
- Fancy clothes (new styles), and home furnishings to show class status
- The “Cult of Domesticity” for women; educating children inside the home and maintaining the house
- Women’s rights were often associated with the French Revolution which hindered their adoption among “respectable” people elsewhere in Europe



# Middle Class Values

- Men as providers for the family; women as maintainers of the home
- Valued education for children (primary schools, but later in the 19<sup>th</sup> century more secondary schools emerged)
  - Women's access to education lagged behind men's
- Religion was viewed as important – and seen as a way to help bring “morality” to the working classes (children also attended Sunday Schools at church)
- A value was placed on volunteering and community service (The Salvation Army e.g.)

# **\*Impact of the Industrial Revolution**

- Child labor, poor wages, dangerous working conditions, pollution, crowded cities, and difficult times when the economy turned bad were all issues the working classes had to face
- Efforts to clean up the cities, the creation of police forces (Robert Peel) and poor relief were undertaken to address problems
- The working classes began to have a “class consciousness” (shared neighborhoods, pubs, entertainment, newspapers etc.)

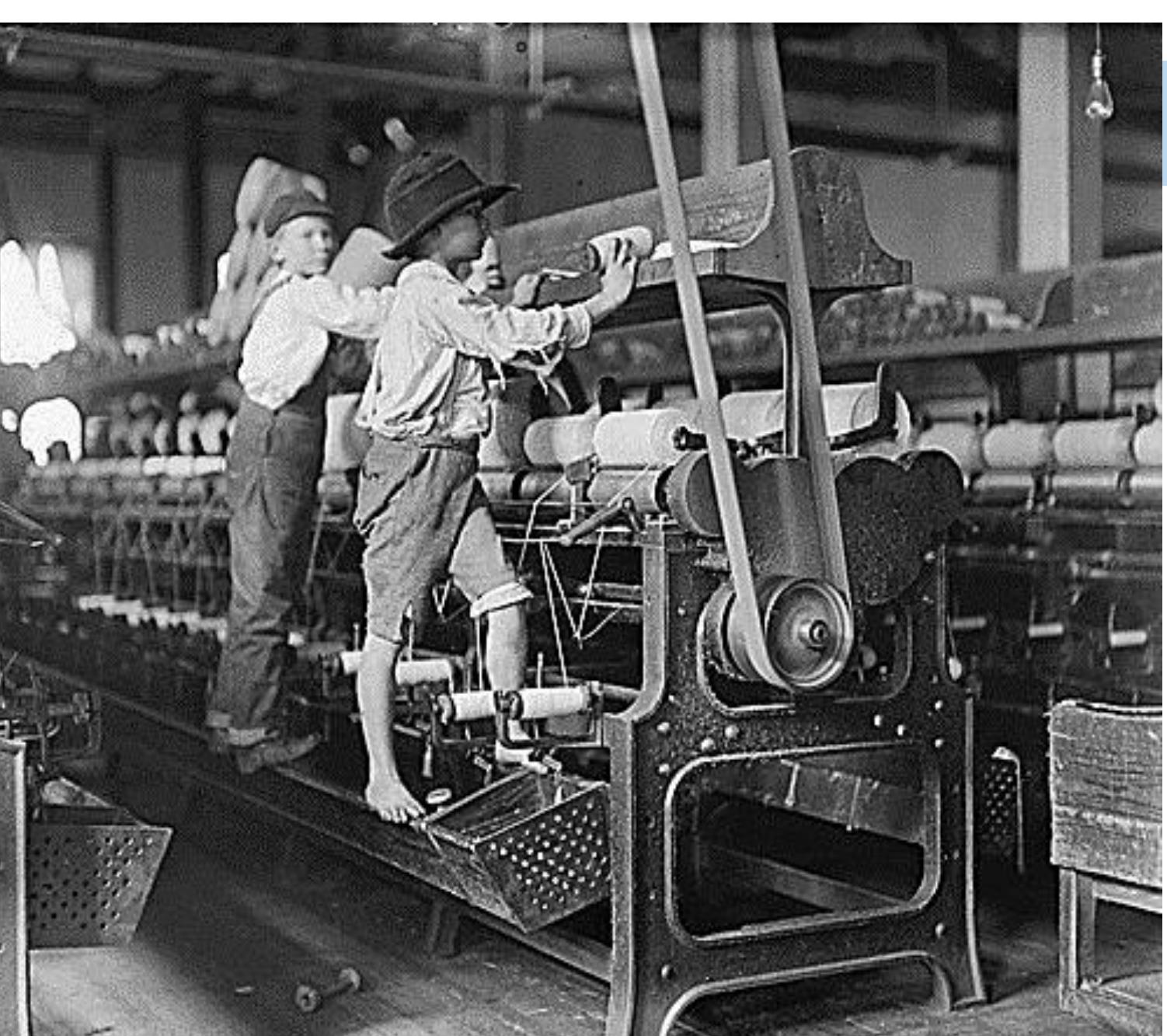
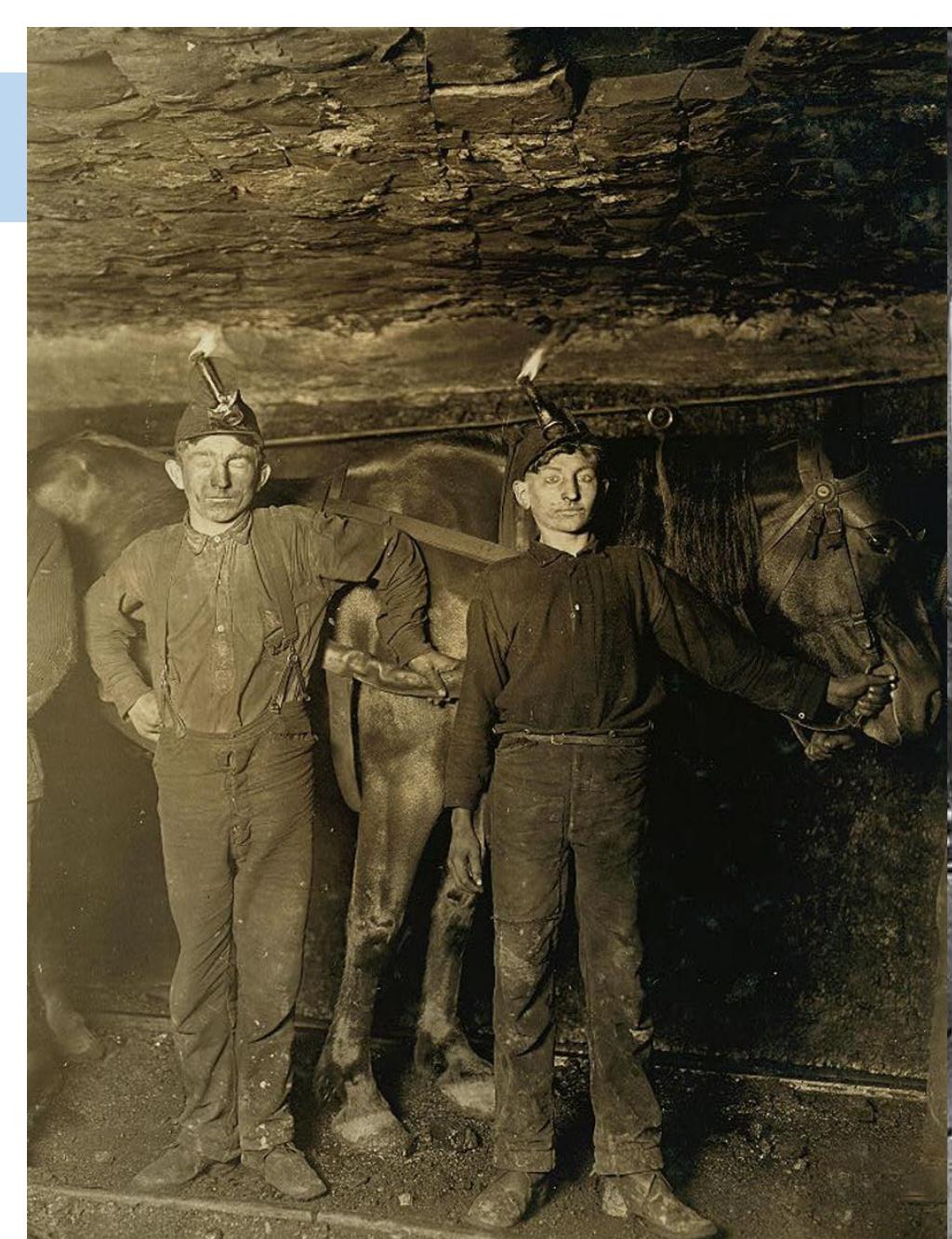


# Daily Factory Wages in Lancashire, 1830

Age of Worker	Male Wages	Female Wages
under 11	2s 3d.	2s. 4d.
11 - 16	4s. 1d.	4s. 3d.
17 - 21	10s. 2d.	7s. 3d.
22 - 26	17s. 2d.	8s. 5d.
27 - 31	20s. 4d.	8s. 7d.
32 - 36	22s. 8d.	8s. 9d.
37 - 41	21s. 7d.	9s. 8d.
42 - 46	20s. 3d.	9s. 3d.
47 - 51	16s. 7d.	8s. 10d.
52 - 56	16s. 4d.	8s. 4d.
57 - 61	13s. 6d.	6s. 4d.

5s.2d. = 26 pence

26 pence = approx. \$0.32



# Private Charities

- Religious groups and other private efforts to help the poor and working classes emerged
- Poor were often looked down upon and viewed negatively by the rest of society which shaped efforts at poor relief
- The Salvation Army grew from these efforts

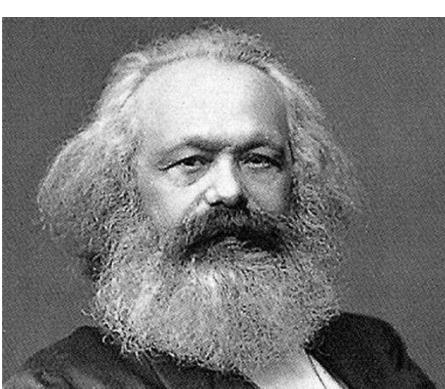


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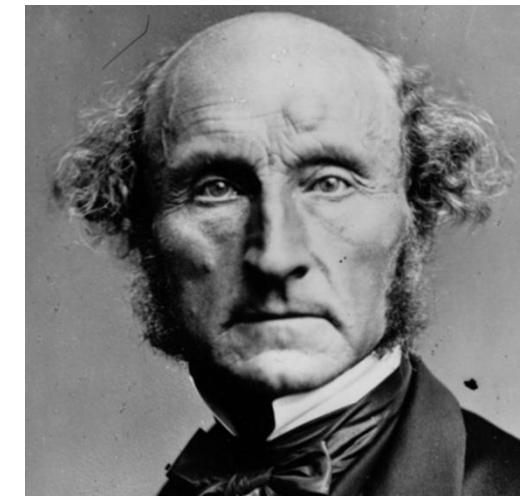
# \*\*Responses to the Industrial Revolution

- Some workers sought to destroy the machines, some fought for better wages, early worker unions emerged
- Outside the working classes various thinkers including Utopian Socialists (**Robert Owen**, Count **Saint-Simon**, Etienne Cabet), and other more practical Socialists (**Pierre-Joseph Proudhon**, **Karl Marx**) fought for a new society with a more equitable distribution of wealth



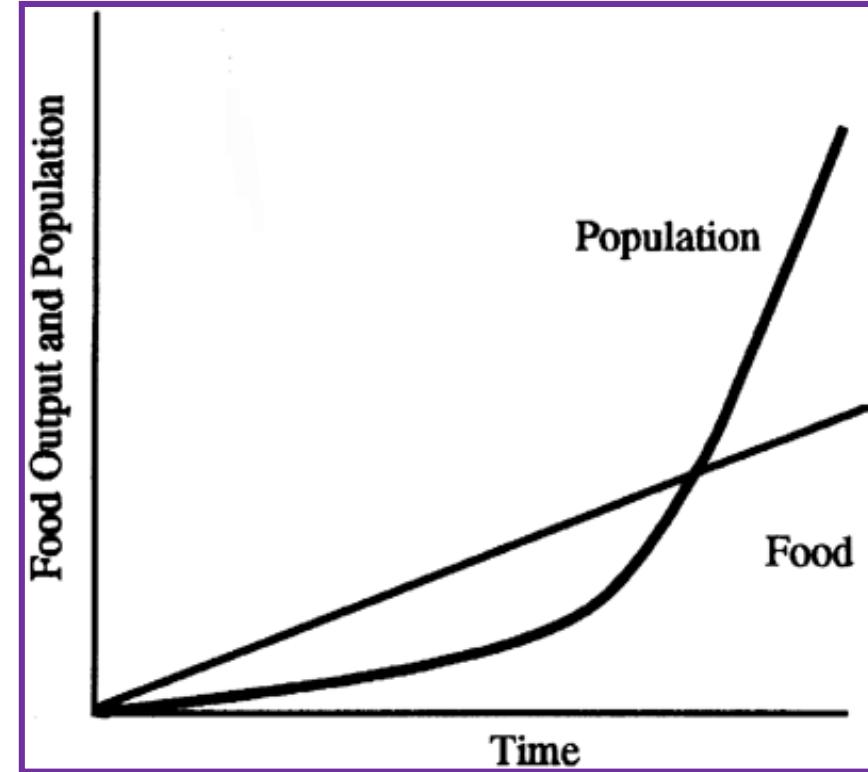
# Liberalism Post-Napoleon

- Despite the return to conservatism/restoration of monarchy at the Congress of Vienna liberalism and the forces unleashed by the French Revolution continued throughout Europe
- Throughout the 19<sup>th</sup> Century revolutions would continue most notably in 1830 and 1848
- These revolutions were of limited success, but did help maintain some of the more modest reforms of the French Revolution
- Liberal thinkers like **John Stuart Mill** and his famous work “On Liberty” (1859) continued to champion economic liberalism, women’s rights, worker unions and social justice



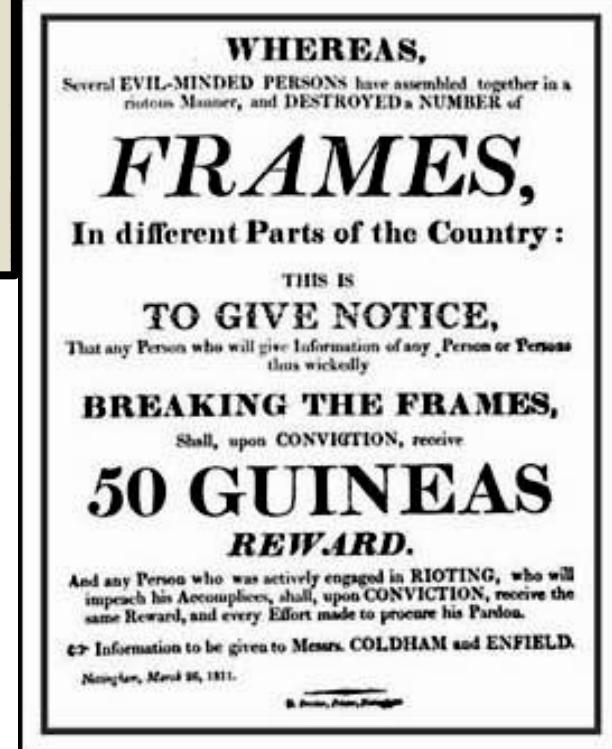
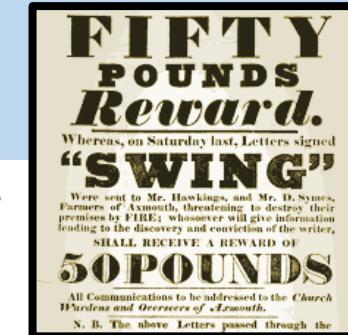
# Other Industrial Era Thinkers

- **Thomas Malthus** (social scientist) – his key argument was that people increase their population exponentially and food supply increases linearly. This leads inevitably to famine and declining populations
- **David Ricardo** (economist) – formulated the “Iron Law of Wages” which essentially said that paying workers more will just lead to larger populations and diminished wages. Trying to improve the financial situation through higher wages was pointless in his view.



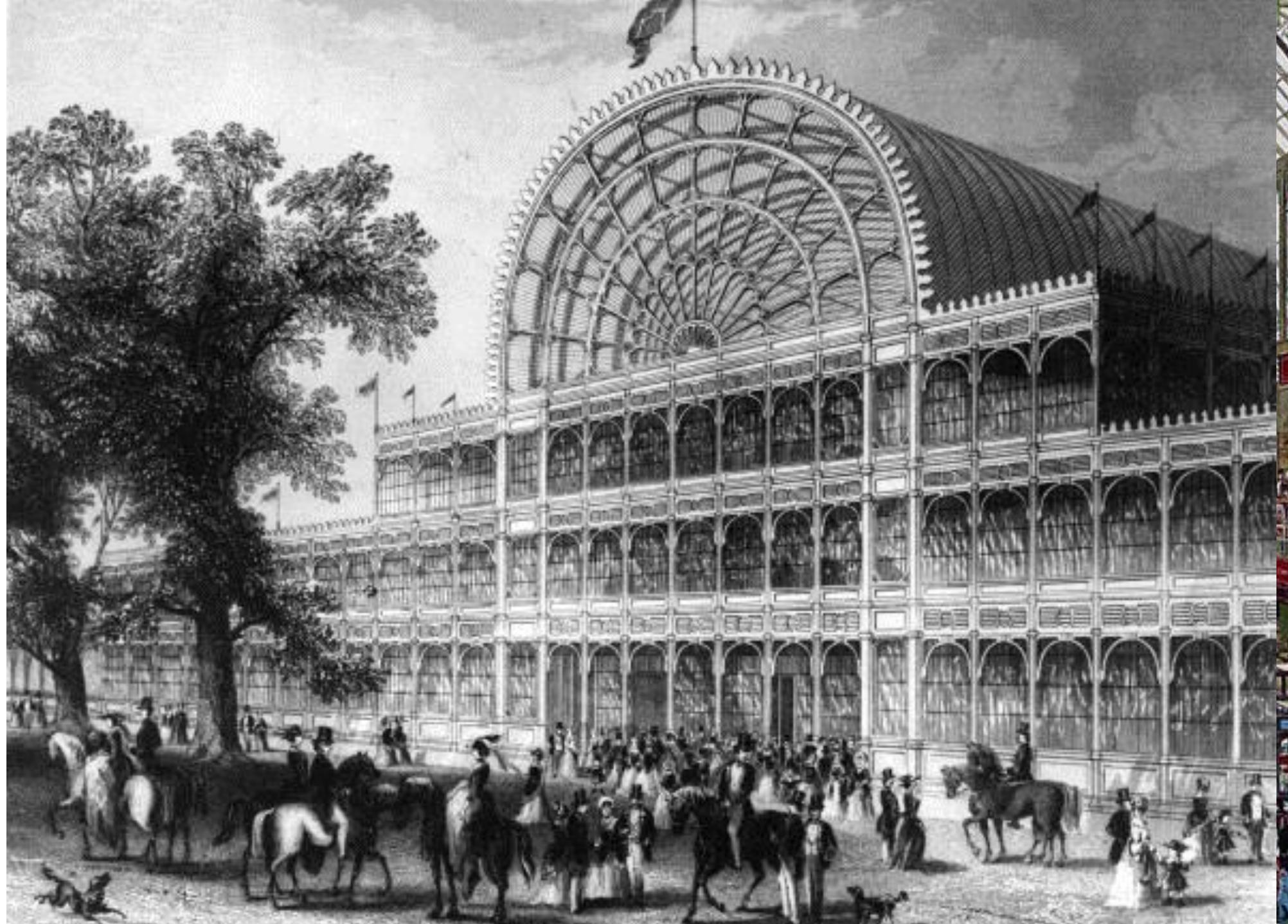
# Worker Actions

- A fictional character “Captain Swing” was used to threaten and intimidate factory owners
- A group named after a (fictional?) guy named Ned Ludd grew in Manchester (origin of the Luddites)
- The Peterloo Massacre (August 1819) is an example of the state fighting back against worker organization, riots and violence; 15 killed, 400+ injured
- Following Peterloo the English government cracked down on reform via the Six Acts



# **\*The Great Exhibition of 1851**

- In London (in Hyde Park) the Great Exhibition (the 1<sup>st</sup> World's Fair) took place to showcase the great achievements of English industrial development
- The exhibition brought together exhibitors and people from around the world to experience the wonders of the “modern” age
- Over 6 million people visited the “Crystal Palace” that was constructed as the center piece of the exhibition



# **\*\*Romanticism**

- Grew as a response to the intellectualism of the Enlightenment
- Emphasized intense emotion (both good and bad including emotions like awe, horror etc.)
- Elements of Romanticism could be found in literature, poetry, music and the fine arts
- Major Romantic figures include: Lord Byron, Percy Bysshe Shelley, Robert Burns, Johann Wolfgang von Goethe, Mary Shelley, Victor Hugo, Walt Whitman, Edgar Allan Poe, John Turner, Francisco José de Goya, Eugène Delacroix, Frederick Chopin, Franz Liszt, Pyotor Tchaikovsky and Efvard Greig
- Was international in scope



*The Third of May*  
By Francisco José de Goya  
1814



*Shipwreck*  
By John Turner  
1828



***Liberty Leading the People***  
By Eugene Delacroix 1830

# Conclusions

- The IR started in the 18<sup>th</sup> century, but the major impact of it was not really until the middle/late 19<sup>th</sup> century
- Advanced the quickest in England, but spread to other regions with the necessary conditions (resources, population, economic conditions)
- The IR transformed society – changing modes of transportation, manufacture, how people lived, where people lived, family life, and essentially laid the ground work for modern society

# **Essential Questions:**

Answer the following on a piece of paper to be turned in tomorrow. A few sentences for each is good.

1. Why was Great Britain the first nation to industrialize?
2. How did the industrialization of the continent differ from that of Britain in its pace, nature, and effects?
3. In what ways and to what extent did industrialization alter the family, society, the nature of work, and the government's relationship to the economy?
4. How (and how successfully) did governments, reformers and workers respond to the problems of industrialization?









