AP European History
Period 3.1

The Industrial Revolution, c.1780-1850

I. Overview of the **Industrial Revolution**
   A. Machines began to replace significantly human and animal power in the production and manufacturing of goods.
      - The use of the steam engine for producing textiles in the 1780s was the turning point.

   B. Europe gradually transitioned from an agricultural and commercial society into a modern industrial society.
      1. As late as the 1830s only a small fraction of British working people were employed in factories.
      2. By the mid-19th century, industrialism had spread all across Europe.

   C. The economic changes of the "Industrial Revolution" did more than any other movement to revolutionize life in Europe and Western civilization.
      - Not since the development of agriculture during Neolithic times had there been such a radical change in society.

II. Roots of the Industrial Revolution *(review from Period 1.3)*
   A. **Commercial Revolution** (1500-1800)
      1. It spurred the great economic growth of Europe and brought about the Age of Exploration.
      2. The **"Price Revolution"** (inflation) stimulated production as producers could get more money for their goods.
         - The bourgeoisie acquired much of their wealth from trading and manufacturing.
      3. Rise of **Capitalism**
         a. The increased use of surplus money for investment in ventures to make a profit grew significantly.
         b. The middle class came to provide the leadership for the economic revolution (e.g. chartered companies and joint-stock companies).
      4. The Scientific Revolution produced the first wave of mechanical inventions and technological advances.
      5. The increase in Europe's population provided larger markets.

   B. **Proto-industrialization:** the **Cottage Industry** *(Period 2.5)*
      1. Rural industry was fundamental to Europe's growing economy in the 18th century.
         a. The rural population was eager to supplement its income.

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b. Merchants in cities sought cheap rural labor rather than paying guild members in towns higher fees.
c. Thus, the early industrial production was "put out" into the countryside: the **"putting-out system."**
d. Manufacturing with hand tools in peasant cottages came to challenge the urban craft industry.

2. The **Cottage industry**
   a. A merchant-capitalist would provide raw materials (e.g., raw wool) to a rural family who produced a finished or semi-finished product and sent it back to the merchant for payment.
      - Cottage workers were usually paid by the number of pieces they produced.
   b. Merchants would sell the finished product for profit.
   c. Wool cloth was the most important product.
   d. The cottage industry was essentially a family enterprise.
      - The work of four or five spinners was needed to keep one weaver steadily employed.
      - The Husband and wife constantly tried to find more thread and more spinners.
      - Sometimes, families subcontracted work to others.
3. Problems with the cottage industry
   a. Constant disputes between cottagers and merchants occurred over weights of materials and quality of cloth.
   b. Rural labor was unorganized and difficult for merchants to control.
   c. Merchant-capitalists thus searched for more efficient methods of production resulting in growth of factories and the industrial revolution.
4. Results
   a. Thousands of poor rural families were able to supplement their incomes.
   b. The unregulated production in the countryside resulted in experimentation and the diversification of goods
      - Goods included textiles, knives, forks, housewares, buttons, gloves, clocks and musical instruments.
5. The cottage industry flourished first in England.
   a. Spinning and weaving of woolen cloth was most important.
   b. In 1500, half of England's textiles were produced in the countryside; by 1700, that percentage was higher.
   c. The putting-out system in England spread later to Continental countries (e.g., France and Germany)
6. Proto-industrialism technology (prior to the steam engine)
   a. 1733, John Kay: the **flying shuttle** enabled a weaver to throw a shuttle back and forth between threads with one hand.
      - This cut manpower needs on looms in half; only one person was needed to operate a loom.
   b. In 1764, James Hargreaves invented the **spinning jenny** which mechanized the spinning wheel.

- Hand operated; simple and inexpensive
- Early models had between six to 24 spindles mounted to a sliding carriage; each spindle spun thread.
- Usually worked by women who moved the carriage back and forth with one hand and turned a wheel to supply power with the other.
- Spinners now outpaced weavers (usually the husband).

c. In 1769, Richard Arkwright invented the **water frame**, which improved thread spinning.
- Several hundred spindles on a machine ran on water power.
- It required large specialized factories that employed as many as 1,000 workers.
- It produced coarse, strong thread, which was then put out for re-spinning on hand-powered spinning jennies.

d. In 1779, Samuel Crompton invented the **spinning mule** which combined the best features of the spinning jenny and the water frame.
- This resulted in all cotton spinning gradually being done in factories.

III. <u>England was the first country to industrialize</u>

A. <u>It began in earnest in the 1780s (not complete until 1830 at the earliest).</u>
- It had no impact on continental Europe until after the end of the Napoleonic Wars (1815).

B. Economic and social factors

1. <u>Land and geography</u>

a. England's geographic isolation from the Continent offered protection and separation from many of the continental wars.

b. <u>Good supply of coal and iron</u>
- Wales and northern England were important sources.
- Foreign assistance was not required.

c. Waterways offered a source of alternate power for factories and navigable transport for trade and communication.
- No part of England was more than 20 miles from navigable water.
- It was much cheaper to ship goods by water than by land.

d. The Industrial Revolution grew out of England's expanding role in the Atlantic economy of the 18th century.
- The growth of the Royal Navy and the development of ports provided protection from foreign invasion and later aided Britain's commercial empire.

2. The **Agricultural Revolution** was vital to the Industrial Revolution.
   a. The supply of cheap and abundant labor emerged as the enclosure movement forced many landless farmers to move to towns and cities.
   b. The revolution in agriculture made it possible for fewer farmers to feed larger numbers of people.
      - The British population doubled in the 18th century.
      - The demand for goods within the country increased.
   c. More people were freed up to work in factories (the industrial proletariat) or in the distribution of other goods and services
   d. People were free to move around in search of land or other forms of employment.
      - Rural wage earners were relatively mobile
      - Feudalism was reduced significantly and serfdom had long since been abolished
3. Large supplies of capital were available due to over two centuries of profitable commercial activity
   a. England avoided many costly continental wars
   b. British merchants and gentry had had prospered during the numerous wars on the continent.
   c. Establishment by the gov't of the **Bank of England** in 1694—the central bank
   d. Insurance companies, like Lloyd's of London, provided some degree protection from commercial failure.
4. **Entrepreneurs**
   a. A class of inventive and highly-motivated inventors, engineers and capitalists possessed technological skill and were willing to take risks.
   b. Many young men from the gentry undertook careers in business.
      - Members of the middle class could rise into the nobility from the wealth created in business.
   c. Calvinists in the middle class were driven by the "Protestant work ethic."
5. Colonial Empire
   a. It gave Britain access to raw materials needed for development of many industries.
   b. A growing market for English goods occurred in its colonies and was buttressed by the African slave trade.
6. Britain's parliamentary government promoted commercial and industrial interests because those interests were represented in Parliament.
   a. Well-established financial institutions were ready to make loans available.
   b. A limited monarchy meant that the gov't did not stifle the growth and expansion of the middle class as was the case in France and Russia.
   c. England had a stable government.
      - The successful outcome of wars did not leave England devastated (as was the case with the Napoleonic Wars in Europe).

- The rise of the House of Commons became an instrument of the middle class to gain gov't cooperation and secured middle class loyalty.
  - In contrast, the French middle classes had led revolutionary movements.
- Parliamentary legislation was favorable towards the growth of industry.
  - The repeal of the Bubble Act again allowed for the creation of joint stock companies.
  - The Lowes Act allowed for limited liability for business owners.
  - Repeal of the Navigation Acts and the Corn Laws (*see Period 3.2*) decreased mercantilism's stifling effect in certain industries.

C. A growing demand for textiles led to the creation of the world's first large factories.
1. The constant shortage of thread in the textile industry focused attention on ways of improving spinning.
2. Inventions during proto-industrialization (*see above*) facilitated increased production.
3. The steam engine's application to textile production was perhaps the key event of the industrial revolution.
   a. In the 1780s, Richard Arkwright used the steam engine to power looms and required factory production of textiles.
   b. In 1784, Edmund Cartwright invented a loom that was powered by horses, water, or steam.
4. Metallurgical industries flourished as they provided the machinery.
5. Results of the new technology
   a. By 1790, new machines produced 10 times as much cotton yarn as in 1770.
   b. By 1800, the production of cotton thread was England's most important industry.
      - In 1820, cotton accounted for almost ½ of Britain's exports.
      - By 1850, England produced more than ½ the world's cotton cloth.
   c. Cotton goods became much cheaper, and were enjoyed by all classes.
      - Poor people could now afford to wear cotton slips and underwear.

D. Steam engines and coal
1. The use of coal to power steam engines was one of the hallmarks of the industrial revolution.
   a. This revolution in energy involved a transition from wood-burning to coal-burning.
      - Prior to 1780, processed wood (charcoal) was the fuel mixed with iron ore in the blast furnace to produce pig iron.
      - Much of England as well as parts of Europe were

experiencing deforestation.

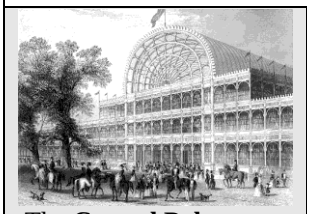
b. Coal provided steam power used in many industries.
   - By 1850, England produced 2/3 of the world's coal.

2. The **steam engine**
   a. Thomas Savory (1698) and Thomas Newcomen (1705) invented steam pumps to remove water from mines.
      - Both engines were extremely inefficient.
      - They were used to replace mechanical pumps powered by animals.
   b. **James Watt** in 1769 invented and patented the first efficient steam engine.
      - By the late 1780s, the steam engine was used regularly in production in England.
      - The steam engine was the most fundamental advance in technology.
        - Steam-power began to replace water power in cotton-spinning mills during the 1780s as well as other mills (e.g. flour, malt, and flint)
        - Radical transformations occurred in manufacturing and transportation.
   c. The iron industry was radically transformed by steam power.
      - Rising supplies of coal boosted iron production and gave rise to **heavy industry**: the manufacture of machinery and materials used in production.
      - Iron makers switched over rapidly from charcoal to coke in the smelting of pig iron.
      - **Henry Cort**, in the 1780s, developed the **puddling furnace**, which allowed pig iron to be refined in turn with coke.
      - Cort also developed heavy-duty steam-powered rolling mills capable of shaping finished iron into any shape or form.
      - By 1850, England produced more than half of the world's iron.

E. The **Transportation Revolution**
   1. It was made possible by steam power.
   2. It became necessary to distribute finished goods as well as deliver raw materials to factories.
   3. New canal systems were important in completing basic needs of related interdependent industries: railroad, steel, and coal industries
   4. Construction of hard-surfaced roads significantly improved land travel.
   5. Steamboats: In 1807, Robert Fulton's steamboat, the *Clermont,* traveled up the Hudson River from New York City to Albany.
      a. It used an imported Boulton and Watt steam engine.
      b. This made two-way river travel possible and travel on the high seas faster.
      c. In 1838, the first steamship crossed the Atlantic Ocean.

6. The Railroad ("iron horse")
   a. In 1803, the first steam wagon was used on the streets of London.
   b. In 1812, the steam wagon was adapted for use on rails.
   c. In 1825, **George Stephenson** made the railway locomotive commercially successful.
      - By 1829, the locomotive was widely used in England.
      - In 1830, his locomotive, the ***Rocket***, traveled the Liverpool-Manchester Railway at 16mph.
        - It was the world's first important railroad as it was located in the heart of industrial England.
   d. Many private companies were quickly organized to build more rail lines in the 1840s.
   e. Impact of the railroad
      - It greatly reduced the cost of shipping freight on land.
      - It resulted in the growing regional and national market spurring increased industrial productivity to meet larger demand.
      - It facilitated the growth of the urban working class who came from the countryside.
        - Many cottage workers, farm laborers, and small peasants worked building railroads.
        - After rail lines were built, many traveled on railroads to towns looking for work.

F. Britain industrial supremacy by 1850
   1. Produced 2/3 of world's coal
   2. Produced more than ½ of the world's iron
   3. Produced more than ½ of world's cotton cloth
   4. GNP rose 350% between 1801 and 1850.
      - 100% growth between 1780 and 1800
      - The population increased from 9 million in 1780 to almost 21 million in 1851.
   5. Per capita income increased almost 100% between 1801 and 1851.
      - The economy increased faster than population growth creating higher demand for labor.
   6. The **Crystal Palace** was built for the 1851 international exhibit. It was intended to signify Britain's industrial, economic and military power. It is about 1/3-mile long and about 800,000 square feet inside the structure.



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IV. Continental Europe began to industrialize after 1815.
   A. Parts of the continent had not been far behind Britain industrially in the 1780s.
      1. The cottage industry thrived in certain regions.
      2. Some British manufacturing techniques were copied by certain continental countries.

B. The Napoleonic wars hindered the industrial growth of continental European nations.
   1. Wars disrupted trade, created runaway inflation, and reduced consumer demand.
   2. Continental access to British machinery and technology was reduced.
   3. By 1815, the continental countries lagged much further behind industrially than in 1789.
      a. Britain dominated world markets during the wars.
      b. British technology was too advanced for most continental engineers and skilled technicians to understand.
      c. The technological of steam power was expensive and required large amounts of capital.
         - Continental entrepreneurs struggled to acquire large amounts of capital.
      d. Continental countries had a shortage of factory workers.
      e. Landowners and gov't officials did little to encourage industrial growth.

C. After 1815, continental Europe began catching up to Britain.
   1. They studied Britain's costly mistakes during its early industrialization and avoided them.
   2. Industrialization differed in each country after 1815.
      a. Belgium, Holland, France, and U.S. began their industrial revolutions in the second decade of the 19th century.
      b. Germany, Austria, and Italy industrialized in the mid-19th century.
         - By 1900, Germany was the most powerful industrial country in Europe.
      c. Eastern Europe and Russia industrialized near the end of the 19th century.
   3. Continental countries borrowed British technology, hired British engineers, and gained British capital.
   4. Continental countries often used the power of strong sovereign central governments and banking systems to promote native industry.
      a. Belgium: in 1830s, pioneered the organization of big corporations with many stockholders.
         - Banks used money to develop industries and thus became industrial banks.
      b. France moved toward industrialization at a more gradual pace than Great Britain, with government support and with less dislocation of traditional methods of production.
      c. Banks in France and Germany became important in the 1850s in developing railroads and companies in heavy industries.
         - **Crédit Mobilier** of Paris was the most famous.
            - It helped build railroads all over France and Europe.

5. Britain was unsuccessful in maintaining a monopoly on technical advances.
   a. Until 1825, it was illegal for artisans and skilled mechanics to leave Britain.
   b. Until 1843, the export of textile machinery and other equipment was forbidden.
   c. Yet, many Brits emigrated illegally and introduced new methods abroad.
6. Tariff policies were used to protect native industries on the continent.
   a. France responded by enacting high tariffs on many British imports.
      - France had been flooded by inexpensive and superior British goods
   b. 1834, the ***Zollverein*** was a German tariff on non-German imports established to encourage capital investment in German industry.
      - It established a free trade zone among member states and a single uniform tariff was levied against foreign countries.
      - It was later strengthened through the ideas of Friedrich List and his ideas in *National System of Political Economy.*

D. The most significant result was increased production and availability of manufactured goods.

V. Social implications of the Industrial Revolution.
   A. It replaced the traditional social hierarchy with a new social order.

   B. The 19th century became the golden age of the middle class.
      1. A new class of factory owners emerged in this period: the **bourgeoisie**.
      2. Two levels of bourgeoisie existed:
         a. Upper bourgeoisie: great bankers, merchants and industrialists who demanded free enterprise and high tariffs.
         b. Lower bourgeoisie ("**petite bourgeoisie**"): small industrialists, merchants, and professional men who demanded stability and security from the government.
      3. New opportunities for certain groups emerged.
         a. Artisans and skilled workers who were highly talented achieved significant success.
         b. Certain ethnic and religious groups became successful.
            - Quakers and Scots in England
            - Protestants and Jews dominated banking in Catholic France.
      4. As factories grew larger, opportunities for advancement declined in well-developed industries.
         a. Capital-intensive industry made it harder for skilled artisans to become wealthy manufacturers.
         b. Formal education thus became more important as a means of social advancement (but the cost was often

prohibitive to those below the middle class).
   c. In England by 1830 and Germany in 1860, leading industrialists were more likely to have inherited their businesses.

C. Proletariat wage earners
   1. Factory workers emerged as a new group in society and the fastest-growing social class—the **proletariat.**
   2. During the first century of the industrial revolution a surplus of labor resulted in poor conditions for workers.
      a. Work hours in factories were as much as 14 hours a day, occasionally more; few holidays for workers.
      b. Working conditions were often brutal and unsafe.
      c. Low wages persisted, particularly for women and children.
   3. **Poorhouses** emerged to provide work to those who were unemployed.
      a. Poorhouse conditions were often intentionally oppressive.
      b. A major goal was to persuade workers to leave the poorhouse and find work elsewhere.
   4. **Friedrich Engels** (1820-1895) lashed out at the middle classes in his *The Condition of the Working Class in England* (1844).
      a. Future revolutionary and colleague of Karl Marx who believed the capitalist middle class ruthless exploited the proletariat
         - "I charge the English middle classes with mass murder, wholesale robbery, and all the other crimes in the calendar."
      b. His ideas influenced Marx and later socialists.

D. The issues of working conditions, wages, and quality of life led to struggles between labor and capital.
   1. For workers and ordinary families, the long-term impact of the Industrial Revolution was more favorable than negative.
      a. It constituted a significant advancement from the pattern of pre-industrial life.
      b. Material prosperity in England increased due to the availability of cheaper high-quality goods and because increased consumption led to more jobs.
         - Wages:
            - Between 1820 and 1850, real wages and consumption of the average worker rose by almost 50%.
               - Only 5% between 1780 and 1820.
            - Skilled British workers earned about twice that of unskilled workers in agriculture.
            - However, the average work week increased.
         - Workers ate better and the quality and quantity of clothing improved.
         - Housing did not improve for working people and in

fact, may have deteriorated somewhat until later in the 19th century.

2. Until 1850, workers as a whole did not share in the general wealth produced by the Industrial Revolution.
   - Economic conditions of European workers improved after 1850.
3. **Luddites**
   a. A violent group of irate workers blamed industrialism for threatening their jobs.
   b. Beginning in 1812 and continuing thereafter, they attacked factories in northern England destroying new machines they believed were putting them out of work.
4. Union Movement
   a. Certain leaders began organizing groups of workers to resist exploitation of the proletariat by business owners
   b. **Combination Acts** (1799)
      - Parliament prohibited labor unions
      - Reaction to fear of radicalism in the French Revolution.
      - Widely disregarded by workers.
      - Repealed in 1824 and unions became more tolerated after 1825.
   c. **Robert Owen** (1771-1858) in 1834, organized the Grand National Consolidated Trades Union.
      - Scottish industrialist who pioneered industrial relations by combining firm discipline with a concern for the health, safety, and work hours of workers.
      - After 1815, experimented with utopian cooperative/socialist communities
      - His and other unionization efforts failed and the British labor movement moved once again after 1851 in the direction of craft unions.
   d. Craft unions won benefits for their members.
      - Means were fairly conservative and became accepted part of industrial scene.
   e. Unions campaigned for 10-hour days and to permit duty-free imports of wheat into Britain to secure cheap bread (in response to the oppressive Corn Laws that were passed in 1815).
   f. Union action, combined with general prosperity and a developing social conscience, led to improved working conditions, better wages, and reduced work hours.
      - Skilled labor benefited earlier and to a larger extent than unskilled labor.
   g. **Chartists** sought political democracy.
      - It organized in the face of Owen's national trade union collapse.
      - It demanded that all men have the right to vote.
      - It sought to change what they saw as an oppressive economic system of exploitation.

E. Changes in working conditions
   1. Factory work meant more discipline and lost personal freedom.
      a. Work became impersonal
      b. Cottage workers reluctant to work in factories even for decent wages because the environment was so different from what they were used to.
      c. Early factories resembled English poorhouses, where destitute people went to live on welfare.
         - Some poorhouses were industrial prisons
   2. Child labor exploitation.
      a. Causes for increased child labor
         - More agricultural workers became weavers as they were paid relatively well.
         - English factories scared off many potential workers as they resembled the poorhouses.
         - Factory owners thus turned to child labor.
      b. Abandoned children became a main source of labor from local parishes and orphanages.
         - Owners exercised authority over children much like slaveowners.
         - Work hours were very long and conditions were appalling.
         - Children worked as chimney sweeps, market girls, shoemakers, etc.
      c. Child exploitation was not new, however.
         - Children were doing much of same work they did traditionally in the cottage industry.
         - Conditions in factories only *appeared* worse.
         - Child labor was actually coming to an end as the industrial revolution matured.
      d. Children & parents typically worked 12-hour days
         - Many families were unwilling to allow their family members to be separated.
            - Families came as a unit to work the mills and mines.
            - Working together made working long hours more tolerable.
         - In cotton mills, children worked for mothers or fathers, collecting waste and "piecing" broken thread together.
         - In the mines, children sorted coal and worked ventilation equipment.
            - Mothers hauled coal in narrow tunnels to the surface.
            - Fathers mined the seam.
         - Adult workers not necessarily eager to limit minimum working age or hours of their children, as long as they worked together.
            - Yet, parents did protest inhumane treatment of their children
      e. Parliament sought to limit child labor.
         - The **Saddler Commission** investigated working

conditions helped initiate legislation to improve conditions in factories.
- **Factory Act of 1833**:
  - Limited workday for children ages 9-13 to 8 hrs per day
  - Limited hours of ages 14-18 to 12 hours.
  - Prohibited hiring children under age 9; children were to go to elementary schools factory owners were required to establish
  - Ironically, helped destroy the pattern of families working together.
  - Employment of children declined rapidly.
- **Mines Act of 1842:** prohibited all boys and girls under age 10 from working underground.

F. Social Effects of Industrialization
1. **Urbanization** was the most important sociological effect.
   a. It constituted the largest population transfer in human history.
   b. Birth of factory towns: cities grew into large industrial centers (e.g., **Manchester**)
      - Prior to the industrial revolution, most people lived in the south of England.
      - Coal and iron were located in the Midlands and the north.
      - In 1785, only 3 cities with more than 50,000 people existed in England and Scotland.
      - By 1820, 31 British cities had 50,000 or more.
   c. The role of the city changed in the 19th century from governmental and cultural centers, to industrial centers.
      - Although living conditions did not differ much from those on farms, the concentration of the population made them appear worse.
   d. Workers began to unite for political action, to remedy their economic dissatisfaction.
   e. Reformers sought to improve life in cities
2. Working class injustices, gender exploitation and standard-of-living issues became the 19th century's great social and political dilemmas.
3. Family structure and gender roles within the family were altered.
   a. Families as an economic unit were no longer the chief unit of both production and consumption.
   b. The new wage economy meant that families were less closely bound together than in the past.
   c. Productive work was taken out of the home.
   d. As factory wages for skilled adult males rose, women and children were separated from the workplace.
   e. Gender-determined roles at home and domestic life emerged slowly.
      - Married women came to be associated with domestic duties, while men tended to be the sole

wage earner.
- Women were now expected to create a nurturing environment to which the family members returned after work.
- Married women worked outside the home only when family needs, illness or death of a spouse required them to do so.

f. Single women and widows had much work available, but that work commanded low wages and low skills and provided no way to protect themselves from exploitation.

4. Irish workers increasingly came to Great Britain and became urban workers.
   - Many Irish were forced out of rural Ireland by population growth and increasingly poor economic conditions.
5. The Industrial Revolution may have stemmed human catastrophes resulting from population growth.
   a. Overpopulation and rural poverty most severe in Ireland.
      - Ireland did not industrialize in 19th century and stands as an example of what may have occurred in other parts of Europe.
   b. **Irish Potato Famine**
      - Most of the population was Irish Catholic peasants.
        - Rented land from a tiny minority of Anglicans, many of whom lived in England.
        - Most lived in abject poverty around 1800.
        - Protestant landlords did not improve agriculture in Ireland.
      - Disease in potato crop continued to increase along with accompanying fever epidemics.
        - In 1845 & 46 and again in 1848 & 1851, the potato crop failed in Ireland and much of Europe.
        - Higher food prices, widespread suffering, and social unrest ensued.
      - Result of the Great Famine
        - At least 1.5 million people died or went unborn.
          - 1 million fled Ireland between 1845 and 1851; 2 million left between 1840 and 1855.
        - Most went to U.S. or Britain.
        - By 1911, Irish population only 4.4 million compared with 8 million in 1845.
      - British government response to crisis inadequate.
   c. Rapid population growth, as in Ireland, without industrialization may have led to similar results in other parts of Europe as in Irish potato famine.
      - e.g. Central Russia, western Germany, and southern Italy were vulnerable: overpopulation, acute poverty, and reliance on the potato.

VI. A historical debate on the industrial revolution
   A. Capitalists view it as a positive step toward fulfilling human wants and needs.
      1. The Industrial Revolution provided power to replace back-breaking human labor.
      2. Wealth available for human consumption increased.
      3. Vast amounts of food, clothing and energy were produced and distributed to the workers of the world.
      4. Luxuries were made commonplace.
      5. Life-expectancy increased
      6. Leisure time made more enjoyable.
      7. Human catastrophe, like Ireland, was largely avoided in areas experiencing industrialization.

   B. Socialists and communists view it as the further exploitation of the have-nots by the haves.
      1. Workers did not begin to share in dramatic increase in standard of living until 2nd half of 19th century due to low wages, poor working conditions, etc.
      2. During 1st century of industrialism the wealth created went almost exclusively to the entrepreneur and the owner of capital—the middle class.

Terms to Know

Commercial Revolution
proto-industrialization
cottage industry/"putting out system"
flying shuttle
spinning jenny
water frame
spinning mule
Agricultural Revolution
Bank of England
Bubble Act
Lowes Act, limited liability
Navigation Acts
Corn Laws
James Watt
steam engine
power loom
heavy industry
Henry Cort
puddling furnace
transportation revolution
Duke of Bridgewater, canals
John McAdam, hard-surfaced roads
Robert Fulton, steamboat
George Stephenson, *Rocket*
Crystal Palace
Crèdit Mobilier
Zollverein
"petite bourgeoisie"
proletariat
Friedrich Engels
Poorhouses
Luddites
Combination Acts
Robert Owen
Chartists
Saddler Commission
Factory Act of 1833
Mines Act of 1842
Manchester
Irish Potato Famine

Essay Questions

Note: This sub-unit is a high probability area for the AP exam. In the past 10 years, 5 questions have come in large part from the material in this chapter. Below are some practice questions that will help you study the topics that have appeared on previous exams or may appear on future exams.

1. Why was England the first country to industrialize?

2. Analyze the role proto-industrialization played in setting the stage for the Industrial Revolution.

3. Compare and contrast the Industrial Revolution in England with the industrial countries on the continent.

4. Analyze ways in which the Industrial Revolution altered the social fabric of European society.

5. Analyze the impact of the Industrial Revolution on the following groups:
   - Women
   - Children
   - Middle Class
   - Proletariat
   - Peasantry

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