CHAPTER 9
Industrial Revolution

Meaning & Background

- The term 'Industrial Revolution' was used by European scholars – George Michelet in France and Friedrich Engles in Germany.
- It refers to the great change in the field of industries when the production of goods by hand in the houses were replaced with the help of machines in factories.
- The transformation of industry and the economy in Britain between the 1780s and the 1850s is called the 'first industrial revolution'.
- It was used for the first time in English by the philosopher and economist Arnold Toynbee (1852-83), to describe the changes that occurred in British industrial development between 1760 and 1820. These dates coincided with those of the reign of George III.
- It revolutionised the techniques and organisation of production in the later half of the eighteenth century.

CAUSES

(i) Economic – There was remarkable economic growth from the 1780s to 1820 in the cotton and iron industries, in coal mining, in the building of roads and canals and in foreign trade.

(ii) Political – The series of incidents occurred in British industrial development between 1760 and 1820. These dates coincided with those of the reign of George III.

**** Why Britain?:**

It had been politically stable since the seventeenth century, with England, Wales and Scotland unified under a monarchy. This meant that the kingdom had common laws, a single currency and a market that was not fragmented by local authorities. Besides, England had great domestic and international market under its control which helped in the growth of Industrial Revolution.

- Towns – From the eighteenth century, many towns in Europe were growing in area and in population. Population of most of the European cities doubled between 1750 and 1800. The largest of them was London, which served as the hub of the country's markets, with the next largest ones located close to it. London had also acquired a global significance.
- Finance – The Bank of England was founded in 1694.

- Coal & Iron – Coal and Iron ore were important raw materials. Abraham Darby invented the blast furnace in 1709. World's first iron bridge was built during this period
- Agricultural Revolution – In the eighteenth century, England had been through a major economic change, later described as the 'agricultural revolution'. This was the process by which bigger landlords had bought up small farms near their own properties and enclosed the village common lands. The agricultural revolution laid down the foundation of the Industrial Revolution.

(iii) Geographical –

- In the seventeenth century, Wales and Scotland were unified. London was the largest city as well as a city of global trade. England had a number of colonies in Asia, Africa and Europe. These helped in obtaining the raw material for industries.
- By the eighteenth century, the centre of global trade had shifted from the Mediterranean ports of Italy and France to the Atlantic ports of Holland and Britain.

CONSEQUENCES

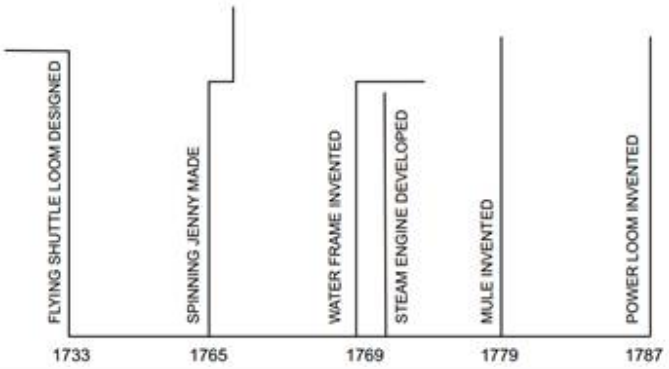
(i) Positive Effects

The onset of textile industry also helped in the emergence of Industrial Revolution.

(a) Invention of Machines in Cotton Industry:

- The flying shuttle loom invented by John Kay in 1733 revolutionsed the textile industry.
- The spinning jenny
- The water frame
- The mule
- Powerloom

Road Map of Industrial Revolution



(b) Increase in Production

(c) Introduction of Railways & Canals

Railways took the industrialization to the second stage.

- Thomas Savery built a model steam engine the Miner's Friend in 1698.
- Another steam engine was built by **Thomas Newcomen** in 1712. The steam engine had been used only in coal mines until **James Watt** developed a perfect steam engine in 1769 and established the Soho Foundry in Birmingham.
- James Brindley built the **First English Canal in 1761**. The 'canal mania' prevailed from 1788 to 1796.
- The first steam locomotive, **Stephenson's Rocket,** appeared in 1814.
- Richard Trevithick devised an engine – the 'Puffing Devil' in 1801 and a locomotive – '**The Blutcher**' in 1814.
- The First railway line ran between Stockton and Darlington..
- The 'little railway mania' prevailed from 1833 to 1837 and the bigger 'mania' from 1844 to 1847**.**

Advantages and Disadvantages – In the 1830s, the use of canals revealed several problems. The congestion of vessels made movement slow on certain stretches of canals, and frost, flood or drought limited the time of their use. The railways now appeared as a convenient alternative. About 6,000 miles of railway was opened in Britain between 1830 and 1850, most of it in two short bursts. During the 'little railway mania' of 1833-37, 1400 miles of line was built, and during the bigger 'mania' of 1844-47, another 9,500 miles of line was sanctioned.

(d) Changed life

- Profits: Some rich individuals who took risks and invested money in industries in the hope that profits could be made, and that their money would 'multiply'. In most cases this money – capital – did multiply. Wealth, in the form of goods, incomes, services, knowledge and productive efficiency, did increase dramatically.

- Huge population: The number of cities in England with a population of over 50,000 grew from two in 1750 to 29 in 1850. This pace of growth was not matched with the provision of adequate housing, sanitation or clean water for the rapidly growing urban population.

(ii) Negative Effects

(a) Condition of workers: There was, at the same time, a massive negative human cost. This was evident in broken families, new addresses, degraded cities and appalling working conditions in factories. The condition of workers was quite miserable. They became victims of restlessness, epidemics and diseases.

(b) Employment of Women and Children in industries: The Industrial Revolution was a time of important changes in the way that children and women worked. The earnings of women and children were necessary to supplement men's meagre wages. Factory managers considered child labour to be important training for future factory work

(c) Protest Movement

- Meaning: Industrialisation led to greater prosperity for some, but in the initial stages it was linked with poor living and working conditions of millions of people, including women and children. This sparked off protests, which forced the government to enact laws for regulating conditions of work.
- **Luddism** – Luddism (1811-17) fought for the workers affected by new machines. It was led by the charismatic General Ned Ludd. Its participants demanded a minimum wage, control over the labour of women and children, work for those who had lost their jobs because of the coming of machinery, and the right to form trade unions so that they could legally present these demands.
- Result: The government reacted by repression and by new laws that denied people the right to protest. For this reason they passed two Combination Acts and supported Corn Laws. Through the Act of 1833 more children were put to work in coal mines.

Reform laws

- Laws were passed in 1819 prohibiting the employment of children under the age of nine in factories and limiting the hours of work of those between the ages of nine and sixteen to 12 hours a day
- The Mines and Collieries Act of 1842 banned children under 10 and women from working underground.

- The Ten Hours' Bill was introduced in 1847, after more than 30 years of agitation. It limited the hours of work for women and young people, and secured a 10-hour day for male workers.
- Fielder's Factory Act in 1847 prohibited children and women from working more than 10 hours a day.
- In eighteenth century, England witnessed the "Agricultural Revolution and the process of 'enclosure'.

THE DEBATE

- Until the 1970s, historians used the term 'industrial revolution' for the changes that occurred in Britain from the 1780s to the 1820s. From then, it was challenged, on various grounds. Industrialisation had actually been too gradual to be considered a 'revolution'. It carried processes that already existed towards new levels. England had changed in a regional manner, prominently around the cities of London, Manchester, Birmingham or Newcastle, rather than throughout the country.
- Indicators of economic change occurring before and after 1815-20 suggest that sustained industrialisation was to be seen after rather than before these dates.
- The word 'industrial' used with the word 'revolution' is too limited. The transformation extended beyond the economic or industrial sphere and into society and gave prominence to two classes: the bourgeoisie and the new class of proletarian labourers in towns and in the countryside

Timeline: Refer to page 201
Keywords: Industrial Revolution, Luddism, protest movement, laws, steam engine, metallurgy, iron smelting, powerloom, canal.