

UNIT 3: THE INDUSTRIAL REVOLUTION

INTRODUCTION:

- 1.-THE CAUSES OF THE INDUSTRIAL REVOLUTION. *WHY ENGLAND?*
- 2.-KEY INDUSTRIAL SECTORS: TEXTILE, IRON AND STEEL, TRANSPORT
- 3.-THE SPREAD OF INDUSTRIALISATION
- 4.- ECONOMIC AND SOCIAL CONSEQUENCES: WORKING CLASS MOVEMENTS.
- 5.- ART DURING THE INDUSTRIAL PERIOD

INTRODUCTION: THE CONCEPT OF "INDUSTRIAL REVOLUTION"

→*The Industrial Revolution is a deep transformation in the economic and social relations in Western Europe.*

It is one of the sides of the "double revolution" that shaped the Western world in a new way, making up the Contemporary period: the political revolutions and the economic revolution, both led by the emerging class, the bourgeoisie.

The First Industrial revolution started in England in the end of the 18th century and soon expanded to Europe and North America throughout the 19th century. In the last third of the 19th century a new period of industrialisation began, called the Second Industrial Revolution, affecting more countries, such as Japan. There is also a Third I. R. in the 20th century, so it can be considered an ongoing process, slow and constant.

1. THE CAUSES OF THE INDUSTRIAL REVOLUTION IN ENGLAND.

The I. R began in Great Britain due to a combination of factors:

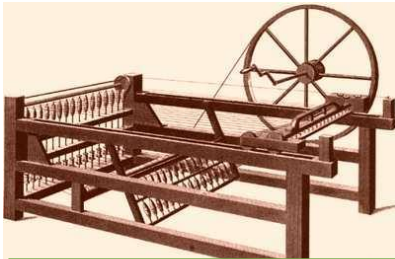
- The **demographic revolution** caused by the decrease in mortality, which was driven by improvements in nutrition, hygiene and medicine. As birth rate remained high, the consequence was a great **population growth**. Consequently, demand in food and manufactured goods increased. There was also a surplus work-force in the countryside that will encourage the rural exodus (migration to cities).
- The **agricultural revolution** refers to the technical innovations and changes in the property ownership that were introduced in great Britain, bringing about an increase in both production and productivity.
 - Triennial rotation (where the land was divided into three parts and one of them was left *in fallow (barbecho)*) was substituted by four-crop rotation system (**Norfolk system**), where they rotated wheat, turnips, oats or barley and crops for grazing (normally clover). There was not more fallow land.
 - **New crops** were introduced, such as maize and potato.
 - Use of **fertilisers** and pesticides
 - Common lands were turned into private lands due to the Enclosure Acts. The **enclosures** provided more land to be cultivated, reinforced private property but poor peasants were forced to emigrate, as they were deprived of common lands that had provided them with resources (wood, fruits...). Agricultural income increased and profits were invested in the rising industry.
 - **Technical innovations** were applied to both industry and agriculture.
 - Steam was one of the main inventions since it was mostly applied to every industrial sector: textile, iron and steel, transport...It replaced water as the main source of energy for industry. **James Watt** perfected the steam machine made by Thomas Newcomen and invented the first **steam machine** in 1769, which could be applied in most of the industrial sectors: mining, textile, agriculture and transport.
 - A **favoured political and social structure** enabled these changes in Great Britain, as the parliamentary monarchy backed the landowners interests, promoting measures that enhanced private property and free trade
 - The **growth of financial means**, as agriculture and commerce provided profits that were used to finance prosperous industrial sectors (mining, steel and textile).

2.- KEY INDUSTRIAL SECTORS

2.1.- THE TEXTILE INDUSTRY

Many inventions*** were used for weaving, providing more and better fabric and using cotton coming from India as the main raw material .

The first one was the Flying Shuttle (*lanzadera volante*) invented by John Kay in 1733 ,followed by the Power Loom by Cartwright (1785) , the [Spinning Jenny](#) (1764) by Hargreaves and the Water Frame invented by Richard Arkwright (1769) (→ [VIDEO](#)) which was a mechanic spinning machine, it did not need a person to spin in order to get the thread. The Mule Jenny (1774) was invented by Samuel Crompton to improve the existent spinning machines. It is a hybrid of Hargreaves' spinning Jenny and Arkwright's water frame. Finally, water was replaced by steam as a new source of energy with the Steam mule Jenny (1785) by Matthew Boulton.



The spinning Jenny (1764) provided more thread thanks to its many spindles

2.2.- THE IRON INDUSTRY.

Before the I.R, iron was melted in ovens, using wood and manual or hydraulic bellows (*fuelles*), so the production was limited. Wood was replaced by coal (initially charcoal -*carbón vegetal*- and afterwards coal -*carbón mineral*-) fuel. Higher temperatures were obtained with this new fuel. Metal quality was much better thanks to the higher temperatures.

Blast furnaces (*Altos hornos*) were invented to get more temperature and better metal. New machines were created in order to inject air into the furnace and to make them more productive. Henry Colt invented puddling (*pudelado*) and rolling (*laminado*) in 1784, which were systems that managed to make a more resistant type of iron.

The steam engine was also introduced into iron and steel industry to make this process quicker. As a result of these innovations, quality and productivity increased in British iron and steel industry.

2.3.- TRANSPORT

The steam engine was soon applied in transport, leading to the creation of the steamboat (ROBERT FULTON, 1807). The steamboat involved the improvement and updating of most of the world's harbours. Additionally, the locomotive (STEPHENSON, 1829), brought about the development of the railway. The first passenger line was the Manchester-Liverpool line. The railway opened markets in the countries and stimulated other industries (such as iron and steel...).

3.- THE SPREAD OF THE INDUSTRIALISATION (→MAP)

After UK, the first countries to industrialise were **Belgium** and **France**, then **Switzerland** and **Prussia** thanks to its natural resources (coal mines in the regions of the Rhur, Saarland (*region de ISarre*) and Upper Silesia. After its unification, **Germany** will become the greatest industrial power in the continent after Britain. The **USA's** industry developed a lot after the Civil War (1861-65). The lack of natural resources, little demand or investment delayed the industrialisation of the Southern European countries (**Portugal, Spain or Greece**) or the Eastern countries (**Austria-Hungary** or **Russia**). **Japan** started a quick industrialisation process after the [Meiji Revolution](#), in 1868. It will soon become a great economic power in Asia.

4.- ECONOMIC AND SOCIAL CONSEQUENCES

4.1.- ECONOMIC CONSEQUENCES

Domestic and foreign trade benefited from the development of the means of transport and the increase of demand. A new stage of Capitalism was born: the industrial capitalism which soon replaced the previous commercial Capitalism. Industrial Capitalism aimed to produce profits that could be reinvested. The concentration of capital led to the creation of large banks, which gave credits to the companies. The banks also

invested in businesses and in the growing stock market (*la Bolsa o el Mercado de valores*), in which shares (*acciones*) were bought and sold. After some time, the industrial capitalism led to the financial capitalism, based on gaining profits by buying and selling shares, financial products...

This economic system was supported by the ideas of **Adam Smith**, "father" of economic Liberalism, based on free competition, free trade and no-intervention of the State in the economy, as it defended that economy depended on supply and demand.

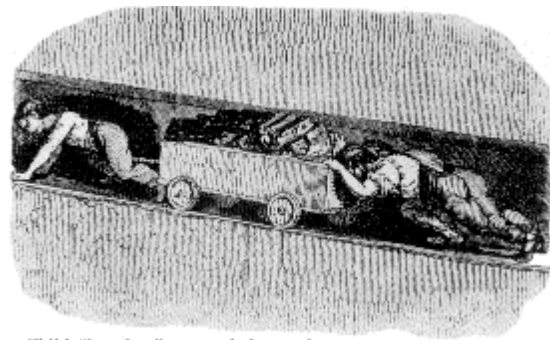
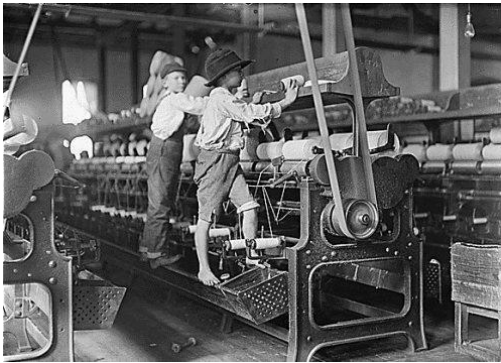
4.2.- SOCIAL CONSEQUENCES: LABOUR CLASS MOVEMENTS.

The Industrial Revolution was part of the "double revolution" that led to the birth of the class system, where social differences were based on personal merit, measured by wealth. The **bourgeoisie** was empowered by economic and political power. Upper bourgeoisie's wealth came from manufacturing, businesses, banks, speculation and agricultural exploitation. Petite bourgeoisie or middle class was made up of small merchants, civil servants and members of liberal professions (doctors, lawyers...).

The working class or **proletariat** was made up of people who moved from the countryside to the cities to work in the factories. Both living and working conditions were harsh: they lived in since they lived in buildings with poor sanitation: no ventilation or hygienic conditions and frequent illnesses.

In the factories they worked up to 16 hours with low wages and no protection or no right to go on strike. Women and children worked and received lower wages.

This situation encouraged the proletariat to organise themselves and fight for their rights.



The first response was the destruction of the machines, (**Luddisme**) as they were seen as the origin of their situation. They also created **friendly societies** giving financial help to workers in need. Afterwards, they started to fight to improve their working conditions creating **trade unions** (*sindicatos*) demanding better wages, accident insurance, right of strike and association.... Finally, they fought for their political rights with the **Chartism**. This terms comes from the *People's Chart*, a document that was sent to the Parliament (1838) demanding political issues, such as secret ballots and universal male suffrage.

The working conditions started to improve slowly thanks to the **Factory Acts*****, which limited children's work in the underground or at night, imposing a minimum age to work in factories and mines. However, many working parents were desperate for money and lied about their children's age. As a result, these laws were very difficult to enforce.

Soon the labour movement developed **left-wing ideologies** aiming for a social change. They didn't just asked for an improvement in social conditions but attacked Capitalism and the class-based society, offering an alternative system. Initially, the **utopian socialism***** defended some principles that will after be developed by Marxism and anarchism, but were still far from revolution. Some of these utopian socialists were **Robert Owen,, Henri de Saint-Simon,, Charles Fourier, or Proudhon.** (→ EXTENSION ACTIVITY)

The next step would be **Marxism** and **Anarchism**, two revolutionary ideologies that strongly criticised **Capitalism, the class-based society, the bourgeoisie and private property**.

Marxism also called scientific socialism, was theorised by **Karl Marx** and **Friedrich Engels** after publishing their main treatises: *The Communist Manifesto* (1848) and *The Capital* (1864). Their philosophy (the dialectic materialism) explained the human relations throughout history based on **class struggle** (*lucha de clases*) between the owners of the means of production and the workers. According to Marx, the struggle between the bourgeoisie and the proletariat would lead to the **dictatorship of the proletariat**, meaning that the proletariat would lead a revolution and get the power from the bourgeoisie's hands in order to establish a new society with no classes, no private property and no State, where everyone would be equal. As a transitory step, the dictatorship of the proletariat will need first to reinforce the State, implementing common ownership, regulating the production and the working conditions. It had to be led by the workers.

Soon many political parties were founded with these principles, such as the SPD or Social Democratic Workers Party in Germany (1875) or the PSOE in Spain (1879).

KARL MARX



MIKHAIL BAKUNIN

Anarchism was inspired in Proudhon's ideas and developed by **Mijail Bakunin** and Kropotkin as an ideology that defended **individual freedom**. Consequently, it rejected any kind of authority (the state, the Church, the army...). They proposed a new society with no institutions, formed by agrarian communes where all the decisions would be taken by popular assemblies and where profits would be shared by all the members. It also rejected political parties, advocating for abstention in the elections as soon as universal male suffrage allowed workers to vote. Hence, there were no anarchist political parties. However, the lack of organisation led to an original solution, the anarco-sindicalism. In Spain, the CNT (Confederación Nacional de Trabajadores) was founded in 1910, bringing about a revival of a movement that had been almost eliminated through repression in the previous years.

To some extent, Anarchism stood up for direct action, meaning through violence or even terrorism, although the term Anarchism is so large that involves a great diversity.

The desire to join all the workers' movements against Capitalism gave rise to the **International Workers' Association (IWA)** – *Asociación Internacional de Trabajadores* o AIT- founded in London in 1864. It was also known as **the First International**. Despite their common interest in most of the objectives, disputes between marxists and anarchists. Marx and Bakunin did not agree in several concepts: history, the leaders of the revolution, and the political results of that revolution. The International was disbanded in the International Convention of Philadelphia (1876) due to those internal disputes and the blaming of causing the **revolution of Paris in 1870*** (the Commune)**.

A **Second International** only attended by socialists met in Paris in 1889 and lasted until the outbreak of World War I in 1914. They initiated the 8-hour working day campaign. In 1889 they elected 1 May as the day to

claim for the workers' rights (International Workers' Day). In 1910 they also fixed 8 March as the International Women's Day.

5.- ART DURING THE INDUSTRIAL PERIOD

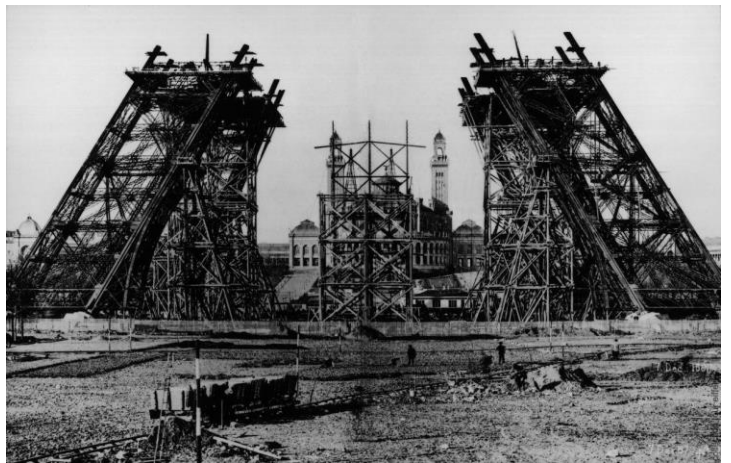
The artistic movement that expressed its concern for the working class situation was **Realism**. Painters represented peasants' daily life (**François Millet**, *The Angelus*), the harsh reality of workers (Gustave **Courbet** in *The Stone Breakers* or **Honoré Daumier** in the *Third-Class Carriage*).



In architecture, technical progress enabled masterpieces as the **Crystal palace** in London or the **Eiffel Tower** in Paris, focusing in the possibilities of new materials like glass or iron . Both were made during the Great Exhibition in London (1851) and Paris (1889).



The Crystal palace



The beginning of the construction of the Eiffel Tower

INTRODUCTION

Activity 1: Make a quick reading of the unit and complete the diagram about the concept of Industrial Revolution (ppt)

TOPIC 1: CAUSES OF THE INDUSTRIAL REVOLUTION

Activity 2: Make a diagram about the causes and consequences of the **demographic** revolution.

Activity 3: Make a diagram about the innovations that made the **agrarian** revolution possible (causes and consequences).

Activity 4: define: *enclosures, Norfolk system, rural exodus*.

Activity 5: Make a complete mind map with all the causes of the industrial Revolution.

Activity 6 *"England, the cradle of the I.R"*: mention/explain the conditions that brought about the Ind. Rev in England in a well structured paragraph. Start with an introduction and end with a strong conclusion advancing further developments in England that stem from industrialisation (key term: colonial empire)

TOPIC 2: KEY SECTORS

Activity 7: List 3 consequences of technological innovations in the textile sector

Activity 8: What is the significance of the iron and steel innovations? List the economic activities that were benefited by these innovations.

TOPIC 3: THE SPREAD OF INDUSTRIALISATION

Activity 9: What countries were first industrialised? Which one were delayed in terms of industrialisation? Why?

Activity 10: Research about Spain industrialisation: areas, sectors, factors that hindered or delayed industrialisation.

TOPIC 4: ECONOMIC AND SOCIAL CONSEQUENCES OF THE INDUSTRIAL REVOLUTION

Activity 11: Define economic liberalism and Capitalism, and explain how these 2 terms differ.

Activity 12: Make an outline of the labour movement:

-working class living conditions→...

-working class working condition→...

-Responses:

1.....

2.....

3.....

4 Utopian socialism

5: Communism and Anarchism.

Activity 13: Make a chart with the similarities and differences of Communism and Anarchism.

Activity 14: Read the text and answer the questions

Letter from Bakunin to Rubicone Nabruzzi, 23 July 1872: (extract)

"Marx is an authoritarian communist and centralist. He wants what we want: the triumph of economic and social equality, but in the State and by the strength of the State by the dictatorship of a provisional government, despotic, that is, by the denial of freedom.

We want that same triumph of economic and social equality by the abolition of the State (...) We want the reconstruction of society and the constitution of human unity, not from top to bottom by the way of any authority, but from bottom to bottom, by the federation of workers' associations of all kinds emancipated from the State".

- a) Present the author and the context briefly. b) **Summarize** the main ideas of the text using your own words.