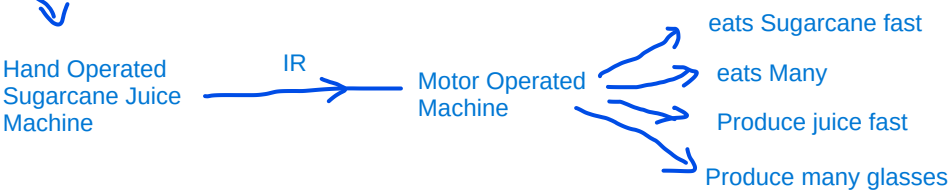
World History Class 05
17th March, 2024 at 9:00 AM

INDUSTRIAL REVOLUTION (IR) (1750-1850) IN ENGLAND (09:03 AM):

- **Revolution = Huge change*1/ Small Time = Change/100 years.**
- **IR =**
- Revolution in the process of production of goods.
- Aided by technological innovations and their spread. (revolution happens when technology SPREAD)
- Now faster pace and scale of production.
- (* Imagine hand-operated sugarcane juice machine = IR => Motor operated machine = Eats sugarcane fast, eats many, produces juice fast, produces many glasses).
- Now mechanized production + new sources of power.
- [* Hand => Horse Power => **1769** Steam Engine (Big development)].
- Development in transport and communications.
- (* Rail, road, ports, ships, boats etc).
- Such a huge impact on polity, economy, society, and ideology at the global level that despite **100** years its called IR. (i.e. even it took huge time but still it is revolution just because change is very-very huge)



- **Happened in England first because:**
- [**a)** Democracy in Economics:
- Freedom of enterprise.
- Freedom of work.
- Security of property (tangible and intangible)
- - It led to an investment - Return on Investment (Profits)
- Less intervention by the states in economics ie more role of demand-supply forces.
- **b)** Profit motive in every citizen.
- Capitalism = a+ b].

- **Capitalism:**
- Democracy first in England that led to capitalism.
- Rising economy therefore rising demand for goods.
- Spirit/culture of a quest for new ideas due to Renaissance (14th century +).
- (**Renaissance**:
- Goal = Human happiness; Method = Logic/Reason/Rationality).
- Security of property because of democracy, allowed capitalists to accumulate and deploy wealth.
- Accumulation of money from trade allowed the funding of innovators and the spread of machines.
- **Geography** -
- Island therefore less invasion, therefore less war expenditure and war destruction; + huge natural resources of coal and iron.
- (* Coal for steam, iron for machines).
- Good natural harbors boosted trade. (depth of sea is good near bank so big ships can come so loading and unloading is easy.)
- When above factors came to exist in other countries, then they also did IR.

- **Character of IR in England (09:59 am):**
- Post -Textile - Steam - Iron and steel - Transport - Agriculture. (PISTTA)
- **Textile sector:**
- Separate fiber from crop/seed (cotton gin = machine) - III.
- Fiber to thread (spinning) - I.
- Thread to cloth (looming) - II.
- IR began in the textile sector.
- Development of spinning machines created pressure therefore there was the development of power looms, initially based on horsepower, then on hydropower, and finally steam engine **1769** by **James Watt**.
- Now pressure on the first sector for supply of fiber and finally **1793** cotton gin that separated fiber **300** times faster than by hand.

- **Steam:**
- Steam engine **1769** was the biggest development.
- Was deployed in power looms.
- Then deployed in coal mines to remove water. (where we find coal there water is also present)
- Therefore steam engines powered by coal led to faster extraction of coal.
- **1814** - deployed in railways and then in ships leading to the interconnection of the domestic economy and of the British economy to world economy.
- (**Note**: Refer to the diagram on the smart board).

- **Iron and steel:**
- Blast furnaces led to better and cheaper steel ie ~~caste~~ cast iron.
- (*Pig iron = lower quality).
- Therefore now the faster spread of machines.

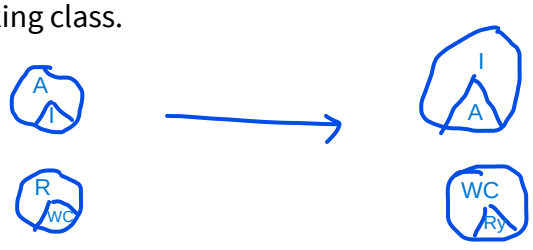
- **Transport:**
- Multimodal transport.
- (* Raw material - factory - buyer).
- **1814** - steam powered railways.
- Pakka/macadamized roads.
- Steam-powered ships for oceanic trade.
- Above led to **rail-road-port** infrastructure development.
- Also inland waterways -
- England had navigable natural tributaries + They built canals and then deployed steam engines on boats.
- Net result = all factors of production interconnected.
- (**Eg**: Labor from rural areas could use trains to reach urban factories/migrate).
- British economy interconnected with the world economy.

- **Agriculture:**
- Provided labor and cash crops to industries. (after coming of machines less number of labors required in agriculture sector so now workers can work in factories.)
- Enclosure movement (before IR) = Such laws made that big landowners took over lands of small landowners.
- Therefore peasants now became tenants and oppressed + Economies of scale led to more land available for cash crop production as now less land need for the food security of England.
- Machines for agriculture therefore now less labor needed.

- **Post:**
- Better and faster communication + ease of doing business as now faster business decisions.

- **Impact of IR (10:55 am):**
- **On Britain:**
- Agrarian economy to industrial economy.'
- From net importer of finished goods to net exporter.
- Raw material imports increased.
- ~~Steal~~ Steel, coal production increased.
- GDP increased and Britain emerged as an economic and political superpower.

- **On British people:**
- The capitalist class gained the most.
- Rise of industrial capitalism and industrial capitalist.
- [* Capitalism = four brothers: Agrarian capitalist, Mercantile capitalist (Europeans came to India as this), Post IR Industrial capitalist, Service sector capitalist].
- Rich-poor divide increased.
- Migration from rural to urban areas, therefore social uprooting.
- (*Recall MG's criticism of Industrial capitalism and his support to a village-based economy).
- Rise of the working class.

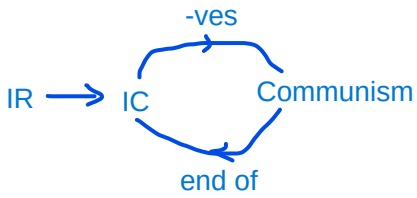


- Crowding in cities and start contrast between slums and luxurious gated colonies.
- Pollution as unregulated industrialization.

- **1776 - Adams Smith** wrote - ' **An Enquiry into Nature and Causes of Wealth of Nations**'.
- Argued for a free market economy or Laissez ~~Faire~~ Fairre ie govt should have no role in the economy and only demand-supply forces should determine everything in the economy.
- (* MIH - Monopoly of EIC over British trade with East Indies came under attack. **1813** charter ended the monopoly over the business with India and **1833** with China.
- **1850** IR complete, therefore notice stronger the industrial capitalist, weaker mercantile capitalist EIC). (Since IR started in England so now industrial capitalist can lobby the govt. that is why monopoly of mercantile capitalist EIC is getting over.)

- **On working class (11:24 am):**
- Huge child labor and an increase in women's workforce as worked on low wages.
- **16-24 hrs** workday.
- No social security.
- No job security.
- (MIH - PS **1793** led to tenant at will and IR in England led to worker at will).
- No minimum wages.
- Handicraft sector destroyed.
- (*Art of artisan replaced by physical labor of worker).
- Also lost autonomy as now no control over what, how, how much to produce.

- **On ideology (11:34 am):**
- Rise of industrial capitalism.
- Exploitation of the working class led to stronger socialism.
- (* Birth of socialism when **FR 1789** did not benefit the working class).
- Working-class solidarity increased + by observing IR in England, and Karl Marx published his works. **Eg: Communist Manifesto 1848,** and **Das Kapital 1867** that led to the rise of **Marxism**/**Communism**.
- The working-class movement began for the right to form trade unions and for the right to vote.
- **Eg:** Chartist movement (**1830s-40s**), failed.
- Therefore negatives of industrial capitalism and Laisez faire led to the rise of communism, putting capitalism itself under threat of the working class revolution.
- Therefore in the **19th century**, govt intervened in favor of the working class by legalizing trade unions, introducing factory acts in the **1880s**, and gradually gave the right to vote to all by **1929.**



- **Impact on colonies (11:43 am):**
- Exploitation under colonialism increased.
- In the name of modernization rail-road-port network built with the goal of faster extraction of raw materials and faster capture of markets of colonies.
- Therefore ports were connected with sources of raw material and to cities in colonies.
- (* Link drain theory of MIH).
- Suez Canal (**1859-69**) hurt colonies like India as reduced the distance by **4500 miles** between Britain and India.
- Therefore revolution in transport increased the exploitation of colonies.

- **Spread of IR outside Britain (11:48 am):**
- Colonies deprived of IR as did not have political autonomy to design own economic policies.
- Late IR in rest of the Europe due to constant warfare and lack of political stability.
- **Eg**: **1792-1815, 23** years of war between France and the West.
- **1815** machines introduced but then **1830** and ~~**1840**~~ 1848 revolts for self-determination in the whole of Europe and then wars for unification in the **1860s** by Prussia and Italy.
- Therefore IR post **1870** only.
- Germany rapidly industrialized post-IR **1870** to become the second economic power to Britain + began naval rivalry **1914**.
- Therefore Britain anxious @ its colonial empire.
- France lacked coal and iron therefore IR after **1870** but far behind Germany and the same case of Italy.
- Russia was rich in raw material but lacked free labor due to serfdom until **1861** + lacked capital for investment.
- (*Less access to warm water, therefore poor trade, therefore less accumulation of wealth).
- Vast territory and scattered population, therefore high cost of interconnecting all factors of production + Constant warfare.

- **Eg**: The **Napoleonic wars** till **1815, 1853-56** Crimean War, **1904-05 Russo-Japanese War**, **1905 - 1st Russian Revolution, 1914-17 - 1st WW-I, 1917** - **October Revolution, 1918-20 - Russian Civil War + Lenin's New Economic Policy focussed on agri sector (1921-29).**
- Therefore IR only after **1929**.
- US - busy in territorial expansion, West of Appalachian mountains and then civil war **1861-65**.
- Therefore IR after **1865**.
- Japan had feudalism till **1868**, therefore IR after the **Meiji Restoration 1868.**
- Therefore **1st IR 1750-1850.**

- **2nd IR = 1870 +:**
- Sources of power = Oil, gas, electricity.
- Internal combustion engine.
- The chemical and banking sector played an important role.
- New methods of communication, for example telephone.
- The state took the lead by assisting capitalists and also by setting up of PSUs.
- **Eg**: Russia, Japan.
- While in Britain IR was led by capitalists.
- Industrial espionage to get technology from Britain.

- **3rd IR - 1969 +:**
- Civil nuclear energy.
- Rise of electronics, computers, and telecommunications.
- Invention = programmable logic controllers ie automation of manufacturing process + Robots.

- **4th IR ongoing:**
- Internet and its applications like AI.

TOPIC FOR THE NEXT CLASS: Colonialism.