



Western Civilization since 1500



Wayne E. Sirmon

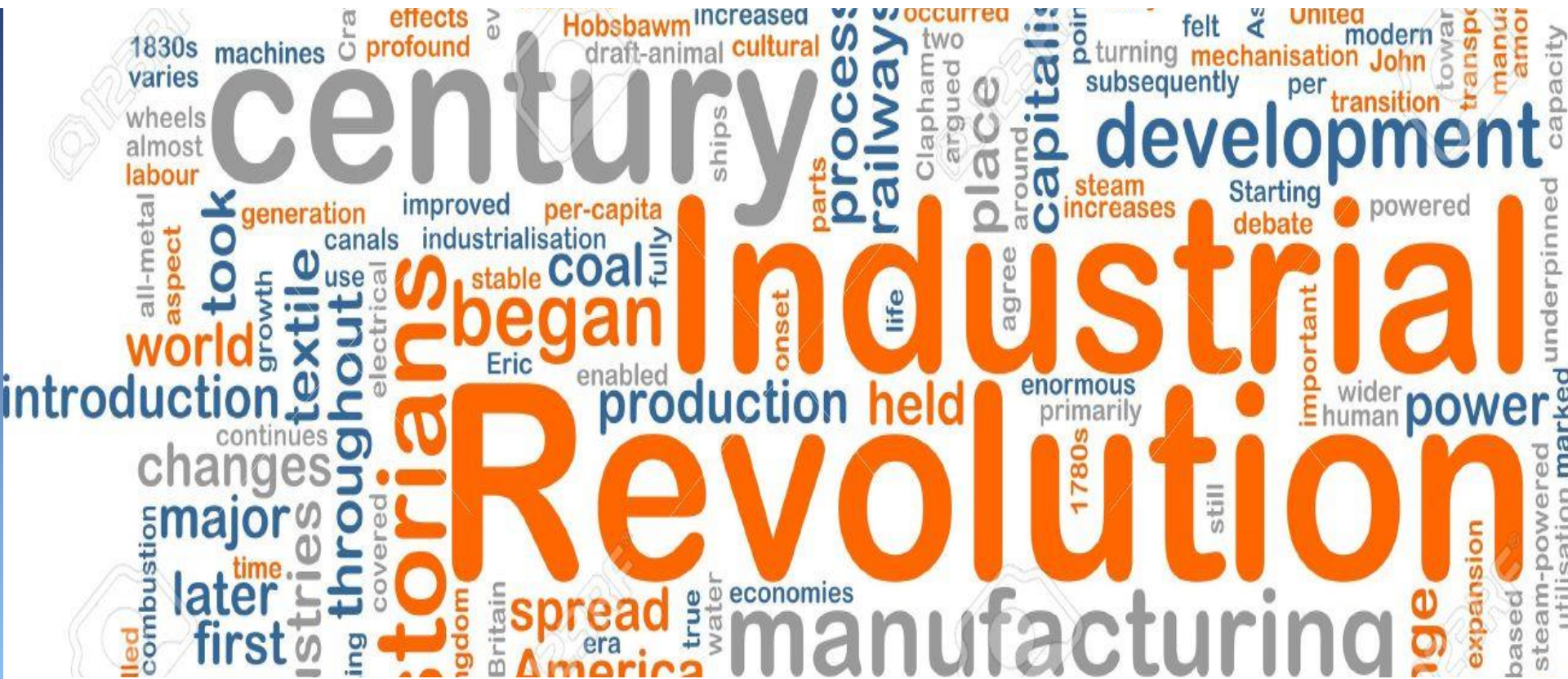
HI 102 – Western Civilization

History 102

Western Civilization from 1500

- | | |
|---------|--|
| Feb. 13 | MARDI GRAS DAY – No Class
Art. 2 Approval Deadline
<i>Don't wait until the last minute!</i> |
| Feb. 14 | Chapters 20 & 21 Online Quiz |
| Feb. 20 | Article Review 2 – DUE |
| Feb. 21 | Chapter 22 Online Quiz |
| Feb. 27 | EXAM 2 (Chapters 19-22) |

Chapter 20: Industrial Revolution & its Impact



The key(s) to the Industrial Revolution?

Chapter 20: Industrial Revolution & its Impact

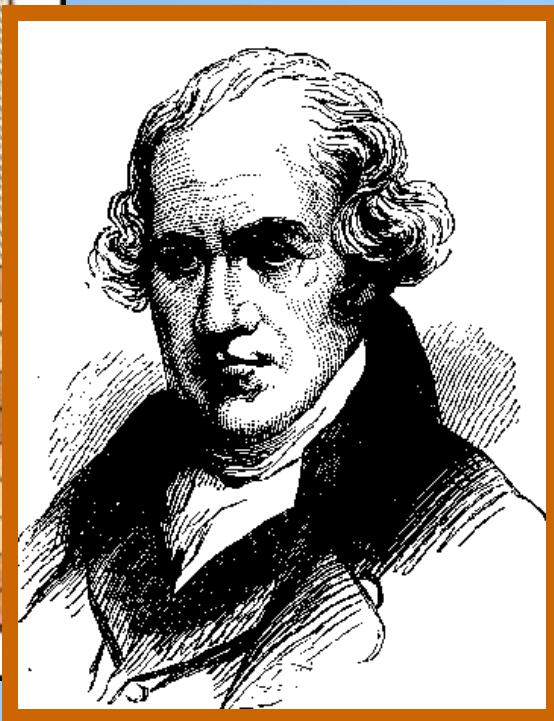
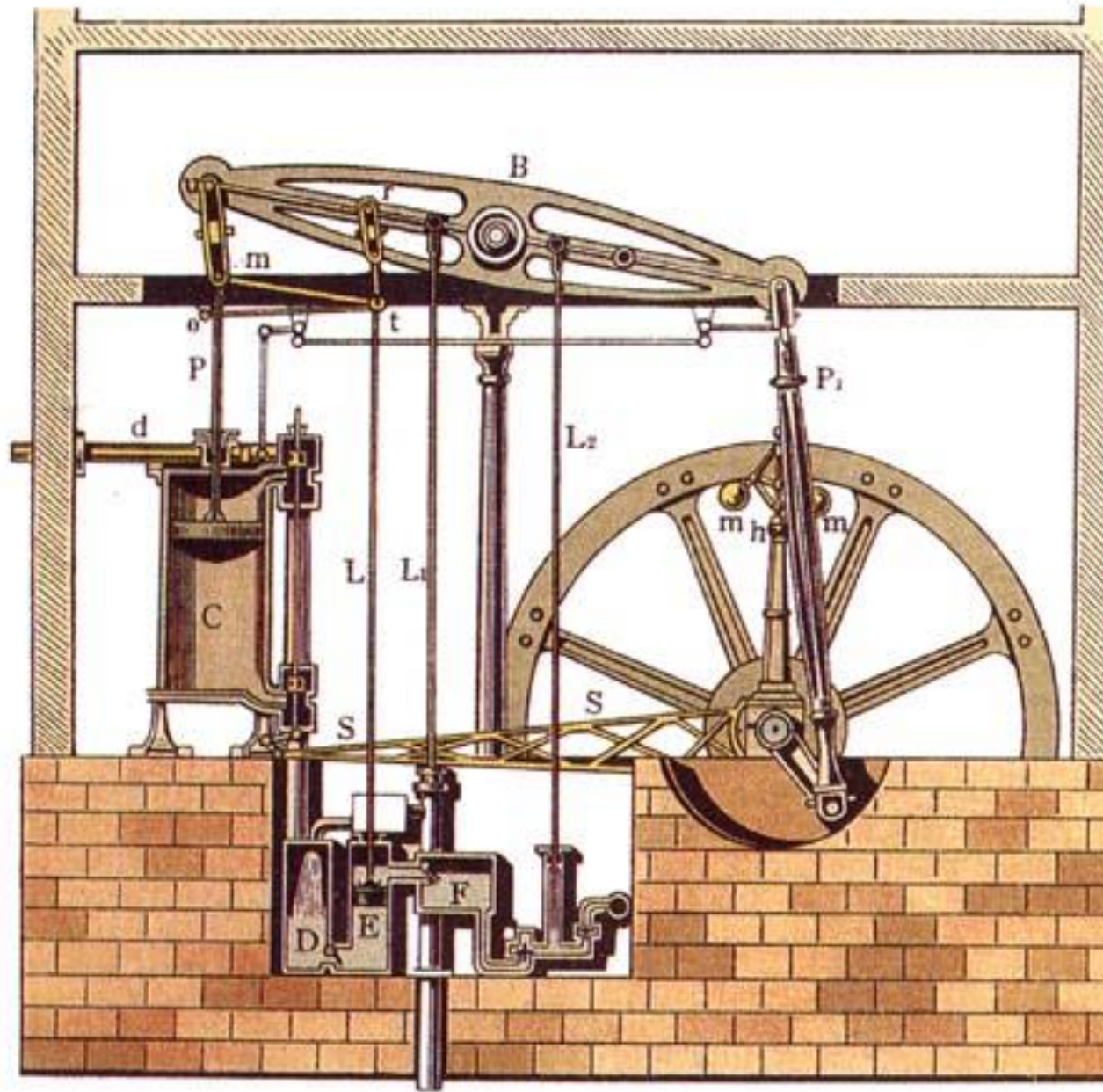


Conditions producing the Industrial Revolution

Agricultural Revolution

- Rapid population growth
- Ready supply of capital
- Innovative individuals

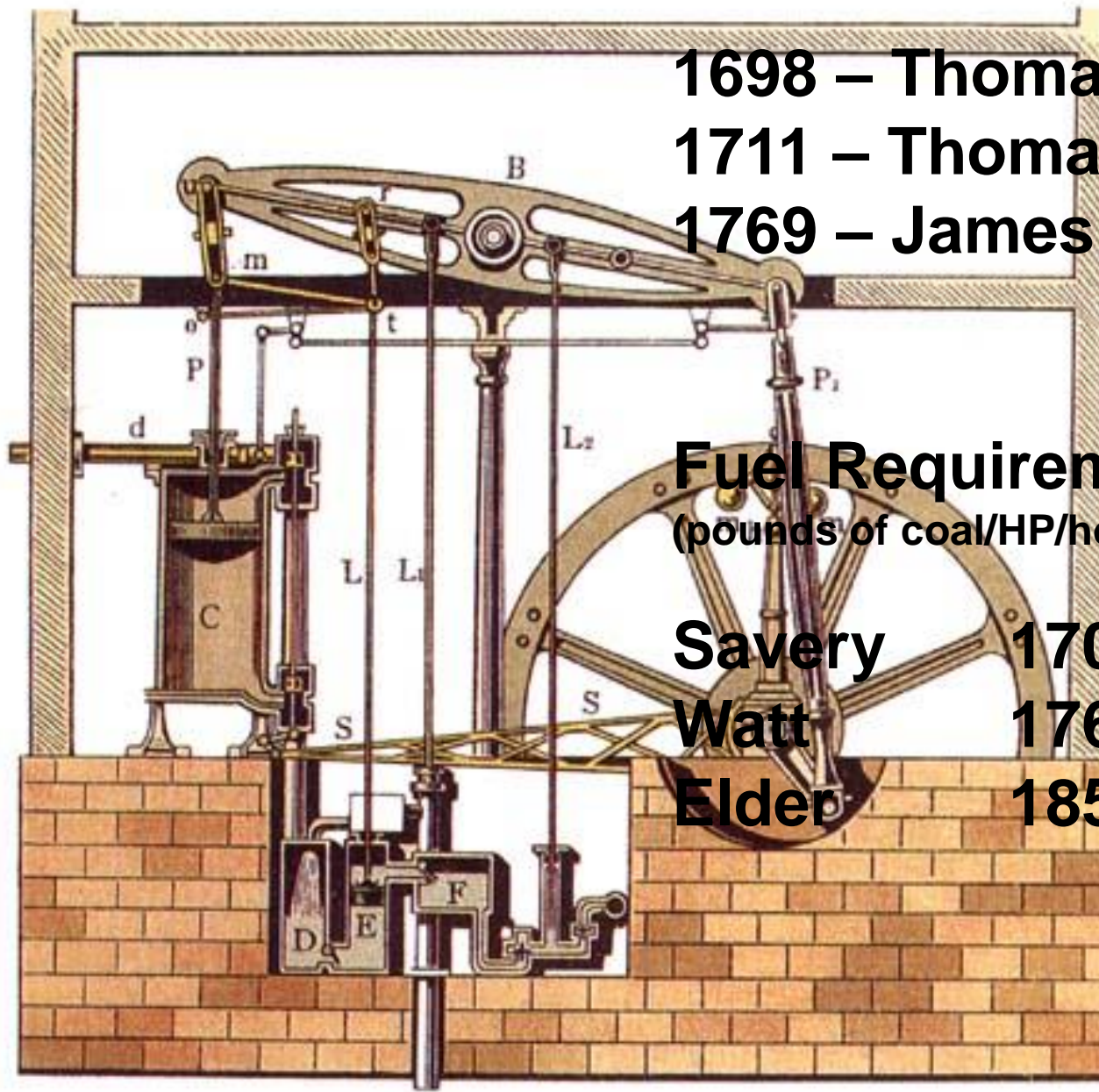
Mineral resources
Stable government
Outlet for goods



1698 – Thomas Savery

1711 – Thomas Newcomen

1769 – James Watt

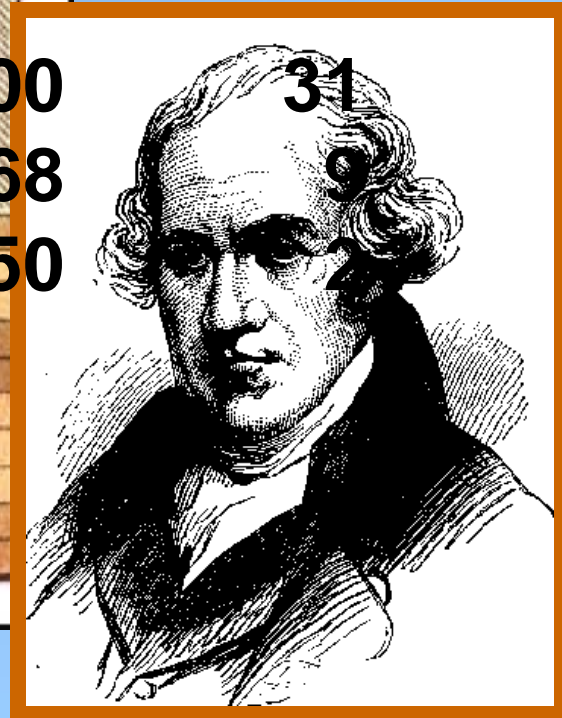


Fuel Requirements
(pounds of coal/HP/hour)

Savery 1700

Watt 1768

Elder 1850



31

9

2

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British Coal and Iron

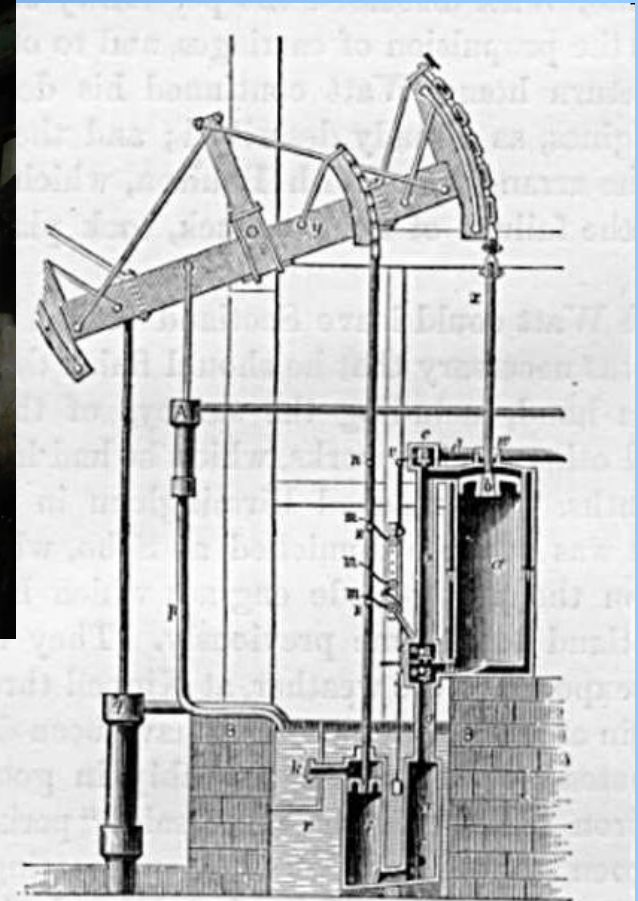
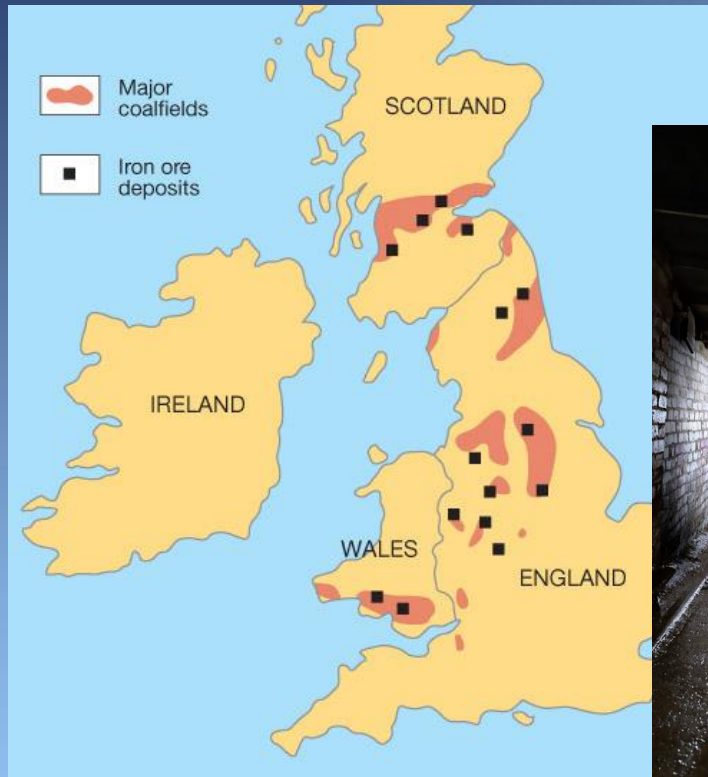


FIG. 26.—Watt's Engine, 1774.

British turn to coal after forests cut down

Coal veins below water table

Steam driven water pump (Savery – 1698)

James Watt – more efficient engine



Industrial Revolution

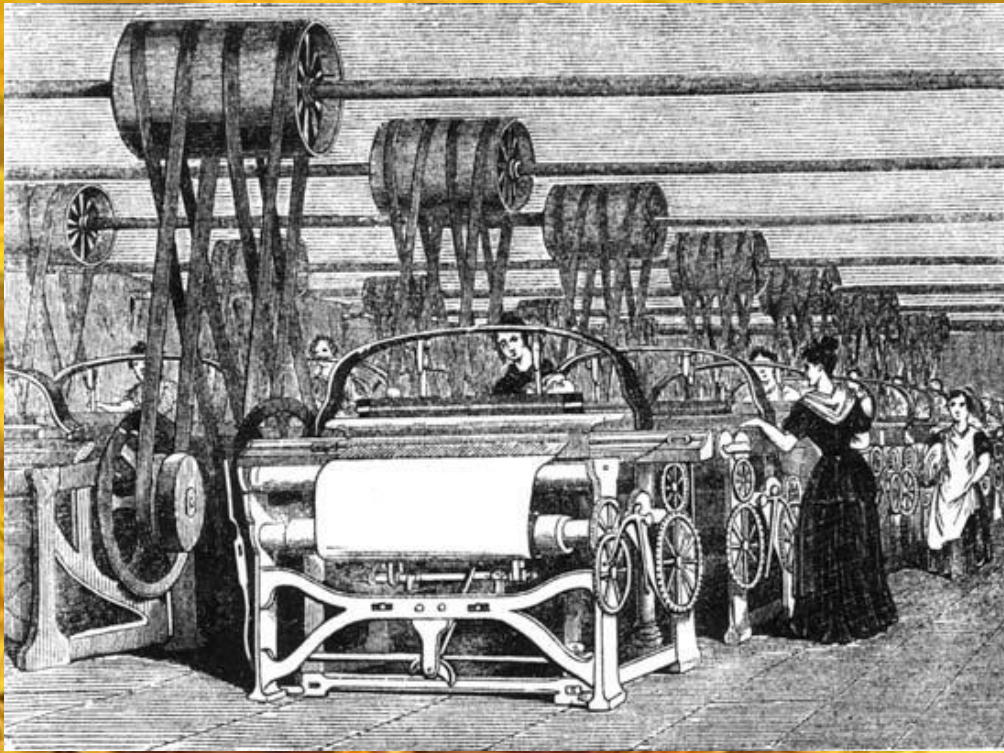
Changing the Way the World Does Business

Metric System Standardization

Telegraph Communication

Steam Power Location

Public Health Application of Knowledge



Cotton Imports to England

(million pounds)

1781 – 6.0

1785 – 18.4

1790 – 31.4

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The Factory & Factory Life

Inventions of the Industrial Revolution

- Britain's textile industry would be the first to be transformed.
- Traditionally, human and animal labor were used to do work.

Hand Powered



1733 – John Kay –
“Flying Shuttle”

A shuttle sped back and forth on wheels. The flying shuttle, a boat-shaped piece of wood to which yarn was attached, doubled the work a weaver could do in a day.



1764 – James Hargreaves –
“Spinning Jenny”

A spinning wheel used to weave yarn. It allowed a spinner to work 8 threads at a time.

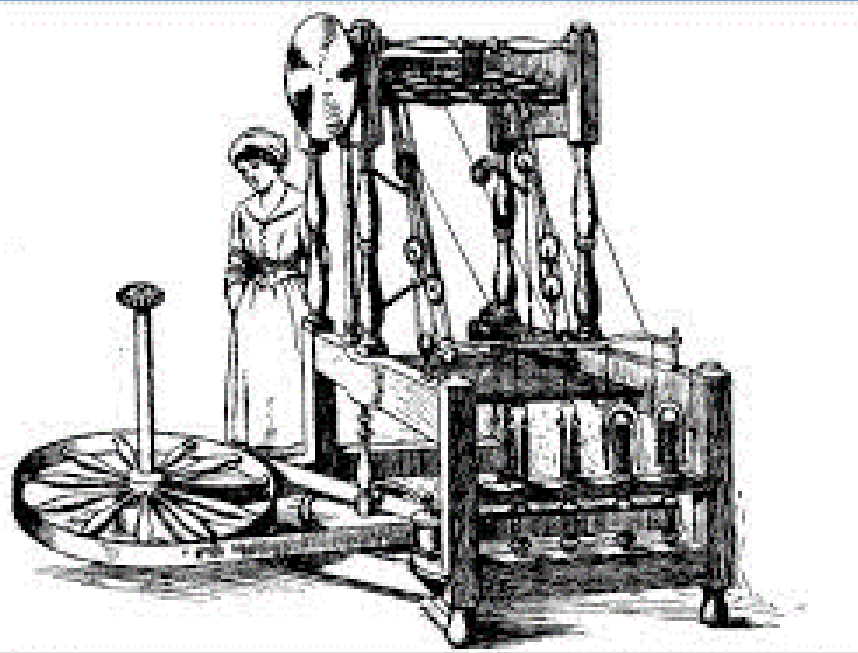
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The Factory & Factory Life

Richard Arkwright 1769

“Water Frame”

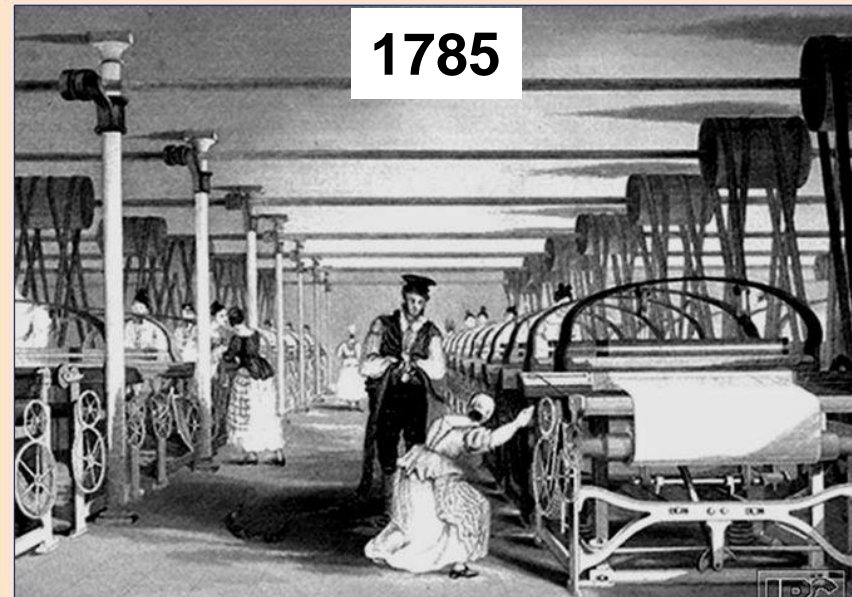
Spinning machine - makes cotton yarn



The Power Loom- by

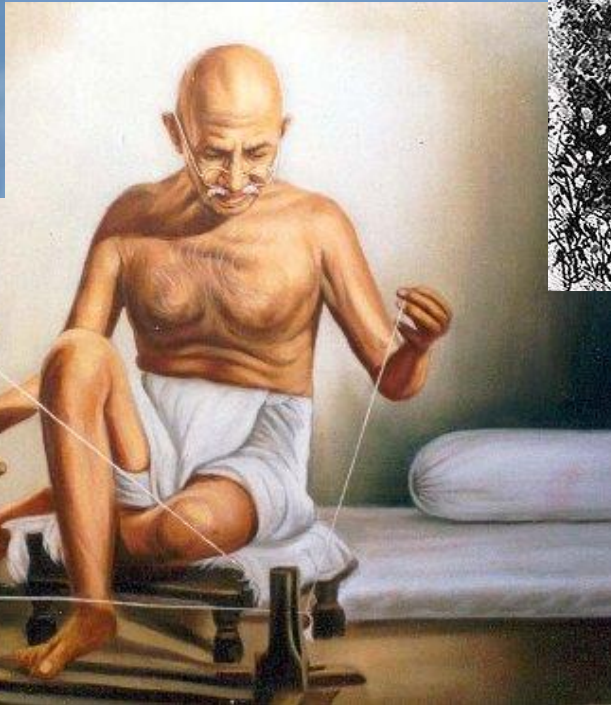
Edmund Cartwright

1785



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Limiting Industrialization to Europe



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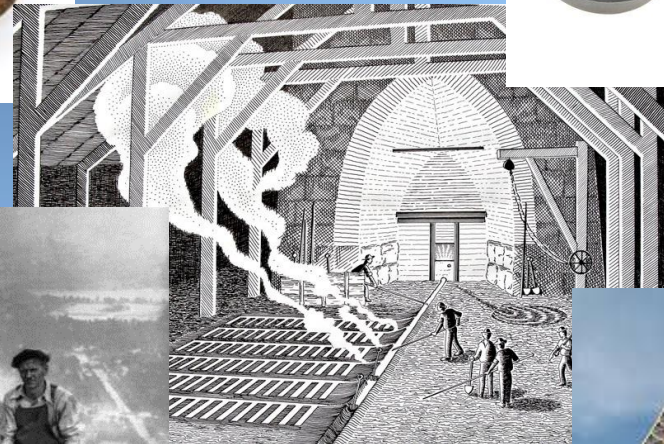
The Factory & Factory Life

Iron Ore

Pig Iron

Cast Iron

Wrought Iron



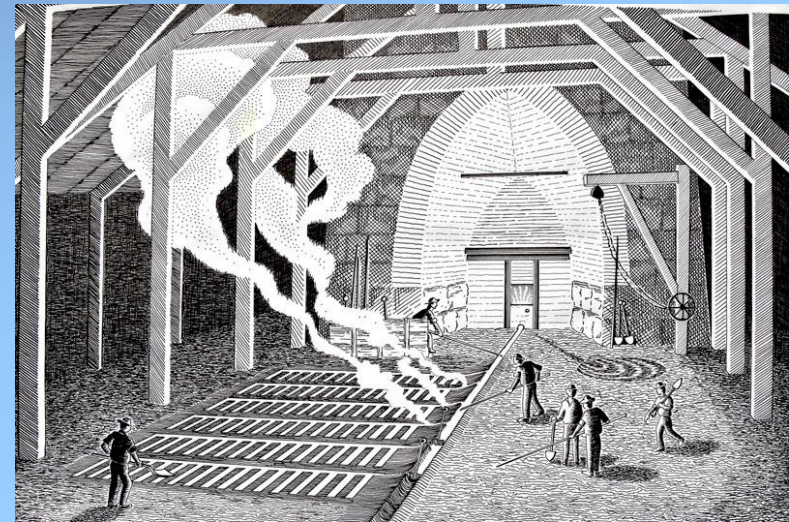
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The Factory & Factory Life

Iron Ore Pig Iron



The crude impure iron, which is extracted from iron ores, is known as **pig-iron** and it forms the basic material for the manufacture of cast-iron, wrought iron and steel.



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The Factory & Factory Life

Cast iron is manufactured by remelting pig iron with coke and limestone. The impurities of pig iron are removed to some extent by oxidation. The molten cast iron is led into molds (casts) of required shapes.



Wrought iron is almost pure and it hardly contains carbon more than 0.15 percent. But the process of its manufacture is laborious and tedious. It can be easily forged and welded, is ductile, malleable and tough and is unaffected by saline water.

It is used for rivets, chains, ornamental iron work, water and steam pipes, bolts and nuts, horse shoe bars, hand rails, etc.



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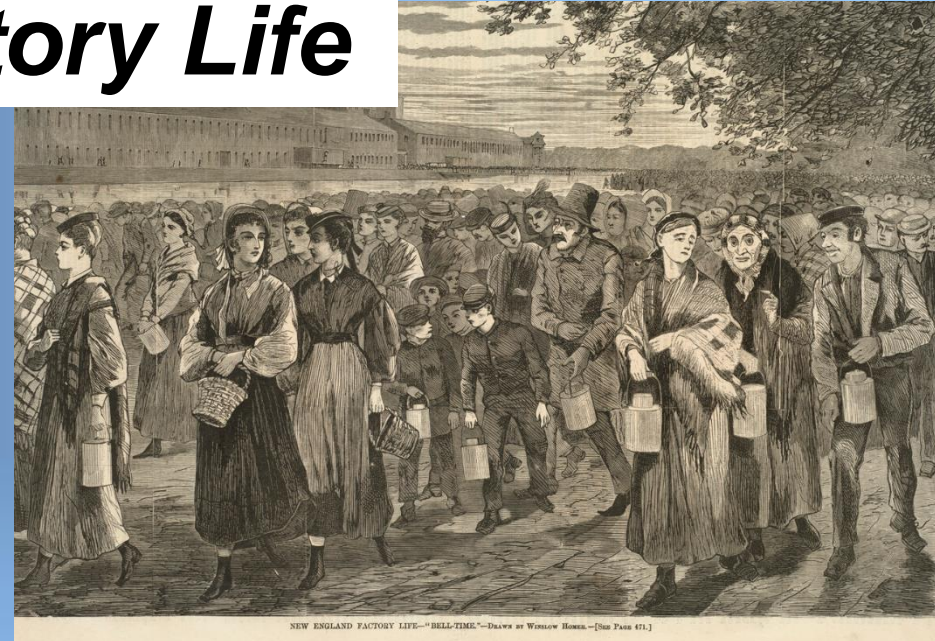
The Factory & Factory Life

Specialization of labor

Efficient organization

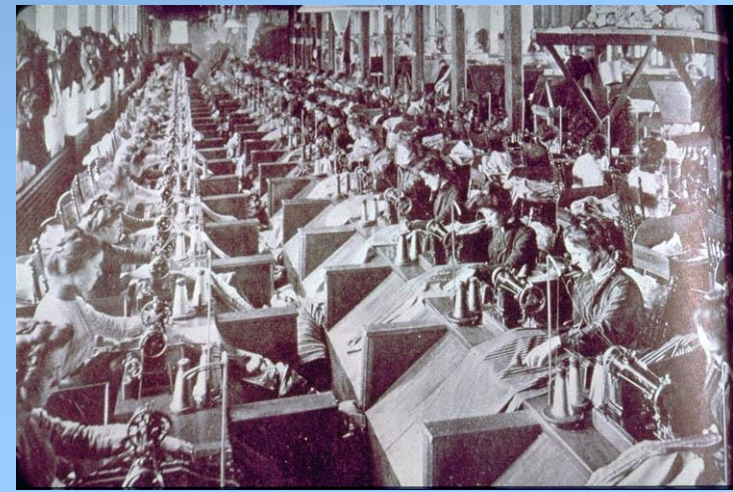
Power-driven machinery

Time clocks, bells and whistles



**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.



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The Structure of Society

Aristocracies and Peasants

Upper Class

The Middle Classes:

Upper – bankers, industrialists

Middle – merchants, lawyers, doctors

Lower – clerks, teachers, shopkeepers

Working Class

Under Class

(poor)



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Family Life in the 19th C.

Urbanization and factory life
Poor housing
unemployment
weakened family ties

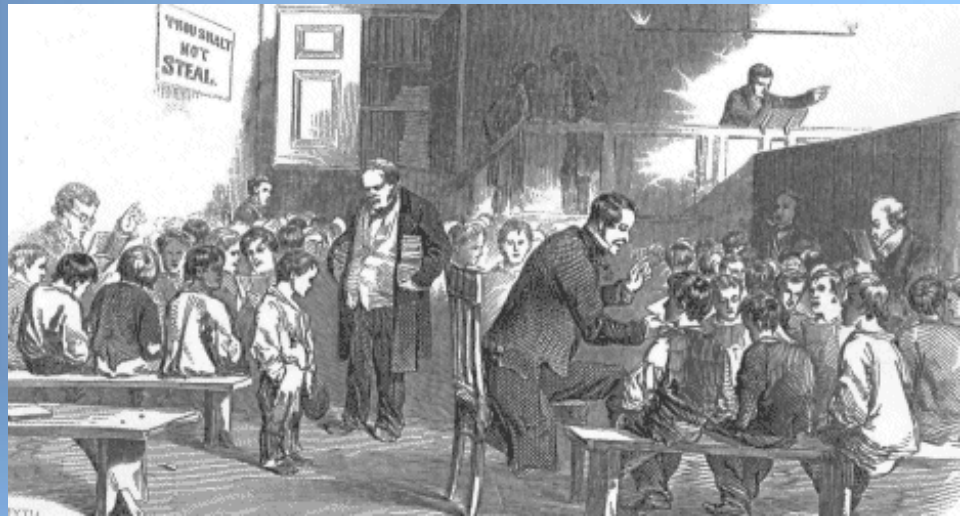


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Family Life in the 19th C.

Help for the poor:

William Booth and the
Salvation Army – 1878



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Family Life in the 19th C.

Help for the poor:

William Booth and the
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GENERAL WILLIAM BOOTH ENTERS INTO HEAVEN

*(To be sung to the tune of THE BLOOD OF THE LAMB with
indicated instruments.)*

Booth led boldly with his big bass drum.

Are you washed in the blood of the Lamb?

The saints smiled gravely, and they said, "He's come."

Are you washed in the blood of the Lamb?

Walking lepers followed, rank on rank,

Lurching bravos from the ditches dank,

Drabs from the alleyways and drug-fiends pale —

Minds still passion-ridden, soul-powers frail!

Vermin-eaten saints with mouldy breath,

Unwashed legions with the ways of death —

Are you washed in the blood of the Lamb?

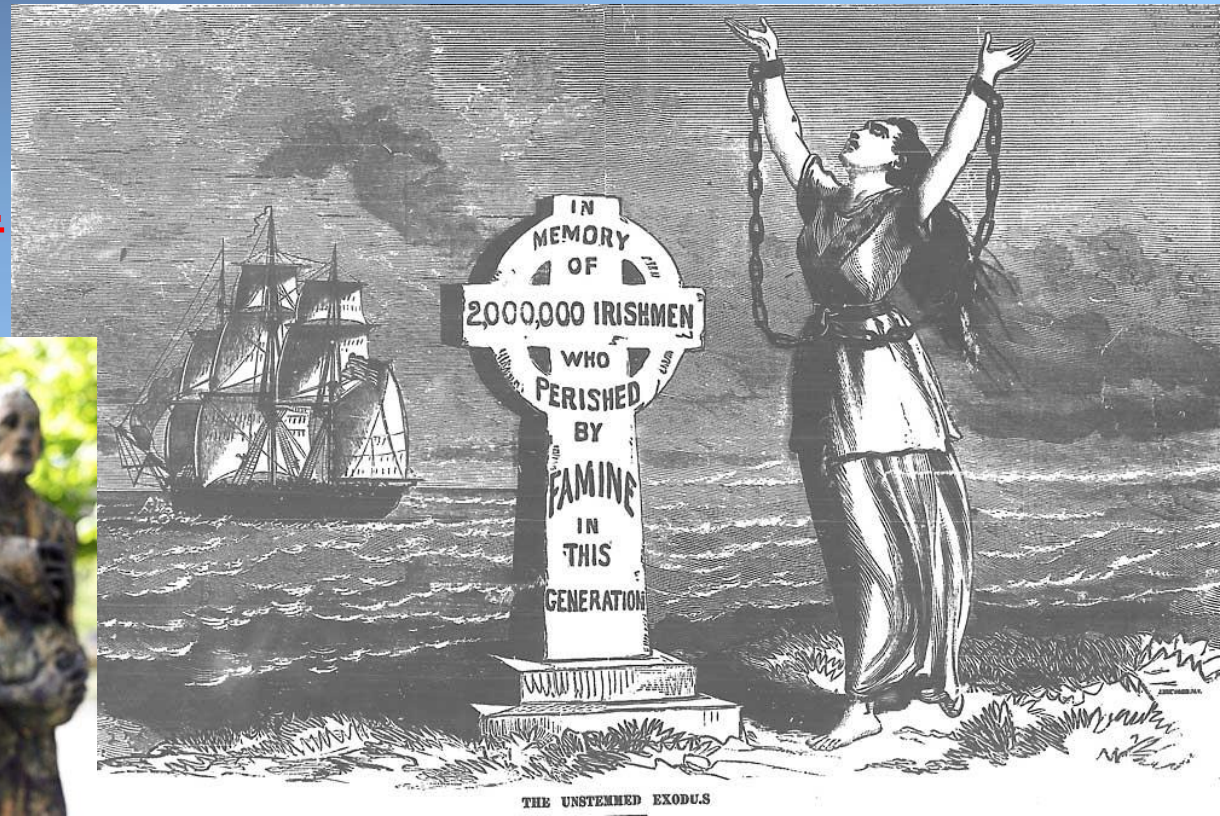
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The Irish Famine 1845-1852

1 million deaths

2 million emigrate

English landlords export
30-50 shiploads of food/day.

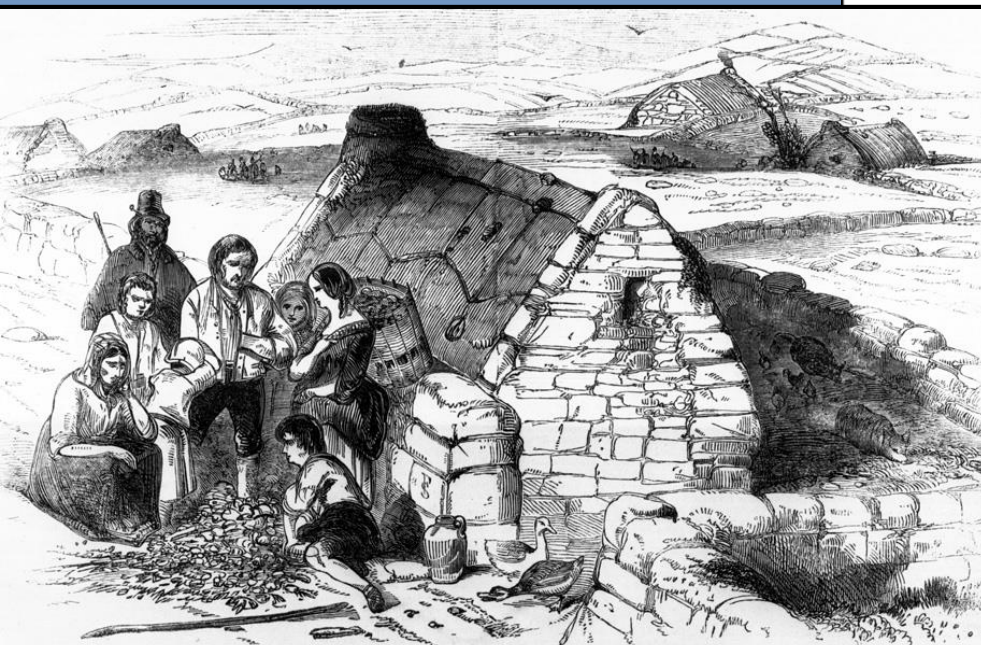


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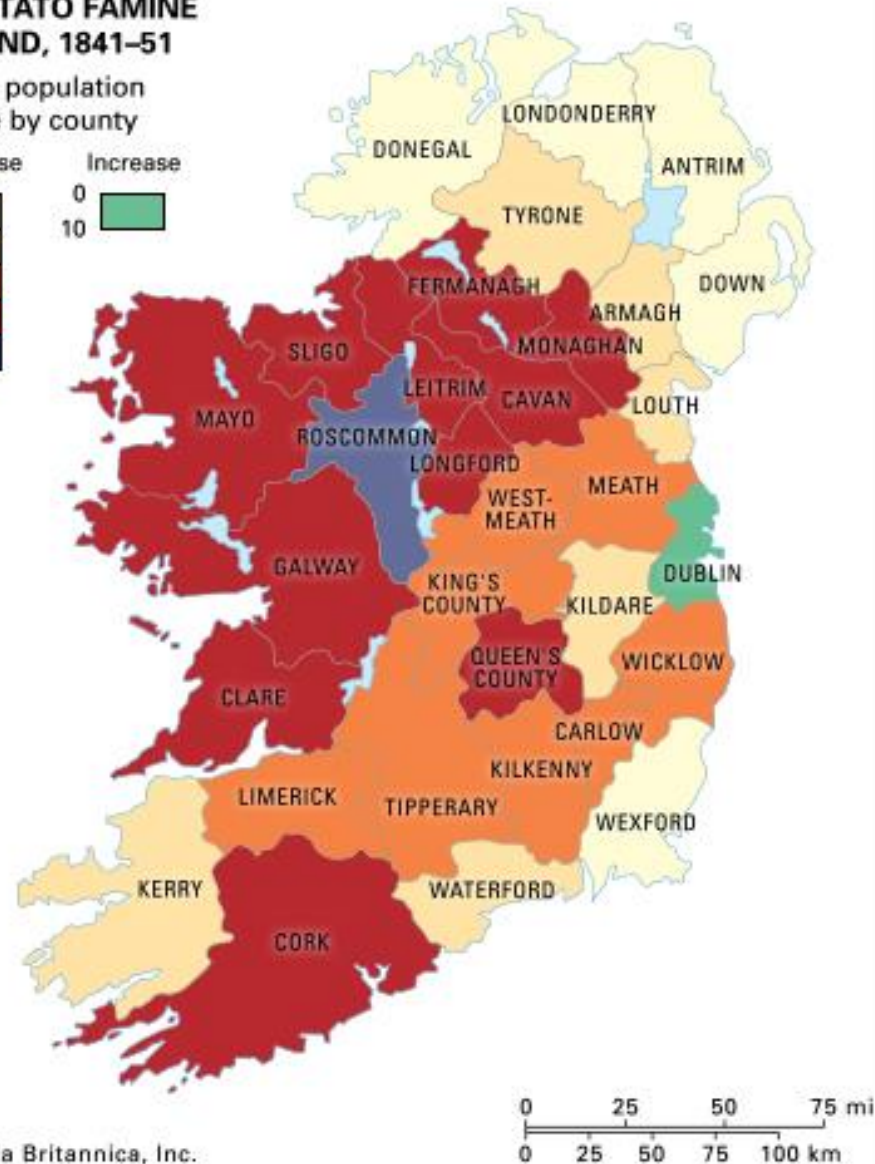
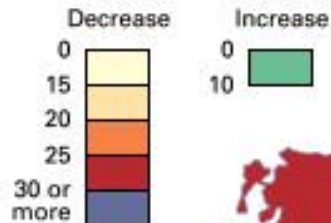


DESTITUTION IN IRELAND.—FAILURE OF THE POTATO CROP.

Illustrated Times 22 Aug. 1846.

GREAT POTATO FAMINE IN IRELAND, 1841–51

Percent population
change by county



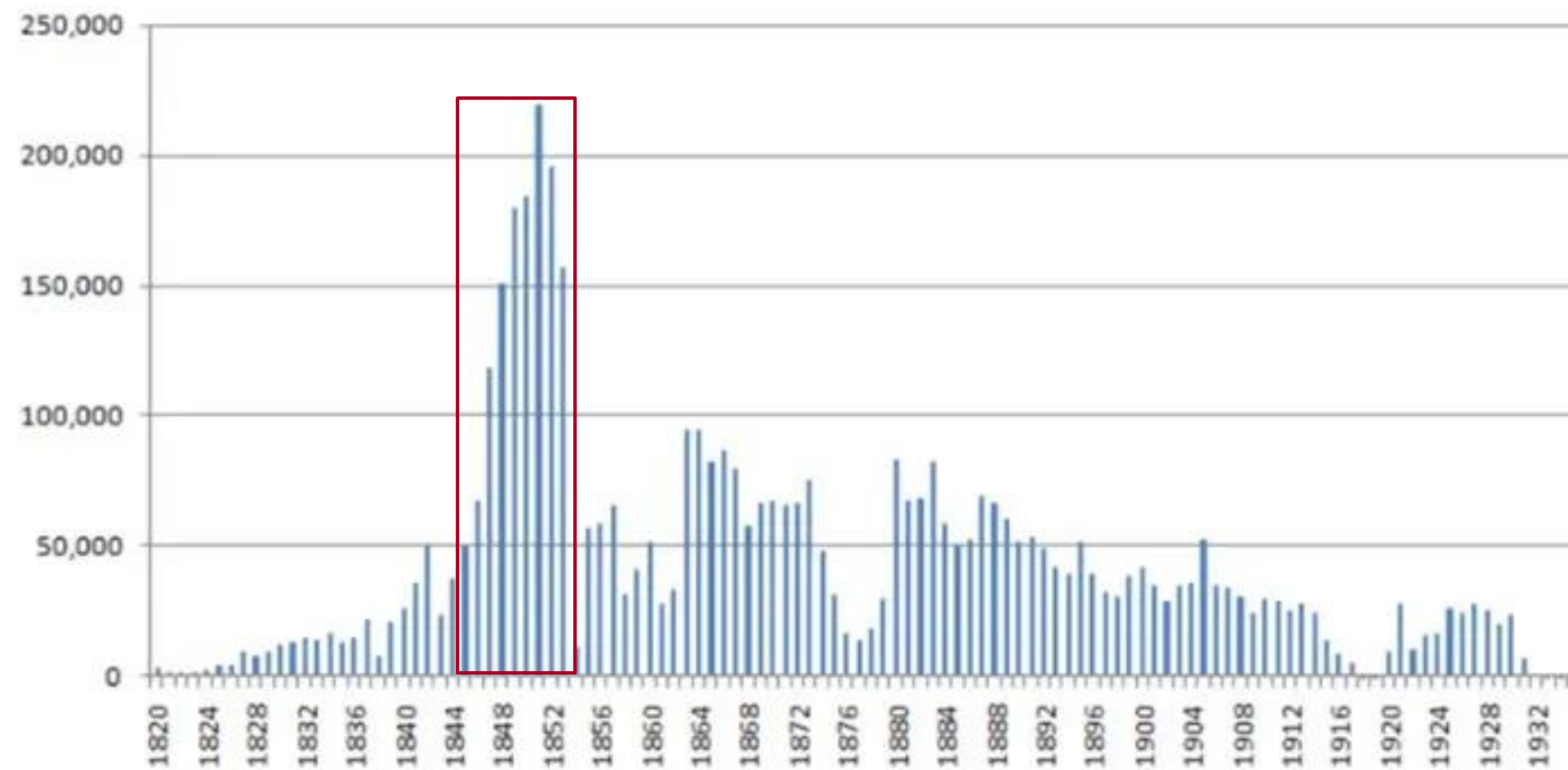
edia Britannica, Inc.

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Irish Immigration to the US

Between 1820 and 1975, 4.7 million Irish settled in America.

Between 1845 and 1855 1.5 million Irish arrived in the US.



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The Changing Population

Demographic Growth – more food = more babies

Urbanization – more cities = more problems

Differential Fertility – more \$ = few babies



NEXT...

CH. 21: Reaction, Revolution, and Romanticism 1815-1850

