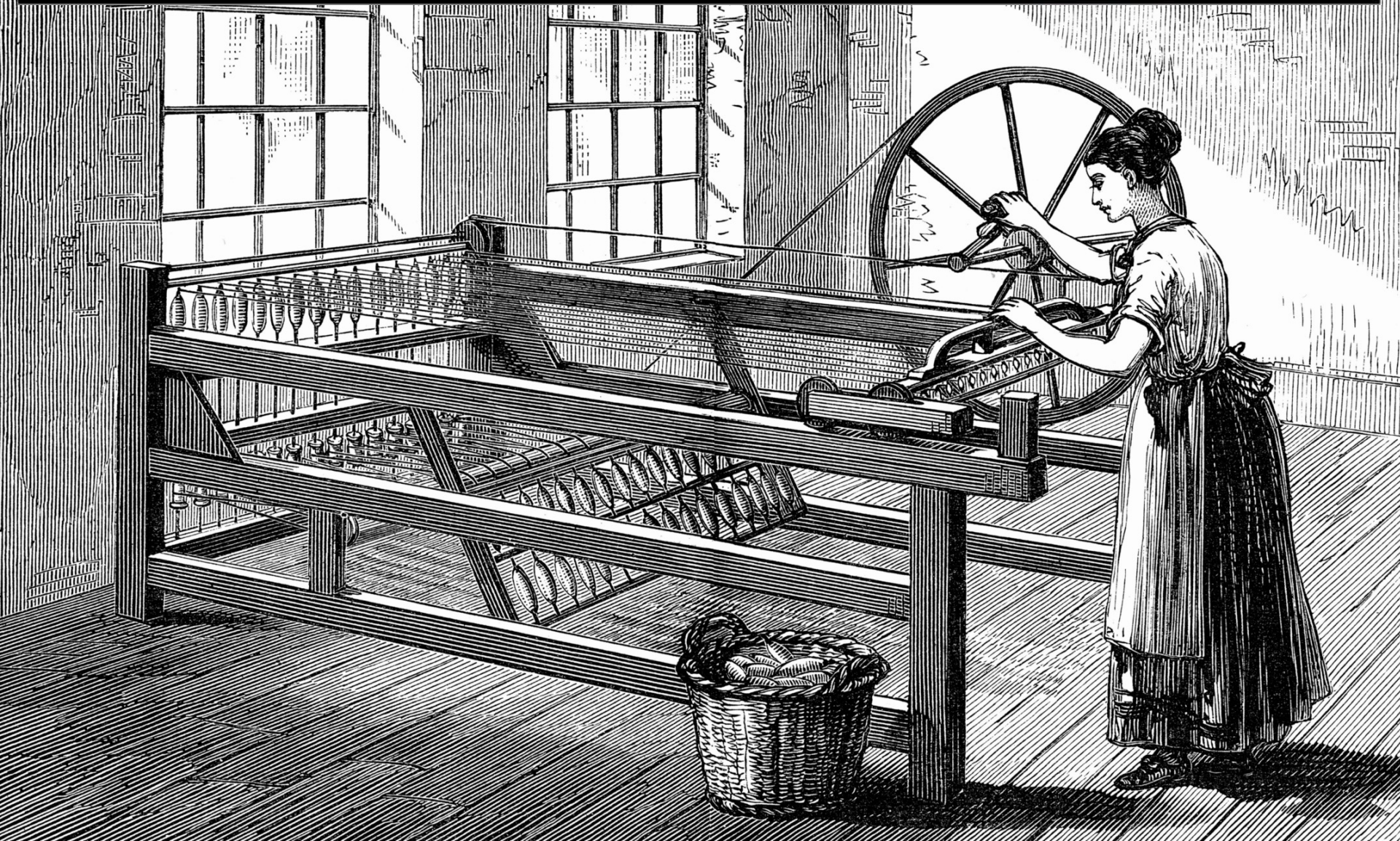


INDUSTRIAL REVOLUTION: REVOLUTIONS BEGINS


c. 1750-1900



THIS IS THE THEMATIC FOCUS. IT'S WHAT YOU SHOULD FOCUS ON FOR THIS SECTION

THEMATIC FOCUS
Humans and the Environments ENV
The environment shapes human societies, and as populations grow and change, these populations in turn shape their environments.

GEOGRAPHY



INDUSTRIAL REVOLUTION BEGINS
1750-1900

WATERWAYS
BY 1750 ENGLAND HAD OVER 1,000 MILES OF NAVIGABLE RIVERS. FROM 1790-1810 THEY BUILT SO MANY CANALS IT WAS CALLED **CANAL MANIA**.

MINING
COAL IRON TIMBER



PRIVATE PROPERTY
SIMPLE MATH: JOHN LOCKE + ADAM SMITH ENCLOSURES LEGAL PROTECTION

URBANIZATION
IN 1750, THERE WAS ONE CITY WITH OVER 100K PEOPLE. BY 1850-12, 70% OF ALL EUR. URBANIZAT.

AGRICULTURE
POPULATION INCREASED 7x FROM 5 MILLION TO

EMPIRE
LARGEST EVER. 1/3 OF EARTH'S LAND & POPUL. IMAGINE: MONGOL EMPIRE + SPANISH EMPIRE.

CAPITAL
HUGE EMPIRE & EUR'S LARGEST STOCK MARKET

LIFE IN THE FACTORY

- CHIEF MEANS OF ORGANIZING LABOR AROUND THE NEW MACHINES
- **BOURGEOISIE** NEEDS TO GET THE **PROLETARIAT** TO:
 - WORK REGULAR HOURS
 - WORK FOR LOW WAGES
 - WORK LONG HOURS
 - PERFORM REPETITIVE TASKS



HISTORICAL DEVELOPMENTS

KC-5.1.I.A

A variety of factors contributed to the growth of industrial production and eventually resulted in the Industrial Revolution, including:

- Proximity to waterways; access to rivers and canals
- Geographical distribution of coal, iron, and timber
- Urbanization
- Improved agricultural productivity
- Legal protection of private property
- Access to foreign resources
- Accumulation of capital

KC-5.1.I.C

The development of the factory system concentrated production in a single location and led to an increasing degree of specialization of labor.

GEOGRAPHY



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AGRICULTURE
 POPULATION INCREASED **7x** FROM 5 MILLION TO OVER 32 MILLION FROM 1700 TO 1850s.

CAPITAL
 HUGE EMPIRE & EUR'S LARGEST STOCK MARKET MADE AVAILABLE LARGE AMOUNTS OF CAPITAL

INDUSTRIAL REVOLUTION: REVOLUTIONS BEGINS

c. 1750-1900

Anytown, Britain c.1750



NEW YORK CITY, c.1913

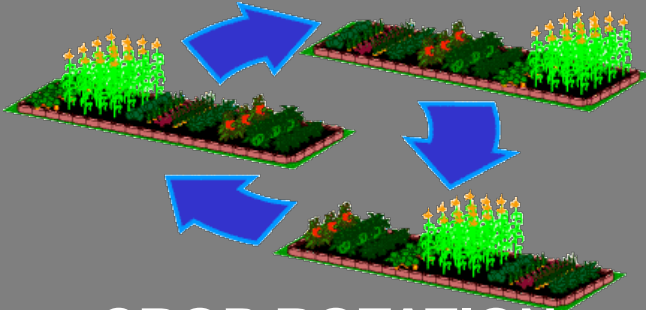


Anytown, Britain c.1750



AGRICULTURAL REVOLUTION 2.0

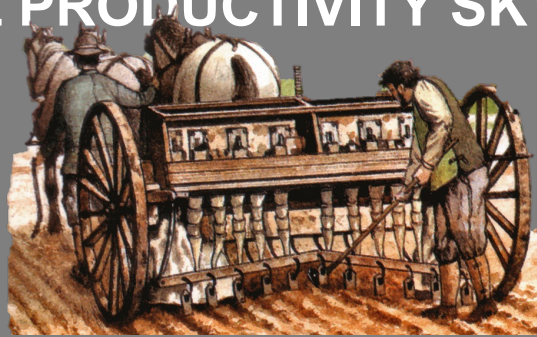
BRITISH AGRICULTURAL PRODUCTIVITY SKYROCKETS IN THIS ERA



CROP ROTATION

ROTATING CROPS INTO FALLOW FIELDS LIKE TURNIPS

(c.1700)



SEED DRILL

ECONOMICALLY PLACED SEEDS IN BEST LOCATION

(1701)



ENCLOSURE MVMT.

ENCLOSED FARMS BEGAN SCIENTIFIC FARMING

(1773)



LAND RECLAMATION

TURNING FOREST/SWAMPS & CONVERTING THEM TO FARMS

(1600s-1800s)



BRITISH WATERWAYS

BRITAIN=1ST NATIONWIDE CANAL SYSTEM (ORANGE)

(1600s-1800s)



1700

1786

SELECTIVE BREEDING

(PHRASE COINED BY DARWIN)
AVG: 1700=370 lbs. 1786=840 lbs

(1700-1900)

FROM 1700-1870, BOTH WORKER & FARMER OUTPUT TRIPLED.

COTTAGE INDUSTRY



COMMONS=AREA OPEN TO ANYONE FOR FARMING, HERDING, GRAZING, ETC.

ENCLOSURE ACTS (1773): ENCLOSED COMMONS AND REMOVED COMMONERS' ACCESS

SYSTEM IN WHICH FINISHED PRODUCTS WERE PRODUCED IN THE HOME (HERE; YARN FROM COTTON SPUN ON A WHEEL)



LOCAL ENTREPREN. BRINGS RAW MATERIALS TO YOUR DOOR...



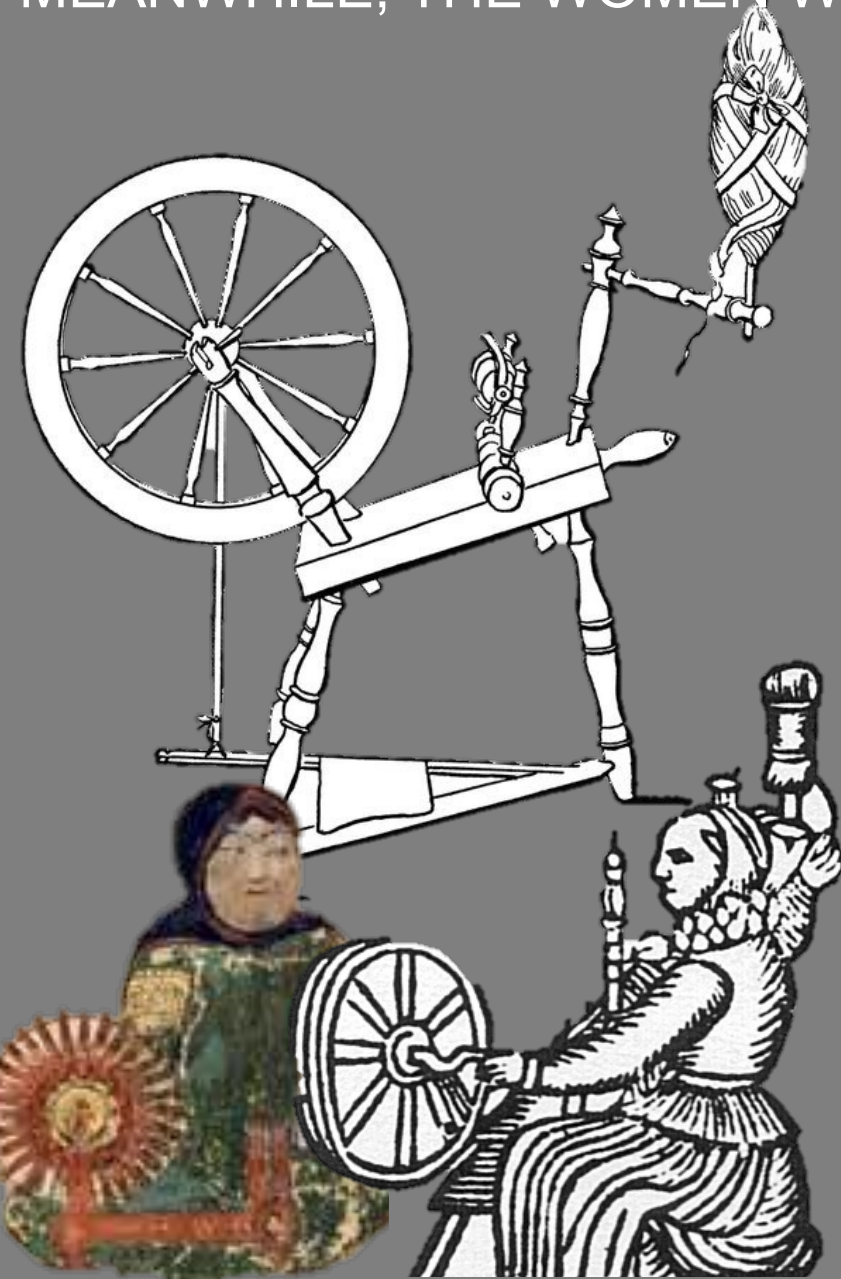


1733: JOHN KAY INVENTS THE FLYING SHUTTLE

MEANWHILE, THE WOMEN WERE SPINNING ON ONE OF THESE:

SPINNING WHEEL

- DATES BACK TO 1,000 CE IN INDIA
- FIRST IMAGERY FROM BAGHDAD (1234 CE)
- USED TO SPIN THREAD OR YARN FROM NATURAL FIBERS (COTTON, WOOL, ETC)



13TH CENTURY ARABIC
MINIATURE FROM BAGHDAD

EARLY 17TH CENTURY
ELIZABETHAN ENGLAND



1895 PAINTING OF ST.
ELIZABETH OF HUNGARY



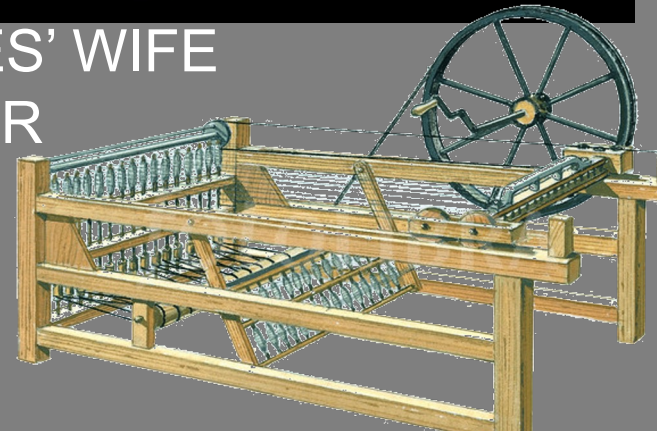
MAHATMA GANDHI USED THE SPINNING WHEEL
AS A POLITICAL MOVEMENT TO REJECT
WESTERN CULTURE & IDENTIFY WITH THE POOR

YARN PRODUCTION COULD NO LONGER KEEP UP WITH WEAVING UNTIL...

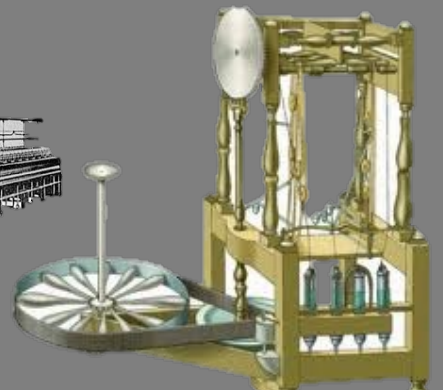
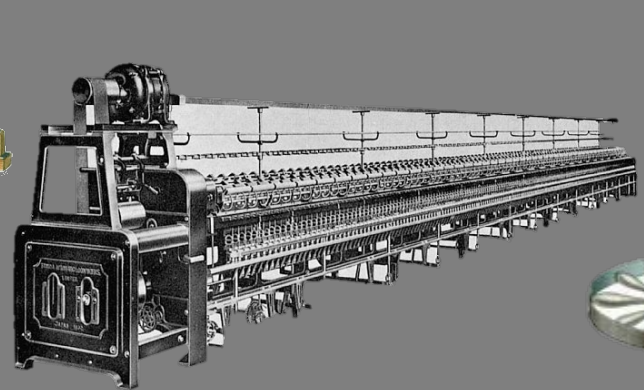
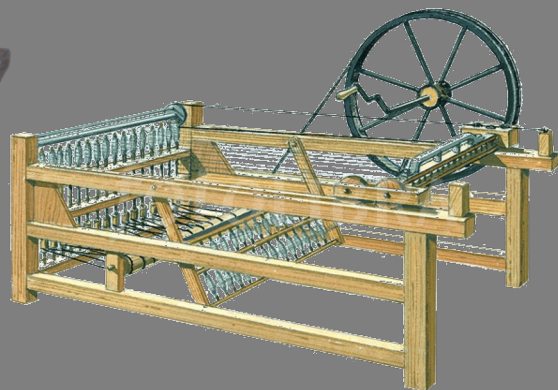


JAMES HARGREAVES' WIFE
KNOCKED OVER HER
SPINNING WHEEL...

JAMES HARGREAVES CAME
IN AND HAD A REALIZATION →
HOW DID IT WORK?!?!?!?!?!?



FROM THERE, INNOVATION SPURRED MORE AND MORE INNOVATION



FLYING SHUTTLE SPINNING JENNY SPINNING FRAME WATER FRAME

(1733)

FASTER WEAVING

(1764)

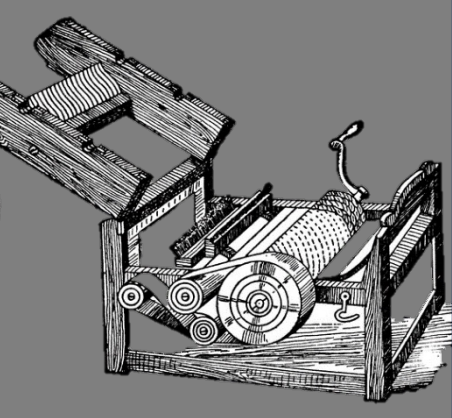
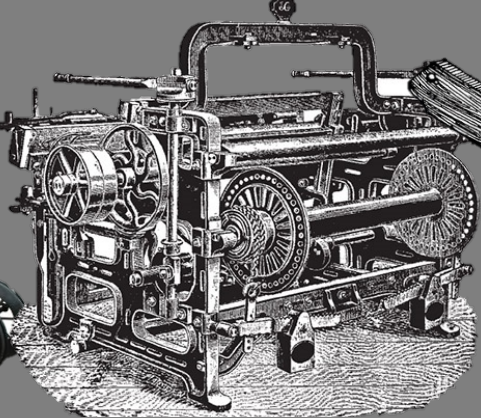
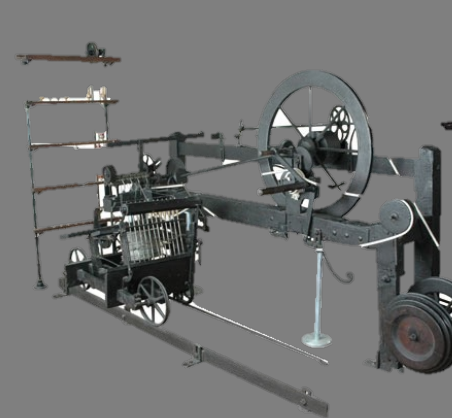
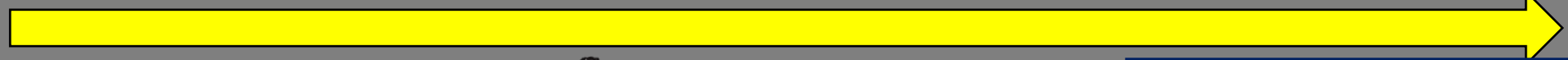
FASTER SPINNING

(1767)

STRONGER THREAD
REQ'D NEW POWER SOURCE

(1769)

← WATER POWERED
← SPINNING FRAME



SPINNING MULE POWER LOOM

(1779)

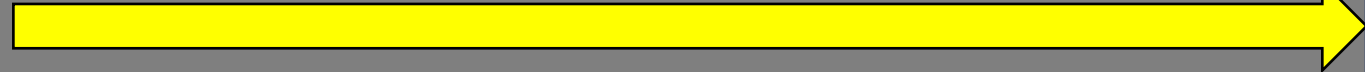
MOST USED SPINNERS FROM 1790-1900
250k in ENGLAND COMPLETELY AUTOMATIC

(1784)

COTTON GIN

(1794)

SEPERATES COTTON FIBER FROM SEED



COTTON GIN= CIVIL WAR?!?!?

1. COTTON PRODUCTION EASIER
2. DEMAND FOR COTTON INCREASES
3. COTTON PRODUCTION DOMINATES US ECON.
 - a. 1790=6 SLAVE STATES
 - b. 1860=15 SLAVE STATES
4. 1860=1/3 OF SOUTH=SLA.
5. ENCOURAGED PLANTATION BASED ECON.
6. INDIRECT CAUSE OF CIV.

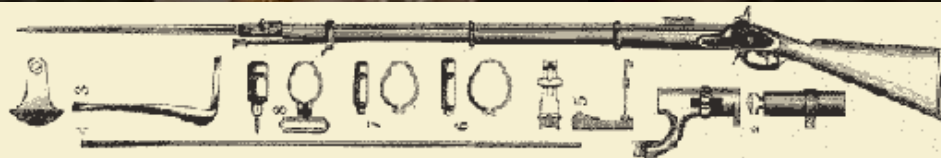
ELI WHITNEY IS NOT JUST THE COTTON GIN GUY... HE DID* THIS:
INTERCHANGEABLE PARTS

MYSTERIES AT THE MUSEUM

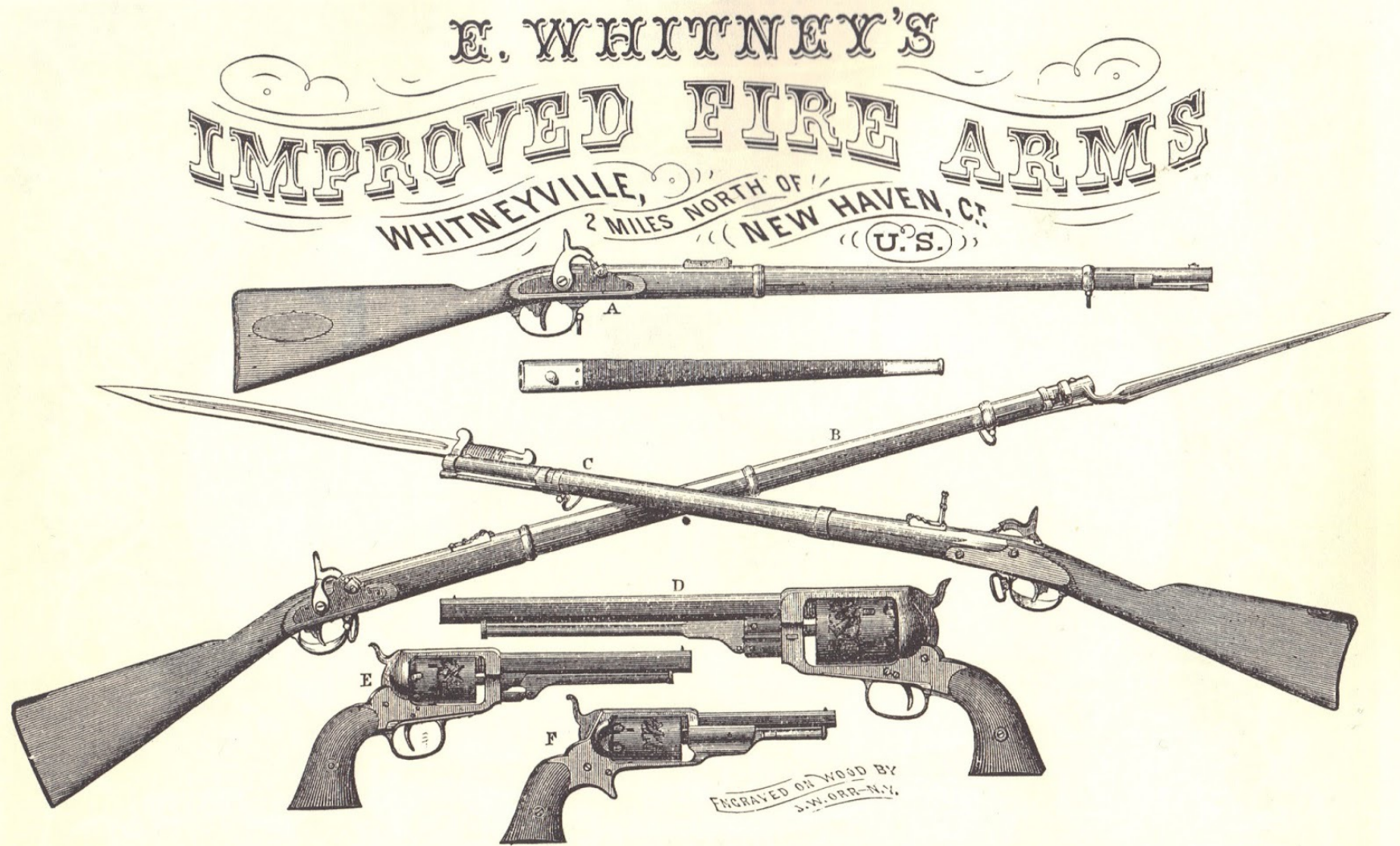
Kane Prestenback
as Eli Whitney



▪ HE DIDN'T INVENT THE IDEA, BUT HIS EFFORTS POPULARIZED 'THE AMERICAN SYSTEM' IN 1798



ELI WHITNEY IS NOT JUST THE COTTON GIN GUY... HE DID* THIS: INTERCHANGEABLE PARTS



WHITNEY'S Revolvers are equal to any in market, and sold at less price. They are made of best materials and in a superior manner. Besides being better balanced, they are more accurate shooters than the old style of repeating pistols most in use; because the barrel is more firmly held to the cylinder, so that there is no yielding, and the centre pin, as should always be the case, is used only for the revolution of the cylinder. Whitney's new model pistols are warranted safe, efficient, and durable in all respects, if properly used. Calibre same as Colt's. Whitney's new model Mississippi and Minnie Rifles and Muskets offered on very reasonable terms. See the recommendation of Col. Jefferson Davis, late Sec. at War. Kit Carson says, Whitney's Rifles are the best to cross the Plains with. For further particulars and prices, send for circulars.