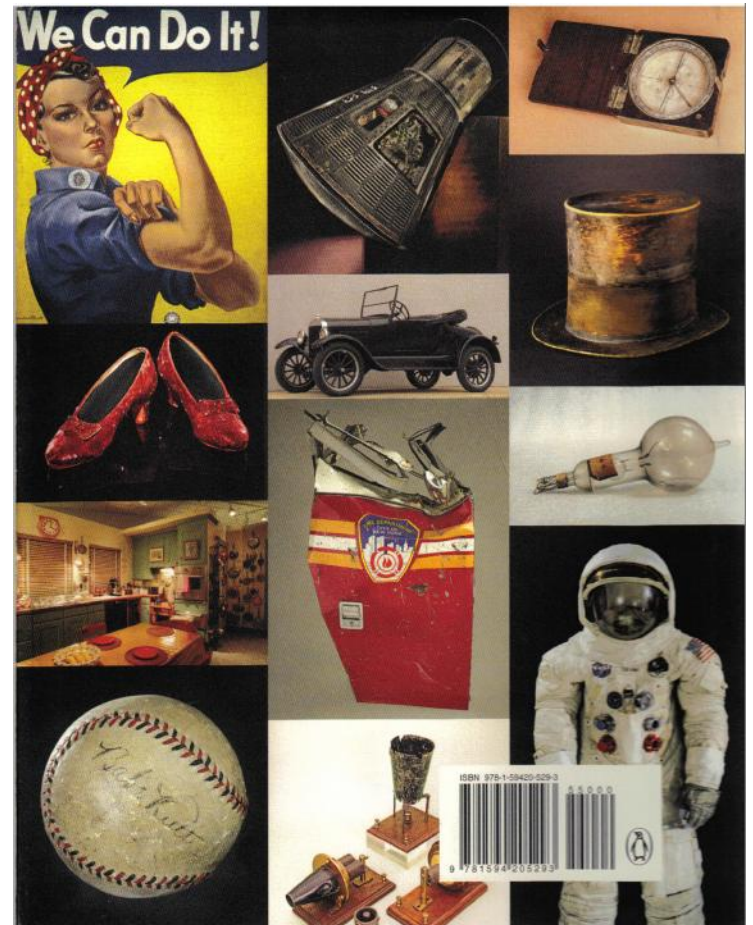




Part 1, Session 2



Impacts?

- **Our timeline is branching into multiple parallel paths.**
- **Our Objects come the collective thoughts and analysis of teams of multi-disciplined experts—who ask:**
 - **Do they effects large segments of the population?**
 - **Represent long term or permanent changes?**
 - **Could they be applied across the populations of the world?**

Band 4 of 17
Young Nation
(Late 18th Century to 1850s)

Young Nation

(Late 18th Century to 1850s)

- **17. Conestoga Wagon**
- **18/32. Eli Whitney's Cotton Gin**
- **19/30. John Deere's Steel Plow**
- **20. Isaac Singer's Sewing Machine**
- **21. Nauvoo Temple Sun God**

17. Conestoga Wagon—the Beginning of a Transcontinental Transportation System



Initially horse drawn covered wagons moves goods between cities and the frontier of the new nation.

Rail transportation begins in the 1830s.

The US is a predominantly rural nation with unpaved roads till 1900.

An Insight into the Future Industrial Revolution

- **It has been estimated that as of 1775, what would become the United States, was already producing one-seventh of the world's iron.**

18/32. Eli Whitney's Cotton Gin



A machine improves processing cotton and expands a Slavery driven economy in the Southern United States



18/32. Eli Whitney's Cotton Gin

- This straight forward looking device helped make cotton “king” and inadvertently contributed to America’s costliest war.
- The cotton gin became **the salivation of southern agriculture**. After 200 years of tobacco planting many area had depleted their soil of nutrients and tobacco had competition from many other parts of the world.
- But, cotton could grow in hot dry areas with depleted soil – the Southern US; but how do you get the cotton tufts off the seeds?

The Gin's Impact on the economy

- Cotton **production expanded** from 750,000 bales in 1830 to 2.85 million bales in 1850.
- As a result, the South became even **more dependent on plantations and slavery**, with plantation agriculture becoming the largest sector of the Southern economy.
- The **number of slaves rose** in concert with the increase in cotton production, increasing from around 700,000 in 1790 to around 3.2 million in 1850.
- By 1860, the Southern states were providing two-thirds of the world's supply of cotton, and up to 80% of the crucial British market.
- The **cotton gin** thus “**transformed cotton as a crop** and the American South into the Globe's first agricultural powerhouse, and – according to many historians – was the **start of the Industrial Revolution**”.

Infamous Triangles of Trade



First Sugar in the Caribbean



First Tobacco, then Cotton in the US

Effects in the United States

- Prior the mechanical cotton gin [1793], **cotton required considerable hand labor** to clean and separate the fibers from the seeds.
- With Eli Whitney's introduction of "teeth" in his cotton gin to comb out the cotton and separate the seeds, cotton became a tremendously profitable business, creating many fortunes in the Antebellum South. New Orleans, Mobile, Charleston and Galveston became major shipping ports, deriving substantial economic benefit from cotton raised throughout the South.
- Additionally, the greatly expanded supply of cotton created **strong demand for textile machinery and improved machine designs that replaced wooden parts with metal.**
- **This led to the invention of many machine tools in the early 19th century.**

Whitney (who died in 1825) could not have foreseen the ways in which his invention would change society for the worse.

- **The most significant of these was the growth of slavery. While it was true that the cotton gin reduced the labor of removing seeds, it did not reduce the need for slaves to grow and pick the cotton. In fact, the opposite occurred.**
- **It took a single slave about ten hours to separate a single pound of fiber by hand from the seeds, a team of two or three slaves using a cotton gin could produce around fifty pounds of cotton in just one day.**
- **Cotton growing became so profitable for the planters that it greatly increased their demand for both land and slave labor.**
 - **In 1790 there were 6 slave states**
 - **in 1860 there were 15.**
 - **From 1790 until Congress banned the importation of slaves in 1808, Southerners imported 80,000 Africans. By 1860 approximately one in three humans in the South was enslaved.**

19/30. John Deere's Moldboard Steel Plow



This modern invention open Midwest to Agriculture and helps feed a nation and eventually the world.

Not only did it plow soil up it turned it over. **It broke the sod.**
More on this later!



Impact: The plow and its follow on machines allow the expanding world population to be feed with less labor.

19. Effect: John Deere's Moldboard Steel Plow— Starts Farm Industrialization

Nearly everything that drove the success and expansion of American agriculture can attributed to the development of the Moldboard plow and all the agricultural implements that have followed. Consider:

- To till an acre of land with a spade required ninety six hours (**5,760 minutes**);
- To plow an acre with a yoke of oxen and a crude wooden plow took twenty-four hours (**1,440 minutes**);
- With a steel plow such as John Deere developed took five to eight hours (**300 to 480 minutes**);

Plowing today

- But now, a 425-horsepower John Deere 9400 four-wheel-drive pulling a fifteen-bottom plow, tills an acre in 3.2 minutes.
- Today the work is performed 1,800 times faster than the person who spaded the acre, and 122 times faster than with the plow of the mid-1800s. Everyone who enjoys the abundant supply of inexpensive food should be grateful for John Deere and his plow.
- Never in history has an acre of land been moldboard plowed with less physical effort by the plowman.
- Never has the soil been better tilled, nor has it produced more.
- **But the Plains farmers, the Sod Busters, went too deep.**

425-horsepower John Deere 9400 four-wheel-drive



Unintended Consequences – The 1930s Dust Bowl



20. Isaac Singer's Sewing Machine



A practical mechanical invention transforms industry as well as the role of women in the workforce and at home.

20. Isaac Singer's Sewing Machine

- **World-wide use. It could be found in the most remote villages in the world.**
- **Major labor saver, and did a better job than sewing by hand.**
- **Rugged and reliable and early models did not require electricity.**
- **Particularly after the Civil War, clothing manufacturing developed in tandem with the sewing machine.**
- **Clothing manufacture and use of immigrant labor and the sewing machine led rise to the urban Union movements.**

21. Nauvoo Temple Sun Stone

America's Home Grown Religions



Joseph Smith lead his followers from NY to Ohio and then to Illinois to a town renamed Nauvoo (Heb. Beautiful).

There Smith built a church in Greek revival with sun stones and began to recruit new members.

There was great controversy and Smith was killed and his followers lead by Brigham Young moved west to Utah.

The design for the Sun Stone came to Mormon prophet Joseph Smith in a vision.

Mormonism sprang up in the “**Second Great Awakening**” a period of heightened attention to religion in the 19th century.

Initially Towns in NY along the Erie canal became a hot bed of Protestant Evangelical revival.

By 1820s, the popular belief that America as a nation built on shared democratic principles had become linked to the notion that these **founding principles were divinely inspired**.

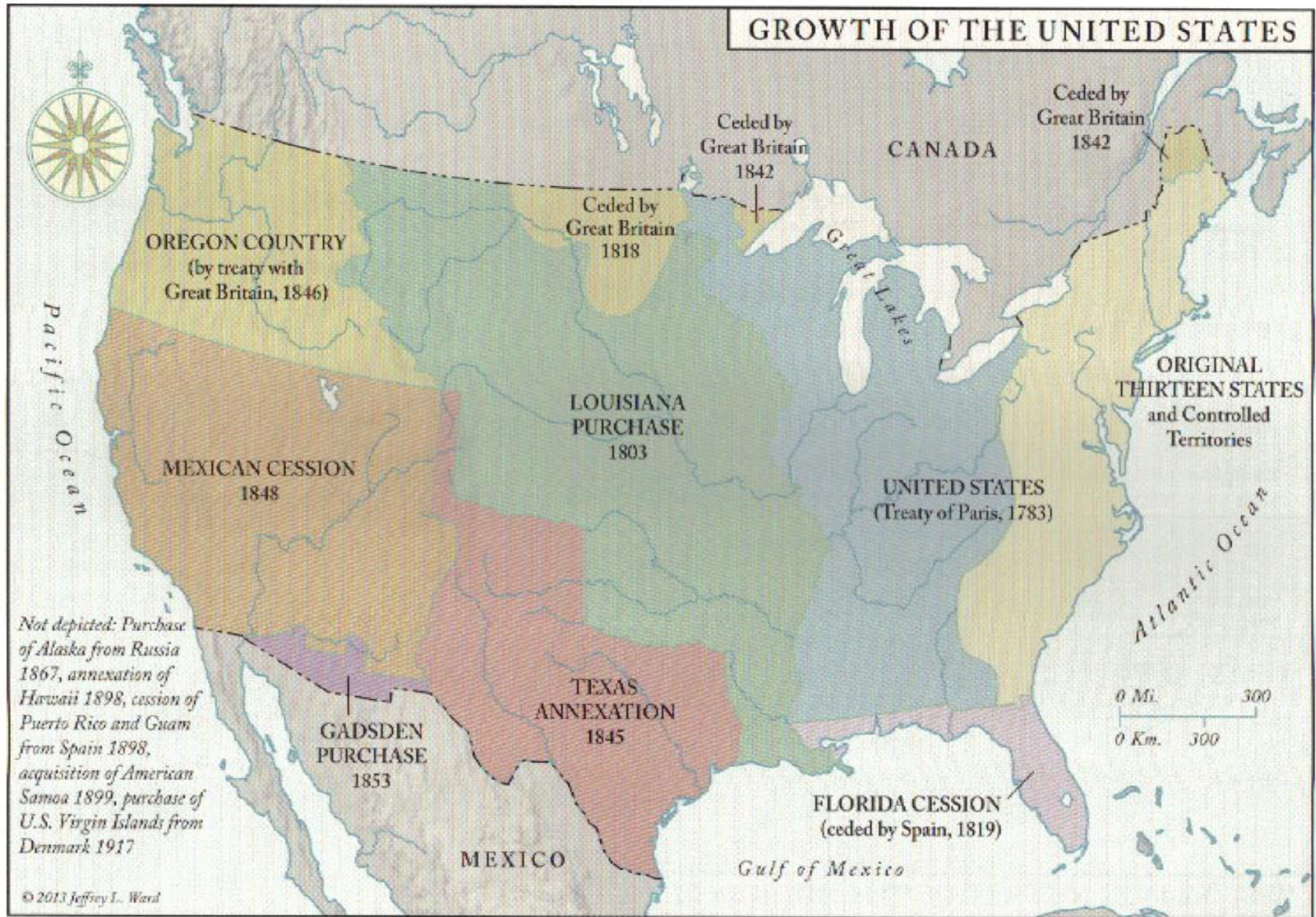
The founding principles of religious tolerance were built on established European Protestant beliefs and thus these new religions were view as a threat to established²⁰

Band 5
Sea to Shining Sea
(1800 to 1850s)

Sea to Shining Sea (1800 to 1850s)

- **22. Lewis and Clark's Pocket Compass**
- **23. John Bull Steam Locomotive**
- **24. Samuel Colt's Revolver**
- **25/~~26~~. Morse-Vail Telegraph**
- **26. Mexican Army Coat**
- **27. Gold Discover Flake from Sutter's Mill, CA**
- **28. Martha, the Last Passenger Pigeon**

By the 1840's the US stretches from sea to shining sea



Louisiana Purchase and Tropical Diseases

- **In 1780 the slaves on Haiti revolted against French rule and domination. The Haitians defeated the French.**
- **Disease (malaria and yellow fever) played a large part in the deaths of 40,000 French soldiers and the ultimate French defeat.**
- **Napoleon, in need of funds for his military campaigns, and believing that the colonies to the west of the US, as being the same diseased ridden lands as Haiti and thus unable to support large scale immigration; decided to sell them off to the new US nation.**
- **It would be a 100 years before the work of Dr. Walter Reed and others would find medicines for these diseases.**

22. Lewis and Clark's Pocket Compass



Jefferson completed the purchase and then sent Lewis and Clark out to see what was there.

A small hand held instrument enables a legendary expedition to guide itself across the continent.



Date made: circa 1803

User: William Clark

Maker: Thomas Whitney,

Physical Description: wood, mahogany, brass and silver plate

Measurement closed: 3.5 in x 3.5 in x 1.5 in

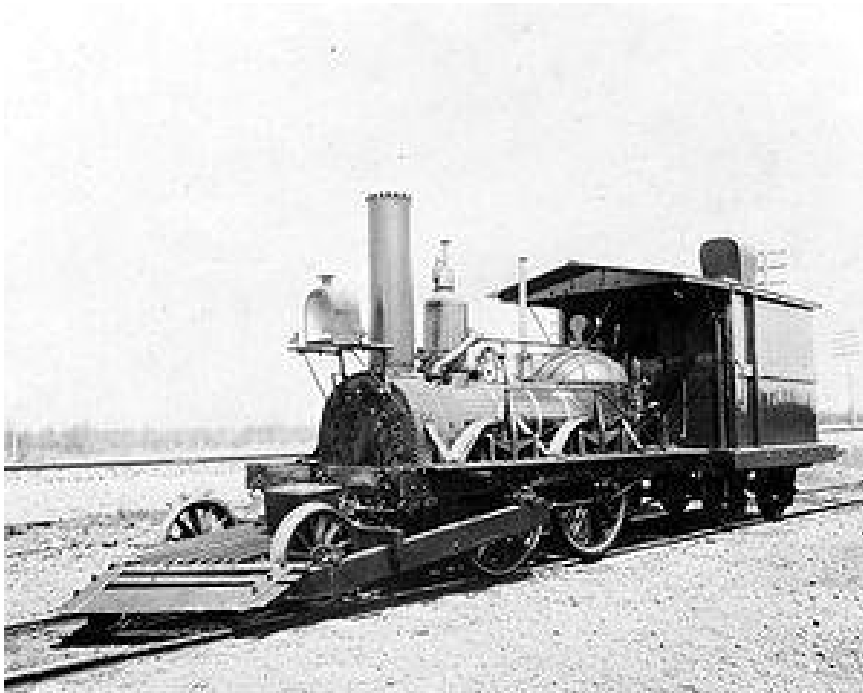
Made: Pennsylvania, Philadelphia

Event: Lewis and Clark Expedition

Instrument of Exploration

- In the spring of 1803, Meriwether Lewis began to purchase scientific and mathematical instruments for a pending **expedition into the northwestern region of North America**. Among the items he purchased from Philadelphia instrument maker Thomas Whitney were three pocket compasses for \$2.50 each, and this silver-plated pocket compass for \$5.
- It has a mahogany box, a silver-plated brass rim that is graduated to degrees and numbered in quadrants from north and south, a paper dial, two small brass sight vanes, and a leather carrying case.
- Following the instructions of President Thomas Jefferson, the **Corps of Discovery**, under the leadership of Lewis and Clark, ascended the Missouri River in May 1804 to **obtain detailed information on the natural resources of the region, to search for a northwest passage, and to make official diplomatic contact with Indian leaders**.
- By the time they returned to St. Louis in September 1806, few of the instruments that were purchased for the trip had survived the journey. The pocket compass, however, was kept by Clark as a memento

23. John Bull Steam Locomotive



A engine initiates long distance **railroad service binding the country** together and spurring the Nation's Industrial development.

By 1840, railroad track in the United States had reached almost 3,000 miles; by 1850, more than 9,000 miles; and by 1860 over 30,000 miles.

Transcontinental link opened on 10 May 1869 in Promontory, Utah, where the tracks were joined with a golden spike.

Mileage of all tracks, including additional main tracks, passing tracks, sidings, and yards, reached its **maximum of 430,000 miles in 1930**. By 1960, mileage of line declined to approximately **220,000**.

John Bull —Railroad Steam Locomotive

- John Bull is a British-built railroad steam locomotive that operated in the United States. **It was operated for the first time on September 15, 1831, and it became the oldest operable steam locomotive in the world when the Smithsonian Institution operated it in 1981.**
- Built by Robert Stephenson and Company, the John Bull was initially purchased by and operated for the Camden and Amboy Railroad, the first railroad in New Jersey, which gave John Bull the number 1 and its first name, "Stevens".
- The C&A used the locomotive heavily from 1833 until 1866, when it was removed from active service and placed in storage.
- After the C&A's assets were acquired by the Pennsylvania Railroad in 1871, they refurbished and operated the locomotive a few times for public displays: it was steamed up for the Centennial Exposition in 1876 and again for the National Railway Appliance Exhibition in 1883.
- **In 1884 the locomotive was purchased by the Smithsonian Institution as the museum's first major industrial exhibit.**

24. Samuel Colt's Revolver

“The Gun that Won the West”



A commercially manufactured handgun plays a pivotal role in the history of the US West.

It appeared that everyone had one: The Army, the Lawmen, TR, Billy the Kid, Buffalo Bill ...

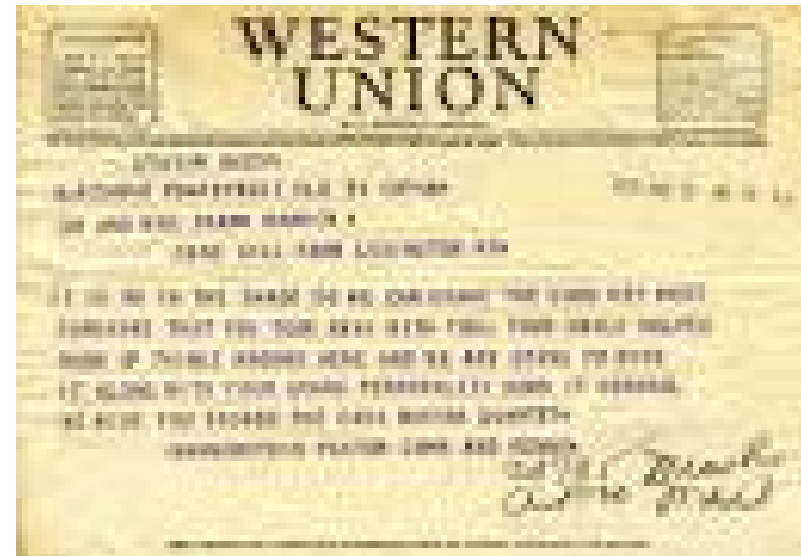
The Industrialization of the Firearm

- Colt as a young man tinkered and came up with a design for a five shot weapon:
 - Initially, It cost \$50, and it had to be disassembled to be reloaded.
- Redesigned for fast reloading; the Texas Ranger's were first major user. They needed a multi-shot weapon that could be fired from a horse. Militarily, it was first used in the Mexican War and then by both sides in the Civil War.
- **It was industrialized:** it was a **precision machined item** but assembled in a factory of **interchangeable and replaceable parts** [Modularity] by semi-skilled workers.
- For a time it was America's most important manufactured export.

25/26. Morse-Vail Telegraph



An invention revolutionizes communications bringing the nation together.



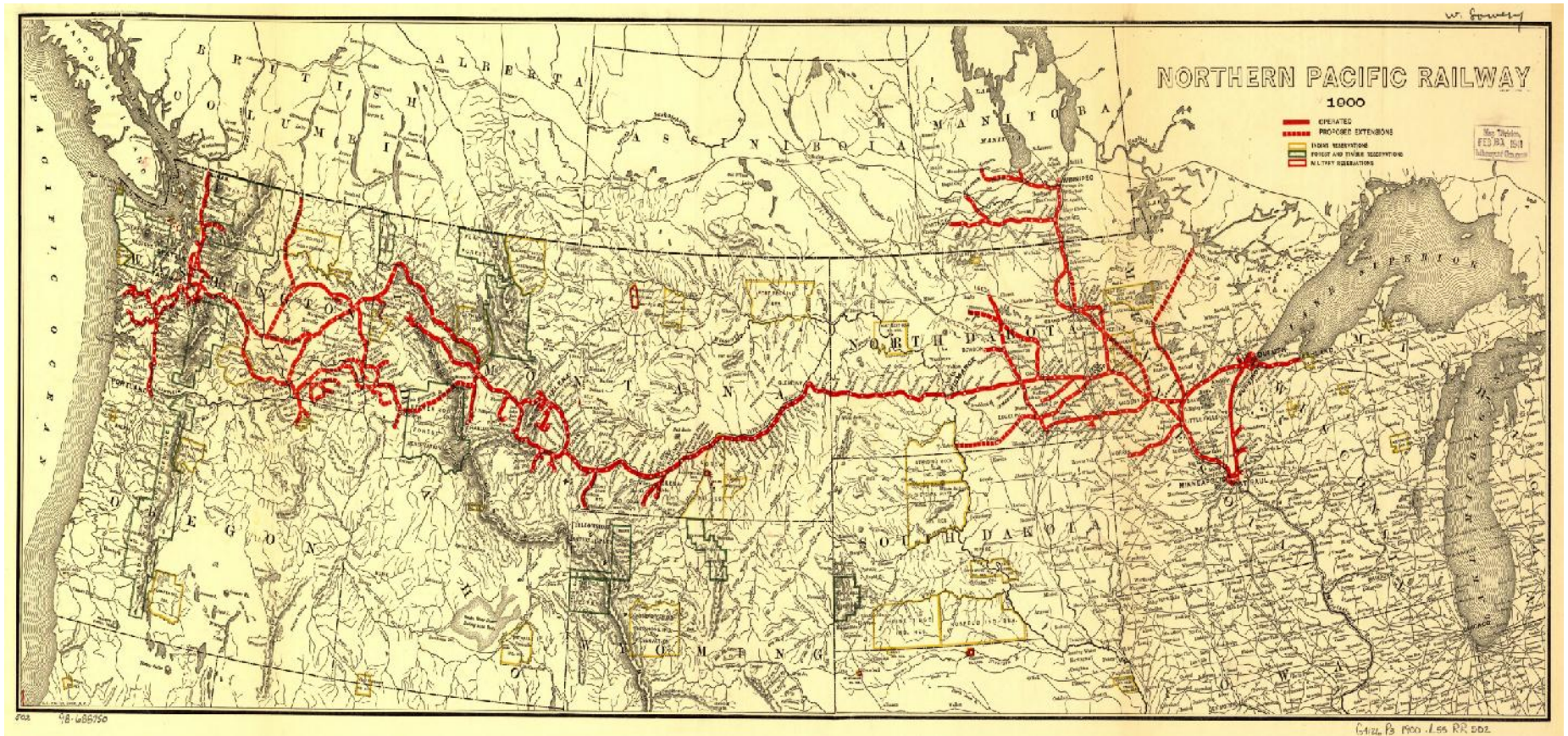
“What have God Wrought?”

Numbers 23:23

May 24, 1844

**Sent from US Supreme Court Chamber
to a Baltimore railroad station**

A sample map. The full 1900 US railroad main-line map that is readable is 6' x 10'



Telegraph networks followed the Railroad rights-of-way. They were available and the railroads used the telegraph as a means of communication and control. These were followed first by copper long distance telephone lines, then microwave radio and now by fiber-optic cables.

Has History changed?

M[— —] A [• —] R [• — •] K [• — • —]

- The 1844 dots and dashes over copper and the 2014 ones and zeros laser light pulses over fiber optic cable are the same only much slower.
- Before the telegraph, information traveled no faster than a horse. In theory telegraph signals traveled at the speed of light, which in 1844 was not known.

26. Mexican Army Coat



The coat of Mexican President and General Santa Ana obtained at his defeat at San Jacinto by Texan nationals.

Then, there was considerable national conflict regarding westward expansion proposed by President Polk.

Texas was annexed to the US as the 28th state in 1845. Mexico disputed this and war broke out between the two countries

President Polk wanted the lands west of Texas. He sent two Armies into Mexico in 1846 and ultimately won. The US acquired New Mexico, Arizona, Utah, Nevada, California and parts of Oklahoma, Colorado and Wyoming.

This expansion was described by noted journalist John Sullivan as “... it is our *Manifest Destiny* to over-spread the Continent allotted by Providence for the free development of our multiplying millions.”

27. Gold Discover Flake from Sutter's Mill

On January 24, 1848, James Marshall found this tiny piece of gold in a stream near John Sutter's sawmill in northern California.



News of the discovery inspired the great Gold Rush of 1849.

Marshall and Sutter gave the gold nugget to a U.S. Army officer in San Francisco, who sent it to Washington, D.C., to the National Institute, a predecessor of the Smithsonian Institution.

When the institute's charter expired in 1862, its collections were transferred to the Smithsonian.

28. Martha, the Last Passenger Pigeon



Last of her species, died at 1 AM
1 September 1914, age 29 at the
Cincinnati Zoo

The extinction of a bird species
famously illustrated by John James
Audubon marks the vast change in
American ecology.

In 1828 Kentucky , Audubon,
witnessed a fifty-five mile long
flight of migrating passenger pigeons.
The air was so filled that the noon
day was like an eclipse.

Some Americans began to realize
that our continent's resources were
not boundless.

Band 6
A House Divided
(1850 to 1865)

History Timeline [1850-1865]

House Divided (1850-1865)

- 1852 *Uncle Tom's Cabin* by Harriet Beecher Stowe published
- 1854 Kansas-Nebraska Act ratified, opens territory for development of transcontinental rail- road, and also allows new states to choose to allow slavery through “popular sovereignty”
- 1857 Supreme Court's **Dred Scott** decision
- 1859 Radical abolitionist John Brown leads unsuccessful raid on arsenal at Harpers Ferry, Virginia
- 1860 **Abraham Lincoln elected president**; South Carolina becomes first of eleven states to secede from Union

History Timeline [1850-1865]

House Divided (1850-1865)

- 1861 Confederate States of America established with Jefferson Davis as President; Civil War begins when Confederates **fire on Federal Fort Sumter**, near Charleston, South Carolina
- 1863 President Lincoln issues **Emancipation Proclamation**, freeing slaves in states in rebellion; Battle of Gettysburg
- 1864 Abraham Lincoln reelected president
- 1865 Thirteenth Amendment outlawing slavery ratified; **Civil War ends** leaving about 360,000 Union and 260,000 Confederate combatants dead; Lincoln assassinated; Ku Klux Klan founded

SECESSION OF THE SOUTHERN STATES, 1861



Union and Confederate Resources, 1861

	<u>Union</u>	<u>Confederacy</u>
Percent of nation's population	71%	29%
Percent of nation's farm acreage	65%	35%
Percent of nation's manufacturing workers		92%
8%		
Percent of nation's manufacturing output	92%	8%
Number of factories	110,000	18,000
Percent of nation's railroads	71%	29%
Railroad mileage	22,000	9,000

Civil War Populations and Armies

- 1860 census identified 31,443,321 persons in the US.
- Approximately 23,000,000 of them were in the twenty-two northern states
- Approximately 9,000,000 in the eleven states that later seceded. Of these 3,500,000 were slaves.
- The size of the opposing armies would reflect this disparity. At one time or another about 2,100,000 men would serve in the Northern armies, while some 800,000 to 900,000 men would serve the South.
- Peak strength of the two forces would be about 1,000,000 and 600,000, respectively.

Effect of the War and Immigration

- Civil War losses are estimated at 360,000+ Union dead and 260,000+ Confederate dead. Plus, many more who died in shortened lives due to their wounds.
- Immigration continued during the war and picked up after the war. Generalizing, the Union losses were made up by 1870. But, It took decades for the Southern losses to be replaced.
- Note: General Lee's two daughters never married, as the pool of socially acceptable single men was drastically reduced.

A House Divided (1850 to 1865)

- **29. Frederick Douglas's Ambrotype Portrait**
- **30. Harriet Tubman's Hymnal and Shawl**
- **31. Emancipation Proclamation Pamphlet**
- **32. Christian Fleetwood's Medal of Honor**
- **33. Appomattox Court House Furnishings**
- **34. Abraham Lincoln's Hat**

29. Frederick Douglas's Ambrotype Portrait



A former slave who became an Eloquent champion for human rights shapes his own image and that of African Americans.

“Death or Freedom”

- **A bad death was the slow death as a slave.**
- **From 1862 on — A good death was when you had a musket in your hands and the US pinned on your collar and you were defending your freedom and that of your family as a Union soldier.**

Adapted from Fredrick Douglas’ statements

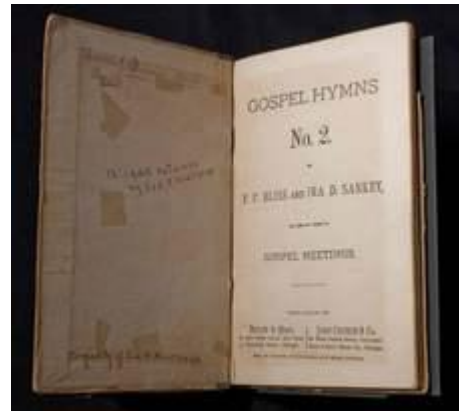
- **In 1863 the Confederate legislature enacted that these Union Negro soldier were rebellious slaves and were to be re-enslaved upon capture. Their white officers were to be executed upon capture.***

- **In 1865 the directive was repealed and slaves could enlist in the Confederate Army and would be rewarded with their freedom.**

- **Many of these fallen soldiers were buried in National Cemeteries in segregated sections.**

*** Source: Paul Springe. Professor of History. Air University.**

30. Harriet Tubman's Hymnal and Shawl



Artifacts associated with an American hero reflect the depth of her faith and the breadth of the acclaim for her accomplishments

Harriet Tubman

- It's easy to mythologize a woman like Harriet Tubman.
- She led hundreds of African Americans to freedom as a conductor on the **Underground Railroad** after escaping the bonds of slavery herself as a young woman in the early 1800s.
- **During the Civil War she served as a spy, a nurse and a cook for Union forces** and, in 1863, she helped free more than 700 African Americans during a raid in South Carolina – a feat that earned her the moniker "General Tubman."
- One of the country's most courageous abolitionists, she enjoyed the respect of leaders from Frederick Douglas to Susan B. Anthony.
- Yet even on her deathbed, after her lifetime of self-sacrifice, Tubman continued to pledge her service to others. Her reported last words:
"I go away to prepare a place for you."

31. Emancipation Proclamation Pamphlet



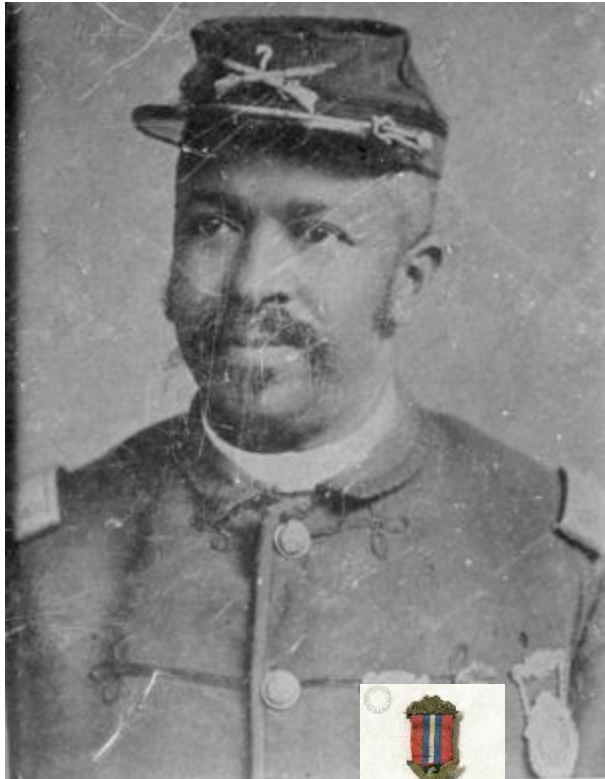
The Historic
order by
President
Lincoln
freeing
slaves in the
confederacy
is widely
distributed.

Douglas's Full Statement

“ Once let the Black man get upon his person the brass U.S., let him get an Eagle on his button, and a musket on his shoulder and bullets in his pockets, and there is no power on Earth which shall deny that he has earned the rights to citizenship in the United States.”

It did not workout that simply; but it was a tectonic change that is still rumbling.

32. Christian Fleetwood's Medal of Honor



The Nation's highest military honor is awarded to 24 African American soldiers during the Civil War and helps integrate the US National Museum decades later. (Now the Smithsonian Museum of American History)

180,000 former slaves and freemen served in the Union Army and 18,000 in the Union Navy — 36,000 died. Their pay was half that of their white compatriots.

33. Appomattox Court House Furnishings



**Generals Grant
and Lee
negotiate
the end of
America's most
devastating war**

April 9th 1865

Generous Terms

- The rebellion and armed conflict was over!
- Grant ordered rations and medical supplies be provided to the Confederate forces.
- Key provision extracted by General Lee: Confederate troops could return home and if they laid down their arms and remained law-abiding; they would no longer be considered traitors and subject to trial and punishment—a major element in reconciliation.

Consistent with Lincoln's 1863 Proclamation of Amnesty and Reconstruction, of working through state "entities" and individuals who wanted "to return to their duty" in the Union.

- Officers could take their personal weapons and horses.
- Enlisted troops in the artillery and cavalry could take their personal horses. Recognition by both Grant and Lee that Spring planting was about to begin.



Signing the surrender from a contemporary sketch.

After discussion and negotiation General Grant wrote the document by hand in a manifold field order book that had an original and two copies.

34. Abraham Lincoln's Hat



Does the hat that links us to his final hours define the president? Or does the president define the hat?

The signature hat of the President who faced the Nation's greatest challenge becomes a national treasure.