The American Civil War
The Theoretical Arithmetic of Logistics

requires **3 pounds of food per day** (not incl. water).

The daily individual ration for a Union soldier consisted of:
- 20 ounces of fresh or salt beef or 12 ounces of pork or bacon
- 1 pound of hard bread or 18 ounces of flour or 20 of cornmeal.

In addition to the daily individual ration, the following were issued to every 100 men:
- 15 pounds of beans or peas
- 10 pounds of rice or hominy
- 10 pounds of green coffee or 1.5 pounds of tea
- 15 pounds of sugar
- 4 quarts of vinegar
- 3.75 pounds of salt
- 4 ounces of pepper
- 30 pounds of potatoes
- when practicable, 1 quart of molasses.

This is around 3,000 calories.
The containers of the period weigh roughly as much as the food. (usually boxes)

So the average soldier needed to have 6 pounds moved to him everyday.

This adds up quickly. (40,000 men = 240,000 pounds daily)
All this was transported to the troops in wagons, which are pulled by horses or mules. Horses also pulled cannon and served as mounts for cavalry and officers.

Each horse required 20 pounds of grain and fodder every day.

Example—A standard Union artillery battery of 6 guns had 180 horses requiring 3,600 pounds per day.

Little wonder that horses were referred to as “hay-burners.”
There were two basic military wagons at the time:
— 4+1 spare team usually carried around 1,400 pounds
— 6+1 spare team usually carried around 2,000 pounds
Example: supplying 40,000 men required 134 7-animal wagons
— feeding 40,000 men, 934 horses, and 134 teamsters required about 260,000 pounds daily. This applies only if the round trip from the supply depot can be made in two days.
The reality of the supply situation is that no army could move more than 60 miles from a supply depot that was supplied by either rail or water.

Why?

Example: —7 horse team + 1 teamster = 146 pounds per day in food ("fuel")

—wagon usually carries 2,000 pounds
—day 1 free, but costs 146 pounds in "fuel" every day thereafter
This makes for some interesting arithmetic.

—our wagon could travel about 210 miles before it ran out of fuel (14 days)
—to supply 240,000 pounds to a 40,000 man army 60 miles away from a supply depot under average conditions would require a total of 1960 wagons, 13,720 horses, and 1960 teamsters.
—245 wagons a day delivering 978 pounds of food (an 8-day round trip)
Few roads of the period could stand up to this kind of traffic.

What is an alternative?
—spread out and live off the land
—the problem with this is it makes you vulnerable to attack
Thus railroads and navigable rivers are the key to understanding how Civil War commanders thought about strategy. Only they can meet the supply demands of large numbers of troops.

The commander who ignored them did so at his and his army’s peril!
Water and RR supply allowed your army to look like this ... 100,000 men rather than 10,000 men!
As far as a logistian is concerned the advantages of RR’s are legion.

Can you think of any?

Advantages:

1. Capacity

A Civil War-era railcar could carry as much as 15 tons. One 10-car train could carry as many supplies as 150 wagons.

2. Speed

A train traveled 5 times faster than a wagon train, which meant more round trips and that fewer resources needed to be devoted to supply services.

3. Dependability

Anyone who has ever dealt with mules will tell you they have a mind of their own. Enough said!

4. Availability

More rolling stock and locomotives could be produced on demand and in different models. This doesn’t apply to mules/horses!
1. security
“We are much obliged to the Tennessee [River] which has favored us most opportunely, for I am never easy with a railroad which takes a whole army to guard, each foot of rail is essential to the whole; whereas, they can’t stop the Tennessee … .”
General William Tecumseh Sherman, “Sinews of War”

2. capacity
An ordinary Ohio River steamboat of 500 tons carried enough supplies to supply an army of 40,000 men and 18,000 horses for nearly two days. This was the equivalent of five 10-car freight trains.
The War will be prolonged indefinitely

Turning Point?

Break the Northern Will
Decisive Victory
International Recognition
Political Negotiation
Keep the Army Alive!

American Civil War
Major Campaigns
Spring, 1863

Vicksburg Falls
(4 July 63)

Pemberton

Tenn

Meade

AOP

Lee

ANV

Grant

Tenn

Bragg

CUMB

Rosecrans

Cumb

Gettysburg
(1-3 July 63)

Tullahoma Campaign
(26-30 June 1863)

Chickamauga Campaign
(16 Aug - 10 Sept 1863)
American Civil War

Major Campaigns
Spring, 1863

Chickamauga Campaign
(16 Aug-10 Sept 1863)

HELP!
Turning Point?

Chickamauga Campaign (16 Aug-10 Sept 1863)

Chickamauga (19-20 Sept)

American Civil War

Major Campaigns 1863
American Civil War

Knoxville

Major Campaigns

1863

Lee

ANV

Bragg

Meade

AOP

J. Johnston

3 Results

Grant

1st Result

Chattanooga (24-25 Nov)

2nd Result

J. Johnston

TENN

CUMB

Gulf of Mexico

Atlantic Ocean

American Civil War

Major Campaigns

1863
“The art of war is simple enough. Find out where your enemy is. Get at him as soon as you can. Strike him as hard as you can, and keep moving.”

Ulysses S. Grant (1822 - 1885)
MEADE: “Lee’s army will be your objective point. Wherever he goes, you will go also.”

“Get at him as soon as you can. Strike him as hard as you can, and keep moving.”

Sheridan: “...move against Johnston’s army to break it up and to get into the interior of the enemy’s country as far as you can, inflicting all the damage you can against their war resources.”
“…all the armies are to move together…”

Four of the five offensives appear to have failed............except......

American Civil War
GRANT’S PLAN
1864
Johnston: “As the enemy has double our number, we must be on the defensive. My plan of Operation must, therefore, depend upon that of the enemy. I am mainly to watch for an opportunity to fight to advantage.”

Casualties
Union: 3,000
Conf: 800
“...all the armies are to move together..."

Grant's Plan
1864

Lee
Sigel
Butler

Banks
Grant
Hood

Meade
Sherman

Mobile Bay
5 Aug 1864

Atlanta
2 Sept 1864

J. Johnston
The Election of 1864

- McClellan
- Lincoln

Turning Point?

- Break the Northern Will
- Decisive Victory
- International Recognition
- Political Negotiation
- Keep the Army Alive!

Lincoln
McClellan
Sherman: “...the utter destruction of (Georgia’s) roads, houses, and people, will cripple their military resources...... I can make this march, and make Georgia howl!”