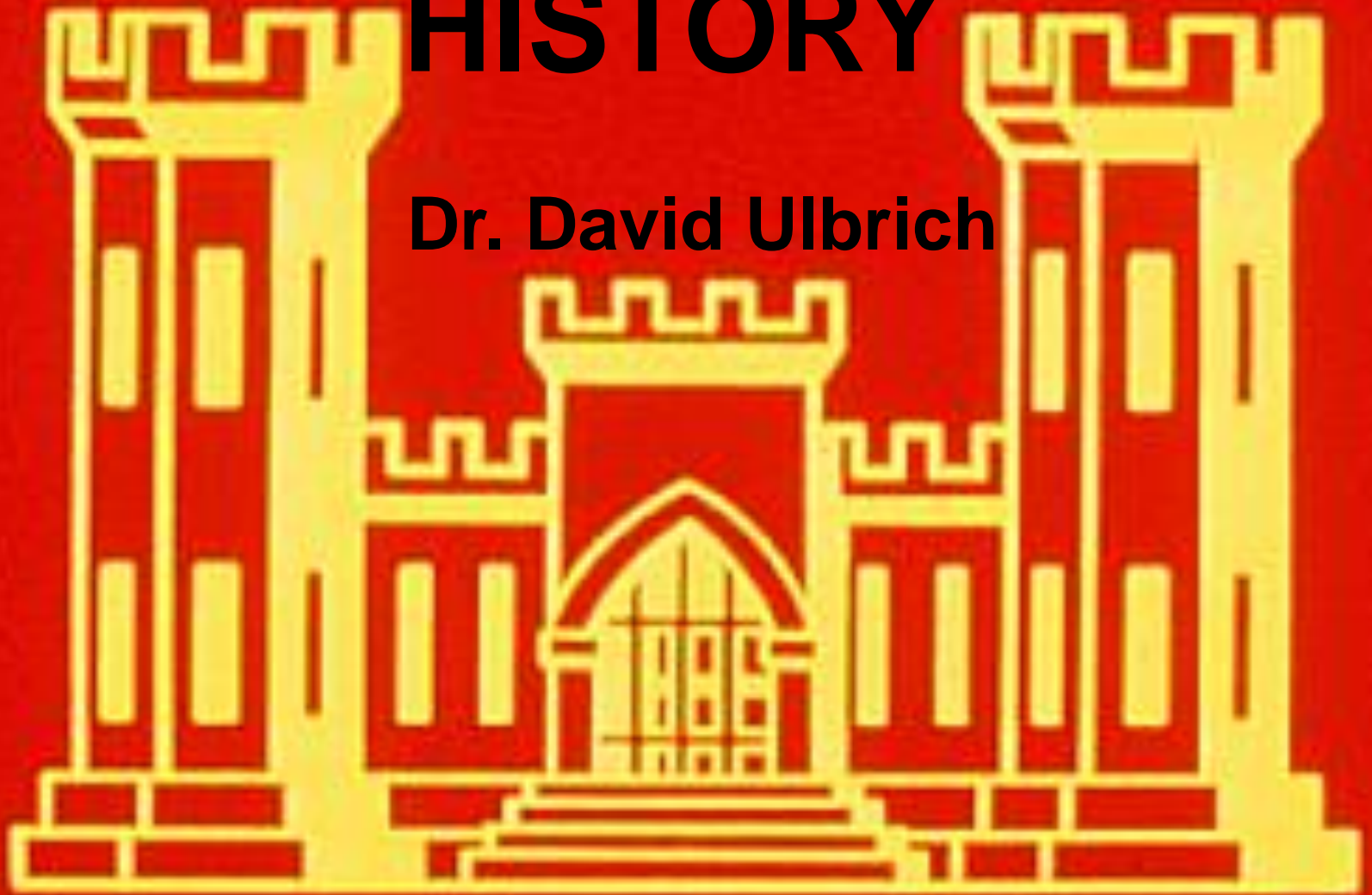


ENGINEER BRANCH HISTORY

Dr. David Ulbrich



ENGINEER BATTLEFIELD FUNCTIONS

- “Mobility”
- “Countermobility”
- “Survivability”
- Sustainment (general engineering)
- Topographic (geospatial) engineering

In other words:

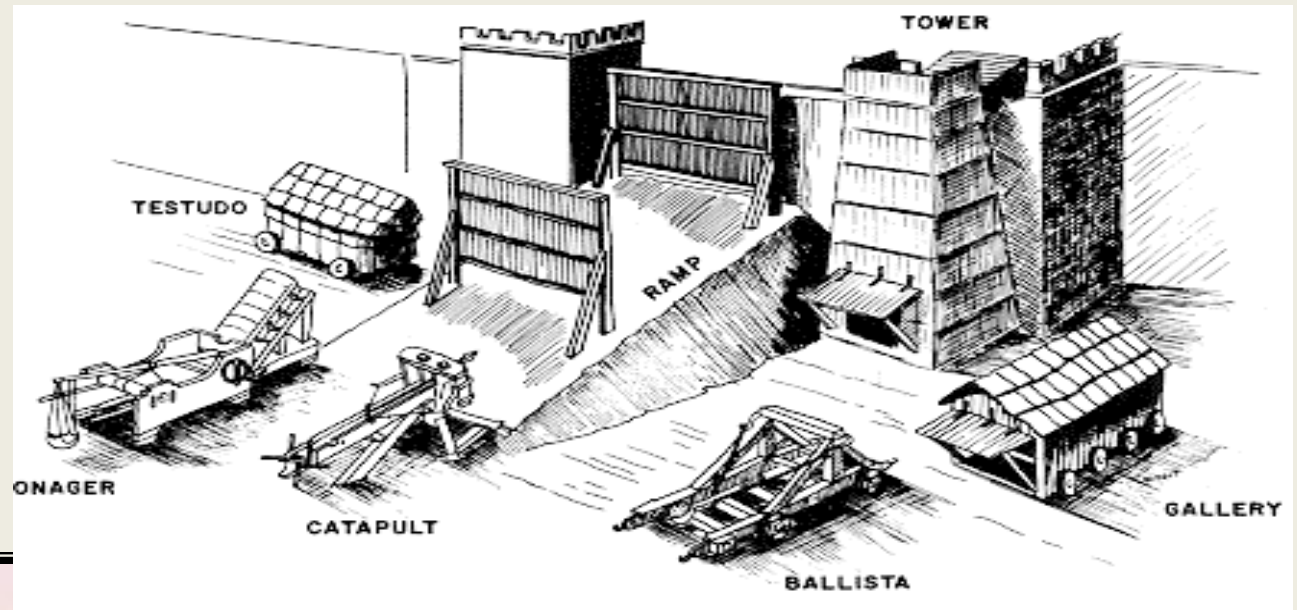
- Facilitate movement of friendly forces.
- Impede movement of enemy forces.
- Build things to sustain friendly forces.

Source: **1923 Field Manual**

Engineers & primitive fortifications



**European
crusader castle
in
Syria
c. 1100AD**



**Engineers:
“those who
served the
engines of
war”**

NEW technological application and turning point: **Gunpowder and Artillery**



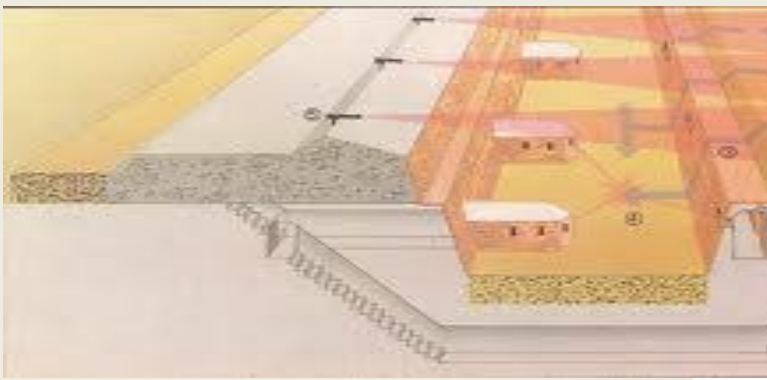
CONDUCT OF WAR EVOLVES

Technology \leftrightarrow Tactics

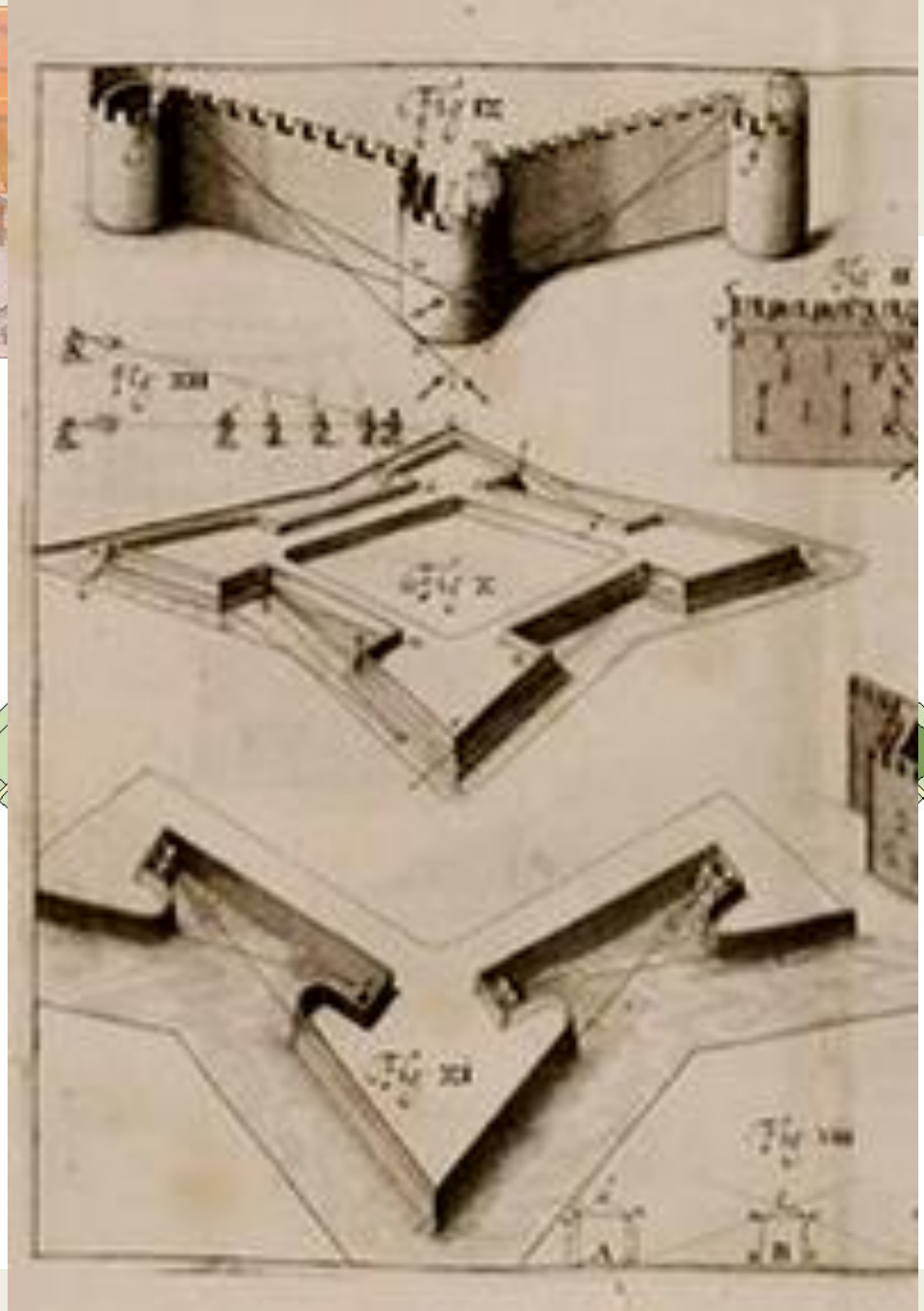


**As war evolves...
so MUST the engineers!**

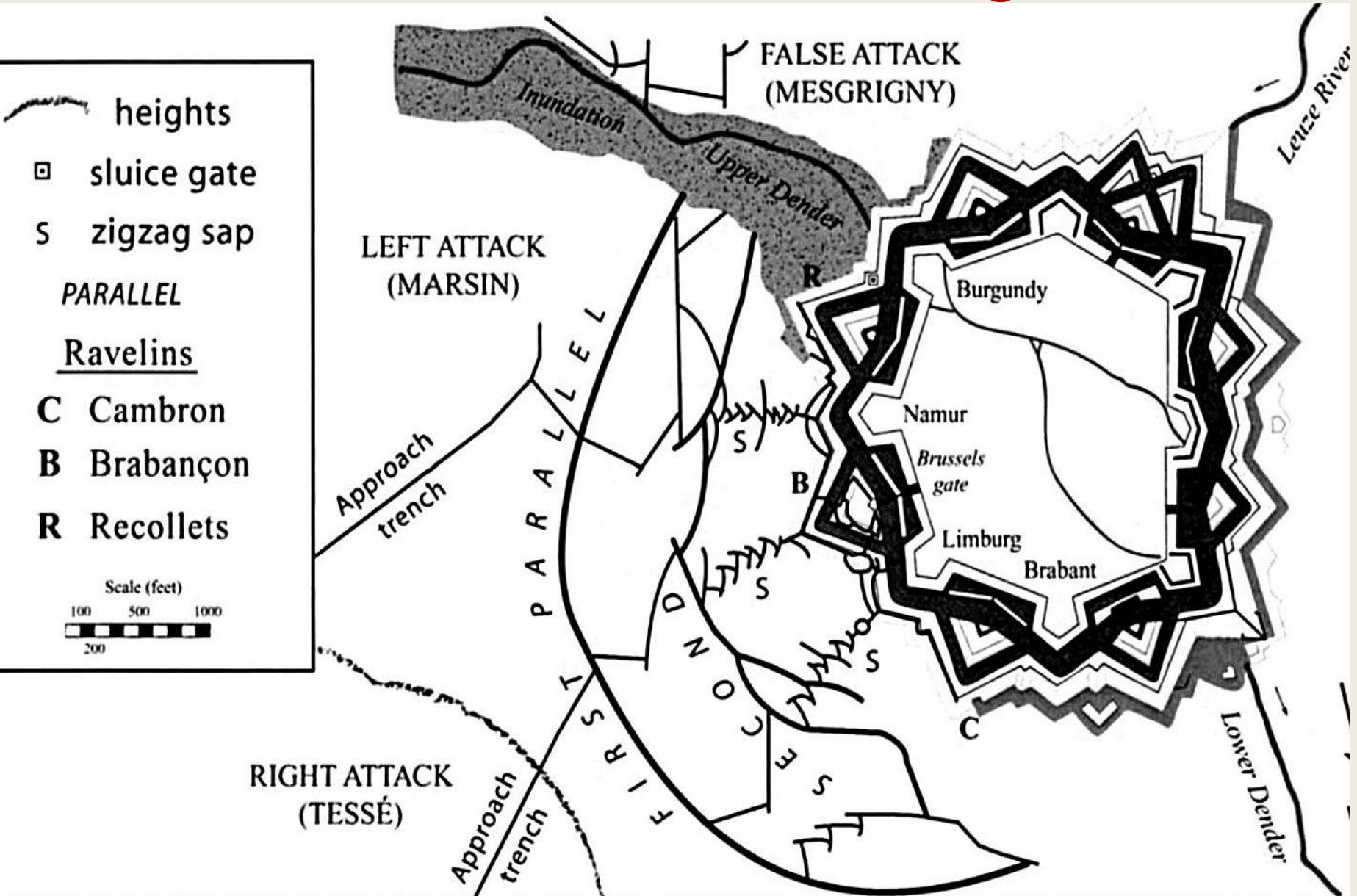
**Yet, the more things
change, the more they
stay the same.**



Sébastien VAUBAN
(1633-1707)



VAUBAN: master of SCIENCE of siege warfare



Engineering in the **AMERICAN REVOLUTION:** What missions for the engineers?



GEORGE WASHINGTON

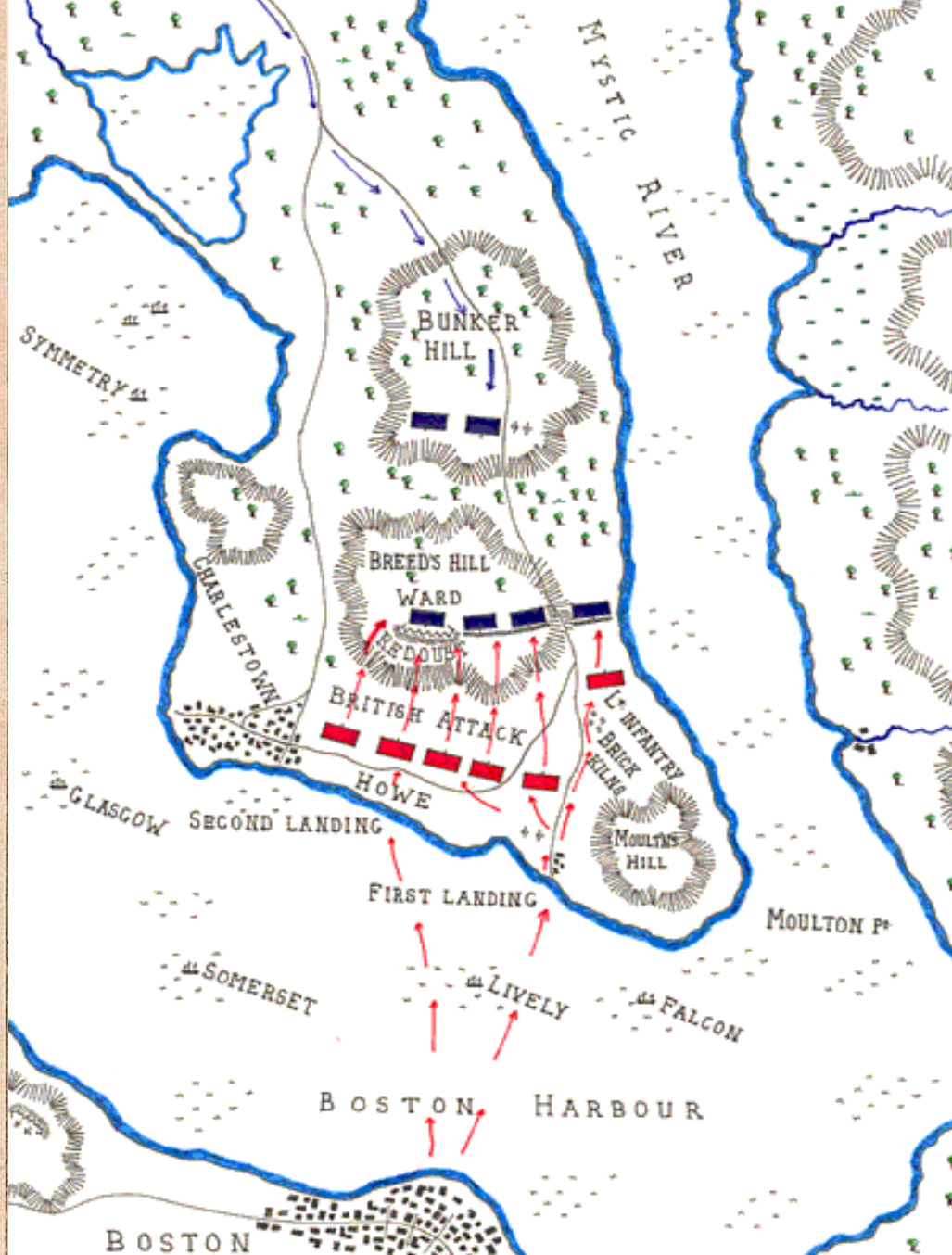
- Congress to authorize the appointment of a **Chief of Engineer – 16 June 1775**
- but was not the father of the Corps of Engineers

BATTLE OF BUNKER HILL 1775

part of siege of Boston

mastermind:

RICHARD GRIDLEY
(first Chief Engineer)



LOUIS DU PORTAIL (1743-1802)

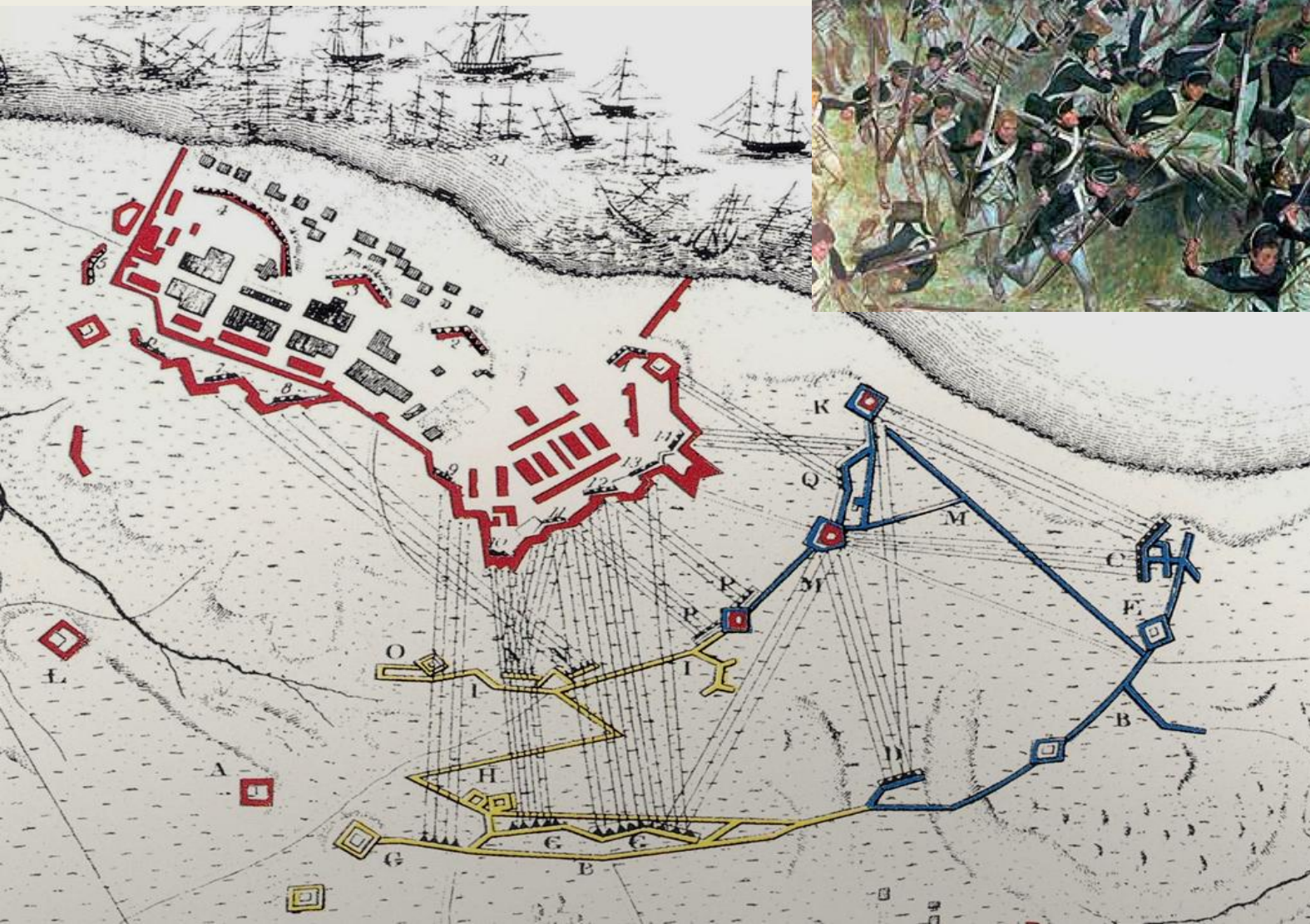
- trained in France's Army
- Continental Army's Chief Engineer
- “Company of Miners and Sappers” and “Corps of Engineers”
- Laid foundation for an engineer school
- Thus, the real **FATHER** of the Corps of Engineers



Du Portail's contributions:

SIEGE OF YORKTOWN

1781



- Congress authorized a **Regiment of Engineers and Artillerists** and a **School of Application** in 1794



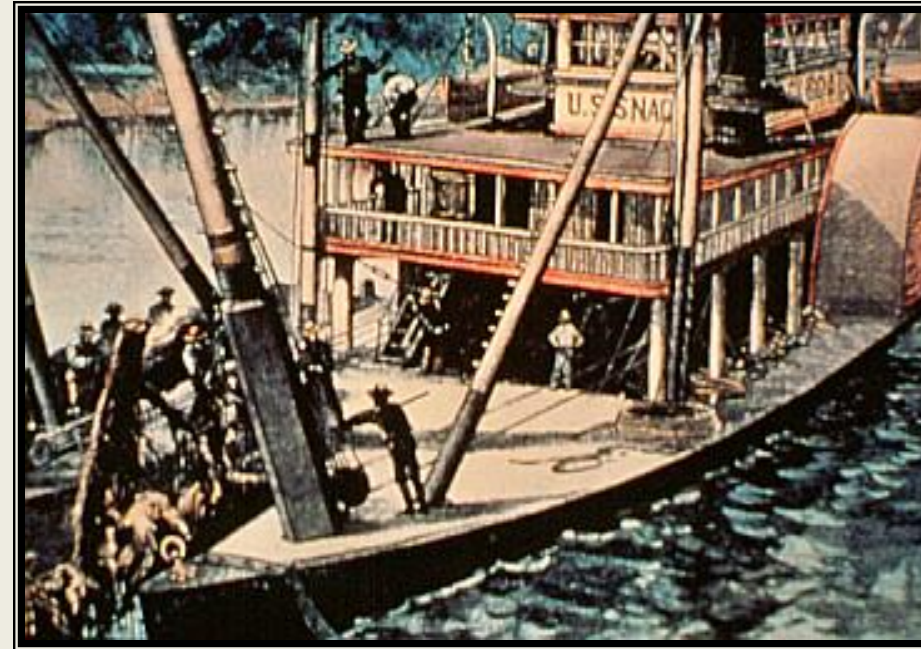
- **First peacetime role:** build coastal fortifications



- Congress separated Engineers and Artillerists
- Congress authorized the **Corps of Engineers**, and constituted it as the **Military Academy** in 1802
- **Second peace time mission:** exploration and surveying in Lewis and Clark Expedition 1804-1806



1800s:
Corps of Engineers
“CIVIL WORKS”



Engineers in the MEXICAN WAR 1846-1848



COMPANY "A" BATTALION of ENGINEERS, ORGANIZED MAY 16, 1846.

FIRST OFFICERS.

CAPTAIN ALEXANDER J. SWIFT, CORPS OF ENGINEERS.
SECOND LIEUT. G. W. SMITH, CORPS OF ENGINEERS.
BVT. SECOND LIEUT. G. B. McCLELLAN, CORPS OF ENGINEERS.

DURING THE MEXICAN WAR THE COMPANY PARTICIPATED IN THE BATTLES OF

Veracruz, 9th and 20th of March 1847.	Contreras and Chetumal, 19th and 20th of August 1847.
Cerro Gordo, 17th and 18th of April 1847.	Molino del Rey, 8th of September 1847.
Chapultepec and City of Mexico, 12th and 14th of September 1847.	

DURING THE REBELLION THE COMPANY PARTICIPATED IN THE BATTLES OF

Yorktown, Va., 4th of May 1862.	Chancellorsville, Va., 4th of May 1863.
Fair Oaks, Va., 21st of May 1862.	Franklin Crossing, Va., 5th of June 1863.
Manassasville, Va., 30th of June 1862.	Kelly's Ford and Rappahannock Station, Va., 7th of Nov. 1863.
Guinea's Mill, Va., 27th of June 1862.	Wilderness, Va., 25th and 26th of May 1864.
White Oak Swamp, Va., 28th of June 1862.	Potomac River, Va., 8th of May 1864.
Malvern Hill, Va., 1st of July 1862.	North Anna, Va., 23rd of May 1864.
Antietam, Md., 17th of September 1862.	Civil Action, Va., 2nd of June 1864.
Fredericksburg, Va., 13th of December 1862.	Siege of Petersburg, Va., June 1864, to April 1865.

A detachment of 25 non-commissioned officers and men were engaged in Survey of North Pacific Rail Road in 1858.

The Company participated in the Utah Expedition in 1858. During this Expedition the Company marched over 1100 miles in 34 days.

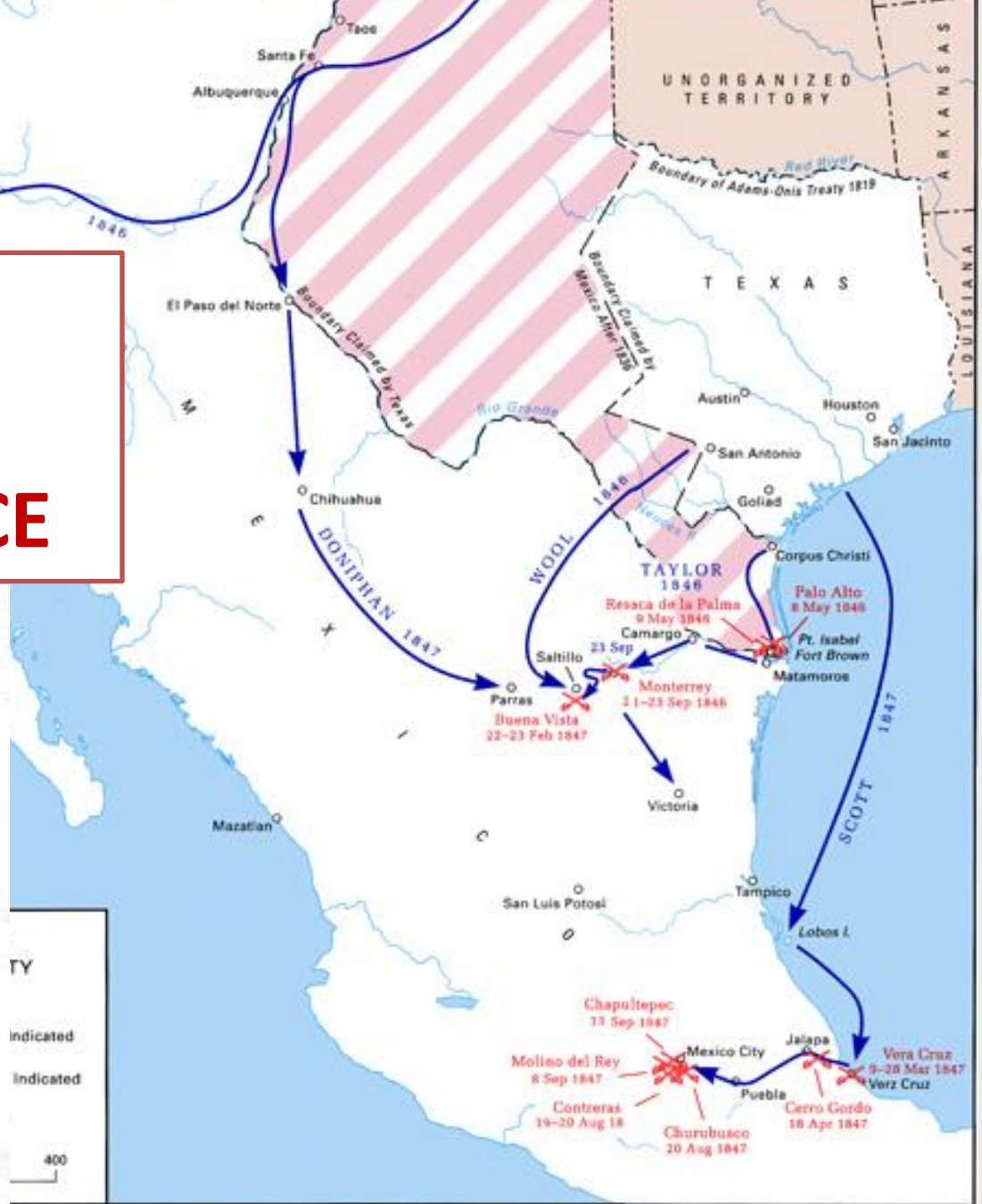
A detachment was sent to Oregon in 1858. The same detachment was sent to Washington, D. C. in 1861, where it was engaged in the instruction of the 15th New York Volunteer Engineers.

The Company formed part of the escort of President Lincoln at his First Inauguration.

During the winter of 1861-62, the Company together with Companies "B," "C" and "D," were engaged in the construction of works around Arlington, D. C.

From this time until the close of the Rebellion, the Company was on duty with the Army of the Potomac.

new mission: TERRAIN RECONNAISSANCE



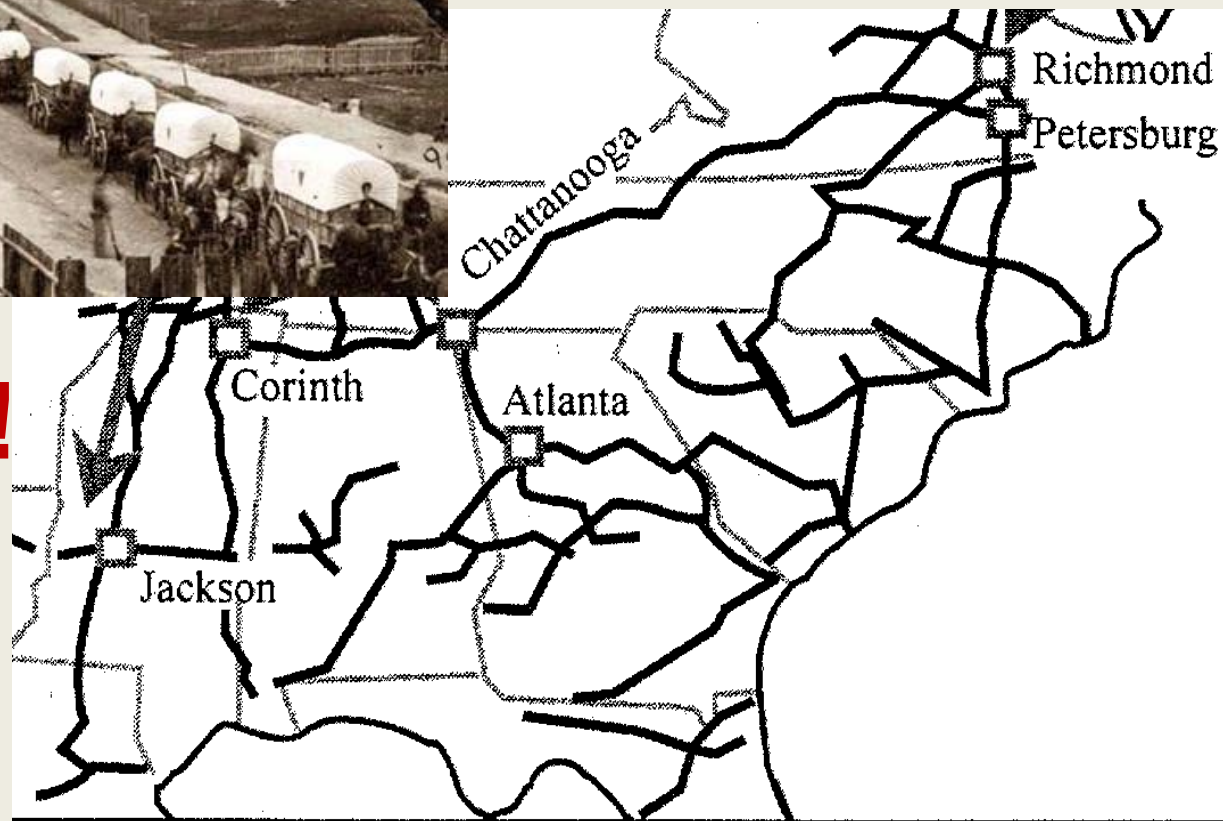
**Peacetime:
surveys for
transcontinental
railroad**

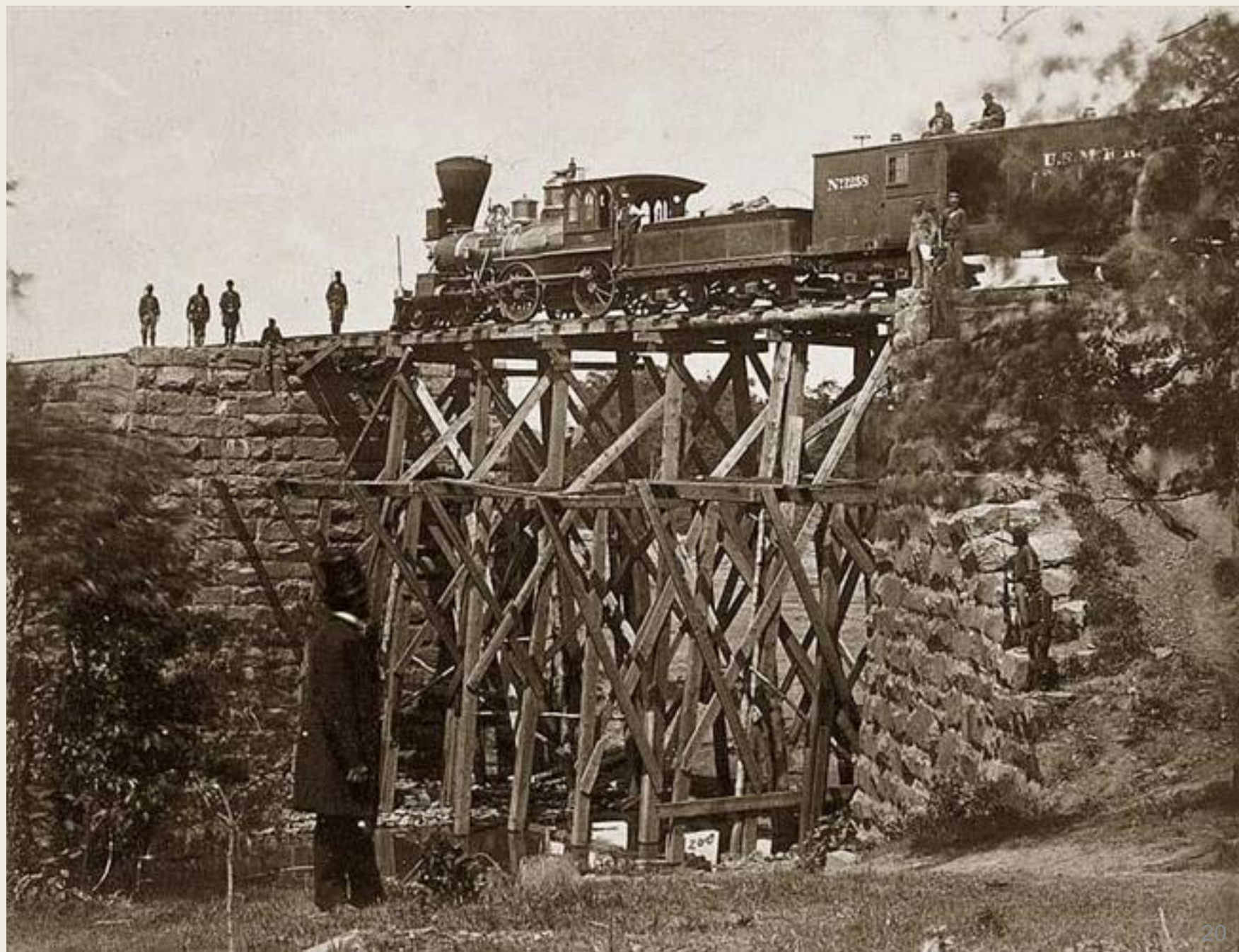


Engineers in the **CIVIL WAR**

SIZE & SCOPE

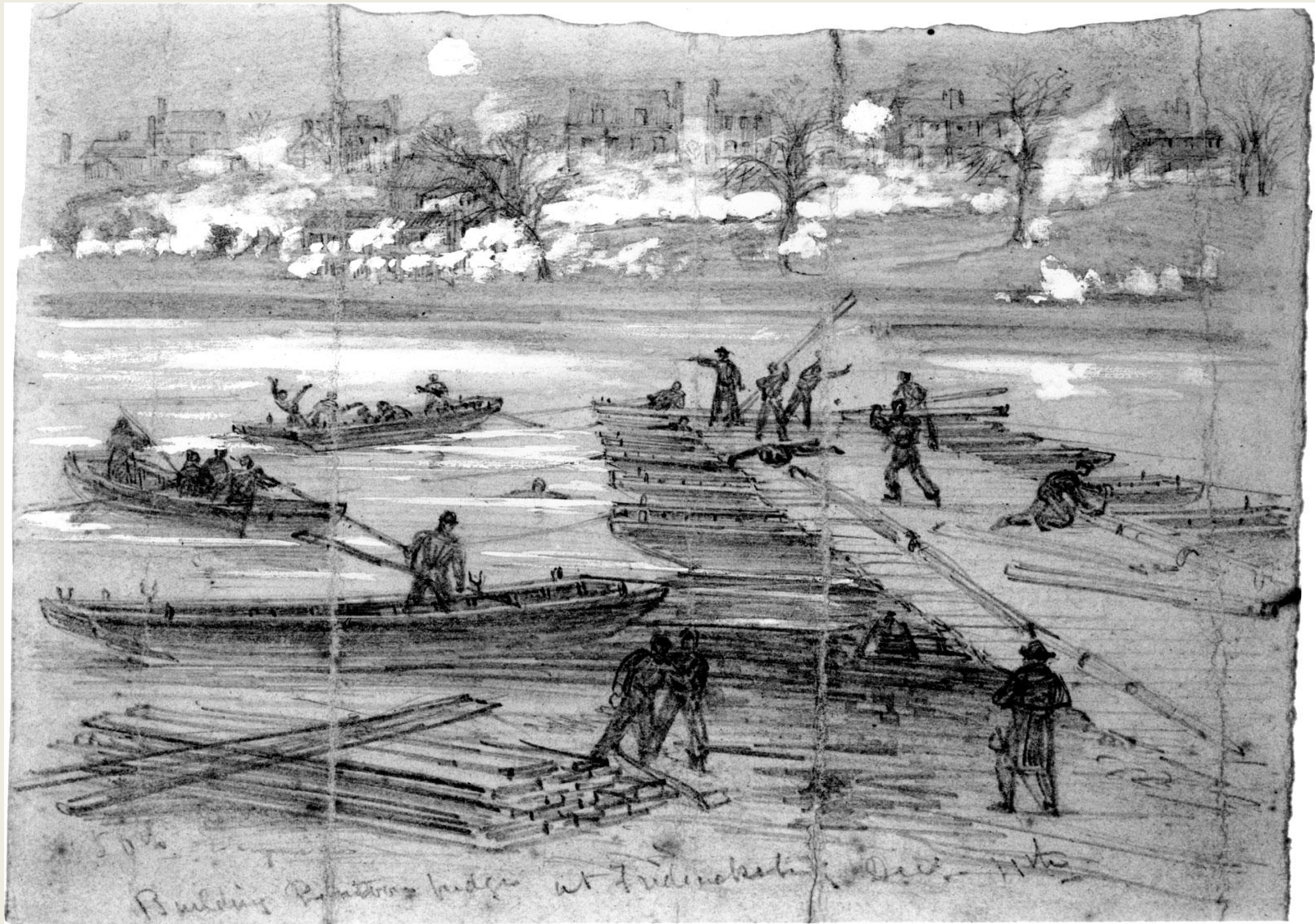
LOGISTICS!





Ponton bridge at Fredericksburg 1862

bridging under fire



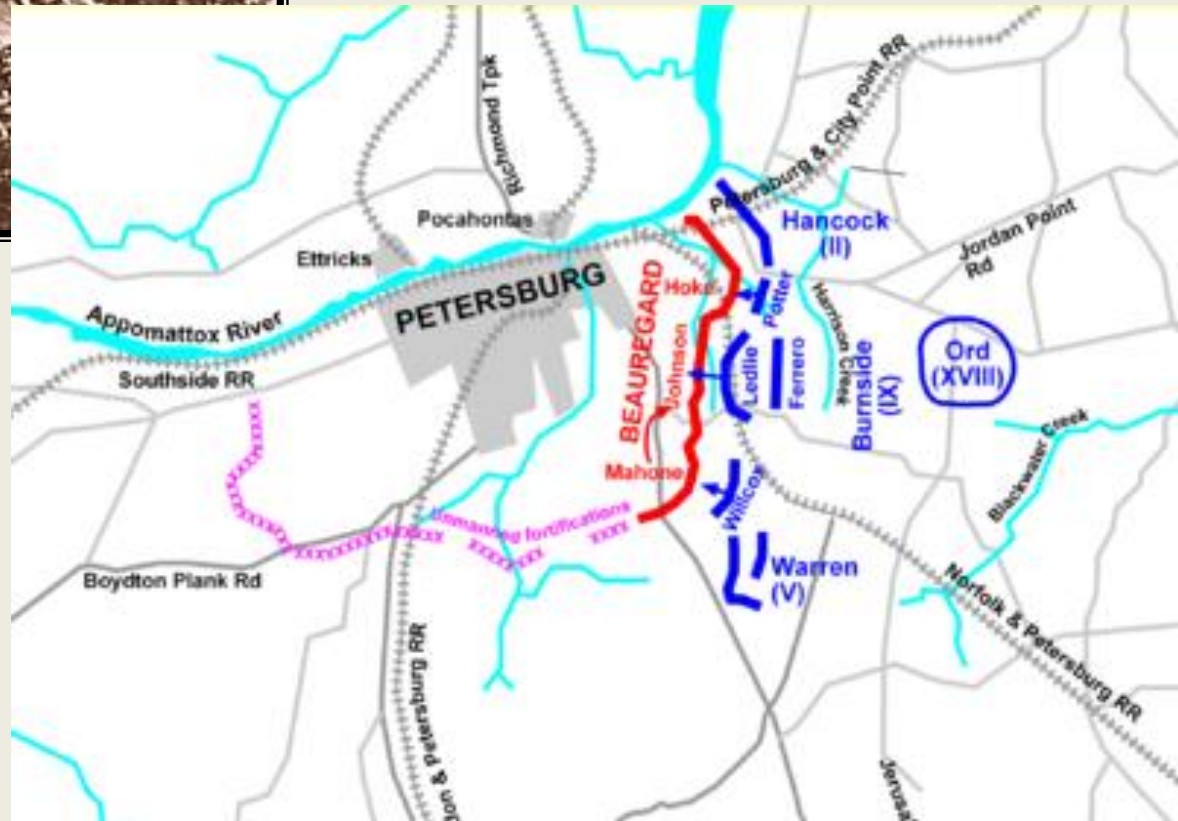
Ponton bridge over the James River, 1864



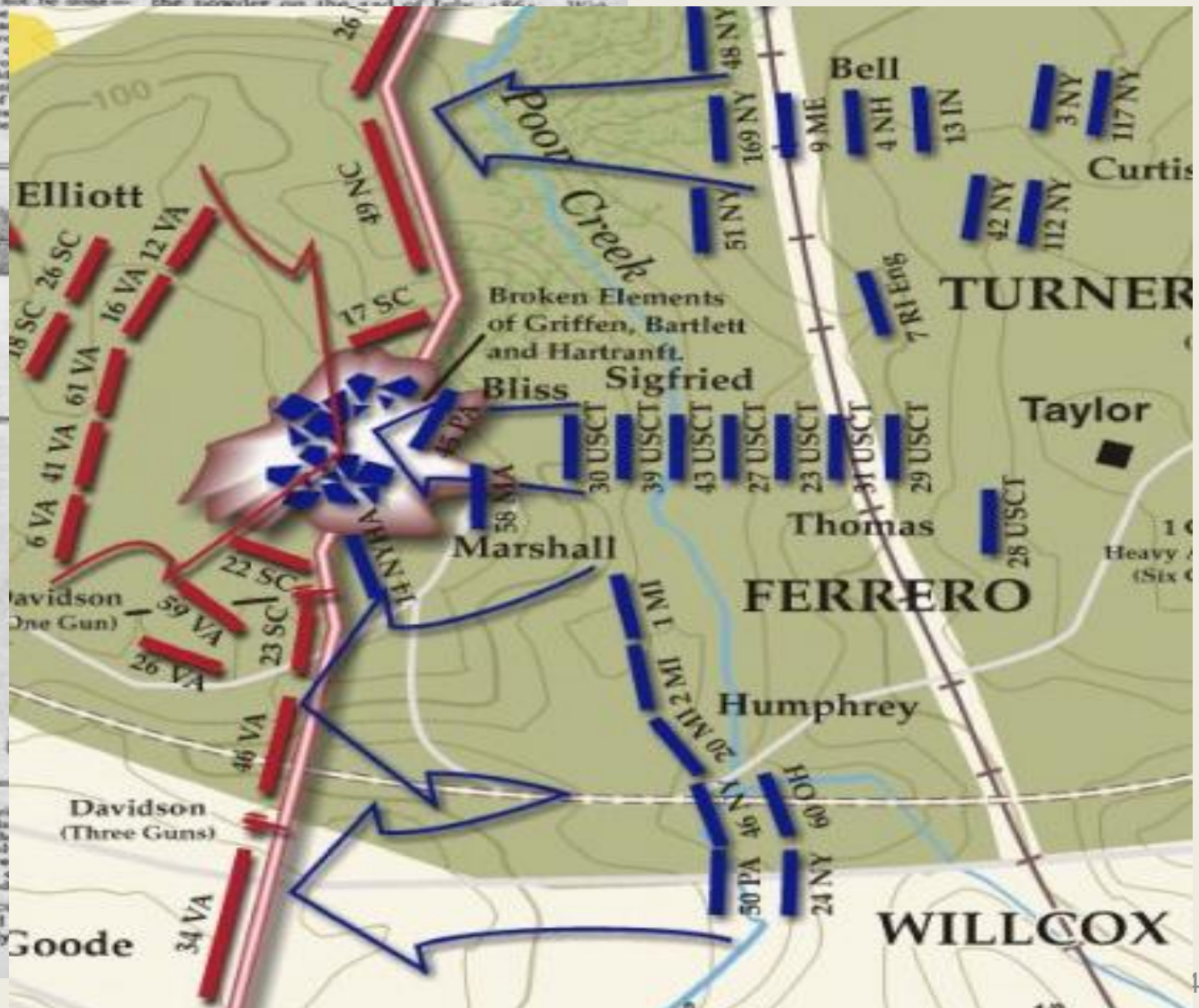
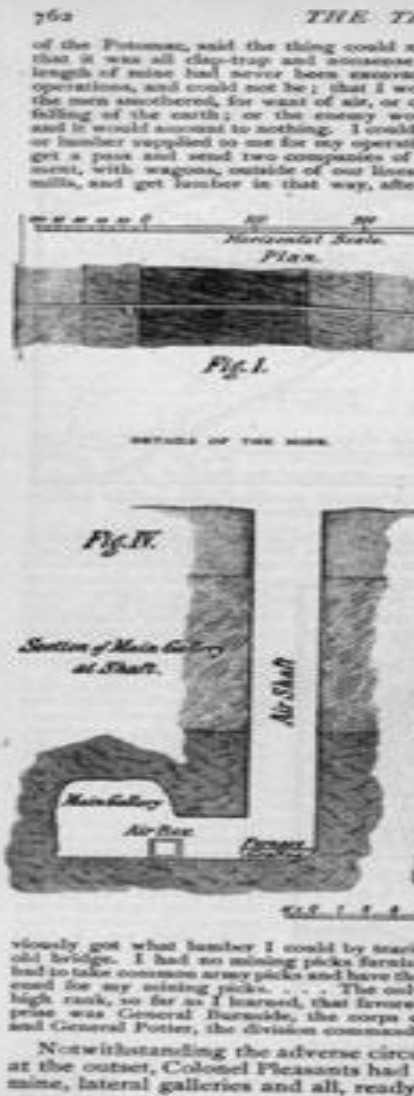


Other engineer activities – **Sieges and Fortifications**

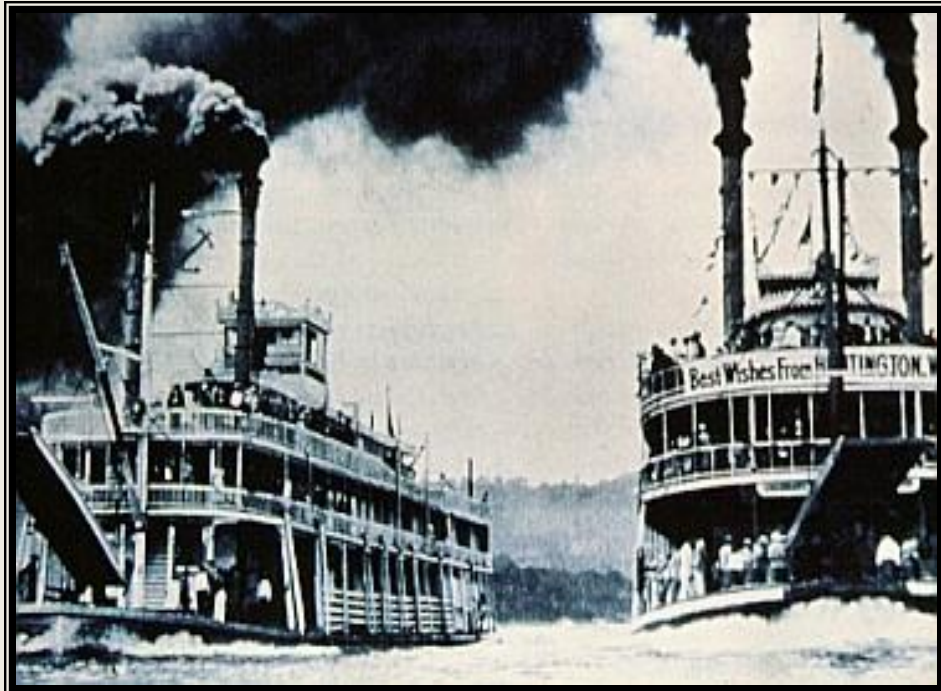
“gabion”



BATTLE OF THE CRATER, 1864



Peacetime: building infrastructure

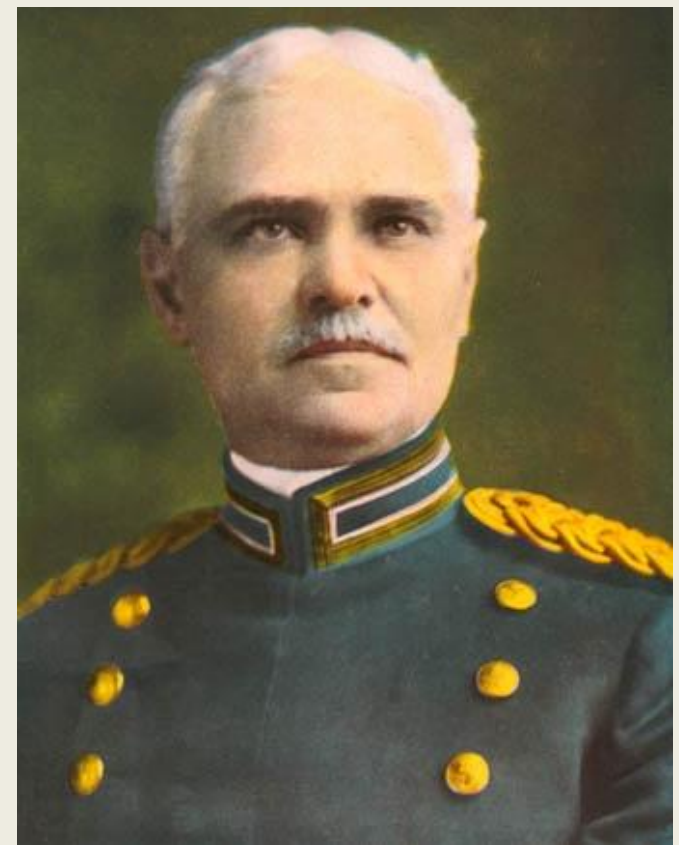


Completing the **WASHINGTON MONUMENT**

MAJ Thomas Lincoln Casey (left)

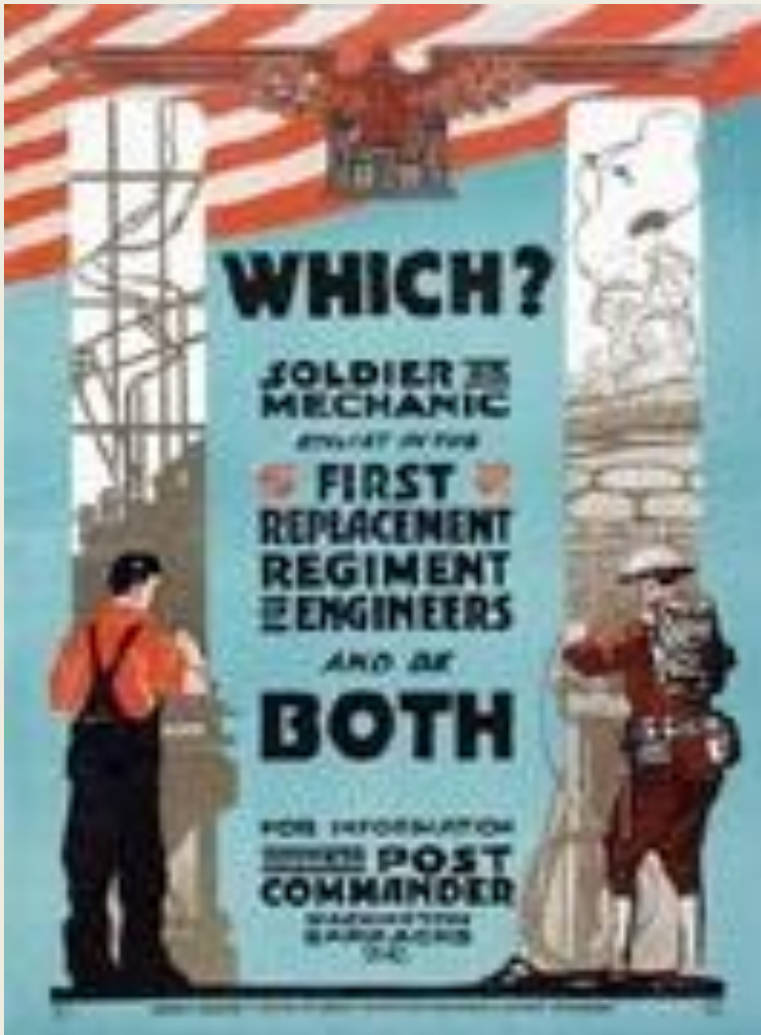


Completing the **PANAMA CANAL**



**LTC
GEORGE W.
GOETHALS**

Engineering in **WORLD WAR I**

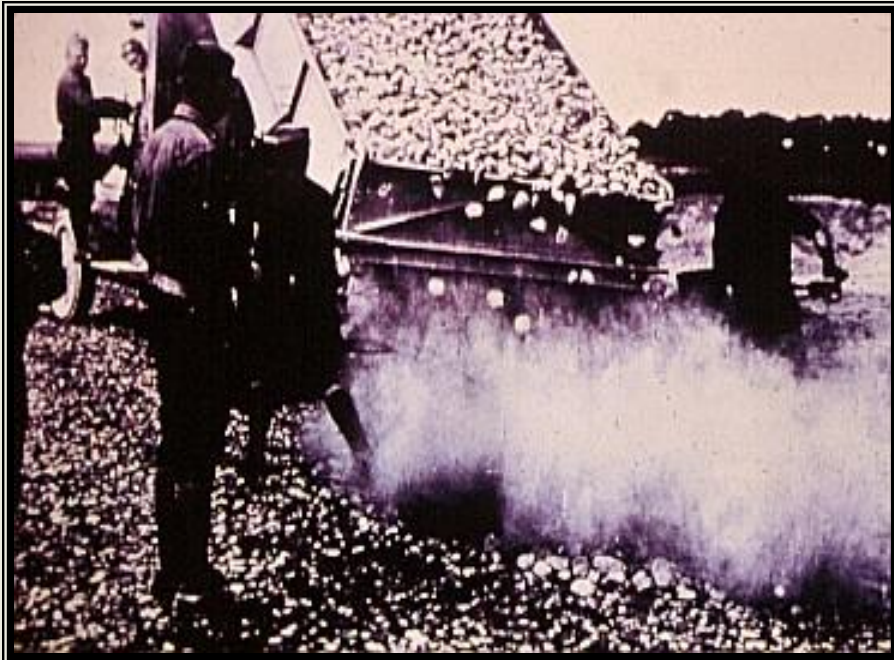


WORLD WAR I → watershed for engineers



Engineers' contributions in France:

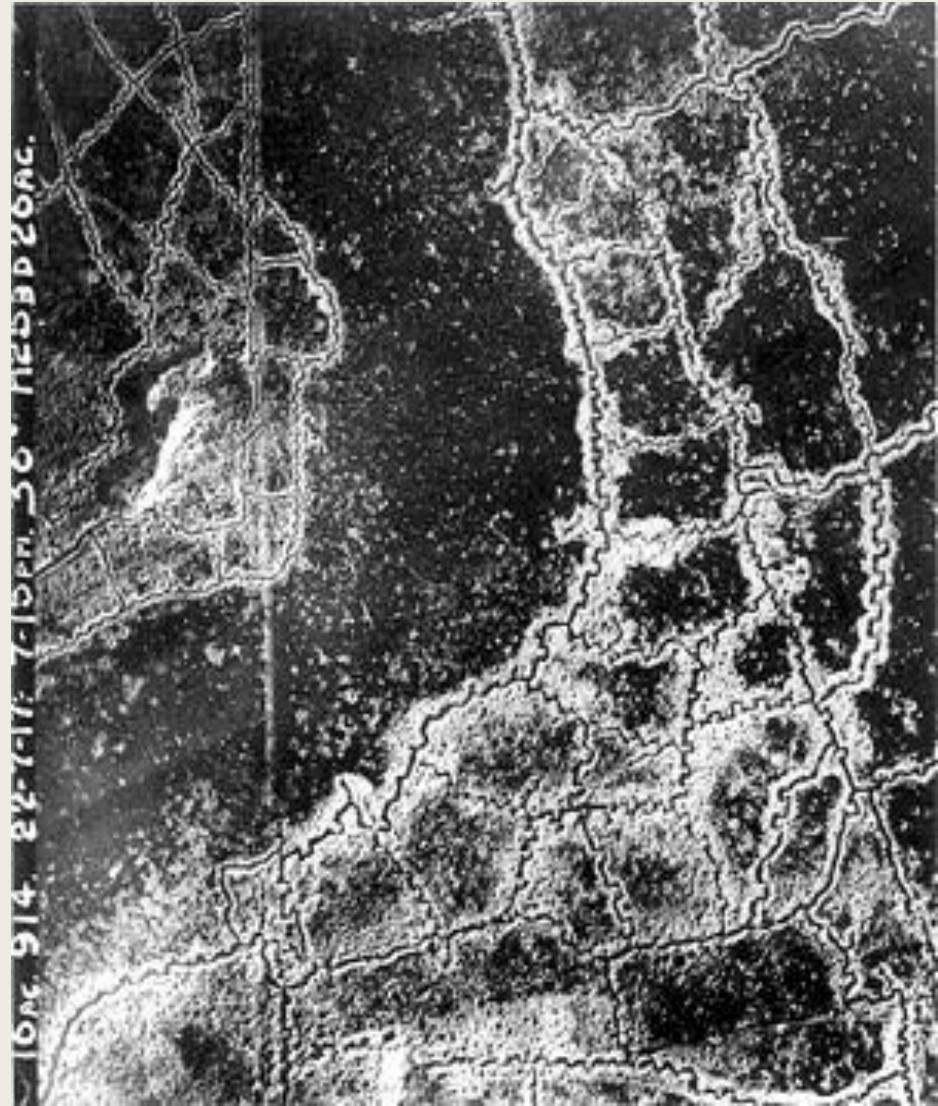
- produced 200 million ft of lumber
- built 20 million sq ft of storage space
- laid 800 miles of rail lines



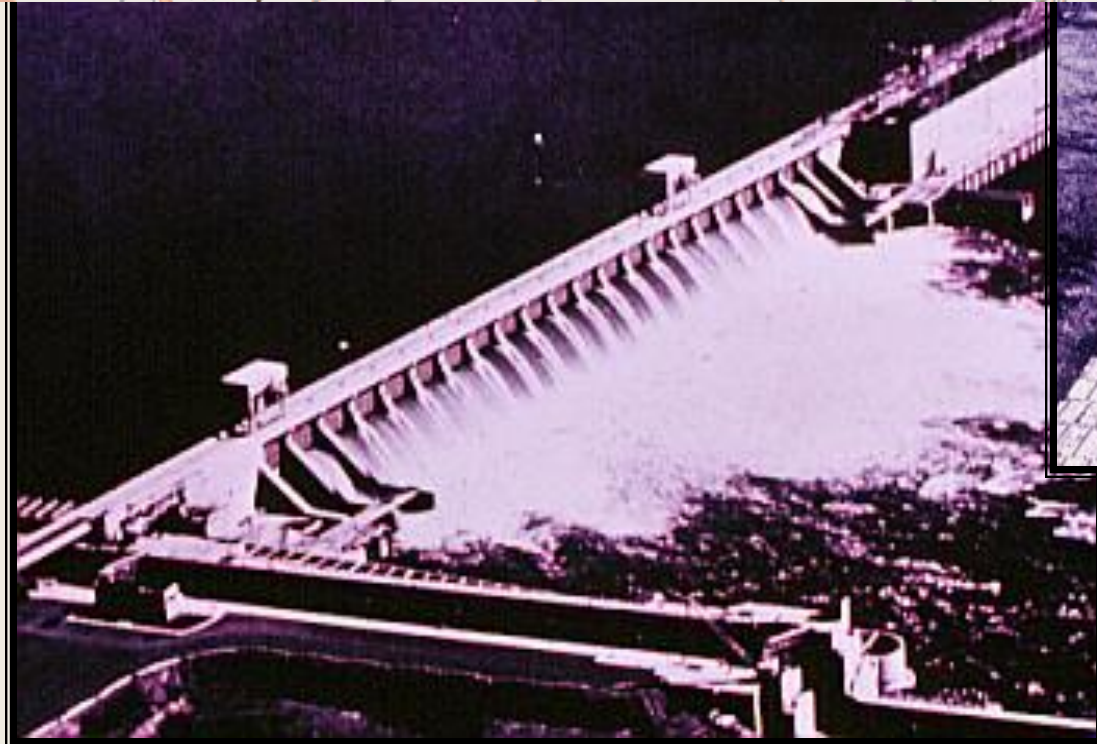
TRENCH WARFARE

According to a lieutenant:

"When you look over what an Engineer has to know, you wonder what the H--- anybody else is supposed to know."

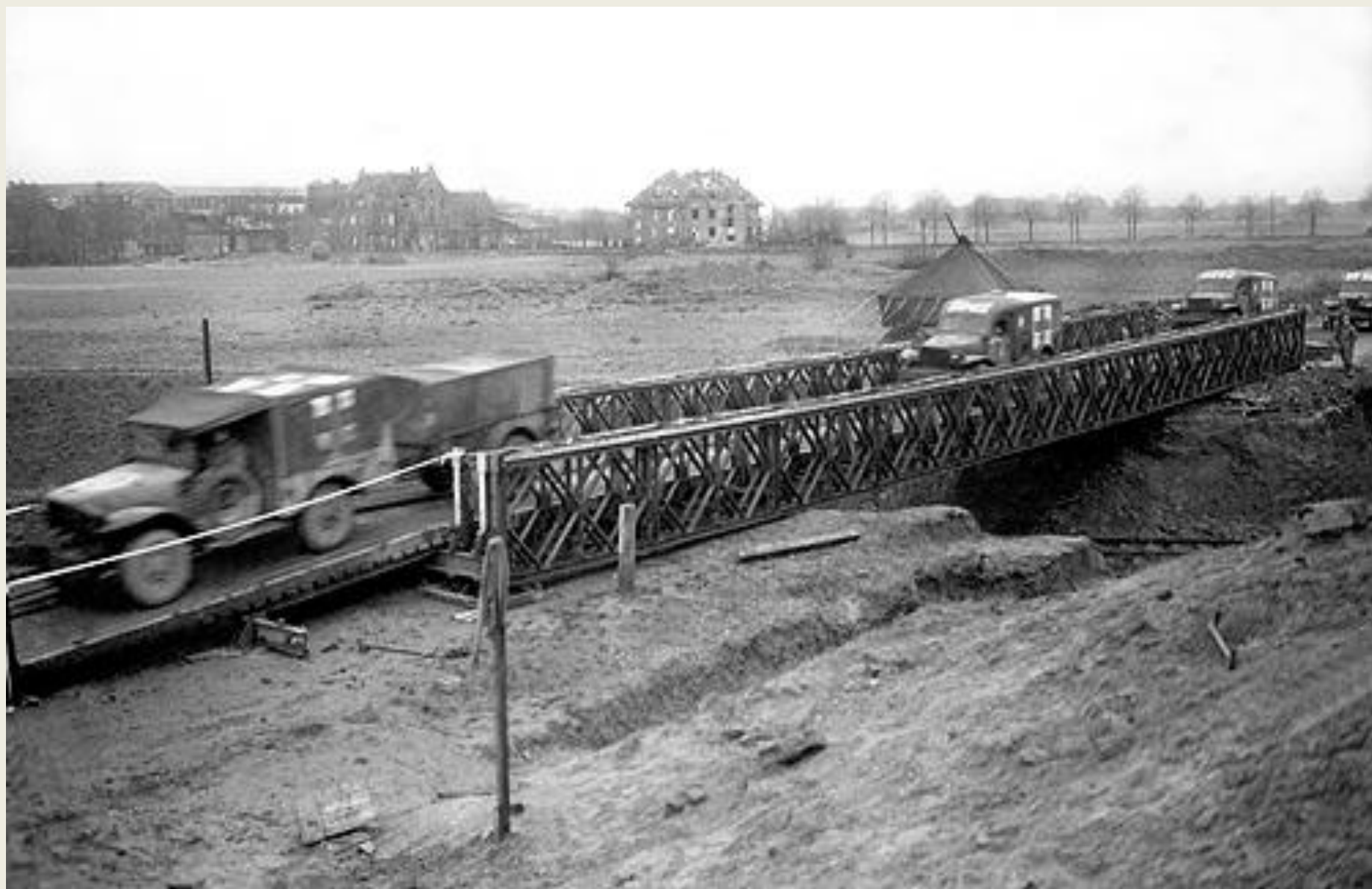






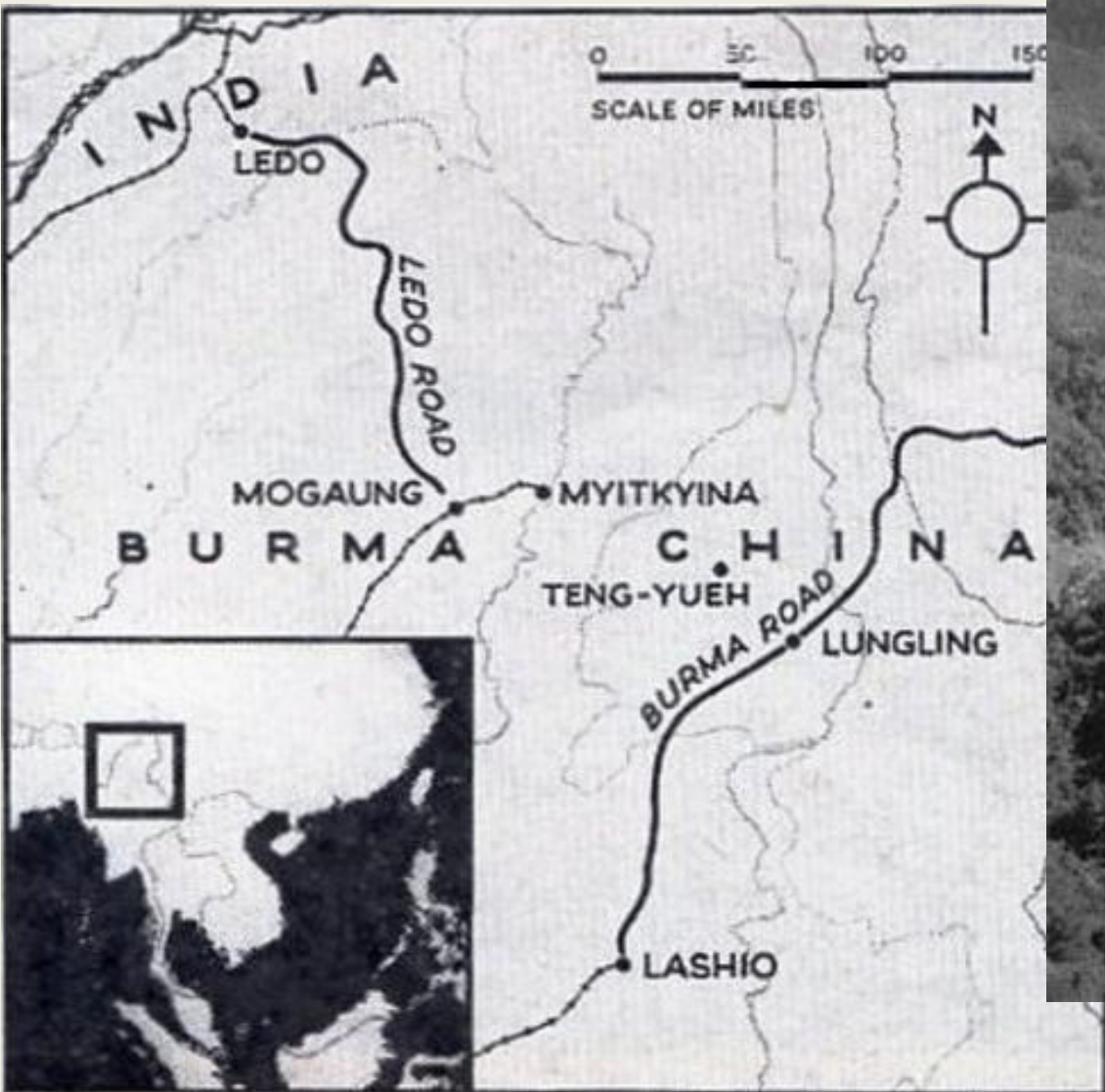
600,000 U.S. Army Engineers in **WORLD WAR II**





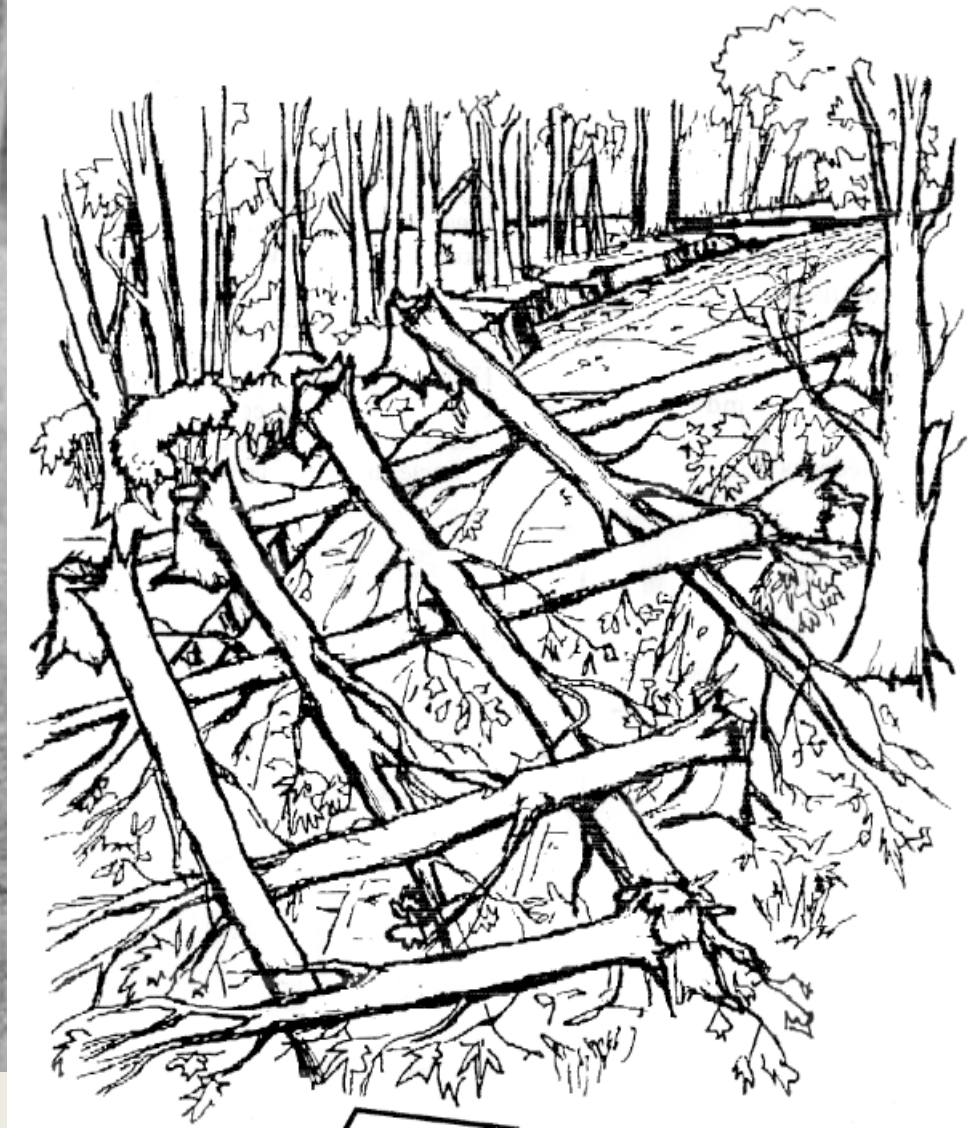
Construction on the **Ledo Road** in Burma







“Abatis”



US XXX Corps

Br Gds Armd Div

ANDENNE

HUY

AMAY

US First Army (Hodges)

US VII Corps

DINANT

Br 29 Armd Bde

2 Armd Div

84 Div

MARCHES

CIERGNON

ROCHFORD

BEAURAING

WELLIN

US VIII Corps

ST HUBERT

LIBRAMONT

28 Div

NEUFCHATEAU

9 Armd Div

MARTELANG

US VIII Abn Corps

75 Div

WERBOMONT

DURBUY

GRANDMENIL

3 Armd Div

HOTTON

82 Abn Div

7 Armd Div

1 SS Pz

8 SS Pz

5 SS Pz

DOCHAMPS

LAROCHE

ORTHEUVILLE

AMBERLOUP

15 Pz Gr

181 Abn Div

Part 10 Armd Div

NOVILLE

BASTOGNE

US VIII Corps

US III Corps

US V Corps

VENNERS

EUPEN

SPA

Fuel dump

STOUMONT

30 Div

47AVLOT

1 SS Pz

8 SS Pz

VIELSALM

ST VITH

GOUVY

HOUFFALIZE

28 Div

CLERVAUX

HOSINGEN

CONSTHUM

WILTZ

DIERMACH

ETTELBRUCK

10 Armd Div

5 Div

4 Div

6 Div

272 Vn Gr Div

MONSCHAU

328 Vn Gr Div

6 Div

2 Div

99 Div

3 Pz Gr Div

12 Vn Gr Div

12 SS Pz Div

3 Para Div

1 SS Pz Div

18 Vn Gr Div

106 Div

62 Vn Gr Div

116 Pz Div

560 Vn Gr Div

2 Pz Div

26 Vn Gr Div

Pz Lehr

5 Para Div

252 Vn Gr Div

276 Vn Gr Div

212 Vn Gr Div

SIXTH SS PZ ARMY (Dietrich)

LXVII Corps

1 SS Pz Corps

II SS Pz Corps

1 SS Pz Div

STADTKYLL

LXVI Corps

Fifth Pz Army (Manteuffel)

LVIII Pz Corps

Army Group 'B' (Model)

XLVII Pz Corps

5 Pz and 15 Pz Gr Div

BITBURG

FG Bde (Pz) and 79 Div

Seventh Army (Brandenberger)

LXXXV Corps

LXXX Corps

LIII Corps

GERMANY

LUXEMBOURG

AMERICAN FRONT ON NIGHT 15 DECEMBER 1944

GERMAN ATTACKS 16/20 DECEMBER

AMERICAN FRONT ON NIGHT 20 DECEMBER

GERMAN ATTACKS 21/24 DECEMBER

ALLIED FRONT ON NIGHT 24 DECEMBER

GERMAN AIRBORNE DROP ON NIGHT 15 DECEMBER

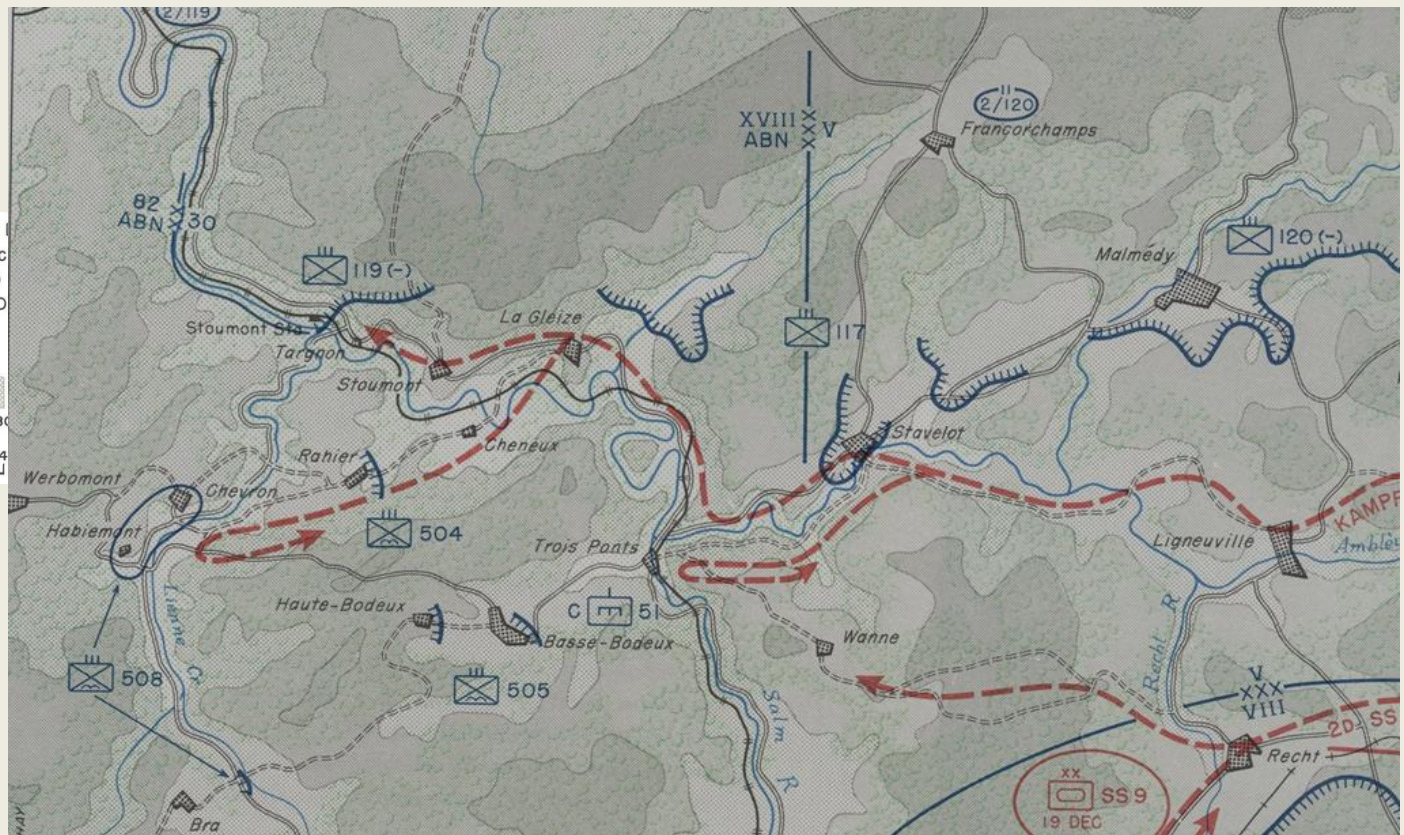
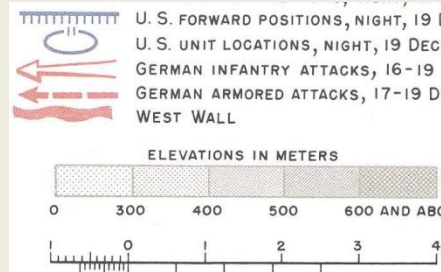
BATTLEGROUP PEIPER

US Third Army (Patton)



When the 291st Engineers blew a bridge in front of him, LTC Joachim Peiper...

“could only sit helplessly, pound his knee and swear, ‘The damned engineers! The damned engineers!’”





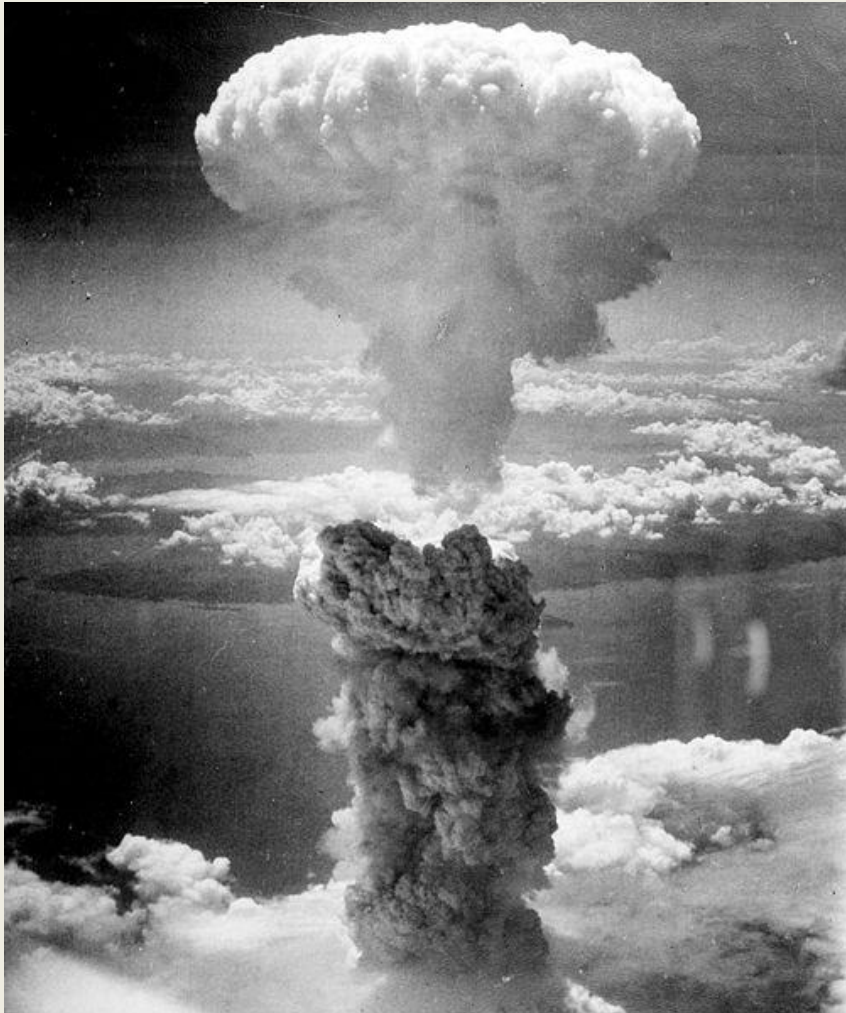
Corps of Engineers wartime construction

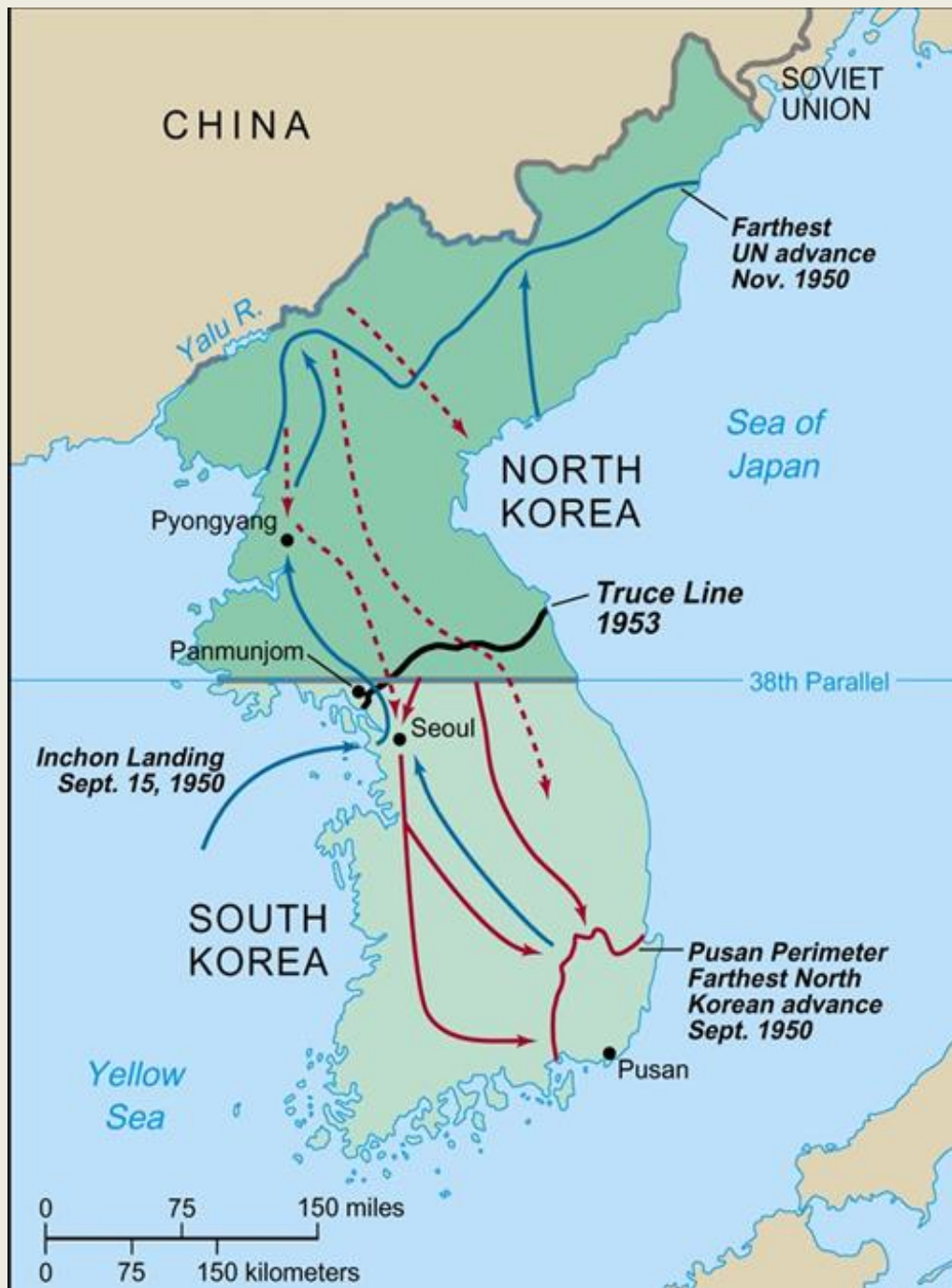
\$15.2 billion in WWII (\$340 billion in 2010)



The MANTATTAN PROJECT

\$2 billion project led by an
engineer → **MG Leslie Groves**





KOREAN WAR

1950-51

war of movement

THE engineer's war





**2nd Engineer Battalion fighting as infantry rear guard
in **BATTLE OF KUNU-RI** in November 1950**



TRENCHES
in
the
Korean
stalemate
1951-53



VIETNAM WAR → anything new?

Most basic level for combat engineers:

Helicopter was to truck...

just as truck was to horse and wagon?









Route clearance on
a road **DAK TO** in
June 1969...



According to an engineer in the 299th, “It was like a bad dream. [The North Vietnamese] hit us with everything they had, and it just plain overwhelmed us. There was no other explanation. We just walked into a beautiful ambush. We were completely pinned down and all we could do was fire back to keep them from getting closer and wait for the air strikes.”

North Vietnamese “SAPPERS”

Primary objective:
infiltrate American
defenses and inflict
maximum casualties,
destroy equipment,
ordnance,
installations, and then
withdraw.





Balkans and the Middle East since 1990









Corps of Engineers in peacetime: **Disaster Relief**



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563-6365

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