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 ↔ 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

- heights
  - sluice gate
  - zigzag sap

PARALLEL
- Ravelins
- Cambron
- Brabançon
- Recollets

Scale (feet)

- 100
- 500
- 1000
- 200
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
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”
Engineers → mining and the **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 \( \rightarrow \) 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
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”
Engineers in the Battle of the Bulge, Dec 1944
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
2\textsuperscript{nd} 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?
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
contact info:

**Dr. David Ulbrich**
david.ulbrich@us.army.mil
563-6365
Hoge Hall – room 043