**Revolutionary War (1775-83)**

- Formation of the U.S. Corps of Engineers and Recruitment of Engineer Troops in the American Revolutionary War (see *Engineers of Independence* [1981])
- Military Geology of Brant’s Minisink Raid and the Battle of Minisink in July 1779 (see *Guidebook 66th Annual Field Conference of Pennsylvania Geologists*)
- Defense of West Point on the Hudson, 1775-1783 (see *Engineers of Independence* [1981] and *Chaining the Hudson* by Lincoln Diamant [1994])
- Yorktown: The Grand Siege, 1781 (in *Engineers of Independence* [1981]; and *The Yorktown Campaign and the Surrender of Cornwallis 1781*, H.P. Johnson, 1881)

**American Civil War (1861-65)**

- Geology and the Civil War campaign of Second Manasas (see *Rocks and War* by E-an Zen and Alta Walker, 2000)
- Battle for Island No. 10 New Madrid, MO 1862 (see *Scope of Military Geology* by Palka and Galgano, 2000)
- Military Geology in the Battle of Gettysburg July 1863 (see *Geology and the Gettysburg Campaign*, PA DCNR Educational Series 5 [1997])
- Siege of Vicksburg, MS Jan-July 1863 (numerous handouts and *Geologic History of Vicksburg National Military Park Area*, MS State Geological Survey Bulletin 28, by W.C. Morse, 1935)
- The 50th New York Volunteer Engineer Regiment During the Civil War (*Engineer Historical Studies No 4*)
- Military Geology of the Richmond and Petersburg National Battlefield Parks (*PA Dept of Conservation and Natural Resources Open File Report 95-08*)
- Undermining enemy entrenchments During the Siege of Petersburg- US Civil War (in *PA Open File Rept 95-08* and *Military Geology in War and Peace*)
- Naval Dry Docks of the United States through 1870 (see Charles B. Stuart, *The Naval Dry Docks of the United States*: Van Nostrand, New York, c. 1870)
- System of Naval Defenses in American Civil War (see James B. Eads, *System of Naval Defences*: Van Nostrand, New York, c. 1866)
- Submarine warfare against ironclad ships (see J. S. Barnes, *Submarine Warfare, offensive and defensive, incl. a discussion of the offensive Torpedo System, its effects upon Iron Clad Ship Systems and influence upon future naval wars*: Van Nostrand, c.1868)
- **Union Navy’s river ironclad excursion up the Red River in the Spring 1864**, which became stranded near Springfield Landing and Alexandria, LA. LCOL Joseph Bailey, USCOE constructed a series of timber dams across the Red River
in order to navigate back downstream (see R. MacBride, Civil War Ironclads, 1962 and excerpts from other texts in custody of instructor)

- *Geology and the Union Raid on New River Valley in May 1864* to interdict flow of salt, lead and railroad transportation (see article of same name in Virginia Minerals Nov 1997 by R.C. Whisonant)

**Spanish American War Era and Oceanic Canals**

- Geographic Constraints on Amphibious Operations, Drinking Water and Sanitation during the Invasion and Occupation of Cuba by U.S. forces (1898-99)
- Construction of the Suez Canal 1864-69
- Construction of the Panama Canal 1879-1914
- **Sheet pile cofferdam method and exhumation of the battleship MAINE** in Havana Harbor by US Corps of Engineers 1910-12 (see H. G. Rickover, H. G. How the Battleship Maine Was Destroyed, 1976, and official report of exhumation in possession of instructor)
- Defense of the Panama Canal 1914-1970
- James B. Eads and the St Louis Bridge (see Ch. 5 in Dams and Other Disasters by A.E. Morgan, 1973; and The Great Bridge)

**First World War (1914-1918)**

- Geologic Input to the Royal Engineers 1914-1918 (Geological Work on the Western Front by W.B. R. King, 1919)
- **The control exerted by geography in the disastrous amphibious assault at Galipoli**
- Cut and cover entrenchments of First World War
- Undermining enemy entrenchments – First World War (see Military Geology in War and Peace; Fortification by William A. Mitchell, 1928; )
- LCOL Peter N. Nissen and His Ubiquitous Nissen Hut
- American Military Geology First World War 1917-18

**Between the Wars (1919-39)**

- Engineering geology, design and construction of the Pearl Harbor Naval Base 1911-1941
- **Corps of Engineers Planning for Interocceanic Canal across Nicaragua in late 1920s-early 1930s and the Managua Earthquake of 1931**
- The 1913 Dayton Flood and Creation of the Miami Conservancy District by Arthur E. Morgan (The Miami Conservancy District, by A.E. Morgan, 1952)
- **Evolution of the Corps of Engineers Levees-Only Policy for flood control** (versus reservoir storage) along the Mississippi River Valley (see discussions in River Tide, 1995 and pp. 106-118 in Of Men and Rivers, 1978)
• Impacts of the 1912 Flood of the Mississippi River (see Report of Board on Examination and Survey of the Mississippi River, 1909; River Tide, by John Barry, 1995, and Floods of the Mississippi Valley by J. P. Kemper, 1929, in instructor collection)

• Debate over creation of the Army Corps of Engineers Hydraulic Laboratory in the 1920s (see Ch 7 in Dams and Other Disasters by A. E. Morgan, 1973)

• The Mississippi River Flood of 1927 (see River Tide, by John Barry, 1995; Of Men and Rivers, 1978; and Floods of the Mississippi Valley by J. P. Kemper, 1929, in instructor collection)

• Federal Flood Control Act of 1928 (see Document 6 in Army Engineers in Memphis District, M. Reuss, 1982)

• Corps of Engineers Jadwin Plan for Flood Control of the Mississippi River in 1928 (see Great Inland Waterway Project of the U.S. [1928] in instructor’s collection)

• Personalities of the Mississippi River flood control plans (MG A.A. Humphries, James B. Eads; COL Ernest Graves; LG Edwin Jadwin, BG T.H. Jackson, MG Lytle Brown, BG Harley B. Ferguson, LCOL John C. H. Lee, among others)

• Flood Control in the Atchafalaya Basin by US Corps of Engineers (Designing the Bayous: The Control of Water in the Atchafalaya Basin 1800-1995, by Martin Reuss, 1998)

• Jadwin’s Floodways at Birds Point-New Madrid, Red-Atchafalaya Rivers and the Bonnet Carre Spillway in Louisiana (see Great Projects by James Tobin, 2001)

• Evolution of the Federal Flood Control Protection Acts of 1938 and 1941 and the US Corps of Engineers role in providing flood control (see Designing the Bayous, by Martin Reuss, 2001)

• Evolution of Potamology and the evolution in River Science in river improvement and navigation (see Corps District histories for New Orleans, Vicksburg, Memphis, St Louis, and Rock Island)

• Evolution of Mississippi River Levees 1888-present (see p. 148 in Of Men and Rivers, 1978; and many other references, incl. books on 1993 floods)

**Second World War (1939-1945)**

• Expansion of the Pearl Harbor Naval Base facilities during World War II 1940-45

• Engineering Geology in Wehrmacht Operations-WW2 (see Wehrgeologie by Kurd von Bulow [1938])

• Impact of Geology on Blitzkrieg Operations; Megiddo (1917); The Low Countries (spring 1940); Libian Plateau (Dec 1940) [Born in Battle No. 15 (1980)]

• German Army Engineer Operations (German Combat Engineers in World War II by Horst Riebenstahl, 1998)

• Geology and Trafficability in the Ardennes Forest During the German Offensive against France and the Low Countries in May 1940

• Use of engineering geology by the German Afrika Corps 1941-43
• **Building of the Alaska (Alcan) Highway** by the U.S. Army 1942-43 (*Alcan Trail Blazers* by 648th Eng’r Topo Battalion (1992) and *Crooked Road, The Story of the Alaska Highway*, by D.A. Remley (1976)).
• **Underground structures and German War Production** Second World War
• **Japanese Pacific Island Defenses** (see book of same name by G.L. Rottman, 2003)
• **U-Boat Bases and Bunkers 1941-45** (see book of same name by Gordon Williamson, 2003)
• **American Defenses of Corrigidor and Manilla Bay** (see book of same name by T.C. McGovern and M.A. Berhow, 2003)
• **Architecture of War** by Arvid Ottar
• **British Application of Geology for the Normandy Invasion June 1944** (*British applications of military geology for “Operation Overlord” and the battle of Normandy, France, 1944* by E.P.F. Rose and C. Pareyn, 1998, in course text #1)
• **Overview of Operation Overlord – The Normandy Invasion of June 1944**: Critical Contributions of inclement weather, disinformation and German prejudice about logistical support through break-bulk cargo ports
• **The American “Mulberry A” harbor operations at Normandy** (*The Far Shore* by LCDR Max Miller, 1945; *Force Mulberry* by CDR Alfred Stanford, 1951; and *The Far Shore* by RADM Edward Ellsberg, 1960)
• Evolution of the Bailey Prefabricated Segmented truss bridge in World War II (see *A Bridge to Victory* by Brian Harpur, 1992)
• Royal Engineers Bridging operations between Normandy and Berlin 1944-45 (see *Bridging: Normandy to Berlin*, 1945, in possession of instructor)
• Role of the 51st Engineer Combat Battalion in thwarting the German Advance during the Battle of the Bulge (book, *Studies in Military Eng’g No 4*)
• Construction of the Bailey Pontoon Bridge at Remagen by the 291st ECB (see *First Across the Rhine* by D. E. Pergrin, 1989)
• **Bridging the Rhine River** (see *Bridging: Normandy to Berlin*, 1945)
• Temporary Restoration of Port Facilities seized in wake of the Normandy Invasion Summer 1944 by US Army Port Engineer units (Cherbourg, LeHavre and Brest)
• **Temporary Restoration of Railroad Network in ETO 1944-45** (see books in instructor’s collection)
• Salvage of the capsized battleships USS Oklahoma and USS Utah at Pearl Harbor, 1942-46 (see engineering files in instructor’s possession and *Pearl Harbor: Why How, Fleet Salvage and Final Appraisal* by Homer N. Wallin, 1968)
• **Amphibious Assault of Guadalcanal and logistic sustenance during Battle for Guadalcanal in Solomon Islands** (August 1942 to May 1943)
• Engineer Intelligence and the Pacific Geologic Mapping Program
• Background Surrounding Formation of Naval Mobile Construction Battalions (Seabees) during World War II
• **Formation of Coral Atolls, reefs and cays in the Pacific and Indian Oceans**
• **Feasibility Studies and Planning for the Ruhr Dams Raids of May 1943** (The Dams Raid through the Lens by Helmhuth Euler, 2001)
• **The Prosecution of the Ruhr Dams Raid May 16-17, 1943** (The Dams Raid through the Lens by Helmhuth Euler, 2001)
• Naval Construction Battalion Operations in Pacific Theater WW2
• Establishment of Advanced Base Construction Depots by Navy Seabees During WW2 (*Advanced Base Construction Detachment Admiralty Islands* cruise book, 1945)
Establishment of the USGS Military Geology Branch During World War II
(Military Geology Branch of the U.S. Geological Survey from 1945-1972 by M.J. Terman in course text #1)

Establishment of the Manhattan District, Corps of Engineers (Racing for the Bomb, by R.S. Norris, 2002: Now It Can Be Told: The Story of the Manhattan Project, L.R. Groves, 1962)

Infrastructure Engineering and Construction of the Manhattan Project (see History of Manhattan Project, US Corps of Engineers; US Army)

Design and Construction of Manhattan Project facilities at Oak Ridge, TN (book by Stone and Webster)

Cold War Conflicts (1950-90) and Post World War (1991-present)

Construction of the Libby and Teal Bridges across the Imjin River during the Korean War (see Bridging the Imjin, Studies in Military Engineering No. 5, 1989)

Army Engineer’s Raid on the Hwachon Dam (April 1951) (see MANSEN Library for IX Corps Comd Rpt, Nar, Apr 51; IX Corps Engr Sec, Study of Hwachon Dam, 4 Apr 51; Eighth Army G3 Jnl, Sum, 6 Apr 51; and Martin Blumenson, "Hwachon Dam--Korea 1951: The 4th Ranger Company and the 7th Cavalry in. Action." Inf'86 (May/ Jun 1996): pp. 20-30).

Navy Aerial Attack on the Hwachon Dam by VA-195 using torpedoes (May 1, 1951) (see files in instructor’s collection)

Military Geology of the Eastern DMZ, central Korean Peninsula (Military Geology in War and Peace)

Clandestine Tunnel 4, northern Punchbowl, Korean Demilitarized Zone (Military Geology in War and Peace)

Siege of Dien Bien Phu Vietnam 1954

Siege of Khe Sanh South Vietnam 1965-66

Offshore “Texas Towers” constructed off coast of United States in the 1950s (see articles in instructor’s collection)

Distant Early Warning (DEW) Network constructed in the 1950s (see articles in instructor’s collection)

Interstate and Defense Highway Program of 1955

Underground Intercontinental Ballistic Missile (ICBM) Complexes

Swords into Plowshares: Military geology and national security projects (check internet for film on Swords into Plowshares and atomic excavation of transoceanic canal through Honduras)

Military geology programs in the arctic 1950-70 (Military Geology in War and Peace)

Location of sites for Airfields in North Greenland


Vulnerability to Underground Fortifications to Conventional Weapons Attacks
• **Playas and Military Operations:** 1) Afrika Krops 1941-43; 2) Desert One Rescue Mission, Iran April 1980; 3) Gulf War in 1991 (see article by J.T. Neal in *Military Geology in War and Peace*)


• Nuclear Test Monitoring by U.S. Geological Survey during the Cold War 1949-91

• Military Geology in the Gulf War 1990-91

• Engineering Operations in assistance to Bosnia 1990s

• Engineering Operation in Afghanistan and Pakistan 2001-onward

• **Hardened Air Bases in Israel and the Middle East, with high speed taxiways and bunkered replenishment hardstands**

• Seismic discriminant for discerning nuclear detonations from earthquakes (article by Woods and Helmberger in EOS, Feb 23, 1993)

• **Use of satellite data to locate Nuclear test sites** (EOS v. 82:3 Jan 16, 2001)

• **Forensic geophysics applied to the 1995 Oklahoma City bombing of the Alfred Murrah Federal Building** (Tom Holzer, USGS)

• **Forensic geophysics applied to the Sinking of the Russian submarine Kursk** (August 2000; see article in EOS, v. 82:4 Jan 23, 2001)

• **Collapse mechanisms of the World Trade Center towers, New York City 9-11-01** (see official report by FEMA)

• **Collapse mechanism of the Pentagon 9-11-01 attack** (see ASCE report)

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**Environmental Security**

• **Conflicts over water resources** (see Water Conflicts at [http://www.worldwater.org/conflict.htm](http://www.worldwater.org/conflict.htm))


• Corps of Engineers. 1953. “Applications of Hydrology in Military Planning and Operations and Subject Classification Index for Military Hydrology
Data.” Military Hydrology R&D Branch, Engineering Division, Corps of Engineers, Department of the Army, Washington.