



US Army Corps
of Engineers

Essayons (Let Us Try)





The U.S. Army Corps of Engineers traces its origins to the American Revolution. On June 16, 1775, when the Continental Congress established the Army, it provided for a Chief Engineer. Colonel Richard Gridley, the first to hold that position, set to work immediately directing fortifications during the Battle of Bunker Hill.

The History of the US Army Corps of Engineers

Congress added companies of engineer troops, or sappers and miners, to the Army and, in 1779, formed them into a distinct Corps of Engineers.

The Engineers' finest hour was at the Battle of Yorktown in October 1781, which forced a British surrender.

When war with Britain threatened again in 1794, Congress appointed temporary engineers to fortify key harbors. In 1802, the Corps of Engineers was made permanent and took charge of the military academy at West Point, N.Y.

Constructing seacoast fortifications continued as the engineers' primary responsibility. The Corps again saw combat in the War of 1812.

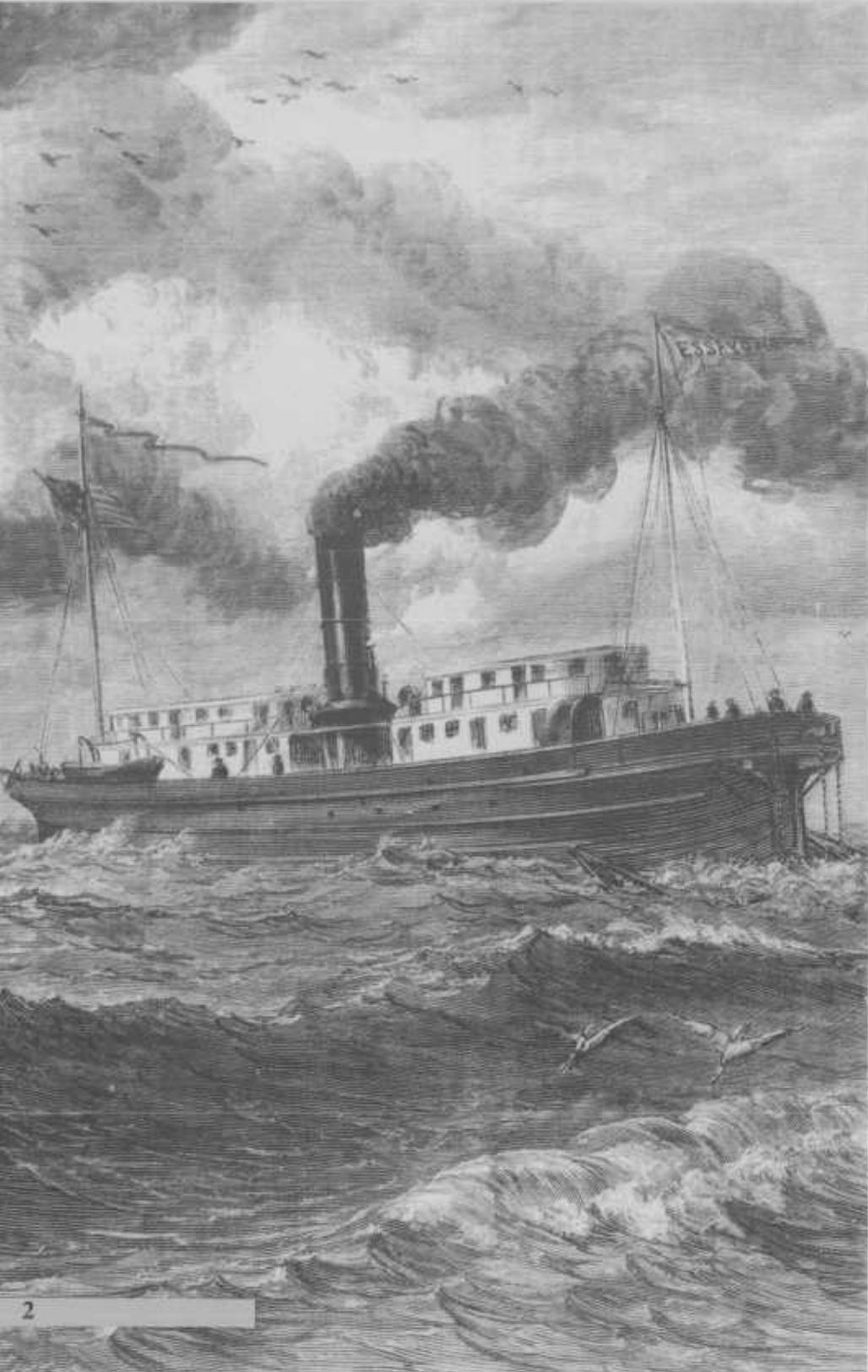
That war demonstrated the need to improve the nation's defense and transportation systems. In 1824, the General Survey Act authorized the President to use Army engineers to survey road and canal routes. A separate measure appropriated \$75,000 to employ public engineers in improving navigation on the Ohio and Mississippi Rivers. Thus began the Army's long involvement in civil works activities.

In May 1846, on the eve of the Mexican War, Congress authorized the first regular company of engineer troops. During the Civil War, their numbers increased, as engineer officers commanded combined troops, conducted surveys and reconnaissance, and directed siege operations.



The Essayons Button and the Corps of Engineers old and most time honored insignia. War of 1812

Battle of Bunker Hill
June 17, 1775 by
H. Charles McBarron



In the following decade, the Corps' involvement in civil works mushroomed as appropriations jumped from \$3.5 million for 49 projects and 26 surveys in 1866 to \$19 million for 371 projects and 135 surveys in 1882. Key developments occurred on the Ohio River, which the Corps had canalized to a depth of nine feet by 1929, and on the lower Mississippi, where growing pressures for navigation and flood control led Congress to establish the Mississippi River Commission in 1879. This permanent body included three Corps of Engineers officers.

As engineers debated effective flood protection measures, federal responsibility for flood control grew in response to recurring floods. With legislation in 1928, attention broadened from the Mississippi to include its tributaries. The Flood Control Act of 1936 recognized flood control in general as a proper activity of the federal government and gave responsibility for most federal projects to the Corps of Engineers.



Flood at Greenville, Mississippi, 1927

St. Louis District Files, Corps of Engineers

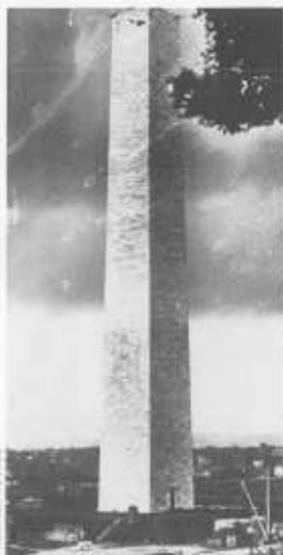
Corps of Engineers' Dredge essayons at the mouth of the Mississippi, c. 1870

After World War II, multi-purpose projects involving navigation, water storage, irrigation, power and recreation, in addition to flood control, predominated. In the process, the Corps became a leading producer of hydroelectric power.

The Corps role in protecting the natural environment also expanded. It was influential

in the creation of Yellowstone as the first national park in 1874 and, in the 1870s, began to regulate construction of bridges to prevent obstruction to navigation. In 1899, Congress gave the Corps authority to regulate almost all kinds of obstructions to navigation.

Washington Monument,
February 1884



Senate wing and
Capitol dome under
construction

The Corps of Engineers has had a special relationship with the District of Columbia since 1791, when former Army engineer Pierre L'Enfant designed the master plan for the new capital. In the mid-19th century, Lieutenant Montgomery C. Meigs supervised construction of a permanent water supply system for the cities of Washington and Georgetown. In the post-Civil War period, Army engineers worked on reconstruction of the Capitol; supervised the development of Rock Creek Park; completed the Washington Monument; helped design and supervise construction of the State, War and Navy Buildings (today's Executive Office Building next to the White House), and the Library of Congress; and oversaw dredge and fill operations, which created acres of public parkland.



Pierre L'Enfant's plan
of Washington, D.C.
1792

After 1878, an Army engineer officer served on the District's three-man governing commission. The George Washington Memorial Parkway, the Pentagon and National Airport began as pre-World War II Corps projects.

FIRST IN EMERGENCIES



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World War I recruiting poster

U.S. Army tractor negotiates a steep grade on the Rhine at Coblenz, Germany



U.S. Military Academy Library

Half-tracks cross the Seine on a pontoon bridge, August 1944



Illustration: U.S. Military Academy Library

Since the Civil War, engineer officers and troops have played key roles in six wars. During World War I, in combat and in such activities behind the lines as constructing ports, storage depots, hospitals, and barracks, the Corps performed a greater diversity of military services than ever before.

Its support of the Normandy landing and breakthrough of enemy lines, its bridge-building efforts, and support of amphibious landings during World War II stand out.

Throughout the Pacific Theater, the Corps built pipelines, dredged harbors, and built and repaired ports. Bases in Greenland and Iceland protected Atlantic shipping. The Corps also

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A soldier construction engineer checks out his survey markers during road construction

built the 1,671-mile Alcan Highway in Alaska and the Ledo Road from India to Burma.

At home, the Corps of Engineers took over responsibility for all Army construction in December 1941. This effort included military and industrial projects, a total mobilization that involved more than 27,000 projects at a cost of \$15.3 billion. The Corps created a special district to oversee the Manhattan Project, a massive effort to construct production and assembly facilities for atomic weapons, new scientific equipment and residential communities for workers.

After World War II, in less traditional roles, the Corps became the design and construction agent for NASA, supported the ICBM construction program, and worked on military and civil projects overseas.



The Army Corps of Engineers is a complex organization with multiple responsibilities requiring extensive design, engineering and construction expertise. This Army major command is an integral part of the Army and, as such, is the responsibility of the Secretary of the Army. The Corps Commander also serves as Chief of Engineers, an Army staff position.

As the Army's senior Engineer, the Chief works with the rest of the Army staff and other

The Corps of Engineers Today



"The Corps Castle"

commands to make sure combat engineer units are equipped, organized and manned properly. He also supervises the development of concepts, plans and policies for engineer support of the Army, research and development in support of the civil works program and management of the Army's nuclear power program as well as topographic services.

This effort includes preparation of the Corps of Engineers for mobilization and the construction workload that would follow. There are construction requirements to be determined, and designs accomplished in preparation for partial or full mobilization of our country in time of emergency.

Under the direction of the Assistant Secretary of the Army (Installations, Logistics and Environment), the Office of the Chief of Engineers has staff responsibility for Army military construction, family housing, environmental activities, facilities engineering, real estate and real property maintenance.

The Corps is the real estate agent for the Departments of the Army and Air Force, acquiring, managing and disposing of land for military and civil works programs.

The Army's military and civil works land holdings are extensive, comprising 24 million acres. The Corps also provides real estate support to other Federal agencies upon request, such as the Departments of Commerce, Energy and Interior, and NASA.

Corps of Engineers officials, and archaeologists examine the fossilized skull of a 45 million-year-old whale during a Corps-contracted scientific survey



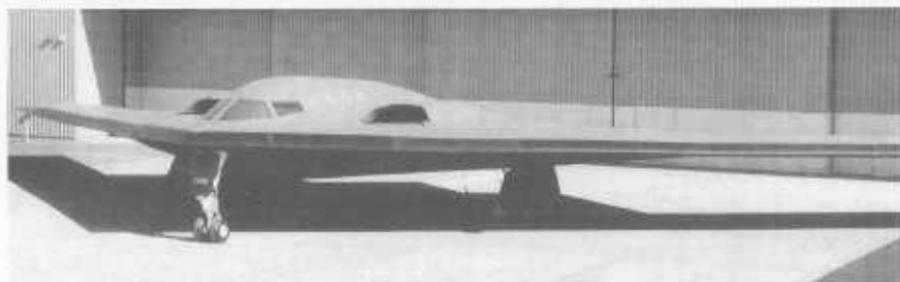
A Corps damage assessment team from the Kuwait Emergency Recovery Office inspects a government building.

As the nation marches toward building peace in the 21st century, the Corps military activities have kept pace. Military construction support has been crucial to successfully concluding Operation Just Cause in Panama and Operations Desert Shield and Desert Storm in Southwest Asia.

As part of the nation's effort to end the Cold War, the Corps has recently completed the first chemical demilitarization plant at Johnston Island in the Pacific Ocean. Used for the destruction of chemical weapons, the plant is the first of nine under the Corps design and construction. These facilities will contribute significantly to international peace and security.

One of the most dynamic current programs involves the environmental restoration, protection and enhancement of current and formerly used military sites. This work, along with support to the Environmental Protection Agency, will soon be a billion dollar per year mission for the Corps.

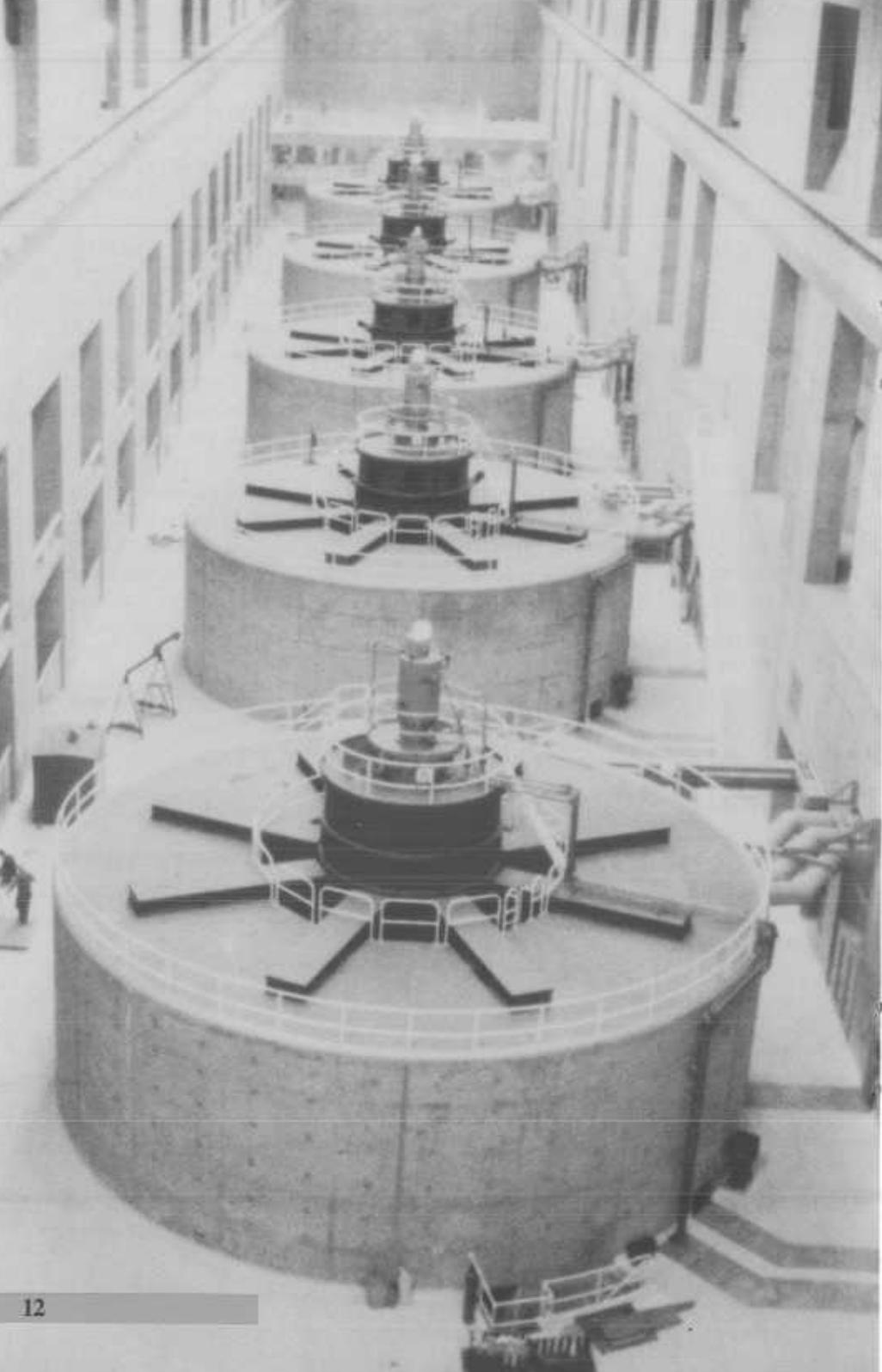
In support to the Air Force, the Corps served as the construction agent for the B-2 bomber operational and support facilities.



U.S. Air Force

The realignment and reduction of the nation's military forces creates another mission for the Corps through supporting affected installations with planning, real estate and construction.

As the Air Force military construction agent, the Corps plays a key role supporting the men and women in blue. Projects include constructing the Large Rocket Test Facility at Arnold Engineering and Development Center, Tenn., as well as the operational and support



Crewmen from the Corps' U.S. derrick-boat Ohio guide a 76-ton gate from Black Rock Lock

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Bonneville Dam

facilities for beddown of the B-2 Bomber at Whiteman Air Force Base, Mo.

While the Corps' military mission is huge, its civil works projects are most often in the public view. The Assistant Secretary of the Army (Civil Works) directs and supervises the civil works mission carried out by the Corps' 350 engineer officers and 28,000 civilians.

The water resources program includes almost 1,500 projects. The Corps is responsible for planning, design, construction, operation and maintenance of projects for flood control, navigation, hydroelectric power, water supply for municipalities and industry, recreation and fish and wildlife management and environmental enhancement.

The Corps currently operates more than 500 flood control dams and thousands of miles of levees, floodwalls, floodways and channels. Over the past 50 years, the projects cost about \$23 billion to construct. In 1986, these projects prevented more than \$27 billion in damage and



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have averaged \$10.7 billion in savings annually over the past decade.

The Water Resources Development Act of 1986 was the first major legislation affecting the civil works program in 16 years. In addition to authorizing a number of new projects, the law included significant new cost-

Generators of Bonneville Dam



Tennessee-Tombigbee
Waterway dedication in
Mobile, Alabama,
June 1985

sharing rules for non-Federal participation in project funding. In the Water Resources Development Act of 1990, the Secretary of the Army was directed to include environmental protection as one of the Corps primary missions. The new legislation also established a goal of "no net loss of wetlands" for the Corps and a 3-year demonstration program for wetlands conservation.

In its civil works navigation mission, the Corps completed the Tennessee-Tombigbee Waterway a year and a half ahead of schedule. The 234-mile Tenn-Tom was one of the largest navigation projects constructed by the Corps and required excavation exceeding that of the Panama Canal. The Corps excavated 307 million cubic yards of earth.

The Army Civil Works program also has an important regulatory function, which makes sure there is a public interest balance between

Corps of Engineers
construction is often
done on a grand scale



Public Affairs Office, Corps of Engineers

environmental protection for proposed fills and commercial development in the waters of the United States. Balance results from a review of permit applications for proposed activities and guards sensitive areas against unnecessary, detrimental construction.

Another important responsibility of the Corps is responding to major emergencies having an impact on our nation's security, as



Boating is a popular activity on many Corps of Engineers lakes

addressed in Presidential Executive Order 11490. In response to this order, the Corps has developed its National Security Emergency Preparedness (NSEP) program, designed to meet defense and essential civilian needs during national security and major domestic emergencies. The Corps, in coordination with state, local and other federal agencies, has developed support plans that can be implemented both here and abroad.

Corps personnel react swiftly during natural disasters



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Planning for defense and civilian needs



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The Corps emergency plans addressing major domestic situations impacting on national security include providing support to others for dealing with civil disturbances; natural disasters, such as earthquakes, flood control and drought; and control of certain hazardous materials. Recent emergencies for which the Corps has provided support include Hurricane Hugo, the San Francisco Bay Area earthquake, and the Alaskan oil spill. The program emphasizes support to the military as well as to the public sector.

Corps of Engineers projects also provide public recreation facilities, featuring boating, swimming, fishing, hunting, camping and hiking. The Corps manages more than 2,500 separate recreation areas at 460 water resource development projects in 43 states.



Corps multipurpose projects have provided many communities with storage for their prime source of drinking water. In meeting water supply needs, the Corps has impounded more than 9 million acre-feet of water in 110 lakes through the U.S.

The Corps also has been active in shoreline protection and in developing new technology in this area. The Corps uses both structural and nonstructural measures to protect the country's seacoast and shores of the Great Lakes from beach erosion and hurricane flood damage. Structures included groins and breakwaters. Nonstructural measures, such as adding sand or planting beach grasses, are often more economical and practical.

As its civil works mission gains volume and complexity, the Corps of Engineers is constantly seeking new ways to do the job. The Corps is also prepared to respond to the needs of the engineer soldier on the battlefield. Research to support this effort is carried on by some 1,200 engineers and scientists at four major research centers.

The Army Construction Engineering Research Laboratory in Champaign, Ill. works with the University of Illinois in conducting research and engineering studies in materials, energy, construction management and environmental quality.

The Army Topographic Engineering Center at Fort Belvoir, Va. is committed to advancing the state-of-the-art in geodetic, topographic and geographic information for the Army and Department of Defense.

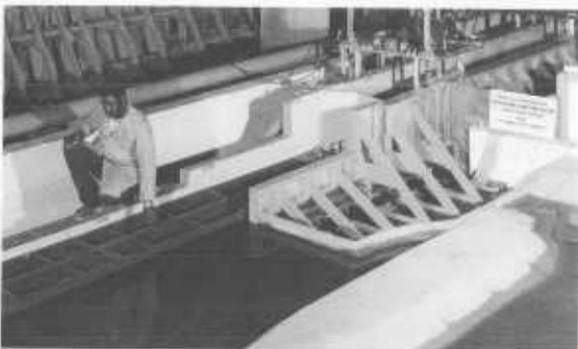
The Army Cold Regions Research and Engineering Laboratory in Hanover, N.H. supports civil and military construction through research, investigations and engineering studies of cold environments, including the mechanics of snow, ice and permafrost.

The Waterways Experiment Station in

Camouflaged soldiers experiment with laser equipment during winter combat exercises sponsored by the Cold Regions Research and Engineering Laboratory

Vicksburg, Miss. pursues a spectrum of activities in six component technical laboratories.

The Hydraulics Laboratory studies flood control, navigation and sedimentation problems in waterways and harbors. The Structures Laboratory studies the response of structures



Model of Lock and Dam No. 1 on the Mississippi River built by Waterways Experiment Station

to various kinds of stress. The Environmental Laboratory investigates the effects of water resources development projects on the environment, and the interaction between military activities and the environment. The Coastal Engineering Research Center provides the national expertise in coastal engineering to help solve navigation, coastal flooding, beach erosion, storm protection and marine construction problems. The Geotechnical Laboratory studies soils, pavements, off-road mobility of military vehicles, earthquake effects and engineering geology. The Information Technology Laboratory does research, development, and support in interdisciplinary computer-aided engineering fields and computer science fields.

Yesterday's explorer and today's success story, the U.S. Army Corps of Engineers leads the world in engineering technology, while researching new techniques for building tomorrow.



Corps tests aquatic plant harvester to control plants choking inland waterways

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