CHAPTER I: FIRST ARMY ENGINEERS IN THE OHIO VALLEY

The Corps of Engineers, United States Army, traces its origin to an act of Congress of June 16, 1775, authorizing the appointment of a chief engineer and two assistants for the Continental Army. On the day this act passed, Colonel Richard Gridley, a former British Army Engineer who had distinguished himself in previous wars with the French, was engaged in fortifying Breeds Hill near Boston. In the battle which followed on June 17, known as Bunker Hill, Colonel Gridley joined the line and was carried wounded from the field, thereby initiating the construction-combat tradition of the Corps of Engineers, for Richard Gridley became the first Chief Engineer of the United States Army. Many of the first officers of the Corps of Engineers, like Gridley, had learned military engineering in the service of the King, and any studies of the history of the Corps of Engineers must, therefore, begin with the work of Army Engineers during the titanic struggle between the British and French empires for the control of North America and other colonial territories.[1] The same is true of the history of the Louisville District, Corps of Engineers, which administers the Corps program in the Lower Ohio River Basin; it began several years before 1775 and the action at Bunker Hill.

Indians, explorers, traders, frontiersmen, soldiers — all had major roles in the settlement of the Ohio Valley. The Army Engineers also conducted missions which had significant impact on the early history of the valley; an impact which has not received the attention it deserves. Though their activities are shrouded by a paucity of accurate records, members of the French Royal Corps of Engineers were active in the Mississippi and Ohio valleys early in the eighteenth century. British Army Engineers, notably Lieutenant Thomas Hutchins of the 60th "Royal American" Regiment of Foot, served in the Ohio and Mississippi valleys before the American Revolution; and subsequently such distinguished American Army Engineers as Major Jonathan Williams, first Superintendent of West Point, and Major Stephen H. Long, the famous explorer of the West, led special expeditions down the Ohio River in the early nineteenth century.

The missions of these officers were primarily military: the construction of fortifications, the preparation of topographic and hydrographic maps, and the gathering of military intelligence about the strength of the enemy, whether Indian or European. But these military missions had important secondary civil applications: they provided increased knowledge about the Ohio Valley useful to merchants, pioneers, and river navigators of every variety; they aided in quelling Indian resistance to the incursions of settlers; and they furnished reliable information about a multitude of details, such as the variety of trees encountered, vital to every settler. The dual military-civil mission of the Corps of Engineers was thus foreshadowed by the activities of Army Engineers in the Ohio Valley long before the creation of the Corps of Engineers of the United States Army in 1775.

Waterways of Exploration

Rivers served as the principal transportation and commercial arteries of the explorers and settlers of North America for at least two centuries after the first European settlements were established along the seacoasts. French explorers from Canada

and Louisiana advanced into the interior of the continent via the St. Lawrence River, the Great Lakes, and the Mississippi River and tributary streams. British explorers, like their French contemporaries, also took advantage of waterways in expeditions to the west of the Appalachians. Such use was perhaps natural, since rivers penetrated the dense virgin forests covering the continent east of the Mississippi and usually provided speedier transportation with less physical effort than alternate means — horses and wagons — then available. British explorers and American colonial frontiersmen commonly followed river courses from the Atlantic to their headwaters, cut roads through gaps in the Appalachian mountain chain, and again took to the waterways on the way west. Because the Ohio and its tributaries flow generally in a westwardly direction, they were often used by the early explorers and traders.

Fragmentary evidence indicates that both French and British explorers and traders were traveling the waterways of the Ohio Valley before the end of the seventeenth century. For many years, Robert Cavelier, Sieur de La Salle, a French explorer from the St. Lawrence Valley, was acclaimed by historians as the discoverer, about 1669, of the Ohio River, but reexaminations of the evidence have discredited this claim. And the name of the first European to discover and explore the Ohio Valley remains a fertile field for historical investigation.[2]

The discovery of the Ohio River may be in any case a moot question in that it was discovered, long before the arrival of Europeans, by American Indians at some prehistoric date. Milleniums before De Soto and La Salle first viewed the inland rivers of America, Indians were utilizing those waterways for transportation and trade in watercraft generally classified as canoes, dugouts, and bull-boats. Canoes were formed of bark peeled from trees and shaped over a frame with pointed bow and stern; dugouts were carved from tree trunks by the judicious application of fire and repeated scraping with stone tools; and bull-boats were constructed by stretching animal skins over a crude wooden frame. These vessels, whose size varied according to the ability and energy of the warriors who constructed them, were commonly used for travel from village to village and for the transportation of such primitive staples as grain and furs. Europeans utilized these rough watercraft in their own explorations extensively; however, the inadequate capacity of such vessels limited their use and they were generally abandoned on the Ohio for the French bateau and the American flatboat in the late eighteenth century.[3]

One particularly interesting example of the use of Indian vessels by Europeans in the Ohio Valley occurred in 1742. A party of four Virginians on an exploration expedition authorized by the colony of Virginia crossed the Appalachians to the Kanawha River in present West Virginia, where they constructed a bull-boat from buffalo hides. They navigated down the Kanawha River to its confluence with the Ohio, down the Ohio past the Falls to the Mississippi, and down the Mississippi, where they were captured and imprisoned by the French. The French did not wish the information gathered about river navigation to get back to British authorities, but one of the prisoners, John Peter Salley, escaped, walked back to Virginia, and wrote an account of his experiences. His description of the Falls of the Ohio was the first accurate account in English of those obstructions, and, because the Falls of the Ohio figure prominently in

the history of the Louisville Engineer District, is perhaps worthy of repetition:

> The Falls . . . are three miles long in which is a small Island, the body of the Stream running on the North side, through which is no passing by reason of great Rocks and large Whirlpools, by which we went down on the south side of said Island without much Danger or Difficulty, and in time of a Fresh [flood] in the River, men may pass either up or down, they being active or careful.[4]

In summary, because of the relative ease of transportation by water, in comparison with the then available modes of travel by land, the waterways of the Ohio Valley were commonly used by American Indians before Columbus, were utilized by European explorers whenever possible, and eventually became the principal highways for immigration from the coastal settlements. The crude vessels used by the Indians, the explorers, and later by pioneers and frontier traders were tedious to construct, limited in capacity, and doubtless quite leaky, but they were made of easily-available materials, were light of draft, and well suited to the requirements of primitive tribes and the earliest explorers of the Ohio River Basin.

French Army Engineers

The Royal Engineer Corps of France was foremost in Europe during the seventeenth century. The Marquis de Vauban, Chief of the French Corps of Engineers, was renowned for his expertise in the construction of fortifications — every modern military engineer recognizes his name — and many fortifications in North America were constructed on principles elucidated by Vauban. In addition to military construction, the French Corps of Engineers also constructed civil works, notably canals and locks, to improve the transportation system of the Kingdom of France. The influence of French Army Engineers upon the early history of the Corps of Engineers of the United States was probably greater than that of the British. Many French Engineers, like Lafayette, came to America during the Revolution to serve in the Continental Army. Two French officers — General Louis LeBègue DuPortail and Lieutenant Colonel Stephen Rochefontaine — served as Chief Engineer of the American Army; French engineering texts were used to train Americans who would be Engineers; French officers from the Napoleonic Army, such as General Simon Bernard and Captain William Tell Poussin, joined the United States Corps of Engineers about 1815 and played an important role in the early civil works program; and French engineering technology had major influence on the design of the Ohio River slackwater system in 1875.

For over a century prior to the American Revolution, French Royal Engineers were active in the Mississippi and Ohio valleys, principally engaged in mapping the region and constructing fortifications. Sieur Remy Reno accompanied a French expedition to the mouth of the Mississippi River in 1698, and may have been the first man trained in military engineering and fortification design to visit the Mississippi Valley. Sieur Le Blond de La Tour, officer of the French Engineer Corps, has been credited with performing the first work to improve navigation — deepening the mouth of the Mississippi — on American inland rivers, and, about 1720, with constructing the first levees for flood control on the Lower Mississippi River. In 1729 a French Engineer, Chaussegros de Lery, made a compass survey of the Ohio River while on a military expedition and the results of his work appeared on a map printed in 1744. But, for the most part, French Engineers in the Ohio Valley devoted their attention to the construction of

fortifications to meet the British threat from the east.[5]

During the series of wars between the British and French in the eighteenth century, culminating with the French and Indian War (1754-1763), as it was known in American colonies, French Engineers designed a chain of elaborate fortifications in the St. Lawrence and Mississippi valleys and around the Great Lakes. Their construction of a fort at the Forks of the Ohio (present site of Pittsburgh) in 1754 to control the Ohio Valley was partly responsible for launching the French and Indian War, the climax to the struggle for empire.

British-American Army Engineers

If George Washington may be considered an Army Engineer, and because of his combination of surveying, fortification, and military experience there is considerable justification for so doing, he was doubtless the first British-American Army Engineer in the Ohio Valley. In 1754, Washington conducted, by orders of the governor of Virginia, a topographic reconnaissance and millitary intelligence mission into the Allegheny, Monongahela, and Upper Ohio valleys; in the same year, French troops, accompanied by Captain Le Mercier, French Army Engineer, moved to the Forks of the Ohio, where Le Mercier designed and constructed Fort Duquesne to secure the region for the French monarchy. Washington returned to Virginia to report the result of his mission and led troops back to the Upper Ohio Valley to counter the French threat. His defeat on this expedition led to a major war on the North American continent which spread to Europe and around the world in 1756, launching a decisive struggle between the British and French empires which centered in America on control of the St. Lawrence and Ohio valleys.[6]

Colonel Washington marched again to the Ohio Valley in 1755 as aide to General Edward Braddock. As General Braddock and his command approached Fort Duquesne, the French post at the head of the Ohio, Lieutenant Colonel Thomas Gage and a detachment which included the Indian agent George Croghan and Captain Harry Gordon, British Army Engineer, were in the vanguard of the column when a French and Indian attack from the flanks destroyed the British column as an effective fighting unit. George Croghan and George Washington carried General Braddock from the field and lifted him into a wagon for the retreat.

It was an interesting conjunction of destinies. Colonel Thomas Gage later became commanding general of British forces in North America, ordered Captain Harry Gordon and George Croghan to open the Ohio River to navigation in 1766, and eventually gave the orders which opened the American Revolution at Lexington and Concord. A review of the subsequent life of George Washington is unnecessary here, but perhaps it should be emphasized that throughout his distinguished career he strongly advocated the training of military engineers as a vital component of the American army and supported the improvement of navigation on American waterways. It could be argued, with some justification, that his support for free navigation and government-sponsored improvement of navigation led directly to the writing of the Constitution of the United States.[7]

In 1784, when Washington was engaged in the negotiations which were to culminate in the Constitutional Convention of 1787, he wrote to the President of Congress to support improved navigation and canal construction:

> The Assemblies of Virginia and Maryland have now under consideration the extension of the inland navigation of the rivers Potomac and James, and opening a communication between them and the Western waters: they seem fully impressed with the political as well as the commercial advantages which would result from the accomplishment of these great objects; and I hope will embrace the present moment to put them in train for speedy execution. Would it not at the same time be worthy of the wisdom and attention of Congress, to have the western waters well explored, the navigation of them fully ascertained, accurately laid down, and a complete and perfect map made of the Country; at least, as far westwardly as the Miamies running into the Ohio and Lake Erie; and to see how the waters of them communicate with the river St. Joseph which empties into the Lake Michigan, and with the Wabash? I cannot forebear observing here, that the Miami Village on Hutchins map, if it, and the waters here mentioned are laid down with any degree of accuracy, points to a very important post for the Union.[8]

A careful reading of Washington's words reveals that in 1784, after a study of "Hutchins map," he had become interested in a project which, in the Louisville Engineer District in the mid-twentieth century, was to be known as the Cross-Wabash Waterway. Another distinguished Virginian, Thomas Jefferson, was also studying Hutchins' map at about the same time. He wrote that, without qualification, the "*Ohio* is the most beautiful river on earth. Its current gentle, waters clear, and bottom smooth and unbroken by rocks and rapids, a single instance only excepted." The "single instance" was the Falls of the Ohio, and Jefferson speculated that these obstructions might be opened for constant navigation by clearing the channel nearest the Virginia (Kentucky) shore.[9]

Hutchins' map is a subject which often recurs in the early history of the Ohio Valley; it was probably the most accurate map of the Ohio River in existence until 1821. A visitor in the Ohio Valley in 1783 wrote that any immigrants to the region should acquire a copy of Hutchins' map: "He travelled through these parts before the war, under orders from the British government, and his is the best and only map of that country." The Hutchins' map was used by commissioners from the United States who treated with the Indians of the Old Northwest; descriptions of the Ohio Basin written by Hutchins were printed and reprinted in eastern newspapers to provide information for those who might go there; the Hutchins' map was supplied to British and later American combat units on expeditions down the Ohio River and up its tributaries. Thomas Hutchins, one of the most neglected figures in American frontier history, was an Army Engineer.[10]

Thomas Hutchins, a native American born in New Jersey, began his military career in the British army. He joined the Pennsylvania militia during the French and Indian War and participated in the expedition led by General John Forbes which finally captured Fort Duquesne at the Forks of the Ohio in 1758.[11] Hutchins probably read the jubilant dispatch from the headquarters of the British army after its occupation of Fort Duquesne:

> Blessed be God, the long look'd for Day is arrived, that has now fixed us on the Banks of the *Ohio* with great Propriety called *La Belle Riviere*, in the quiet and peaceable Possession of the finest and most fertile Country of *America*, lying in the happiest Climate in the Universe. This valuable Acquisition lays open to all his Majesty's Subjects a Vein of Treasure, which, if rightly managed, may prove richer than the Mines of *Mexico* . . . .[12]

It is likely that Thomas Hutchins would have agreed with every word of the dispatch, for he was to spend the remainder of his life surveying, mapping, and traveling the Ohio Valley from end to end. After the capture of Fort Duquesne, Hutchins served for a time with George Croghan as

an Indian agent, then accepted a commission as Ensign in the 60th Regiment of Foot, the "Royal Americans," a combat infantry unit with a complement of men from every section of the American colonies. His actual service, however, was as Engineer on the staff of Colonel Henry Bouquet. With Captain Harry Gordon, Hutchins participated in the design and construction of Fort Pitt, and later in its defense against Indian assault. When Colonel Bouquet marched his command across the Upper Ohio Valley to the Muskingum River to deal with the Indians of the Pontiac Conspiracy, Thomas Hutchins directed the cutting of roads and the building of bridges to facilitate the movement.[13]

Mapping the Ohio

Though the Treaty of Paris, 1763, had given the British crown legal possession of the Ohio Valley and Illinois, as late as 1765 these lands were still in the hands of the French and their Indian allies. This was chiefly the result of continued Indian resistance under the leadership of Chief Pontiac and the dearth of reliable information about the transportation routes and topography of the region. From 1763 to 1765 three British expeditions attempted to reach the French posts in Illinois via the Mississippi from the Gulf and overland from Detroit; each was hampered by the slow progress made upstream on the Mississippi or on the overland route and was turned back by the Indians before accomplishing its mission.

In the spring of 1765, George Croghan and a few Indian allies were sent down the Ohio to treat with the Indians and open the Ohio River route to Illinois. The expedition was attacked near the mouth of the Wabash and taken captive up the Wabash to Vincennes and Ouiatanon, but Croghan was able to convince the tribes they would receive no further aid from the French and negotiated a truce with Chief Pontiac. In August, 1765, a British detachment commanded by Captain Thomas Stirling followed Croghan's route down the Ohio, and, in spite of low water, was able to reach Illinois and take possession for the British Empire. Shortly thereafter another British unit reached Illinois from New Orleans, after a five-month trip up river against the current of the Mississippi.[14]

It became apparant to the British command that if it wished to reinforce and supply the troops in Illinois, and thereby retain possession of the region, it was vital that maps of the Ohio River be prepared as a guide for future expeditions and supply convoys. General Thomas Gage directed that a supply expedition be organized at Fort Pitt and ordered that Captain Harry Gordon, chief engineer, and his assistant, Ensign Thomas Hutchins, join the expedition. Gordon and Hutchins were assigned the mission of mapping the Ohio during the passage down river, noting the width and depth of the water, the speed of the current, and camping sites which might be made reasonably secure from surprise Indian attack. General Gage further explained and ordered:

> As the greatest Benefit that can accrue from being in possession of the Illinois will be to watch the Motions and designs of our opposite Neighbours, whether French or Spaniards and to prevent their Traders introducing foreign Merchandise into His Majestys Territorys and by secret intrigues spiriting up the Indian Nations to commit hostilities on His Majesty's Subjects, and as it will be also necessary to check any evil designs that the French Inhabitants may have who have chosen to remain on their Lands in those Territorys that have been Yielded to Great Britain, You will be carefull in Your Examination of that Country of which you will take as exact a Survey as time and circumstances will allow, that we may fix

upon the best and most Advantageous Spots for such Fortifications as shall be found necessary to Answer the purpose above mentioned.[15]

The mission of the British Engineers therefore included topographic and hydrographic reconnaissance to aid in establishing logistic lines, gathering military intelligence useful to the army, and the selection of sites for fortification construction. After surveying the Ohio River and the Illinois country, the Engineers were instructed to descend the Mississippi, observing the strength of foreign fortifications, ascertaining the number of troops in each garrison, and estimating the strength of Indian tribes in the region. At New Orleans, they were to declare their "amicable intentions" to Spanish authorities, then proceed to inspect British posts at Mobile and Pensacola, and finally to return to the Atlantic coast by sailing vessel and report.[16]

Captain Gordon and Ensign Hutchins joined the supply expedition at Fort Pitt; it consisted of seventeen bateaux, the largest fleet of British vessels ever to navigate the Ohio River. The mercantile firm of Baynton, Wharton, and Morgan of Philadelphia, which planned to contract for army supplies and trade with western Indian tribes, had established a boatyard at Pittsburgh for the fabrication of galley bateaux and other watercraft in 1765, and doubtless furnished the boats for the expedition, for thirteen of them were laden with the firm's supply and trading goods. George Morgan, junior partner in the firm, joined the expedition to look after the company's interests. George Croghan, the Indian agent, and over a hundred of his Indian friends, also accompanied the expedition; he planned councils with the western tribes, where he would distribute the customary presents from the British government.[17]

There were several interesting connections between the leaders of the expedition. Hutchins had previously served for a time as assistant to Croghan as Indian agent. Croghan and Captain Gordon had become acquainted during the Braddock expedition and were partners in real estate speculation. Croghan was also a silent partner in the Baynton, Wharton, and Morgan company, but this was concealed for such an arrangement between Indian agents representing the government and private traders was an illegal, though common, method of conducting the Indian trade. These relationships suggest the multiple military and civil purposes of the expedition. Croghan was to conciliate the hostile tribes with gifts, if possible; and if not he had over a hundred friendly warriors to defend the expedition. Morgan was in charge of supplies for sale to the British garrison in Illinois; he also had goods for use in opening the Indian trade. The Army Engineers were to map the Ohio River for use by future supply expeditions and in future military operations; their map could also be used by trading firms and others interested in navigating the river. No mention was made in the records of the expedition of planning for future settlement, but doubtless the subject received some consideration, for Croghan and Gordon were engaged in real estate speculation at the time and Hutchins and Morgan later planned a settlement near the mouth of the Ohio.

On June 18, 1766, to the sound of cannon salute from Fort Pitt, the flotilla, with four men at the oars of each bateau, set off down the Ohio. It must have been a colorful sight, with over a hundred Iroquois, Delaware, and Shawnee Indians in paint and feathers, George Morgan and his men in rough frontier clothing, and Thomas Hutchins probably wearing his scarlet and

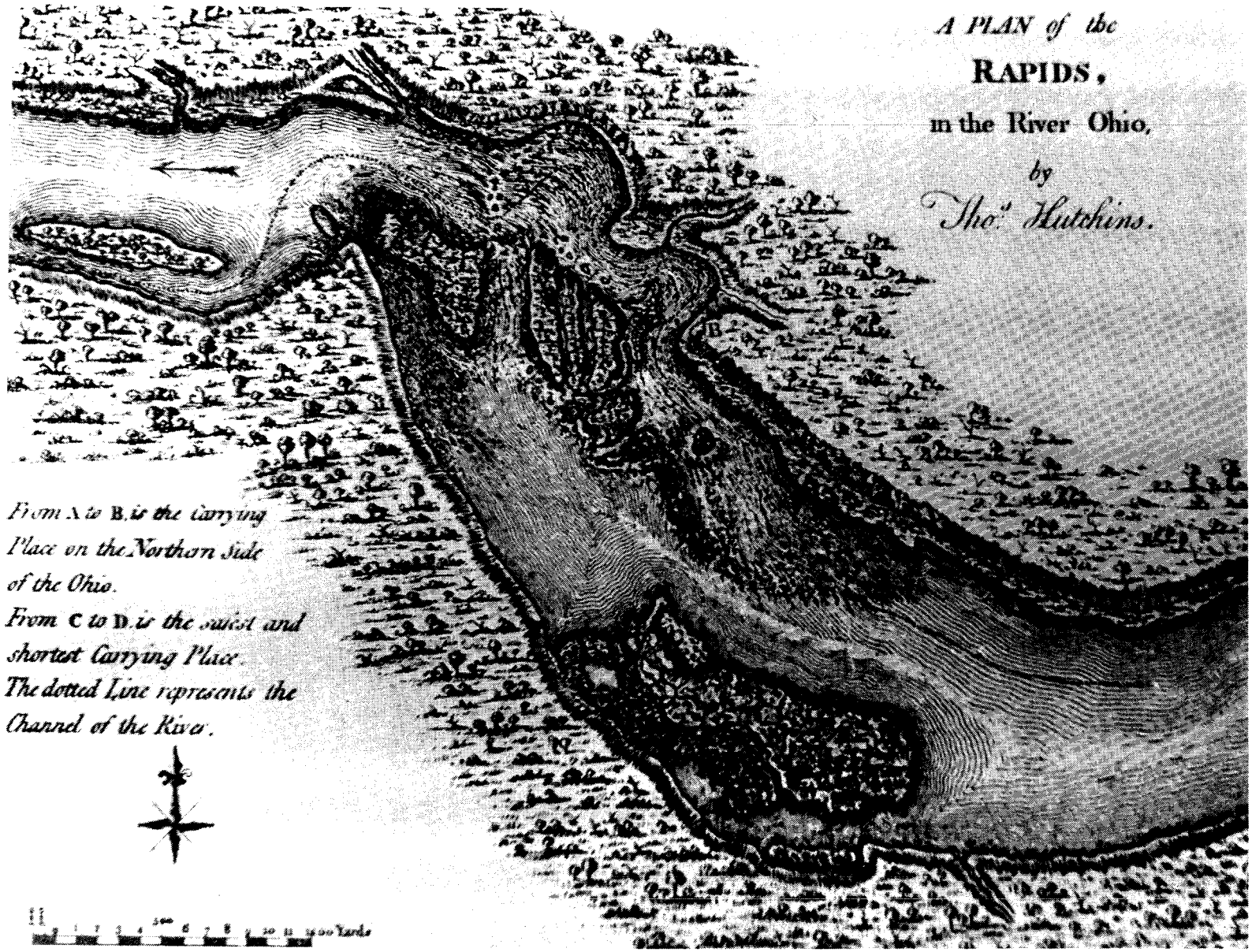
blue regimentals for the occasion. Because Hutchins traveled in a more maneuverable bateau to facilitate the gathering of information for his map, George Morgan boarded the Hutchins bateau; Morgan hoped thereby to gain more information of use to his firm about the navigation of the river. The fleet averaged about forty miles per day, moving only during daylight hours. It was delayed, however, by the grounding of boats on bars — one of Morgan's men drowned while attempting to free a boat from a bar — by the necessity of stopping to hunt buffalo for food, and on June 28 it was forced to the bank by a violent storm.[18]

The expedition halted at the mouth of the Scioto River for about a week while Croghan conferred with Indian leaders, then proceeded to the Falls of the Ohio. Captain Gordon observed the Falls of the Ohio did not deserve the name "Falls" because there was no precipitous cataract, merely rapids over a "ledge of flat limestone rock, which the Author of Nature put here to keep up the waters of the higher Ohio, and to be the cause of that beautiful stillness of that river's course above." A portion of the freight was unloaded above the Falls and reloaded below after the boats had successfully navigated the channel nearest the right (Indiana) bank.[19]

The expedition arrived at the mouth of the Ohio on August 7, where the Engineers checked their map with latitude readings, and turned up the Mississippi, arriving at Kaskaskia, British headquarters in Illinois, on August 19. The Engineers continued their survey up the Mississippi to the mouth of the Illinois River, then navigated the Mississippi to New Orleans and returned by sea to the Atlantic coast to make their report. General Gage had the map of the Ohio River copied and distributed to the appropriate commanders. The map was the first detailed hydrographic study of the Ohio River and provided information about many topographic features. The accompanying report provided reliable information about the number and character of the Indians, the strength of Spanish posts, and accurate appraisals of possible transportation routes and likely sites for fortifications — precisely the sort of information necessary for proper policy-making and troop-disposition planning. Also extant in the surviving Hutchins' papers is a detailed plan for an assault on New Orleans, but whether he prepared it as part of his report of 1766, or at a later date is not clear.[20]

In 1767 Hutchins rejoined the Royal American Regiment at Fort Pitt, and in 1768 he accompanied his regiment on a second voyage down the Ohio, apparently acting as guide. In 1769 he constructed an armed bateau, rowed with twenty-four oars, capable of transporting thirty-five troops and six-months provisions, and mounting a six-pound cannon on the forecastle. It was designed to patrol the Lower Ohio and its tributaries to curtail activities of foreign traders and hunters who were slaughtering buffalo and inciting the Indian tribes. The extent to which this vessel, the *Gage*, was used is uncertain, though General Gage did report that Hutchins narrowly escaped an Indian attack while in a patrol boat on the Ohio in 1771.[21]

Hutchins later directed the construction of British fortifications at Pensacola, Florida, was elected a member of the American Philosophical Society, and was promoted to the rank of captain in the British Army. At the onset of the Revolution he was in London preparing his map of the Ohio Valley and his journals for publication; they were published in 1778, and for many years were the only reliable



Map of the Falls of Ohio made by Thomas Hutchins, British Army Engineer, in 1766. Copied from Thomas Hutchins, *Topographical Description of . . .* (London, 1778), in Library of Congress.

printed source of information about the Ohio Valley frontier. Selections were reprinted in American newspapers for the information of those planning to relocate in the Ohio Valley, and the information and map were used, often without credit, by a number of early geographers and such publishers as Zadok Cramer who printed guides for the use of navigators on the Ohio River and its tributaries.[22]

While in London Captain Hutchins engaged in business correspondence with Samuel Wharton, a partner in the firm of Baynton, Wharton, and Morgan of Philadelphia, who was a part of the American intelligence organization during the Revolution. British counterintelligence learned of the correspondence, arrested Hutchins, and clapped him in irons under charges of treason. These charges were unsubstantiated and Hutchins was released; however, he fled Britain to France to join the Revolution. With a letter of recommendation from Benjamin Franklin, he departed France as secretary to John Paul Jones aboard the *Alliance* to return to America and join the Engineer Corps of the Continental Army. At the close of the war, Hutchins was appointed "Geographer to the United States," which, it has been claimed, made him the first "Chief of Topographical Engineers, U. S. Army." After the enactment of the Land Ordinance of 1785, Hutchins and a corps of assistant surveyors, with protection from Indian attack provided by troop detachments, began the survey of the territory north of the Ohio River in preparation for its sale and eventual settlement. Just before his death in 1789, Hutchins associated with his old friend, George Morgan, in planning the establishment of a colony at New Madrid (Missouri) near the mouth of the Ohio.[23]

The exploration and mapping of the Ohio Valley frontier was Hutchins' life for over thirty years. As soldier and Army Engineer, as Indian agent and "Geographer to the United States," he repeatedly navigated the Ohio River and its tributaries and walked the country from the Great Lakes to the Gulf, always making careful note of river navigation and hydrology, natural resources and climate, and other details which might be of value to either military authorities or civilian pioneers and entrepreneurs. His work had an incalculable, but major, influence on the opening and settlement of the Ohio Valley.

American Army Engineers

In the demobilization which followed the Revolution, the Corps of Engineers, like most of the Continental Army, was disbanded. Until a major war again threatened the nation in the second Washington administration, no Army Engineer organization existed, and the veteran Engineers of the Continental Army went into private business, or took employment on the various state projects for internal improvement.[24]

The postwar career of one former Engineer officer is of special interest to historians of the Ohio Valley. Colonel Rufus Putnam, a veteran of the French and Indian War who had become the second Chief Engineer of the Continental Army, was an organizer of the Ohio Company, founded in Boston in 1786, which requested the granting of public lands in the Ohio Valley for veterans and their families. Congress granted one and a half million acres of land, lying in the present state of Ohio, to the Ohio Company; and in 1788 Colonel Putnam, aboard the galley *Mayflower,* led a group of settlers down the Ohio River to found the town of Marietta. There, Putnam directed the construction of "Campus Martius," a formida-

ble fortification designed to repel Indian attack, which it did on several occasions. He was later appointed Judge of the Northwest Territory and in 1796 was appointed Surveyor General of the United States.[25]

When another major war between Great Britain and France threatened to involve the United States in 1794, Congress authorized the raising of a composite Corps of Artillerists and Engineers of four battalions strength. Several of these uints saw service in the Ohio Valley during the closing years of the eighteenth century, and a few Engineer officers navigated and studied the Ohio River during this period.[26]

Major Jonathan Williams, Second Regiment of Artillerists and Engineers, was assigned a topographic and fortification mission in the Ohio Valley in 1801. Major Williams was related to Benjamin Franklin, and had acquired his engineering education in Britain and France while serving as Franklin's private secretary and as supply officer and inspector for the Continental Army at Nantes, France, from 1770 to 1783. At the end of the Revolution Williams returned to the United States, took a degree at Harvard College, and became associated with Franklin at Philadelphia in experimental science. In 1801 he was commissioned in the Corps of Artillerists and Engineers. His first assignment was to proceed to the trans-Appalachian West to inspect fortifications, recommend improvements and select sites for new posts, and plan military roads. He examined posts in the Niagara area, and on May 1 arrived at Pittsburgh for the expedition down the Ohio.[27]

He embarked at Pittsburgh on July 2, 1801, in command of three very large flatboats. One transported horses and dragoons; another carried troops of the Second Regiment of Artillerists and Engineers, plus a fourteen-piece band which the commanding general, James Wilkinson, had ordered to the front; and in the third were some new recruits, Major Williams, and his two assistants, Lieutenant John De Barth Walbach and Lieutenant Alexander Macomb (later Chief Engineer, U. S. Army, 1821-1828). At the beginning of the voyage Major Williams had some trouble with the recruits, who were "beastly drunk," but after he settled this problem the trip down river was quite pleasant. The boats traveled day and night, making an average progress of seventy miles per day, and entertainment was provided by the general's band.[28]

Lieutenant Macomb sketched the interesting features of the Valley, and Major Williams made extensive notes about all he saw during the expedition. He was especially impressed by rapidly increasing population of the Ohio Valley. "They may in less than a Century," he predicted, "defy the power of the world. The Ohio may in that time represent what the Rhine is now . . . . In point beauty, lastly of navigation, & fertility of soil, it must be preeminent . . . ."[29]

The flotilla reached Louisville on July 13 and employed a Falls pilot to guide the boats through the rapids. The description of the Falls of the Ohio written by Major Williams further clarifies the navigational difficulties at that point:

> The Ohio in point of convenience & safety is (except in this spot) the best in the world but here at the Falls it is among the worst of navigable Rivers at this season of the year. It is divided into 3 *Chutes* . . . & in a distance of 2 mile falls 22½ feet perpendicular but not in equal gradation. Two of the *Chutes* are now nearly dry. The Islands that divide them although there are some remnants of Trees are merely Land Banks, and in great freshe[t]s are probably over flowed. The remaining Chute becomes more rapid in proportion as

(U. S. Signal Corps Photograph)

COLONEL JONATHAN WILLIAMS

the water is more confined, and when we passed with our Boat we had not six inches to spare, between the Rocks, all three Boats however passed very safely having first by dividing our loading among the Boats made them all draw alike but about 12 Inches of Water. In passing the most dangerous part of the Falls we went with such rapidity that the distance of about a mile & ¼ was performed in 4 minutes. What would you think at seeing a floating House carried with that rapidity through such a narrow passage where the deepest water over the Rocks is not 2 feet & when we had not 6 Inches to spare between them?[30]

Major Williams and his fleet arrived at Cantonment Wilkinsonville, a troop-training camp at the Grand Chain of rocks about eighteen miles above the juncture of the Ohio and Mississippi, on July 29. There, Major Williams directed the Second Regiment of Artillerists and Engineers in artillery practice and experiments with ordnance. He also laid out a fortification about five miles further down the Ohio (near the present site of Lock and Dam No. 53, Ohio River), which was never constructed. The garrison at Cantonment Wilkinsonville was suffering numerous fatalities from epidemic fever at the time Major Williams arrived, and at the death of the commandant, Major Williams became commanding officer of the post. Because of the fever epidemic and other considerations, Cantonment Wilkinsonville was abandoned in late 1801, and Major Williams returned to Louisville by poling a canoe up the Ohio for eighteen days.[31]

By 1801 it had become evident that the composite Corps of Artillerists and Engineers was not a satisfactory organization; that the officers were not receiving adequate training in the science of military engineering, which required much more than the construction of artillery emplacements. Support had developed in Congress for separating the two branches and creating a national academy for training Army Engineers. Secretary of War James McHenry expressed this opinion to the House of Representatives in 1800 and added that highly-trained military engineers could have multiple benefits for the nation:

> We must not conclude, from these observations, that the services of the engineer is limited to constructing, connecting, consolidating, and keeping in repair fortifications. This is but a single branch of their profession, though, indeed, a most important one. Their utility extends to almost every department of war, and every description of general officers, besides embracing whatever respects public buildings, roads, bridges, canals, and all such works of a civil nature. I consider it, therefore, of vast consequence to the United States, that it should form in its own bosom, and out of its own native materials, men qualified to place the country in a proper posture of defence, to infuse science into our army, and give our fortifications that degree of force, connexion, and perfection, which can alone counterbalance the superiority of attack over defence.[32]

On March 16, 1802, President Thomas Jefferson, doubtless influenced by the reasoning that trained personnel of the Corps of Engineers could perform both civil and military construction, signed into law the bill establishing the modern Corps of Engineers and the United States Military Academy at West Point. Major Jonathan Williams had returned from Louisville to the East, and he was appointed first Superintendent of West Point and first Chief Engineer of the modern Corps organization. Supervision of the military academy at West Point was to remain the responsibility of the Chief of Engineers until 1866, and every Chief Engineer of the United States Army until the Civil War was trained at West Point by Jonathan Williams before he retired from the service in 1812.[33]

During the first decade of its existence, personnel of the Corps of Engineers, in addition to purely military duties, per-

formed services, such as surveys for roads and canals, of a civil character. The first major civil works construction responsibility of the Corps was the Cumberland, or National, Road, forerunner of the national highway system, which crossed the Appalachians from Maryland to the Ohio Valley and eventually traversed southern Ohio, Indiana, and Illinois. During the War of 1812, Army Engineers performed military missions in practically every combat theater. These duties principally consisted of fortification construction, topographic reconnaissance, and map production. Because fortification construction materially differed from reconnaissance and mapping functions, a separate organization, the Topographical Bureau, later the Corps of Topographical Engineers, was established in 1813 and charged with meeting the Army's mapping requirements. Though cooperation between the Topographical Engineers and the Corps of Engineers was close and their civil works responsibilities often overlapped, the two agencies retained their separate organization until 1863 when they were again amalgamated.[34]

Summary

Though the Louisville District, Corps of Engineers, traces its continuous existence back only to 1888, or perhaps 1867, Army Engineers — French, British, and American — conducted missions in the Ohio Valley long before it was settled and even before the Corps of Engineers, United States Army, was first established in 1775. Foreshadowing the modern dual mission — military construction and civil works — of the Corps of Engineers in the Ohio Valley and elsewhere, the early Engineer activities in the Ohio Valley and within the present boundaries of the Louisville Engineer District were military in character but had extensive civil application. The work of such Army Engineers as George Washington and Thomas Hutchins in the Ohio Valley before the American Revolution, and their continued interest in the region after the war, had an unassessable but without doubt significant influence on the conquest of the valley by the British Empire and its subsequent settlement by Americans.

The role of Washington in opening the Ohio Valley for Virginia and the British Empire, his subsequent support for studies of the region — its resources, its topography, its navigable rivers — and his political and financial support for the development of transportation routes to link the original colonies and states with the trans-Appalachian West can never be overlooked in any history of the first frontier. Neither should the work of Thomas Hutchins be neglected, for his topographic studies did much to facilitate the navigation of the Ohio, both for British and American troops and for the early settlers and merchants. These activities were not authorized by the British government for other than military purposes; yet, they did foster the subsequent settlement and development of the Ohio Valley.

The work of Thomas Hutchins in the Old Northwest after the Revolution was a deliberate effort by the United States to facilitate settlement of the region; such settlement would secure American control of the newly-won West and stimulate the sale of public lands. The work of the Corps of Artillerists and Engineers on the Ohio Valley frontier in the waning years of the eighteenth century, as part of an overall national policy for the removal of the Indian threat to the settlements and the countering of possible ventures in the region by neighboring powers, was also conducive to settlement and development of

the region, by increasing the security of the new homes being quickly hacked from the forest.

Recent studies of the history of the trans-Mississippi West and Far West have recognized the significance of the deliberate governmental policy of fostering settlement and development of those regions through exploration and mapping activities conducted by Army Engineer officers. [35] Perhaps somewhere in the history of the Ohio Valley frontier, along with Indians, explorers, traders, frontiersmen, and pioneers, room should be made for the Army Engineers. It is worthy of note that topographic and hydrographic surveys and studies were to be a continuing mission of the Corps of Engineers and the Louisville Engineer District in the Ohio Valley as elsewhere.