Civil War Forts in Arlington

By C. B. Rose, Jr.

When the fall of Fort Sumter on April 14, 1861, made it clear that an armed struggle between North and South could be avoided no longer, it was obvious that the City of Washington would be in a difficult position. There was little doubt that Virginia would follow her southern sister States and secede from the Union. Thus a hostile shore would face the Northern Capital, which lacked any strong natural defenses. For political as well as military reasons it was of prime importance to the Federal Government to secure its capital from attack. Since the Executive Mansion and many Government buildings were exposed to artillery fire from the heights on the Virginia side of the Potomac, it was essential to retain that commanding position in Federal hands.

Arlington Heights in turn had to be protected from attack. This entailed the construction south of the Potomac of an elaborate system of defenses, most of which lay within what is now Arlington County. Alexandria was seized by Northern forces partly because of its command of the Potomac and partly because of its connection with the railroad system to the south. This occupation called for a further fortification system which was not strictly part of the defenses of Washington and which is not considered here in detail.

In the month which intervened between the action of the Virginia Convention on secession and the ratification of this action by the people of Virginia on May 23, 1861, the only step taken by the defenders of Washington was a limited, surreptitious reconnaissance of the areas around the Virginia ends of the Aqueduct and Long Bridges. On the night of May 23–24, however, the first Federal troops crossed the Potomac into Virginia, thus beginning for Arlington one of its most important periods historically.

Three units made the crossing: one, under Major Wood, crossed over the Aqueduct Bridge from Georgetown; a second, under Major (later General) Heintzelman marched over the Long Bridge; and the third, under Colonel Ellsworth, who was to be the first casualty of the war in this area, proceeded by water to Alexandria. The only opposition encountered was that of some pickets at this end of the Long Bridge (where the Railroad Bridge crosses now) who were overcome without any casualties. General Mansfield, the commanding officer of the occupying forces, established his headquarters at Arlington House on the heights overlooking Washington.

The immediate task was to secure the crossings. Capt. D. P. Woodbury assisted by Lt. O. E. Cross was in charge of engineering operations for the

Note: This account relies heavily upon the report of Maj. Gen. J. G. Barnard on the defenses of Washington, printed as No. 20 of the "Professional Papers of the Corps of Engineers, U. S. Army" in 1871.

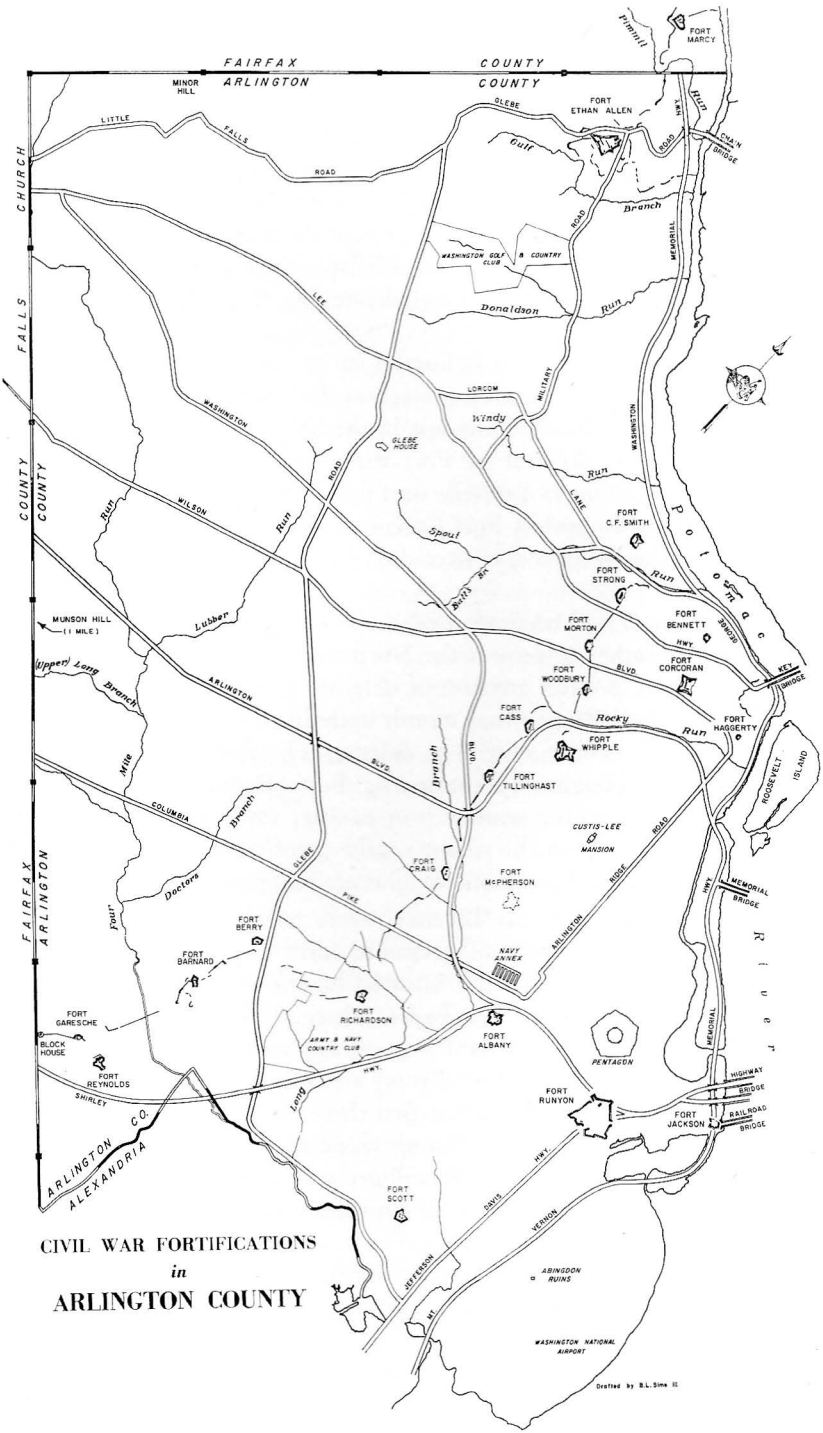
first unit; and Capt. B. S. Alexander with Lt. F. E. Prime was the engineering officer for the second. The general sites for the first works had been determined by the pre-occupation inspections, and the troops were well supplied with entrenching tools. Work on what became Fort Corcoran overlooking the Aqueduct Bridge, and on Fort Runyon astride the important junction of the Washington-Alexandria and the Columbia turnpikes half a mile south of the Long Bridge, was commenced at daylight. To secure Alexandria, Fort Ellsworth was begun on Shuter's Hill (where the Masonic Memorial is now) on the 25th. It was named for Colonel Ellsworth, who had been killed the previous day while removing a Confederate flag from the Marshall House on King Street.

Both of the first two forts in Arlington lay at a lower level than Arlington Heights and themselves required protection. Before the week was out, work was begun on Fort Albany (now lost in the Shirley Highway network) on the high ground to the rear of Fort Runyon, and shortly Forts Bennett (above the old Consumers Brewery site) and Haggerty (opposite Analostan Island) were built to protect Fort Corcoran. Rifle trenches to guard the approaches to all these points also were dug. Work on these preliminaries took seven weeks.

The work which had been accomplished by July 1861 was not very extensive and served rather to protect the Northern bridgeheads on this shore of the Potomac than to effect any sort of defense of Washington. The Confederate victory at Bull Run in that month underlined the immediate necessity for constructing a proper system of defense. The first requirement was to fortify Arlington Heights by connecting Forts Corcoran and Albany by intermediate works within musketry or canister range of one another. Together with Fort Runyon this chain would cover the bridges and also protect the all-important commanding heights of Arlington.

Accordingly, a number of "lunettes" were constructed. These are field works with two faces coming together to form a salient angle, with two parallel flanks. The rear entrance into the lunette was called a "gorge," or throat, and was protected by stockades. These works became Forts Craig, Tillinghast, Cass, and Woodbury. Fort Strong was constructed to protect the right flank of the line. (Fort Strong was originally called DeKalb and appears as such on some maps.) The first three were on or near what is now the Fort Myer reservation; Fort Strong was out Lee Highway near what is now North Adams Street; Fort Woodbury was on Court House hill. Captains Woodbury and Alexander were responsible for the location and design of these works.

Wide slashings were made through the forest in advance of the line of these works, and marginal slashings were made around their edges. Half-sunk batteries for field guns were prepared between the sites of Forts Strong, Woodbury, and Craig. These were not armed but were arranged so that field pieces could be placed in them on short notice.



CIVIL WAR FORTIFICATIONS
in
ARLINGTON COUNTY

Attention was now directed to the wooded ridge north of and parallel to the lower course of Four Mile Run which offered a position from which Washington, the Long Bridge, and the plateau in front of it could be overlooked and cannonaded. The first step was to make access to this point difficult by cutting down about 200 acres of trees. These were left where they fell; the stumps were tall enough to impede cavalry without offering cover to infantry. As soon as the proper site could be determined, a large lunette (Fort Scott, now near a County playground) was built upon it. Later, this was thrown to the rear of the line of defenses by the extension of the system to Alexandria and beyond, but together with Forts Richardson and Craig and the rest of the first chain it completed the line independently of the Alexandria forts.

Fort Richardson (on what is now the Army-Navy Country Club grounds) was begun on September 1, 1861, as a small polygonal work after General Richardson's division holding a position along Columbia Pike pointed out the importance of commanding the plateau along which this road passed. The turnpike was a major communication route with the heights 4 miles west from Arlington House, first occupied by McDowell when he was marshaling his forces to move on Manassas. Subsequently, this was an advance position of the Confederates, who withdrew in October 1861. It was not until then that this area was fortified by McClellan with the construction of Fort Ramsay and Fort Buffalo (on either side of the Leesburg Pike near Seven Corners) and an encampment made on Munson's Hill. A cavalry picket supported by a few companies of infantry thenceforth occupied this point.

The first idea of the Northern engineers was to connect Forts Ellsworth and Scott by works along the ridge on which Mount Ida is situated (above Russell Road in Alexandria), but it was discovered that this was not practical since this line could be overlooked. Accordingly, on September 1, Forts Worth and Ward were begun. Fort Reynolds (above Shirlington; first called Fort Blencker) was built as part of this line. Later Fort Barnard was added to fill in the gap between Forts Reynolds and Richardson.

As important as securing the heights and the bridgeheads was the necessity for protecting the roads which gave access to these points. One of the most important of these, since it was a main communication link with the Federal forces in northern Virginia, was the Georgetown-Leesburg road running west from Chain Bridge. Moreover, it was vital to protect the bridge itself from artillery fire. At an early date, some sketchy defensive measures had been taken at Chain Bridge. A barricade was placed over the first pier from the Virginia side, with a movable staircase so that a defending force could retreat over the flat below, leaving the bridge open to the fire of two mountain howitzers which were placed on the District end. A battery ("Martin Scott") consisting of one 8-inch seacoast howitzer and two 32-pounders was placed on the palisade above. Since this could be overlooked from the Virginia side, later a second battery ("Vermont") was installed at a higher level to support the first.

On September 24, 1861, Gen. W. F. Smith's division crossed Chain Bridge and began the construction of Forts Marcy and Ethan Allen. Both were finished in a few weeks. While these could be overlooked from Hall's Hill a mile and a half away, it was not considered practical to extend the defense of the bridge that far. Eight unarmed batteries were constructed for field guns to sweep the valley of Pimmit Run. A strong stockade with a gate later was thrown across the road to Leesburg.

By the close of 1861, there were 23 forts south of the Potomac, including those in Alexandria. The largest of these (and, indeed, of all the forts surrounding Washington) was Fort Runyon with a perimeter of 1,500 yards. Most of these were enclosed works of earth, but many, as has been mentioned, were lunettes with stockaded gorges. The armament was mainly 24- and 32-pounders on seacoast carriages, with a few 24-pound siege guns, rifled Parrott guns, and guns of light caliber on field carriages. The magazines were provided with 100 rounds of ammunition for each gun, and a few of the works had bomb-proofs in which about one-third of the garrison might sleep and in which all could take temporary shelter.

While the result of the First Battle of Bull Run had stimulated feverish activity in strengthening the defenses of Washington, later military developments—the successes of Grant in the West and of Dupont at Port Royal—induced a feeling of apathy. This went so far that an Act of Congress early in 1862 appropriating $150,000 for completing these defenses specified that none of this money was to be spent for beginning new work. Those responsible for the security of the city, however, knew that the defenses were not a thoroughly fortified line and that the line as it was was too loosely constructed to repel raids.

Public sentiment was again aroused after the failure of the Federal forces to take Richmond in September 1862 and the retreat of the Union Army toward the Capital. Maj. Gen. J. G. Barnard was placed in charge of the engineering operations in this area, and at once he took energetic means to strengthen the line by construction and improvement. His review of the situation produced a number of recommendations. The ravines and depressions between forts should be controlled by auxiliary batteries, and the works connected in a way which would both protect the defending troops and offer obstacles to the passage of an attacking force. A change had to be made in the character and arrangement of the armament: the heavy 24- and 32-pounders on barbette carriages were unmanageable and exposed. They were to be replaced by light guns on field or siege carriages in embrasures, that is, an opening in the parapet with sides flaring outward. Moreover, rifled 100-pounders should be mounted at intervals of 2 or 3 miles to provide flanking fire.

It was obvious that the expenditure required for these improvements would be considerable, yet Secretary of War Stanton authorized the work to proceed even in the face of the recent congressional restriction upon the use

of funds for this purpose. To support his position and justify a request for additional appropriations, Stanton appointed a commission on October 25, 1862, to "examine and report upon a plan of the present forts and sufficiency of the present system of defenses for the city." Members of this commission were Brevet Brig. Gen. J. G. Totten, Brig. Gen. M. C. Meigs, Brig. Gen. W. F. Barry, Brig. Gen. J. G. Barnard, and Brig. Gen. G. W. Collum.

Altogether at that time[1] surrounding Washington were 53 forts and 22 batteries, armed with 643 guns and 75 mortars. There were about 25,000 infantry troops which provided two men for every yard of the perimeter, supported by one man in the rear. Artillerymen numbered about 9,000, which gave three reliefs for each gun, and there were 3,000 cavalry for outpost duty.

At the extreme left of the line, below Alexandria, was Fort Lyon on the heights south of Great Hunting Creek. Fort Ellsworth commanded Alexandria and the railroad station (not the present one). Cooper's Hill commanded the deep ravine behind Fort Worth and the commission recommended that a work be placed upon it. This became Fort Williams. Moving up the line, next come Forts Worth and Ward before Arlington County is reached.

The first fort in the County was Fort Reynolds, placed to command the valley of Four Mile Run. Since it had no view of the approach from the west, the commission recommended that a seven-gun battery be constructed 200 yards west of the Fort. This was done and named Battery Garesché. Further recommendations which were carried out were to obstruct the valley of Four Mile Run with "abatis" (felled trees the sharpened ends of whose branches face the enemy) and to continue the line of rifle trenches across the valley.

Across Four Mile Run, Fort Barnard occupied a naturally strong position, covering the head of a ravine in which large bodies of troops could be collected in preparation for a flank attack upon any force assaulting the lines between it and Fort Craig, or attempting to penetrate the valley of Four Mile Run. The commission did not consider any of the works up to this point part of the real defenses of Washington, commenting: "To defend Washington on this side, requires simply that the enemy shall be kept at such a distance from the banks of the Potomac that he cannot shell the city. This object is accomplished by the chain of works from Fort Scott to Fort Dekalb (Strong), resting its flanks on the Potomac, the left near Four Mile Run, and the right opposite Georgetown."

Fort Scott, then, formed the left of the proper defenses of Washington. Next came Fort Richardson, occupying a very commanding position. While small, it was well built, well armed, and amply provided with bomb-proofs and magazines. At the time of the inspection, a rifled 100-pounder was being placed there to sweep the sector from Fort Ellsworth to Fort Strong.

[1] At the close of the war there were 68 enclosed forts and batteries surrounding Washington with emplacements for 1,120 guns. There were 35,711 yards of rifle trenches, and three blockhouses.

Fort Albany the commission found partly bastioned, well built, and in good condition. The parapets were turfed and the "scarps" (the face of the ditch below the parapet) "revetted"—that is, lined—with boards. It was well defiladed and in a good position to cover the Long Bridge and look into the "gorges" of Forts Richardson and Craig. It "saw" the high ground in front of Fort Tillinghast and commanded the valley between Forts Richardson and Scott.

By this time (the fall of 1862) Fort Runyon no longer had the importance that it had had at first; it had been allowed to deteriorate and had been disarmed. The commission recommended that, as a bridgehead, it should be rearmed and reconditioned. "Fort" Jackson, immediately at the bridge end on the Virginia shore, hardly deserved the name. It was little more than an outpost for pickets of a small force stationed at the District end of the Bridge.

The five works—Forts Craig, Tillinghast, Cass, Woodbury, and Strong—extended the line from Forts Richardson and Albany to the Potomac opposite Georgetown and covered the heights of Arlington. The commission commented that the line would have been better had it been thrown half a mile farther forward—that is, away from the Potomac—than it had been, but found that the line where it was was by no means unfavorable, and stated that it was "not so much an error of judgment as a necessity of the circumstances under which it was built." This was a reference both to the haste with which the sites of the forts had been selected, and construction begun when the first occupation forces entered in 1861, and to the army engineers' ignorance of the topography of this area, close though it was to the Nation's Capital.

The commission appraised the system of defense in Arlington in the following fashion:

> The line south of Fort Richardson, either by magnitude or commanding position of works, or both, has great strength; if broken, the enemy has yet another line to carry before he can reach the bridges or the heights opposite Washington. If, advancing by the Columbia turnpike, he attempts the left flank of the Arlington defenses, he takes a line of attack through comparatively low ground, swept to a greater or less degree by cross or front fires from Forts Ward, Blencker [Reynolds], Barnard, Richardson, Craig, Tillinghast, and Albany. The route from Ball's Cross Roads, approaching the center and right flank of the Arlington lines, is, from the configuration of the ground, not this closely swept and commanded. It forms the most practicable approach, and it leads most directly to the point to be gained. All the ground in front, to the distance of a mile, is, however, swept *in flank* by the 100-pounders and other rifled guns of Fort Richardson and of Batteries Cameron and Parrott [on the District side of the river], at an extreme range of two miles, and from the rifled 100-pounders at Fort Ward and the two 100-pounders of Battery Kemble [across the river], at an extreme range of three and one-third miles, while it is under the direct fire, to a distance of at least 1,000 yards, of the works, closely contiguous to each other, of the line.

The commission did make some recommendations for improvements. These were: a work at the "Red House," later built and called Fort C. F.

Smith, to strengthen the extreme flank of the line on the Potomac and enfilade the long and deep ravine on the right and in front of Fort Strong; a work on the spur behind Forts Cass and Tillinghast (later built and called Fort Whipple—now Fort Myer) to "see" into the gorges of these works and give important fire upon the high ground in front of the line, and flank that line from Fort Woodbury to Fort Strong. This would also strengthen Fort Corcoran. The commission also recommended the construction of additional batteries for field guns and more bomb-proofs in the forts and strengthening the bridgehead at the Aqueduct Bridge.

These recommendations were carried out in the early part of 1863, and Forts Whipple and C. F. Smith constructed at that time have been characterized as "the most perfect and beautiful specimens of what may be called 'semipermanent' field works." It was in 1863 also that Fort Berry, an unflanked work of moderate dimensions, was built at an intermediate point between Forts Barnard and Richardson. It was connected to the latter by a line of trenches. Fort Morton, between Fort Woodbury and Fort Strong, was converted from an open battery to an enclosed fortification.

While the commission did not consider the works at the Chain Bridge part of the defenses of Washington, it did inspect them and reported that the position was strong and well occupied. The lines of rifle trenches which connected Fort Ethan Allen and Fort Marcy with each other and with the banks of the river, together with the auxiliary batteries, were well placed to defend the ravines. Should these works fall, they would come under the fire of the heavy guns of Batteries Cameron, Parrott, Kemble, and Vermont and of Forts Alexander and Franklin on the District side of the river.

After this period, the only work undertaken on the fortifications in Arlington was in the nature of repair and improvement of existing structures, and the commencement of construction of Fort McPherson behind Fort Craig in 1864. Intended to be a second Fort Whipple, this fort was not completed before the end of the war.

A summary description of the system of defenses when brought to its greatest strength goes far to explain why this area was never actually penetrated by the Confederate forces—the only real attempt was by Early in the summer of 1864 and that was against a portion of the line in the District—and did not even prove tempting to guerrilla groups such as those under Mosby operating nearby.

> Thus from a few isolated works covering bridges or commanding a few especially important points, was developed a connected *system* of fortifications by which every prominent point, at intervals of 800 to 1,000 yards, was occupied by an inclosed field-fort, every important approach or depression of ground, unseen from the forts, swept by a battery for field guns, and the whole connected by rifle trenches which were in fact lines of infantry parapet, furnishing employment for two ranks of men and affording covered communications along the line, while roads were opened wherever necessary so that troops and artillery could be moved rapidly from one point of the immense periphery to another, or under cover, from point to point along the line.

The woods which prevailed along many parts of the line were cleared for a mile or two in front of the works, the counterscarps of which were surrounded by abattis. Bomb-proofs were provided in nearly all of the forts; all guns not solely intended for distant fire, placed in embrasure and well traversed; secure and well-ventilated magazines, ample to contain 100 rounds per gun, constructed . . . All commanding points on which an enemy would be likely to concentrate artillery to overpower that of one or more of our forts or batteries were subjected not only to the fires, direct and cross, of many points along the line, but also from heavy rifled guns from distant points unattainable by the enemy's field guns.[2]

CONSTRUCTION DETAILS

The forts were constructed with a slanting parapet, 7 to 9 feet high, with an exterior slope of 45°. The thickness of the parapet ran from 8 to 12 feet except on exposed fronts where the minimum was 12 feet increasing to 18 feet. A ditch, usually 6 feet deep, was dug at the foot of the parapet. In the early construction a berm, or walk, of 18 inches was left between the foot of the parapet and the edge of the ditch, but weather damage after the first winter caused these to be abandoned, and then a uniform slope of 45° from the exterior crest of the parapet to the bottom of the ditch was adopted. In most cases these exterior slopes were sodded, and those so treated were still in perfect condition at the close of the war.

The face of the ditch next to the parapet is called a "scarp" and the opposite face a "counterscarp." The "glacis" or slope away from the counterscarp was raised enough to bring the ground in front of the works within the line of rifle fire from the parapets, and on it was laid an abatis extending around the whole fort. On the interior of the parapet, called a "breast-height," a sort of platform known as a "banquette" was constructed on which infantry could stand to fire.

In the beginning, the interior earth slopes were revetted, that is, faced, with ordinary boards. This construction proved to be very perishable. When suitable timber in sufficient quantities could be obtained, a revetment of vertical posts was generally adopted. Such posts were 4 to 6 inches in diameter, and of oak, chestnut, or cedar, cut into lengths of 5½ feet and set in a slope of six in one in close contact in a trench 2 feet deep at the foot of the breast-height. These were sawed off 16 inches below the crest and shaped to receive a horizontal capping piece of 6-inch timber hewed or sawed to a half-round. The advantage of this kind of revetment was that a shot perforating the parapet might knock out one or two posts and cause them to rotate in a vertical plane, but if the posts were laid horizontally, more of the defenders would be exposed to injury from each hit.

Vertical post revetments were sometimes applied to the scarps, but sod revetment, though more expensive in the first instance, was preferred since it was more durable and would yield no splinters if hit by shot. Sods cut 4 inches thick, 18 inches long, and 12 inches wide were laid grass down in

[2] Barnard, *op. cit.*, p. 33–34.

three courses to form a sod wall 12 inches thick. Small pegs ¾ inch in diameter and 9 inches long were driven through each alternate course into the layers beneath.

The "cheeks" or sidewalls of the embrasures (openings for guns) were revetted with "gabions." These were wickerwork cylinders filled with the turf trimmings from the sod revetments. The grass soon grew and enveloped the wickerwork, forming a durable facing even after the wicker had decayed.

In the early days, the magazines and bomb-proofs were only temporary structures, quite inadequate for permanent forts. In improving them different methods had to be adopted for the forts north and south of the Potomac since timber had become scarce in the latter area. This was because the forests which had originally covered much of the land had been destroyed, partly cut down by the troops for firewood or other purposes and partly because the trees had been felled to clear the ground around the forts. Sometimes, as in the case of Fort Scott, this clearing had been carried to great lengths. Thus in the forts south of the Potomac it was necessary to make the walls of these interior structures of hewn timber bents, consisting of plate and sill and posts placed at intervals of 4 feet. North of the Potomac round timber posts were placed vertically in close contact.

The sills were hewn on the upper and lower sides only, to a thickness of 12 inches. The posts were hewn on the inside only, and to this face was nailed the magazine lining of 1½-inch plank. The posts were cut to lengths of 6 feet 9 inches, with a tenon 3 inches long at each end fitting into corresponding mortises, 4 feet apart from center to center, in plate and sill. The plate was hewn to 12 inches square. The width of the magazine was generally 12 feet as this permitted storage of powder barrels in three rows. The roof logs were not less than 12 inches in diameter and projected about 6 inches beyond the side walls. They were notched to saddle onto the capping of the sidewalls. The roof logs were hewn so that they would lie close enough together to hold up the earth which was piled over them. The ends were sawed off obliquely and against these projecting ends, inclined posts were placed at 3-foot intervals. Behind these inclined supports a revetment of small poles, 2 to 4 inches in diameter was placed horizontally and carried up as the earth was replaced externally. This arrangement created an air chamber around the magazine which, in conjunction with air ducts, provided quite thorough ventilation. Floors were laid on sleepers to allow 7 feet of head room.

Great care was taken in the roofing to prevent percolation of water. Another row of logs was laid across the roof logs, and earth rammed into the interstices. A course of 1-inch tongue-and-groove planking was nailed to the upper logs and painted on the under side with a caulking compound of hot coal tar and resin boiled together. A heavier composition of coal tar, resin, and sand was used to flush the joints as they were driven home. The upper side of the roofing was then painted thickly with this hot composition and a

second course of boards laid simultaneously. Another coat of the tar composition was laid on this, on top of which 2 or 3 inches of fine clean sand was thrown. This was followed by 2 feet of clay applied in layers of 6 to 8 inches, very thoroughly rammed. The remainder of the earth was then covered with a layer of sod.

The minimum depth of the earth covering all sides of the magazines was 10 feet. This was determined upon after experiments on the penetration of rifled, field, and siege artillery at probable distances. It was intended that shells should not only not reach the woodwork inside the magazines but also not penetrate far enough to inject fire by their explosion.

Construction of bomb-proofs was similar with the exception that the rear was open and covered by a projecting roof. Care was taken in the location within the forts of all these interior structures to make them serve as traverses, defilading the faces of the work. They were furnished with banquettes from which infantry fire could be directed into any part of the fort which might have been entered by an attacking force.

Gun platforms for field and siege guns were constructed as follows: a foundation of earth was prepared by thorough ramming, at such a level that the platform surface should not be less than 7½ feet below the crest of the parapet. Planking was laid on round timber sleepers not less than 9 inches in diameter and 18 feet long, hewn on the upper side. On these were spiked 3-inch planks, 14 feet in length, laid transversely, sloping to the rear to aid in checking the recoil of the gun. A "hurter" or buffer, of 6-inch timber was placed at the forward end of the platform at a distance just sufficient to keep the wheels of the carriage clear of the revetment. An improved gun platform was constructed in the later works. This was of hewn timber, 6 inches thick by 10 to 14 inches wide. This hewn timber flooring was more firm and durable than planking—even the smaller field pieces like the 10-pound Parrotts cut through the 3-inch planking after much practice. A distance of 23 feet from center to center of platforms was adopted as the minimum. This distance gave the greatest practicable amount of artillery fire in a given length of face consistent with the convenient working of the guns.

To give the guns the greatest possible field of fire, the embrasures were cut to a splay of 48°, that being the maximum consistent with adequate strength and cover at the throat. The sides, or cheeks, of the embrasures were generally revetted with gabions.

Construction of parapets for the batteries was the same as for the forts. Many of them were provided with magazines, and all of them with traverses. In the case of open batteries, generally no ditch was excavated but the material for the parapet was obtained by excavating in the rear.

Nearly all the important works were provided with wells. Some of them were very deep, as at Fort Lyon below Alexandria where it was necessary to go down 175 feet to get water. Most of them, however, were 30 to 60 feet

deep. The walls were curbed with brick or stone and were about 8 to 10 feet in diameter.

Three kinds of trenches were used to connect the works and form part of the line of defense. They also served as covered ways along which troops and even artillery might move. Construction was of a less permanent type than in the case of the forts, with no interior revetments. Earth was thrown up from an interior excavation so that the whole afforded a cover of some 7½ feet. The bottom of the trench was graded to provide drainage. Trenches intended for troops only were 5 feet wide, while those designed for the movement of artillery were 8 feet wide. Sometimes trenches were adopted for use as gun emplacements in which case embrasures were constructed and platforms of well-compacted earth were made.

MILITARY ROADS

The line of defensive works was readily reached by several existing County roads, but intercommunication was not adequate—and, in the beginning, in some cases nonexistent. The necessity for communicating roads became apparent as soon as the general line was established. The conditions governing their location and construction were that they should not be overlooked from any ground that an enemy might be able to occupy in front, that they should be as direct as practicable consistent with easy grades, and that they should be wide enough to permit the movement over them of field batteries or army trains.

The first road of this character was constructed in the fall of 1861 for the purpose of connecting the isolated works at Chain Bridge with the right of the Arlington lines at Fort Strong. This road, about 3 miles long, was laid out by Capt. B. S. Alexander, mainly through a broken and densely wooded country. In part, it is the Military Road of today. The type of road may be imagined when it is learned that it was built by troops who completed the job in two or three days!

The occupation by the Army of the Potomac in the winter of 1861–62 of the territory from Arlington Heights to and beyond Fort Lyon (below Alexandria) caused it to be traversed by innumerable rough wagon roads, and communication along the lines soon became practicable, although very difficult in wet weather. At a later period a route was laid out and a good road constructed partly by details of troops and partly by hired labor. This road ran to the rear of and communicated with all the works from Fort Strong to Fort Lyon. Other roads were built from the Aqueduct Bridge to Forts C. F. Smith and Strong, and from the same point to Fort Whipple and thence to Fort Albany.

While some of these roads were in part improvement of existing roads or lanes, others were wholly new. Some of them have been abandoned or built

over, but others, like Military Road from Glebe Road to Lee Highway, form the basis for streets and highways in the County today.

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It takes little imagination to picture what this occupation and the construction of this system of defense meant to Arlington County. In 1861, the County was a rural community the people of which were largely dependent upon farming for their livelihood. Forts thrown up right and left, trenches dug through pastures and truck gardens, forests cut down, troop encampments all about—the impact of these changes must have been tremendous. While never an actual battleground, it is probably not too much to say that Arlington could hardly have been affected more had it been.

GLOSSARY

Abatis—A defense formed of felled trees, the sharpened ends of whose branches face the enemy.

Banquette—Footwalk or platform on which infantry might stand on the inside of a parapet or other earthwork, to fire.

Barbette—A mound of earth or a platform on which guns are mounted.

Breast-height—Interior face of a parapet.

Defilade—To arrange a fortification so as to protect the lines from frontal or enfilading fire, and the interior of the works from plunging or reverse fire.

Embrasure—An opening, with sides flaring outward, in a wall or parapet through which cannon are fired.

Gabion—A hollow cylinder of wickerwork, filled with earth or other material and used in building fieldworks.

Glacis—Slope from the counterscarp to the open country.

Lunette—A fieldwork consisting of two faces, forming a salient angle, and two parallel flanks.

Revetment—A facing of stone, concrete, or wood, etc., to sustain an embankment; a retaining wall.

Scarp—The side of a ditch next the parapet. The opposite side is a counterscarp.

DERIVATION OF NAMES OF FORTS IN ARLINGTON

Battery Garesché—After Lt. Col. Julius P. Garesché, Asst. Adj. Gen. of U.S.A., killed at Murfreesboro, Tenn., December 31, 1862. Gen. Order, A.G.O. 83, 4-1-1863.

Fort Reynolds—(First called Fort Blencker.) After Maj. Gen. J. F. Reynolds, killed at Gettysburg, Pa., July 2, 1863. Gen. Order, A.G.O. 313, 9-17-1863.

Fort Barnard—For Maj. Gen. J. G. Barnard, Colonel of Engineers in the U.S.A., in engineering charge of the defenses of Washington for most of the period 1861–1865.

Fort Berry—After Gen. Hiram Berry, Col. 4th Maine, killed at Chancellorsville, Va., May 2, 1863.

Fort Scott—For Gen. Winfield Scott, Gen. Order, A.G.O. 18, 9-30-1861.

Fort Richardson—For Gen. Israel Richardson, native of Vermont, Col. 2d Michigan, commanding troops holding a position along Columbia Pike. Died of wounds at Antietam, Md., November 3, 1862.

Fort Albany—For the capital of New York, because it was constructed by New York troops. Gen. Order A.G.O. 18, 9-30-1861.

Fort Runyon—For Brig. Gen. Theodore Runyon, commanding officer of Runyon's New Jersey Brigade. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Craig—For Lt. Presley O. Craig of Massachusetts, killed at Bull Run, July 21, 1861. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Tillinghast—For Capt. Otis H. Tillinghast, killed at Bull Run, July 21, 1861. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Cass—In honor of Gen. Lewis Cass of Michigan.

Fort Whipple—For Maj. Gen. A. W. Whipple, died May 7, 1863, from wounds at Chancellorsville.

Fort Woodbury—For Maj. D. P. Woodbury, engineering officer in charge of construction of defenses in part of this area in 1861–2. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Morton—In honor of Gov. Oliver P. Morton of Indiana.

Fort Strong—(First named Fort DeKalb.) For Gen. George C. Strong of Vermont. Died of wounds at Fort Wagner, Charleston Harbor, S. C., July 30, 1863. A.G.O. 354, 11-4-1863.

Fort C. F. Smith—For Maj. Gen. Charles F. Smith, died of disease at Savannah, Tenn., April 25, 1862.

Fort Bennett—For Capt. Michael P. Bennett, 28th New York, Gen. Order, A.G.O. 18, 9-30-1861.

Fort Corcoran—After Col. Michael Corcoran, 69th New York. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Haggerty—For Lt. Col. James Haggerty, 69th New York. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Ethan Allen—For the Revolutionary hero of that name. Gen. Order, A.G.O. 18, 9-30-1861.

Fort Marcy—For Brig. Gen. R. B. Marcy, Chief of Staff for Maj. Gen. George B. McClellan. Gen. Order, A.G.O. 18, 9-30-1861.