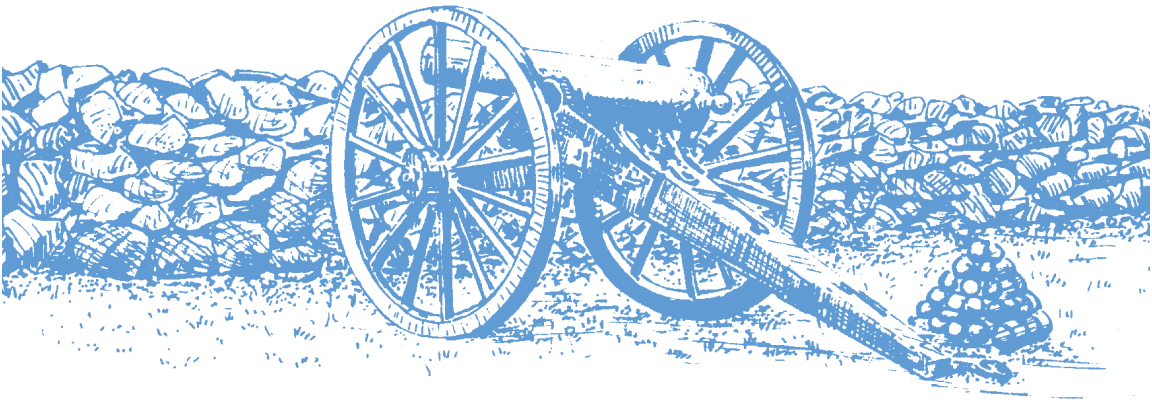
DCNR

Educational Series 5

# GEOLOGY *and the Gettysburg Campaign*



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
BUREAU OF
TOPOGRAPHIC AND GEOLOGIC SURVEY

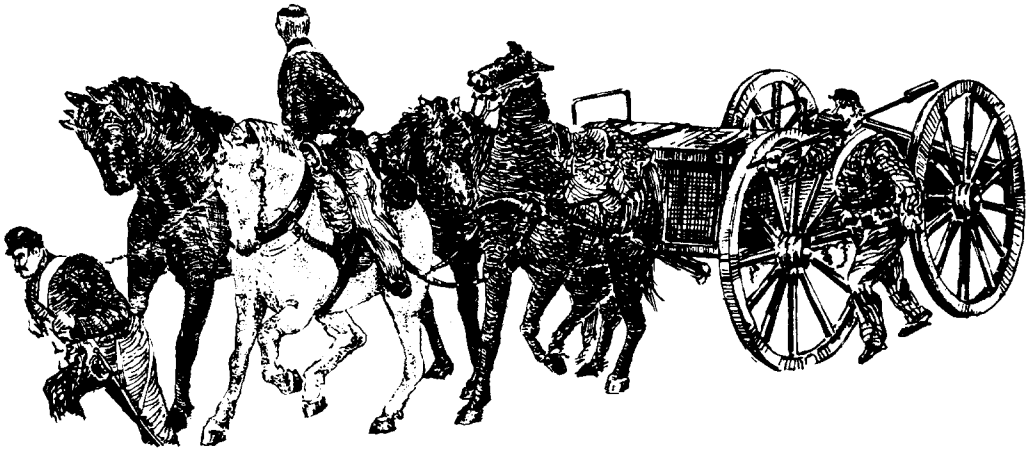
**COMMONWEALTH OF PENNSYLVANIA**
Edward G. Rendell, Governor
**DEPARTMENT OF**
**CONSERVATION AND NATURAL RESOURCES**
Michael DiBerardinis, Secretary
**OFFICE OF CONSERVATION AND ENGINEERING SERVICES**
Larry G. Williamson, Deputy Secretary
**BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY**
Jay B. Parrish, Director

First Edition, September 1962
Seventh Printing, Slightly Revised, March 1997
Eleventh Printing, June 2006

# GEOLOGY

# and the

# Gettysburg Campaign



**by Andrew Brown**

U.S. Geological Survey

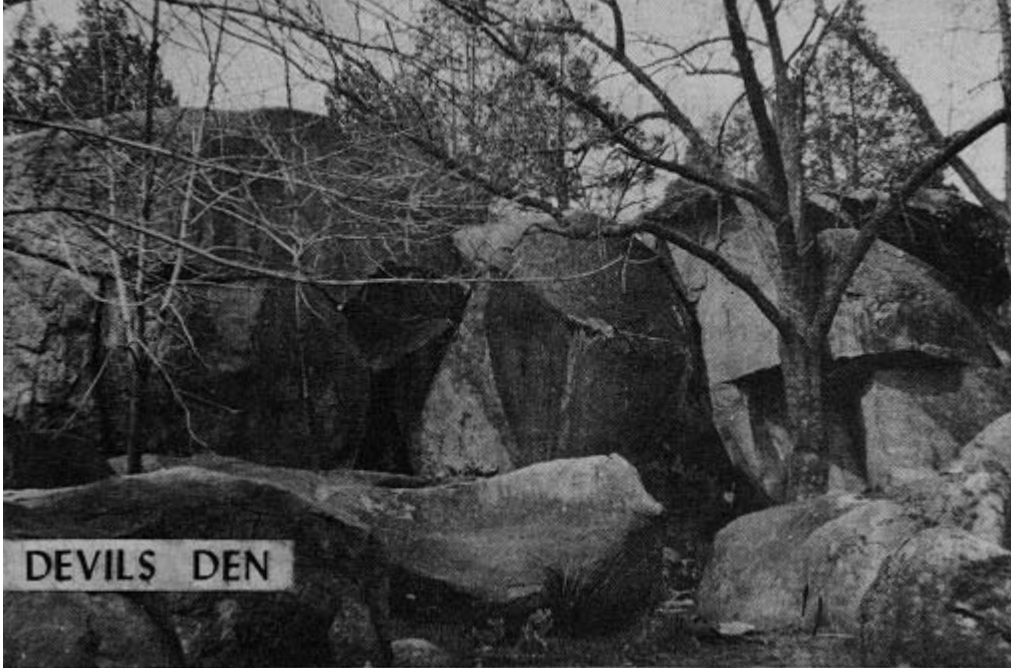
*Illustrations on cover and title page by Albert E. Van Olden*

# PREFACE

This booklet on *Geology and the Gettysburg Campaign* was first published by our bureau in 1962 during the 100th anniversary of the Civil War. A crucial event in that great conflict, the Battle of Gettysburg has special pertinence to Pennsylvania and its citizenry. Since its first printing, the booklet has received widespread interest from tourists visiting the battlefield, students of the Civil War, professional geologists, and others who are fascinated by the interrelationship between the local Gettysburg area geology, the terrain, and the course of the battle.

We are most grateful to the author, Andrew Brown, a staff member of the U.S. Geological Survey at the time of writing and an avid student of the Civil War, and to Dr. Robert C. Stephenson, former director of the American Geological Institute, for their permission to reprint this article, which appeared originally in the July-August 1961 issue of *Geotimes*, a professional news magazine of the geological sciences published by the American Geological Institute. Minor revisions have been made to the original article.

It is our hope that the distribution of this booklet will bring a greater understanding of the importance of geology and physical surroundings, not only with respect to the Battle of Gettysburg, but also with respect to the current problems of the conservation and preservation of all of our great historical monuments and natural resources.




# GEOLOGY AND THE GETTYSBURG CAMPAIGN

Each year thousands of sightseers clamber over Little Round Top and Devils Den on the Gettysburg battlefield, and gaze with awe over the mile of treeless plain across which Pickett's men charged toward "the little clump of trees" on July 3, 1863. All are impressed by the rocky heights—the Round Tops, Cemetery Ridge, Cemetery Hill, and Culps Hill—against which Lee's men hurled themselves in vain throughout three days of bitter fighting. Few, however, know that these heights are the outcrop of a diabase sill, appropriately enough called the Gettysburg sill, that about 200 million years ago intruded the Triassic sandstones and shales that floor the broad Gettysburg plain. Even fewer have any concept of the extent to which the movements of the two armies toward Gettysburg, and the battle itself, were influenced by the geology of the region in which the campaign was conducted.

The Gettysburg battlefield covers an area of about 15 square miles. The battle, however, was but the climax of a campaign that covered an area of about 11,000 square miles. This area is approximately 140 miles long—from Fredericksburg on the Rappahannock River in Virginia to Harrisburg on the Susquehanna River in Pennsylvania—and 80 miles wide—from a line drawn on the southeast through Fredericksburg, Washington, and Baltimore, to the northwestern edge of the Great Valley of

Virginia, Maryland, and Pennsylvania (see Figure 1). A further idea of the immensity of the military effort that reached its culmination in Pickett's charge is gained from the mere fact that the campaign started on June 3 at Fredericksburg, reached its climax on July 3 at Gettysburg, and did not end until the Confederate army recrossed the Potomac into Virginia on July 14.

At the time of the Civil War, the science of geology was young, and military geology, as the term is understood today, was years in the future. Yet the principles of military geology, applied or all too often not applied, influenced decisively the outcome of more than one campaign. The Gettysburg campaign is an excellent example of intelligent use by commanders of both armies of terrain and topography and, therefore, of geology.

## THE ADVANCE TO GETTYSBURG

*June 3 to June 30, 1863*

The region in which the Gettysburg campaign was conducted (Figure 1) falls into four roughly parallel bands. From southeast to northwest, these are the Piedmont proper; the Triassic basins, including the Culpeper basin in Virginia and Maryland and the Gettysburg basin in Maryland and Pennsylvania; the Blue Ridge of Virginia and its continuation, South Mountain, in Maryland and Pennsylvania; and the Great Valley, including approximately the northern half of the Shenandoah Valley in Virginia, the Hagerstown Valley in Maryland, and the Cumberland Valley in Pennsylvania. Each of these four regions played a distinctive role in the Gettysburg campaign.

After the campaigns of 1862, the Confederates went into winter quarters on the south bank of the Rappahannock River, the Union armies on the northern bank. The Rappahannock and its tributary, the Rapidan, which joins it about 10 miles west of Fredericksburg, flow eastward across the entire 50-mile width of the Piedmont in steep, easily defended valleys, and were in effect the outermost defense line of Richmond. In this area, the Piedmont rises from approximately sea level at Fredericksburg, Washington, and Baltimore, to about 400 or 500 feet near the Blue Ridge. The exposed rocks, mostly of Precambrian age, are granite, gabbro, and hornblende gneiss in the southeastern part and the Wissahickon Schist in the northwestern part of the Piedmont. The rocky roads of this region of ridges and ravines were hard on men, animals,

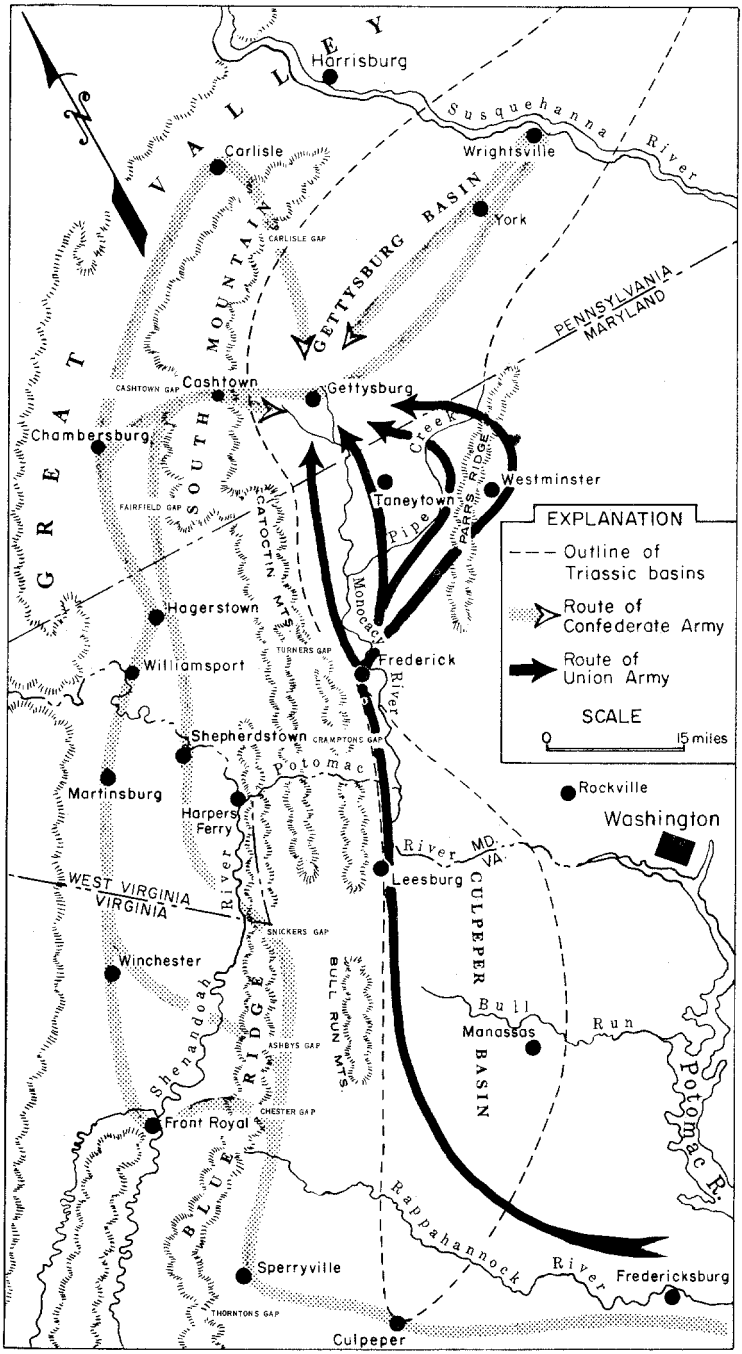



**Figure 1. Sketch map of the area covered by the Gettysburg campaign.**

and equipment, so were to be avoided by the armies of the sixties. To use a term coined later by military geologists, the "trafficability" of the roads was poor. Although the Gettysburg campaign started in the Piedmont, both armies left it as soon as possible.

At Fredericksburg in December 1862 and at Chancellorsville in May 1863, Union armies attempted, with disastrous results, to breach the Confederates' river lines. After his great victory at Chancellorsville, General Robert E. Lee, commanding the Confederate Army of Northern Virginia, decided to invade Federal territory. He built up his army to a strength of 70,000 to 80,000 men (exact figures are impossible to obtain) and about 250 pieces of artillery. He divided his infantry into three corps of about 20,000 men each. The First Corps was commanded by General James A. Longstreet; the Second Corps by General R. S. Ewell; and the Third Corps by General A. P. Hill. The cavalry, about 10,000 strong, was commanded by General J. E. B. Stuart.

Facing the Confederates across the Rappahannock was the Union Army of the Potomac, about 100,000 strong, commanded by General Joseph A. Hooker. Hooker had about 350 pieces of artillery; his infantry was divided into seven corps, each approximately half the size of a Confederate corps; his cavalry, commanded by General Alfred Pleasanton, was about 13,000 strong.

Lee's reasons for invading the North were political, military, and economic. Politically, the prospect of European intervention on the side of the Confederacy would be greatly enhanced by a decisive victory on northern soil. The military objective was the capture of Harrisburg, the capital of Pennsylvania. With Harrisburg in his hands, Lee could threaten Philadelphia, Baltimore, or Washington as circumstances might make advisable, and he could also cut the Pennsylvania Railroad, a vital supply line for the Union armies. Such a campaign was a sound if bold concept, particularly as Lee counted on outmarching the Army of the Potomac and meeting with no opposition except that of militia.

The economic reason for the campaign had to do with such mundane things as food, forage, horses, shoes—in fact almost everything an army needs except ammunition, with which the Confederates were well supplied. The Confederate commissary system, never good, had so broken down that the army had no alternative but to "live off the country"—not in the friendly Shenandoah Valley, but in the hostile Hagerstown and Cumberland Valleys.

The Gettysburg campaign began on June 3, 1863. On that day, Ewell's Corps of the Army of Northern Virginia left Fredericksburg, marching by way of Culpeper toward the Blue Ridge and the Great Valley. A glance at the map might give the impression that the Confederate commander was taking a roundabout route to Harrisburg, but it was in fact the only practicable road. Lee, outnumbered as he knew he was, could not hope to drive the Union army northward and across the Potomac by a frontal attack, but the situation was almost ideal for a flanking movement. Using the Blue Ridge as a barrier, and marching in the wide, fairly level Great Valley, the Confederates were not only safe from attack but to a surprising degree safe from observation. The Blue Ridge and the Valley, therefore, were the keys to Lee's strategy.

In Virginia, the Blue Ridge is high and rather narrow, formed of tightly folded and metamorphosed quartzite and volcanics, gneiss, and other resistant rocks mostly of early Paleozoic age. The crest of the ridge drops from about 4,000 feet south of Thorntons Gap to 1,500 feet at the Potomac, where it is known locally as Loudoun Heights. An extension, Elk Ridge, continues about 10 miles into Maryland; the southern end of Elk Ridge is known as Maryland Heights. At the Potomac River, the main ridge is offset about 3 miles to the east, and an extension, Short Mountain, continues for about 10 miles into Virginia. Near the Maryland-Pennsylvania State line, a spur of South Mountain, the Catoctin Range, swings eastward and southward into Virginia, passing a few miles west of Frederick, Md. The Bull Run Mountains in Virginia are an interrupted extension of the Catoctin Range.

South Mountain in Pennsylvania and northern Maryland is wider and more complex in structure than the Virginia Blue Ridge, though it is formed by the same rock types. Altitudes of the crest in that region range from about 1,500 feet at the Potomac to 2,000 feet near Carlisle.

Of military importance equal to the Blue Ridge and South Mountains were the gaps, which, so to speak, are the doors in the mountain wall. The only water gap in the area of the Gettysburg campaign is at Harpers Ferry where the Potomac River cuts through the mountains. The Harpers Ferry gap, however, is commanded by Loudoun Heights, Maryland Heights, and the high ground west of Harpers Ferry, and therefore was of little military significance. The only places where the armies of the sixties could cross the mountains were the wind gaps, eight of which influenced the campaign. From south to north, these are

Chester Gap (and Manassas Gap, about a mile to the north), Ashbys Gap, and Snickers Gap in Virginia; Cramptons Gap and Turners Gap (and Fox Gap, about a mile to the south) in Maryland; Fairfield (or Monterey) Gap near the Maryland-Pennsylvania State line; and Cashtown Gap and Carlisle Gap in Pennsylvania. Altitudes of these gaps range from 600 feet at Manassas Gap to 1,400 feet at Cashtown Gap. The Virginia and Maryland gaps are of erosional origin; Fairfield, Cashtown, and Carlisle Gaps in South Mountain were formed by a combination of faulting and erosion.

After it became apparent, on June 15, that the Union army was moving northward and not toward Richmond, Longstreet's and Hill's Corps of the Army of Virginia followed Ewell's Corps across the Blue Ridge into the Great Valley using the three Virginia gaps, and thence northward. Lee's concentration area, in and around Chambersburg, Pa., was reached between June 24 and June 28.

In the Gettysburg campaign area, the Great Valley is from 10 to 20 miles wide and averages about 15 miles. It is underlain by limestone and shale, mostly of Ordovician age, and owes its existence to the incompetent nature of these formations as compared to the harder ridge-forming rocks on either side. In Virginia and West Virginia, the valley drains northward through the Shenandoah River into the Potomac. The divide north of the Potomac is a few miles north of Chambersburg, standing at an altitude of about 650 feet. From that area, the Hagerstown Valley is drained by Conococheague Creek, which flows into the Potomac at Williamsport, Md. The Cumberland Valley drains northeastward into the Susquehanna at Harrisburg through Conodoguinet Creek.

The Great Valley was and is a fertile region, from which the Confederates, once across the Potomac, impressed a vast quantity of supplies of all kinds. Because of the gentle grades and deep soil, the trafficability of the valley roads was good, and the Confederates reached Chambersburg in excellent condition.

Lee's selection of Chambersburg as a concentration point was based on the geology of Cashtown Gap. The other gaps in the northern part of South Mountain are narrow and tortuous; but Cashtown Gap, through which U.S. Highway 30 now runs, owes its existence and character to a great cross-fault, the Cashtown fault, which offsets the topographic crest of the main ridge of South Mountain about 3 miles. Erosion has carved in the fault zone an almost straight pass about 8 miles long, the highest point in which is a ridge less than a mile wide between the head-

waters of Conococheague Creek on the west and Marsh Creek on the east. Of the eight passes that figure in the Gettysburg campaign, Cashtown Gap was the only one through which it was possible to move expeditiously a large force with artillery and wagon trains. By concentrating west of this gap, Lee was able not only to protect his communications to the south, but to move either east or northeast over easy roads.

Lee held the initiative throughout his movement toward Gettysburg, and therefore movements of the Union army were dictated by those of the Confederates. The march across the Blue Ridge and into the Valley was so well screened by Stuart's cavalry that for a time Hooker had little idea of where the Confederate army was or where it was going. He did, however, move slowly northward in the Culpeper basin and, on June 25, crossed the Potomac. He then moved up the valley of the Monocacy River to Frederick, sending three of his infantry corps to cover Cramptons and Turners Gaps in South Mountain against a possible attack on Washington from that direction.

The exposed rocks in the Culpeper and Gettysburg basins are sandstone and shale that were deposited in Triassic time in the downtilted western part of the Piedmont, which abuts the Blue Ridge and South Mountain. In Early Jurassic time, these sediments were intruded by sills and dikes of diabase. As the roads generally avoided the diabase outcrops, trafficability across the Triassic sediments was good, much like that in the Great Valley. Like the Confederates, the Union troops took advantage of geologic conditions to expedite their movements.

A critical day in the Gettysburg campaign, and possibly its turning point, was June 28. On that day, two of Lee's three corps were concentrated in the Chambersburg area. Two divisions of the third corps, Ewell's, were at Carlisle, threatening Harrisburg from the west. The other division was at York, where it was in a good position to move toward either Harrisburg or Baltimore. From Lee's standpoint, the campaign was progressing favorably except for one fatal lack: the usually dependable Stuart, instead of keeping his cavalry between the Confederate and Union armies, had started a raid toward Washington, east of the Federals, and as far as Lee was concerned, was lost. Because of Stuart's unaccountable absence, it was not until the night of June 28 that Lee learned from a spy that the Union army had crossed the Potomac and was concentrated around Frederick. He therefore recalled Ewell's troops from Carlisle and York and moved Hill's Corps through Cashtown Gap to Cashtown, to be in position to meet the Union threat.

General George G. Meade, commanding the V Corps, was awakened at 2 a.m. on that same June 28 and told that he had been named to succeed Hooker as Commander of the Army of the Potomac. Meade, assuming command under most disadvantageous circumstances, acted promptly. He recalled the three corps from Cramptons and Turners Gaps, and sent cavalry through Turners Gap to ascertain the Confederate position around Chambersburg. Knowing that Confederate troops were at Carlisle and York, Meade moved his headquarters to Taneytown and sent his engineers to select a strong defensive position, which later was to become known as the Pipe Creek line. He then sent three infantry corps, preceded by a strong cavalry screen, toward the town of Gettysburg, while the other four corps moved northeast and took position behind Pipe Creek. Both movements were made on the basis of the geology of the areas concerned.

The Gettysburg basin, from its southern end near Frederick, widens northeastward toward the Susquehanna River; in southern Pennsylvania, it is a wide, fairly level plain, except for the diabase outcrops. The town of Gettysburg, on this plain, was the hub from which radiated ten roads. Such was the road pattern that the Confederates, whether they came from Cashtown, Carlisle, or York, had no choice but to pass through Gettysburg. It was for that reason that Meade sent almost half his army toward that little town.

Meade, however, did not want to fight at Gettysburg, desiring a stronger position. The line which he selected, generally known as the Pipe Creek or Westminster line, might be better described as the Parrs Ridge line. Parrs Ridge, in the western edge of the Piedmont, extends northeast and southwest through Westminster. It forms the divide between the Monocacy River drainage on the west and the direct drainage to the Chesapeake Bay on the east. The ridge near the Pennsylvania-Maryland State line stands at more than 1,000 feet above sea level, and at Westminster about 800 feet; this compares with the usual Piedmont elevations of 400 to 500 feet. Pipe Creek, flowing through the Triassic basins north of the ridge and into the Monocacy River, is not particularly formidable, but Parrs Ridge, to the east, upheld by highly resistant schists and quartzites, has not only height, but widths of 4 to 10 miles that could have been fortified into an almost impregnable defensive position.

Although Meade never used his Pipe Creek line, his choice shows his good eye for geology and topography. Circumstances beyond his control brought the two armies together at Gettysburg.

## THE BATTLE OF GETTYSBURG

*July 1 to July 3, 1863*

The Battle of Gettysburg was essentially an effort by the Confederates to drive the Union army from the outcrop of the Gettysburg sill (York Haven Diabase) south of the town of Gettysburg. This outcrop is shaped like a fishhook extending northward about 3 miles from Round Top through Little Round Top and Cemetery Ridge to Cemetery Hill, then east and south to the barb of the fishhook, Culps Hill. Round Top

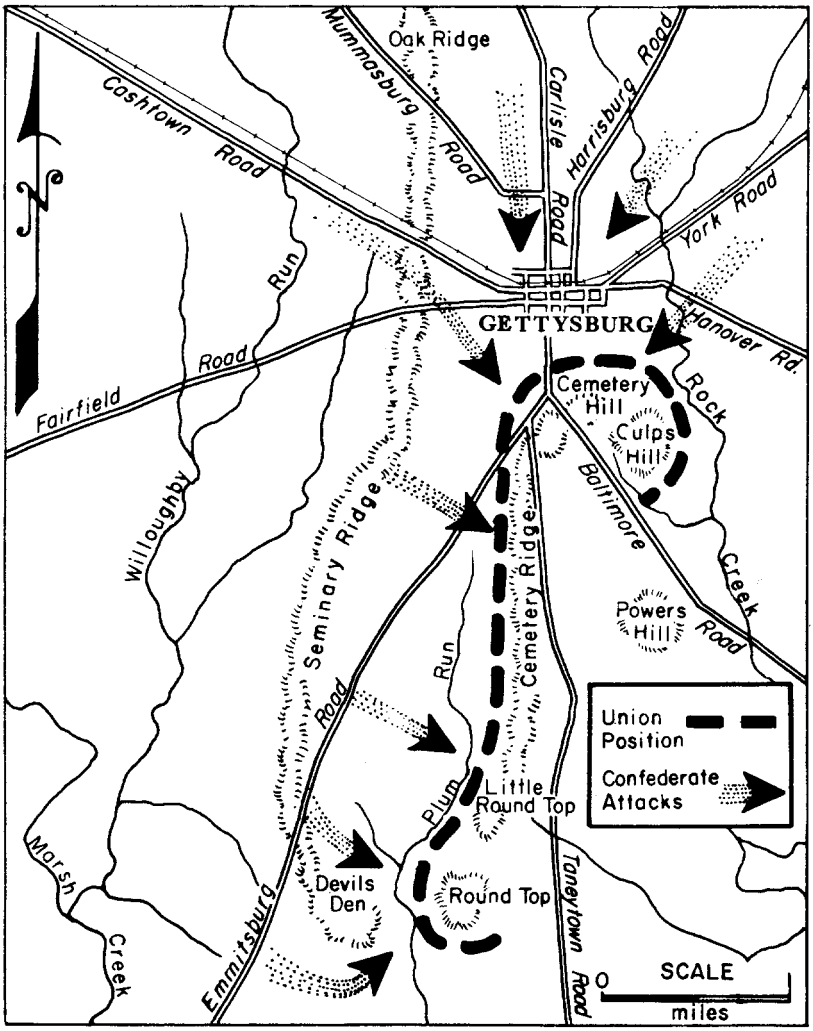
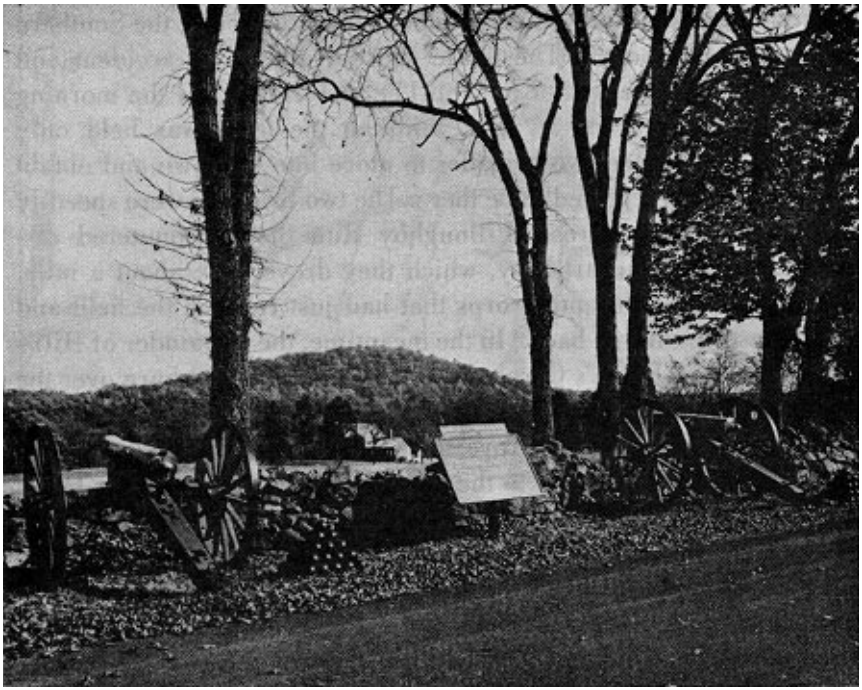



**Figure 2. Sketch map of the Gettysburg battlefield.**

stands at 785 feet above sea level, Little Round Top at 650 feet. Between Little Round Top and Cemetery Hill, the ridge drops to about 570 feet. For comparison, the elevation of the town of Gettysburg is about 500 feet. Seminary Ridge, the Confederate position on the second and third days of the battle, stands throughout most of its extent at about 560 feet, but rises northward to 650 feet at Oak Ridge (see Figure 2). Seminary Ridge is the trace of a diabase dike (Rossville Diabase) that apparently is an offshoot of the westward-dipping Gettysburg sill.

One of the peculiarities of the Battle of Gettysburg is that the Northern armies moved to the battlefield from the south, the Southern armies from the north. The battle started, almost by accident and certainly against the wishes of both Lee and Meade, on the morning of July 1. General A. P. Hill, thinking the town was held only by militia, authorized two brigades to move into the town and obtain a supply of shoes reported to be there. The two brigades were speedily disillusioned; once across Willoughby Run, they encountered dismounted cavalry and artillery, which they drove back about a mile. Then they met two infantry corps that had just reached the field and were themselves driven back. In the meantime, the remainder of Hill's Corps and all of Ewell's Corps were pouring into Gettysburg over the Cashtown, Carlisle, Harrisburg, and York roads (see Figure 2). During the afternoon, these troops drove the outnumbered Federals through the town of Gettysburg and to the base of Cemetery and Culps Hills. Then occurred the first of a series of almost inexplicable Confederate blunders that marked the course of the battle. The Southerners were flushed with victory, the Union troops badly beaten, and enough of the long July daylight remained to storm the hills, which could not be protected by entrenchments because the diabase was practically at the surface. Yet Ewell, who up to that time had performed ably and even brilliantly as a corps commander, made no move to attack, and the opportunity was lost. During the night, the positions were reinforced so strongly that later efforts to take them failed.

Once the battle had started, the next phase was a race for the field by both armies. Of the Confederates, Longstreet's Corps, except Pickett's Division, reached Gettysburg early on July 2; Pickett arrived about 24 hours later. On the Union side, Meade moved all his infantry, except the VI Corps under General John Sedgwick, to the field by the morning of the second; Sedgwick arrived late in the afternoon. Thus, on the second day of the battle, the Federals outnumbered the Confederates, reversing the situation of the first day. Meade himself reached the field about 2 a.m.



**Round Top, the southern anchor of the Union position, from the Confederate lines on Seminary Ridge. Confederate cannon still command a strong point on the Gettysburg Battlefield in Pennsylvania today.**

on the second, having sent General W. S. Hancock of the II Corps to reconnoiter the situation. Hancock reported that the Union position was strong, though it could be turned rather easily, and recommended that, as the battle had already begun, it be fought out there.

On July 2, Lee took position along Seminary Ridge and launched a series of attacks against the southern end of the Union line—the Round Tops. Devils Den, a mass of diabase boulders facing Little Round Top across Plum Run, became the scene of bitter fighting. After the Confederates had taken Devils Den, they used sharpshooters, sheltered by the huge boulders, to pick off troops on Little Round Top throughout much of the day. Partly because Longstreet's Corps was late in starting, the attack on the Round Tops was only partly successful, and the southern end of the Union line was not turned as it might have been. On July 3, Lee, having attacked the Union right and left flanks, attempted to break the center by a charge led by Pickett's fresh division. The charge failed,

partly at least because it was not supported on either flank, and the Battle of Gettysburg ended with the Federal army holding its position.

Almost until its end, the battle could have gone either way. Lacking the services of the redoubtable "Stonewall" Jackson, dead these two months, and in the absence of Stuart, Lee did not have his army under full control until July 2 and admittedly fought his worst battle. Meade, sound and methodical, won because he handled the Army of the Potomac better than it had been handled by any previous commander. It is ironic that for this achievement he has received more blame than praise.

Meade has been criticized for preferring to fall back to his Pipe Creek line before meeting Lee. His reasoning was sound, however, for as Hancock had reported, the heights could be turned. If Ewell, on July 1, and Longstreet, on July 2, had done what they should have done, Meade's forces would have been outflanked, and there is good reason to believe that, had not the Confederate command system broken down, Meade would have been driven from the Gettysburg position. If that had

**Diabase boulders strewn over the surface of Little Round Top offered the only cover for Union forces defending the hill. The diabase bedrock comes so close to the surface that trenching for protection was seldom possible.**

happened, he would have had no choice but to fall back on his Pipe Creek line.

The Union position at Gettysburg had another weakness that became more and more evident as the battle progressed; owing to the geology, it could not be entrenched. The resistant diabase sill is so close to the surface that it was impossible for the soldiers to "dig in," and what little protection they could obtain was provided by existing stone walls, outcrops of rock such as Devils Den, and isolated boulders. Because of its inability to solidly entrench its position, the Union army suffered disproportionate casualties (about 23,000 men killed, wounded, and missing), considering that it was the defending force throughout the battle. The Confederates suffered about 28,000 casualties, but spent three days unsuccessfully attacking the Union line—first on the flanks and finally in the center. When Union forces attacked well-entrenched Confederates at Fredericksburg (December 1862) and Spottsylvania (May 1864), they lost about twice as many men as the Confederates—and at Cold Harbor (June 1864), more than four times as many. This is in accordance with the axiom of infantry warfare that an attacking army must expect significantly higher losses than a defending force, which ordinarily will be entrenched. Unlike the rocky Gettysburg line, Meade's preferred position on Parrs Ridge behind Pipe Creek could have been effectively entrenched.

## THE RETREAT

*July 4 to July 14, 1863*

Throughout July 4, the two badly mauled armies faced each other across the field of Pickett's charge, burying their dead and succoring their wounded. Meade did not attack, though the Confederate position, like the Federal, could not be entrenched to any appreciable degree. The Confederate wounded and supply trains were sent westward through Cashtown Gap, while the main army prepared to retreat through South Mountain at Fairfield Gap. On the fifth, the Federals followed, but decided that Fairfield Gap could not be forced. Accordingly, Meade sent his infantry south to Frederick and into the Great Valley through Turners Gap. Lee won the race to Williamsport, where he planned to cross the Potomac. There he fortified a strong line east of the town, anchored on the Potomac and on Conococheague Creek. Meanwhile the river had risen, and it was not until the night of July 13–14 that the Confederates were

able to cross on rebuilt bridges. Meade, who had planned to attack the Confederate works on the fourteenth, marched in to find empty fortifications. He crossed the river and followed Lee south, and within a matter of weeks both the Army of Northern Virginia and the Army of the Potomac were just where they had been on June 3—facing each other across the Rapidan River.

## REFERENCES

Stose, G. W., and Bascom, F., 1929, Fairfield-Gettysburg folio, Pennsylvania: U.S. Geological Survey Geologic Atlas of the U.S., Folio 225, 22 p.

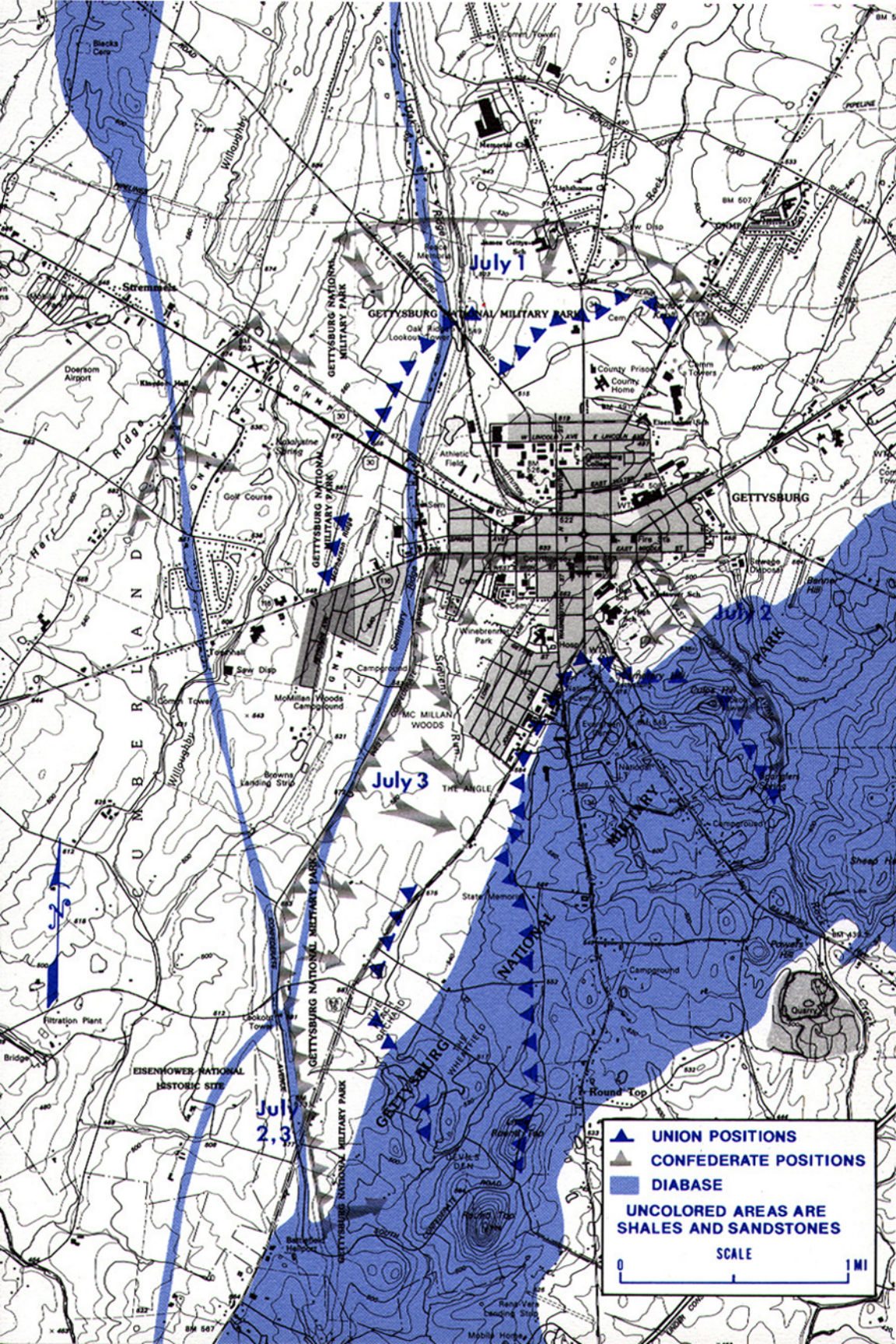
Stose, G. W., 1932, Geology and mineral resources of Adams County, Pennsylvania: Pennsylvania Geological Survey, 4th ser., County Report 1, pt. 1, 153 p.

## PENNSYLVANIA GEOLOGICAL SURVEY EDUCATIONAL SERIES

ES 1 *Rocks and Minerals of Pennsylvania*
ES 2 *Common Fossils of Pennsylvania*
ES 3 *The Geology of Pennsylvania's Groundwater*
ES 4 *The Geological Story of Pennsylvania*
ES 5 *Geology and the Gettysburg Campaign*
ES 6 *Pennsylvania and the Ice Age*
ES 7 *Coal in Pennsylvania*
ES 8 *Oil and Gas in Pennsylvania*
ES 9 *Landslides in Pennsylvania*
ES 10 *Earthquake Hazard in Pennsylvania*
ES 11 *Sinkholes in Pennsylvania*
ES 12 *The Nonfuel Mineral Resources of Pennsylvania*
ES 13 *Reading and Using Maps*

ADDITIONAL COPIES OF THIS PUBLICATION
MAY BE OBTAINED FROM
PENNSYLVANIA GEOLOGICAL SURVEY
3240 SCHOOLHOUSE ROAD
MIDDLETOWN, PA 17057–3534
717–702–2017

An Equal Opportunity Employer **Recycled Paper** 2200–BK–DCNR3028


July 1
July 2
July 3
July 2, 3
GETTYSBURG NATIONAL MILITARY PARK
GETTYSBURG
McMILLAN WOODS
THE ANGLE
Round Top
Little Round Top
Devil's Den
Seminary Ridge
Willoughby Run
Stevens Run
Doersom Airport
Gettysburg Hospital
Filtration Plant
EISENHOWER NATIONAL HISTORIC SITE
UNION POSITIONS
CONFEDERATE POSITIONS
DIABASE
UNCOLORED AREAS ARE SHALES AND SANDSTONES
SCALE
0
1 MI