

GOOD ENOUGH TO WIN: AN ANALYSIS OF FEDERAL AND CONFEDERATE COMMAND SYSTEMS AT GETTYSBURG

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In describing the Battle of Gettysburg, the shorthand “Meade versus Lee” is often used. Despite the shorthand of using the names of competing generals, battle is won by the totality of an army: its generals, combat arms, and support units. Therefore, battle is not a joust between two commanders, but between aggregations working in concert toward a common goal. Another word for such an aggregation is a *system*.

The reasons for the battle’s outcome are sometimes hidden because labyrinthine analyses often concentrate on Confederate misfortune and ignore Federal proficiency. Although convenient and sometimes useful, it is insufficient to constrict an analysis solely to certain individuals with seemingly egregious performance; instead, one must analyze the Federal and Confederate commands as complete systems and compare them as such.

This paper will analyze the battle of Gettysburg as an engagement between two systems. It will first define a system and show how previous authors have unknowingly, but presciently, ventured into the area of systems analysis to describe the battle’s result. This paper will conduct such an analysis in three parts: 1) the selection of the major commanders within the armies, 2) summary of the two command systems in the battle, and 3) comparison of the two command systems. These appear in the three following sections. This paper will not specifically compare General George Meade and General Robert E. Lee for this reason: The Battle of Gettysburg was not a personal contest between the two

generals, both of whom were competent. This paper assumes that the defeat was caused by a system failure, not a personal failure.

However, some disclaimers are warranted. All discussion of generals in this paper are limited to facts and statistics. This paper will not “rate” generals and leaves that unnecessary task to others because the only substantive conduct is that *relative to the battle*. None of the points presented is intended to suggest that either side in that conflict was superior to the other: both North and South were part of the American culture. This paper never questions the incredible and inexhaustible courage and fortitude of the common soldiers who suffered, regardless of how their generals chose to fight battles.

Finally, this paper correlates actions and persons to those in other conflicts, a technique uncommon in Civil War historiography with the notable exceptions of the works of Fletcher Pratt and John Keegan. However, using such an approach can often help cast new light on relevant topics and explain them better than in isolation.

THE SYSTEMS APPROACH TO ANALYZING THE BATTLE

A *system* may be defined simply as “a regularly interacting or interdependent group of items forming a unified whole”¹ that for human endeavors might work toward a common purpose. The International Council on Systems Engineering offers this more technical definition:

A system is a construct or collection of different elements that together produce results not obtainable by the elements alone. The elements, or parts, can include people, hardware, software, facilities, policies, and documents; that is, all things required to produce systems-level results.²

We, today, are familiar with large systems in our own lives, although we might not be aware of it. We refer without thinking to the local transit *system* or the air traffic control *system*, and the more recent computer operating *system* and information *system*. In most cases, it is not important to understand the system to use it. For instance, most rail commuters are unaware of the complexity of the mechanics occupying the underside of a passenger car or the intricacies involved in scheduling trains, but someone studying the transit system might wish to acquire some familiarity with its complexity.

For this paper, an army will be identified as a system, and warfare will be defined as conflict between two opposing systems, although it is not normally presented as such. Each system, be it an army or even a naval fleet, comprised numerous parts, such as (depending on the era) archers, lancers, infantry, cavalry, generals, artillery, admirals, destroyers, aircraft carriers, and so forth, each with its own organization and command structure. A battle involves the success of one system over another where location and time are favorable to one system's capabilities over the other, with few guarantees that identical circumstances can ever be repeated.

A good example of this occurred December 7, 1941, when the Japanese system of naval warfare was superior to the corresponding American system stationed in the Pacific Theater. Important warnings occurred prior to the attack on the American Naval Base at Pearl Harbor on Oahu, Hawaii, for which there were no procedures to process them. The first were reports from destroyers that fired upon midget submarines, which were received at command centers but which Admiral Husband Kimmel, Commander of the Pacific Fleet at Pearl Harbor on Oahu, never saw.

The other warning came from the Army radar station at Opana Point on northern Oahu. The operators reported a large return on their scope north of Oahu indicating many planes approaching the island and were told by the officer at the communications center not to worry because American bombers were due in. Both the army and navy warning systems were deficient: in fact, they were not set up to inform each other of enemy sightings. These defects effectively negated any efficiencies in early radar detection (although officers should have been aware of the British successes with radar in the Battle of Britain and with torpedoes against Italian battleships at Taranto harbor in Italy in 1940). Coupled with superb planning, secrecy, and execution by the Japanese, the unheeded warnings contributed to the U.S. Pacific Fleet being caught by surprise at Pearl Harbor.

The situation six months later was considerably different. Navy cryptologists had broken enough of the Japanese Navy's JN-25 code to indicate fleet movements and dates; consequently, the Japanese were stopped in May at the Battle of the Coral Sea and defeated decisively at the Battle of Midway in June. For these battles, the Navy's response to intelligence was swift and efficient. Although the Japanese carrier system had more experience and better aircraft, the limited experience of the American carrier crews and pilots was enough to win the battle. The Japanese naval system remained somewhat static, whereas the American naval system had improved considerably.

Curiously, a systems approach had been anticipated in Civil War literature at least as early as the 1930s but might not have been recognized as such. One author who suggested this is Douglas Southall Freeman, who, at the beginning of his post-mortem chapter on the Battle of Gettysburg in *Lee's Lieutenants*, wrote that this campaign (italics added for comparison below)

...provokes the warmest, longest debate because it is in bewildering contrast to the operations that preceded it. While this makes almost any intelligent review of the operations intriguing, every reader must be cautioned at the outset that there is no “secret” of Gettysburg, no single failure which, if ascertained and appraised justly, “explains” the outcome. *A score of circumstances, working together, rather than any one, wrought a major Confederate defeat.*³

He then ascribes the defeat to the reorganization after Chancellorsville, the physical limitations on the Army of Northern Virginia (ANV) in terms of its supplies and five-mile-long line, and “the skill, position, and might with which the Army of the Potomac (AOP) defended on the 2nd and 3rd of July a position of natural strength.”⁴ He continued (italics added for comparison below):

As this review proceeds now to examine the principal moves in their chronological order, it will be observed that all the Confederate errors of overconfidence, bad organization and inept leadership were aggravated by the factors of chance and circumstance which the Federals, *for the first time in the long contest of the two Armies, were in position to capitalize fully.*⁵

Another offering is Fletcher Pratt’s *A Short History of the Civil War: Ordeal by Fire*, first published in 1935. It is a short, fast-paced book, which does not go into the same detail and analysis as Freeman. For these reasons, it does not normally appear in bibliographies of more expansive works, but it has insights that every modern student of the battle might wish to read. First, Pratt compared General George Pickett’s Charge with Lee’s generalship in battles prior to Gettysburg, and summarized it to be in character:

It was not merely that the movement was too bold, or wrong in a technical, chess-game sense; the maneuver around [General John] Pope’s flank at Second Manassas was just as bold, the encircling columns at Savage Station were just as bad tactically, [General Thomas] Jackson’s sweep at Chancellorsville was positively foolhardy—but all of them succeeded brilliantly.⁶

He then offered this about the Union side of the battle:

It was not Meade he underestimated but the Army of the Potomac, the Northern people, the thing he had failed to comprehend from the first. For if any one fact

emerges from the tangled account of Gettysburg it is this—that the Union victory was achieved by no one man, but by the cooperation of a large number of men, each appearing, as though by a miracle, in exactly the right place.⁷

He continued further by describing the appearance on the first day of the battle of Generals John Reynolds, Abner Doubleday, and Oliver Howard, each of whom independently did exactly what was required at the right time. He then mentioned General Gouverneur Warren and the V Corps on July 2.⁸

Pratt then presented his offering on why the battle was a Union victory (italics added for use in later discussion):

The stars in their courses fought against the Confederacy, right on through any line not held by [General Winfield] Hancock. *Such a chapter of coincidence is impossible; when accident is repeated a dozen times the accidental explanation will no longer serve and we must look further.*

[At Chancellorsville, General Joseph] Hooker had been trying to manage the complicated attacking maneuver; *Meade was not only a better soldier, he also had a simpler problem...Lee attacked him at every point in succession; all he had to do was keep a clear head and stand his ground...*The appearances of Reynolds, Doubleday, [General Judson] Kilpatrick, and the others at the right moments were not accidents but incidents; the Union infantry was full of generals who knew how to take advantage of the ground, the cavalry was loaded with valiant youths. What Lee attacked at Glendale was an armed mob; what he attacked at Second Bull Run was a group of quarrelsome old men; at Chancellorsville, he attacked a man; *but at Gettysburg he came into collision with a system. The Army of the Potomac had developed to such an extent it no longer needed brains; it needed only someone to see that it did not fall over its own feet, which Meade was quite capable of doing.*⁹

In his introduction to a later work, written in the same style, *The Battles That Changed History*, Pratt wrote:

Viewing a wide and accidented landscape, it is sometimes necessary to half close the eyes to determine what are the most important features involved. If one is to make any sense of history as a whole, the process is somewhat similar. Putting in all details and qualifications adds up to accuracy and is indispensable for analysis, but often leads to analysis of minor features only and prevents the perception of the really outstanding features, around whose sides cluster so liberal an accumulation of minutiae.¹⁰

(...)

Far more serious for the West was the Islamic drive up the Danube valley, where the Turks had developed not only a better military system than any Islamic predecessors, but a military-political system capable of indefinite expansion.¹¹

Pratt applies the idea of “system” throughout this book. For example, about the Battle of Beneventum in 275 B.C., the last battle of the Pyrrhic Wars between the Romans and the Greeks, led by King Pyrrhus, he wrote,

By the time Hannibal arrived, Rome knew all about dealing with geniuses; Pyrrhus had taught them. You tightened your belt, raised another army, and ultimately found a commander who, if not a genius himself, could hold genius in check until the supports were cut from under it by the ceaseless pressure of the Roman system...That is, the Romans had achieved a military-political system that was incomparably stronger and more resilient than anything Greece or the East could produce.¹²

It is interesting to note that Gettysburg is not among Pratt’s 16 battles that changed history, but Vicksburg is.

Thus, Freeman and Pratt unknowingly ventured into the area of systems analysis, which was not in common usage in the 1930s or 1950s, when their books were published, as the word “systems” had not been used as such until the early 1940s.¹³ Freeman’s opinion was that there was no “secret” or “single failure” for the Confederate loss, that it was the result of many circumstances working in concert. Pratt’s view was to analyze an army as an entity and to try to conclude why the *whole* worked rather than to concentrate on smaller *parts*. For example, it is insufficient to simply state that Union generals arrived at the right time and place: one must look for a reason deeper than coincidence. This might have been the first time that such an analysis had been applied, albeit it unwittingly, to a Civil War battle. As will be shown, the systems approach can offer explanation for the performance of both armies.

As a postscript to the historiographical evidence for references to the systems approach, opinions from two prominent World War II (WW2) generals serve as good introductions. The first is from German General Erwin Rommel. In discussing with another general the defense of France prior to the Allied invasion, he said,

Our friends from the east [German generals fighting the Russians] cannot imagine what they are in for here. It's not a matter of fanatical hordes to be driven forward in masses against our line...Here we are facing an enemy who applies all his native intelligence to the use of his many technical resources...It's obvious that if the enemy once gets his foot in, he'll put every anti-tank gun and tank into the bridgehead and let us beat our heads against it, as he did at Medenine [North Africa]... Dash and doggedness no longer make the soldier...he must have sufficient intelligence to enable him to get the most out of his fighting machine.¹⁴

Rommel was warning the generals not about specific generals or weapons, but about *how* the Allies fought, i.e., their system of warfare.

The second opinion is from American General Dwight Eisenhower. In his memoirs *Crusade in Europe*, he describes the logistical effort before the invasion of Sicily in July 1943. After discussing the Landing Ship, Tank (LST) and the DUKW ("Duck") amphibious vehicle, he wrote,

Incidentally, four other pieces of equipment that most senior officers came to regard as among the most vital to our success in Africa and Europe were the bulldozer, the jeep, the 2½-ton truck, and the C-47 airplane. Curiously enough, none of these is designed for combat.¹⁵

Eisenhower here was not discussing the fighting abilities of allied weapons, but the logistical system behind the combat arms, a major part of the Allied system of making war. It seems obvious that both Rommel and Eisenhower independently understood the concept of system as it applied to war.

Almost every book on Gettysburg includes a section or chapter analyzing the battle. These lists of reasons mostly include individual achievements, errors, or mishaps

on both sides that led to the Union victory. One of the best examples of the non-systems approach to analysis of this battle is offered by Scott Bowden and Bill Ward in *Last Chance for Victory*. In this book, the authors claim that historians have misunderstood all of Lee's actions and that they can be explained by his upbringing and his military training and experience.¹⁶

Bowden and Ward present a list of 17 reasons for the loss. As examples, the top three are:

1. The breakdown of the July 2 echelon attack and the wounding of General Dorsey Pender.
2. General Richard Ewell's failure to pursue with Second Corps on July 1.
3. The wounding of John Bell Hood early in the fighting on July 2.

The first Union reason does not appear until Number 8: The sacrifice by the Federal First Corps on July 1.¹⁷

Examination of the 17 reasons produces these statistics. Note that there is some overlap between the categories:

Number related to Confederate setbacks:	13
Number related to Federal deeds:	4
Number stating a general's name:	13
Number involving organizational issues:	7

First, ascribing the battle's outcome mainly to Southern hardships (13 reasons out of 17) ignores and denies Union achievement at all levels in that outcome. Second, and more important, at no time do they offer an *underlying* agent or basis for so much Confederate misfortune. This is where the systems approach can offer an alternate analysis method.

The Confederate loss at Gettysburg, coming on the heels of a long string of victories over the Army of the Potomac, lends itself to analysis of the two armies' command systems and their operation in that battle. Command systems are not interchangeable and differences in them might contribute to victory or defeat. For instance, late in WW2, most panzer divisions were under the personal control of Adolf Hitler. German generals in Normandy often could not move a panzer division without Hitler's approval: this is the equivalent of General Eisenhower requesting approval from President Franklin Roosevelt for the same action. This absurd command arrangement had dire consequences for Germany on both the Eastern and Western Fronts and many divisions were lost because Hitler refused to issue the command to withdraw and the local commanders could not do so on their own authority.

SELECTION OF THE MAJOR COMMANDERS

After the Battle of Chancellorsville, Lee was at the pinnacle of his career. He had soundly defeated a Federal army twice the size of his by splitting his smaller army twice, almost anathema in the face of a larger army. It was bold, and its effectiveness was enhanced by coincident ineffectiveness of General Joseph Hooker, commander of the Army of the Potomac at Chancellorsville. However, General Thomas J. "Stonewall" Jackson, the more notable of Lee's two corps commanders, was wounded in the battle and died one week later: Lee had to replace him. Lee decided that it was time to re-organize the Army of Northern Virginia into three corps from the original two.

Some of Freeman's specific contributions to historians are his exhaustive accounts in *Lee's Lieutenants* of Lee's process of analyzing his command structure after major

battles and campaigns to replace commanders killed, wounded, or incompetent. This process determined which colonels and generals were promoted and remained in the Army of Northern Virginia, which ones were not promoted but remained, and which ones were deemed incompetent and given other assignments. Freeman's accounts are often extensive. For instance, after his account of Jackson's funeral in May 1863, he spends 26 pages describing the reorganization of the Army, starting with Lee's cogitation in choosing Generals Ewell and Ambrose Powell Hill as corps commanders and for other commanders down to brigades.

What is clear from reading these accounts after other battles is that Lee put considerable thought into the selection of his generals down to the brigade level, who were recommended to the Confederate States War Department for approval. Infantry officers selected for promotion *by Lee* after Chancellorsville include:

To corps commander: Major Generals Ewell and Hill.

To division commander: Brigadier Generals Henry Heth, Edward Johnson, Pender, and Robert Ransom, Jr.

To brigade commander: Colonels John Gordon, John M. Jones, Alfred Scales, George Steuart, and James Walker.

Retained as temporary brigade commanders but were not promoted: Colonels Edward O'Neal and John Brockenbough.

In addition, Lee reorganized the Army's Reserve Artillery, which never numbered more than three or four battalions, and distributed its guns among the three corps. Each corps had its own artillery reserve. General William Pendleton retained his rank and position on Lee's staff as titular and administrative Chief of Artillery, although he directly

commanded no guns. This reorganization occurred because Lee judged Pendleton incompetent for this high-ranking position, especially in combat, although Lee felt constrained to retain him with the army. President Jefferson Davis, Lee, and Pendleton graduated from West Point in 1828, 1829, and 1830, respectively, and Davis's respect for Pendleton prevented Lee from requesting his removal or transfer. Finally, Lee kept General James (Jeb) Stuart as commander of the cavalry division of six brigades and added the independent cavalry brigade of General John Imboden to the Army although it was under the direct command of Lee.¹⁸ All three of Lee's corps commanders were graduates of the United States Military Academy at West Point, as were Stuart and Pendleton.

In summary, General Lee went into the Pennsylvania campaign with two new corps commanders (out of three) and three new division commanders (out of nine, General Ransom stayed in southern Virginia), all his choosing after a careful selection process. He had also reorganized his reserve artillery to minimize the effect of one person who should not have been with the army in his assigned position of Chief of Artillery.

On the Federal side, Meade had competently commanded the Federal V Corps at Chancellorsville and covered the retreat of the Army of the Potomac across the Rappahannock River. In the ensuing Gettysburg campaign, after Hooker resigned from command, Meade was ordered to take command of the army on June 28 in Frederick, Maryland. Appearing often at this point in many narratives is something like "which was three days before the battle," but this is hindsight. The Battle of Gettysburg was not scheduled in advance: although Meade was aware that a battle was probably in his immediate future, he did not know when, and all he could do was to prepare as well as he could.

Meade assumed command in the middle of a campaign just as Lee had done the previous year outside of Richmond. As with Lee in June 1862, Meade at first had no choice but to maintain the command structure and staff he inherited. Therefore, unlike Lee in the Pennsylvania campaign, who had chosen his commanders as painstakingly as time permitted (between Chancellorsville and the start of the campaign in early June), Meade entered the battle with a set of corps commanders and staff chosen by others. Not only did he not choose them, *but he had no part in choosing them*. Of course, Meade knew the other corps commanders, some (such as General Winfield Hancock and Reynolds) better than others, but knowing them as equals is not the same as judging them for command.

Halleck's order to Meade granted him discretion as to his commanders:

You are authorized to remove from command and send from your army any officer or other person you may deem proper; and to appoint to command as you may deem expedient.¹⁹

Despite this, he took no time to change this command structure, but rather plunged forward with his new job of doing battle and defeating the Confederates.²⁰ This must surely rank as Meade's first major decision of the campaign as army commander and arguably is one of his better decisions.

The Army of the Potomac was organized into seven infantry corps, one cavalry corps, and an artillery reserve. The assignments of its infantry corps commanders in chronological order are:

<u>GENERAL</u>	<u>UNIT</u>	<u>ASSIGNED</u>	<u>DURATION</u>	<u>AOP CMDR</u>
Henry Slocum	XII Corps	Sep. 1862	9 months	G. McClellan
John Reynolds	I Corps	Sep. 1862	9 months	G. McClellan

John Sedgwick	VI Corps	Dec. 1862	6 months	A. Burnside
Daniel Sickles	III Corps	Feb. 1863	4 months	Hooker
O. Howard	XI Corps	Apr. 1863	3 months	Hooker
W. Hancock	II Corps	May 1863	1 month	Hooker
George Sykes	V Corps	June 1863	0 months	Meade ²¹

It should be noted that General Sykes *assumed* command of the V Corps (by default, seniority, and the army commander's approval) after Meade was ordered to take command on June 28. (In some cases, short, temporary assignments as corps commander prior to full, permanent appointment as corps commander are *not* included in the above durations.)

Command of the cavalry and artillery in chronological order were:

<u>GENERAL</u>	<u>UNIT</u>	<u>ASSIGNED</u>	<u>DURATION</u>	<u>AOP CMDR</u>
Henry Hunt	Artillery	Sep. 1862	9 months	McClellan
A. Pleasonton	Cavalry	May 1863	1 month	Hooker ²²

General Henry Hunt was a recognized expert who had trained artillery officers prior to the war and co-authored an artillery manual used by both sides during the war. Hunt commanded the Artillery Reserve at Antietam and Fredericksburg, but Hooker removed the reserves from his command prior to Chancellorsville, thus reducing Hunt to a titular position on Hooker's staff like Pendleton on Lee's. After the defeat, Hooker re-instated Hunt's command of the Artillery Reserve, and Meade inherited Hunt in this position. (Hooker's reduction and re-instatement of Hunt might be the reason that Meade placed emphasis on ordering Hunt to take charge of the artillery, to clarify that Hunt was in charge and that he, Meade, trusted him.) General Alfred Pleasonton had commanded the Federal

cavalry at the largest cavalry battle of the war at Brandy Station, Virginia, on June 9, 1863, but he otherwise had few outstanding successes or distinction while serving in that role.

The durations in command for the Federal and Confederate commanders tell more of the story. First, Lee, with 12 months in command, far exceeds Meade's zero months (three days) in command. From the table above, the total duration in command for the seven infantry corps commanders is 32 months (including Sykes for completeness and to avoid bias), producing a mean duration of 4.6 months. For the three Confederate corps commanders, the computation is simple: General James Longstreet had 12 months in command of half the army (wing and corps) and Ewell and Hill had one month each, for a total of 14 months. This produces a mean of 4.7 months.²³ On the surface, it would seem as if the two groups of corps commanders were on roughly equal footing. However, a closer look at the numbers shows that in the ANV, the bulk of the corps command experience is concentrated in Longstreet. For the Federals, it is dispersed among seven infantry corps commanders with a similar concentration in Slocum and Reynolds, each at nine months. However, rather than a sharp drop from nine to zero, the durations decrease slowly down to Sykes with zero.

These differences in concentration of experience can be shown in a table combining the experience of corps commanders from both armies (Confederate generals in italics):

<u>GENERAL</u>	<u>ARMY</u>	<u>ASSIGNED</u>	<u>DURATION</u>
<i>Longstreet</i>	<i>ANV</i>	<i>Jun. 1862</i>	<i>12 months</i>
Slocum	AOP	Sep. 1862	9 months

Reynolds	AOP	Sep. 1862	9 months
Sedgwick	AOP	Dec. 1862	6 months
Sickles	AOP	Feb.1863	4 months
Howard	AOP	Apr. 1863	3 months
Hancock	AOP	May 1863	1 month
<i>Ewell</i>	<i>ANV</i>	<i>May 1863</i>	<i>1 month</i>
<i>Hill</i>	<i>ANV</i>	<i>May 1863</i>	<i>1 month</i>
Sykes	AOP	June 1863	0 month

These numbers show that whereas the average experience over both sets of corps commanders is roughly equivalent at 4.6 months, *more* Federal corps commanders had *more* experience as corps commander than their Confederate counterparts. Accounts of the battle often highlight the relative inexperience of Ewell and Hill as corps commanders but fail to highlight the relatively higher level of experience of the Federal set.

Also, the Army of the Potomac was not free of political considerations. Just as Lee felt constrained in his dealings with Pendleton, Meade was stuck with General Sickles, the only Federal corps commander at Gettysburg who did not graduate from West Point. Sickles was a New York lawyer, Tammany Hall politician, congressman, and political survivor. Although he cared enough for the Union to join the army, he had a special concern for Dan Sickles: his skill at self-preservation was obvious, vulgar, and well known throughout the public, government, and army. Sickles, however, proved an able, but cantankerous, commander, who, upon hearing of the battle developing in Gettysburg, promptly ordered most of III Corps to the roads from Emmitsburg toward the town.

General Meade also inherited another non-West Point political appointee, chief of staff General Daniel Butterfield. Both Butterfield and Sickles were political cronies with Hooker: as with Lee, Meade was also the recipient of a system with politically-connected officers, and he was not a participant in their assignment.

However, Sickles was a Democratic politician who supported the war, a rare occurrence, and Republican President Abraham Lincoln was happy to keep him in command. And unlike General Pendleton, who retained his title under Lee while officially commanding nothing, in June 1863 Sickles commanded a corps of approximately 10,000 men. That said, he had proven to be adequate at leadership in battle, and given the immediacy of the campaign, Meade was stuck with him. Thus, both army command systems had commanders of considerable position whose status was based largely upon their political standing.

Two features of the Federal command system stand out. First, the army's infantry was divided into seven parts as opposed to the Confederate three. This meant that on average, each Federal corps commander led fewer men than the Confederates. For example, the largest Federal Corps, the Sixth, had approximately 15,000 men, but this was still smaller than any of Lee's three corps on July 1. This had the effect (whether intended or not) of minimizing the consequence of an ineffective or wounded corps commander. It had the accompanying effect of producing more division commanders because within its seven infantry corps, the AOP had 19 divisions, 10 more than the ANV.

The larger number of corps and division commanders afforded more officers experience in high command and more opportunities for command as generals were transferred, wounded, or killed. One might think that the larger Confederate corps and

divisions would be superior on-the-job classrooms, but the lessons are similar whether the division comprises 4,000 men (Federal) or 8,000 (Confederate). Thus, on July 1 when Reynolds was shot and killed in mid-morning, ranking division commander Doubleday took command immediately, and he was competent enough to keep I Corps coherent through its day-long battle, to retreat through the town, and to reform on Cemetery Hill. The AOP had other experienced corps commanders in Hancock, Slocum, and Sedgwick. Had the same misfortune happened to the ANV in the death or wounding of Longstreet, the situation would have been much more serious to Lee.

Upon hearing of Reynolds's death that morning, Meade ordered Hancock to ride into town and take command of the left wing of the army that Reynolds had commanded. The loss of Reynolds, highly regarded in both armies, was a severe blow to Meade's command, but with seven corps, he found an outstanding replacement in Hancock. That night, Meade replaced Doubleday with General John Newton, a division commander from VI Corps, whom he knew better than Doubleday and with whom he felt more comfortable commanding a corps.

Second, no single general selected all Federal corps commanders, but in aggregate, events in the battle would show that most of them performed well: as with the Confederates, all had proven themselves as division commanders. It is curious that the three previous army commanders—George McClellan, Ambrose Burnside, and Hooker, who had chosen directly six corps commanders and one indirectly (Sykes)—had each been defeated by Lee (although McClellan stopped Lee at Antietam). It is unknown whether McClellan, Burnside, and Hooker deliberated over their choices as much as did Lee (according to Freeman), but Meade clearly could not. It appears that somehow, three Federal generals

whom Lee defeated over a period of nine months chose a set of corps commanders (and the army commander) who, for the most part, did what was required of them to win at Gettysburg.

In contrast, the command system that Lee carefully crafted over a year failed to prosecute Lee's battle plans. This does not imply a superior design in the Federal selection of corps commanders, only that the Confederate command system, which failed, was designed largely by General Lee, and *that* cannot be denied in assessing the command systems of the two armies. Therefore, the assignment of blame solely to Lee's officers for the defeat *without* assigning blame to Lee is incomplete and possibly disingenuous because the command system that failed was his own creation, a concealed fact possibly not revealed until this analysis.

SUMMARY OF THE TWO COMMAND SYSTEMS IN THE BATTLE

Having established the different methods of development of the two command systems, the next step is analyzing how well they performed. In theory, each system should have performed in accord with its commander's orders. The Confederate command system should have performed particularly well because its officers had served under Lee for the past year, and this should have produced a synergy among the ANV's many parts. This did not occur, however. At this point it is important to state the criteria used to judge the performance of the command systems of the two armies at Gettysburg.

As stated in the introduction, this paper does not intend to rate generals. Although a natural part of human nature, it is almost always subjective and sometimes vicious and should have no place in a discussion of a singular battle. After an examination of the

selection of the generals and their experience, what occurred during the battle is the last part open for study. What generals decided and did, *is* legitimate territory for investigation, *not as pointers for individual blame*, but as indicators of how well each system executed. Given this, the criterion is: How well did the systems function in *this* battle?

By late June, the ANV was stretched out in the Keystone State behind the Blue Ridge from the Maryland border to the Susquehanna River across from its capital, Harrisburg, and east to York. The AOP under Hooker maintained the inside track between the ANV and Washington-Baltimore.

June 28. Significant command decisions this day include:

a. Meade was ordered to command the army and decided to continue the pursuit of the Confederates and to do battle with Lee if the opportunity arose. He sent couriers to determine the location of the other six corps, then planned for all seven corps to continue into northern Maryland on roughly parallel routes. He promoted three promising cavalry captains to brigadier general: Elon Farnsworth, Wesley Merritt, and George Custer. Meade planned for a fallback defensive position, the Pipe Creek Line in Maryland, a prudence unfortunately misinterpreted by malcontents as an indicator of his supposed lack of aggressiveness.

b. Lee had received no reports from Stuart, who was absent. Lee had ordered him twice to remain on Ewell's right: Stuart failed to do this. Stuart ended his two-day crossing of the Potomac. Upon crossing, he proceeded northeast because the Federal army was to his north and west and he could not ride through it. Eventually this route allowed him no route to contact Lee, thus providing Lee with no intelligence whatsoever.

June 29. Significant command decisions this day include:

a. Having heard on the night of June 28 from Longstreet's scout Harrison that the Federal army had crossed into Maryland with a new commander, Lee ordered all divisions to converge on the Cashtown-Gettysburg area and not to force a general engagement until the entire army was concentrated. Despite not hearing from Stuart for days, Lee recalled no other cavalry units to seek out the AOP's location, even though Jenkins's Brigade and the 35th Virginia cavalry battalion were with Ewell.

June 30. Significant command decisions this day include:

a. Having received orders from Meade through Pleasonton, General John Buford's cavalry division entered Gettysburg. Buford surveyed the town, the terrain, and sent patrols out on all roads west, north, and east of town to seek out the ANV, which he was certain was converging on that place. He reported his findings to Pleasonton and Reynolds. The latter responded with orders to hold the town until infantry arrived, and the infantry would make haste to relieve Buford. Buford was certain that the attack would come at the next dawn. On the Cashtown Road leading west, his videttes were as far as three miles from town.

b. General James Johnston Pettigrew's Brigade of Heth's division approached the town from the west and observed Buford's cavalry. Heth and Hill rebuffed Pettigrew's accurate report because they did not know him, a non-West Pointer; they believed the observed forces to be local militia or home guard and therefore not a match for the Confederates. Even after Pettigrew's assistant adjutant general, Captain Louis Young, explained what he saw, Hill and Heth were still not convinced:

“This spirit of unbelief had taken such hold,” Young wrote, “that I doubt if any of the commanders of brigades, except General Pettigrew, believed that we were

marching to battle, a weakness on their part which rendered them unprepared for what was about to happen.”²⁴

The casual attitude of Hill and Heth caused the brigades of the latter to expect light resistance when they entered town. This improvident attitude was passed to General James Archer, whose brigade would be the first infantry brigade in the column on the morn.²⁵ Pettigrew briefed Archer on the topography of the town, especially the ridges west of town and their suitability for defense where the enemy would most likely be met; however, per Young, “Archer listened, but believed not [and] marched on unprepared.”²⁶ There is accusation years later that Hill sent Heth into the town the next morning “just for an adventure.”²⁷

July 1. Significant command actions this day include:

a. Heth’s division approached the town from the west. A measure of his unpreparedness is that his column was led not by infantry, but by an artillery battalion.²⁸ Buford’s initial line of videttes awaited Heth near Marsh Creek and skirmished with the Confederates. Heth deployed the brigades of Generals Archer and Joseph Davis from column of march to line of battle, a maneuver taking upwards of one hour, which played right into Buford’s plan of delay. Buford’s cavalry fought and fell back eastward from ridge to ridge, delaying Heth all the way back to McPherson’s Ridge.

b. The First Corps arrived around mid-morning with Reynolds personally ordering brigades into action, singly as they appeared. After Reynolds was killed, Doubleday took command of I Corps for the rest of the day. Howard arrived with XI Corps soon after: he ordered a division onto Cemetery Hill and sent his remaining divisions north of the town.

c. Despite orders from Lee to avoid a general engagement, his generals started one anyway. Doubleday and Howard held out for hours until forced to retreat through the town into the hills beyond, pursued by Hill and Ewell. Despite initially disobeying Lee's order (which Lee modified in mid-afternoon, ordering all units to attack), Heth, Pender, Rodes, and Early carried the day. At one point, Lee ordered Pendleton to lay fire on Cemetery Ridge to hit Federal soldiers fleeing there; he found a suitable location, but kept his guns "in park," meaning that they were not deployed. He decided that firing artillery alone would be useless, so he disobeyed Lee's order; in short, he failed.²⁹

d. Upon hearing in early afternoon that Reynolds was killed, Meade immediately ordered Hancock to go to Gettysburg and take command. He arrived in mid-afternoon (between three and four o'clock), and he reformed the army around the Culp's Hill-Cemetery Ridge arc. His II Corps started to arrive in late afternoon. By then, the Federals had retreated through town to the hills south and east. Slocum's XII Corps sat at Two Taverns (four miles southeast of town on the Baltimore Pike) throughout the afternoon even though Slocum received requests for reinforcement from Howard (XI Corps). He marched onto the battlefield in late afternoon.

Sickles's III Corps had been ordered to Emmitsburg to protect the army's left and rear. Hearing guns to the north, Sickles ordered most of his corps toward Gettysburg before receiving Meade's order to do so. However, Sickles did leave two brigades and two batteries behind in that place to guard the army's rear. Buford's troopers tended to the army's flanks and continued to scout all approaches to town and offered the local commander vital information on Confederate activities. That night Sickles ordered his rearguard from Emmitsburg to Gettysburg.

e. Lee ordered Ewell to take Cemetery Hill “if practicable.” However, Ewell deemed that Cemetery Hill too strong to take without support from Hill, whose two divisions (Anderson and Pender) were already in bivouac recovering from heavy losses (on orders from Lee). Besides, Lee’s orders were to avoid a general engagement, and his corps fought all day; Ewell decided to stay put. The battle that Lee ordered his commanders *not* to start involved about 25,000 Confederates and 20,000 Federals.

July 2. Significant command actions this day include:

a. Meade arrived from Frederick after midnight; his generals assured him that his army had the best ground on which to fight a battle. He ordered Hunt to see to the artillery, one of the best decisions on either side. Observing his ground in the morning, he decided to stay put and let Lee attack him. Later in the morning, General George Greene of XII Corps, an experienced civil engineer, ordered his brigade to construct breastworks on Culp’s Hill (emulating the Iron Brigade on the same hill) even though his division and corps commanders were uninterested. This is one of many cases where Federal officers acted on their own initiative.

b. Thinking that the Federal positions were too strong, Longstreet proposed to Lee that the army disengage and move to the south and east in a wide turning movement to force Meade out of his positions. Lee deemed this unacceptable because he lacked reconnaissance from Stuart and he thought that the entire Federal army had not yet arrived.

c. Lee ordered two reconnaissance missions of the Federal left along Little Round Top. He then met with his generals early for his plan of attack, which was for Longstreet’s divisions of Hood and McLaws to attack obliquely from the southwest along the Emmitsburg Road, which Lee believed was the end of the Federal line. The attack was to

then continue along Hill's front. At this meeting and in full view of subordinates, Longstreet openly disagreed with the positions Lee had assigned McLaws on the map. Lee overrode him. McLaws appeared unsatisfied with the reconnaissance missions Lee had ordered and offered to lead one himself; Lee rebuffed this too. However, Lee did honor Longstreet's request to wait for Law's Brigade of Hood's division to arrive.

d. Having disobeyed direct orders from Meade as to where his corps should be, Sickles removed his III Corps from the Federal line near the hills to the Emmitsburg Road. It formed a salient pointing directly to Longstreet's positions. Meade sent Warren to the top of Little Round Top to evaluate the situation: Warren suggested a division be moved to the hillock. Meade ordered V Corps on the Baltimore Pike near Powers Hill to support Sickles. Hunt also supported Sickles with artillery along parts of the salient, and although effective, they ultimately had to withdraw due to later pressure from McLaws.

e. By three, when Hood and McLaws started to fill their starting positions, they noticed Sickles's corps ahead of them. Lee altered the plan from an oblique attack to an attack "en echelon" starting with Hood's Division and moving north to include McLaws, and the divisions of Anderson and Pender, both of Hill's Third Corps.

f. Longstreet started the attack around four. The Confederate echelon attack was to start with Hood and continue through McLaws, Anderson, and Pender. The plan for the echelon attack did not define attack intervals for the brigades (at least there is no record of attack intervals), so Longstreet waited for opportunities to send in his brigades. Longstreet, using the discretion accorded him from Lee, consumed a large part of available daylight. Despite this, his brigades attacked with such ferocity that they damaged almost twice their number of Federal brigades.

g. With III Corps in its advanced position, the echelon attack hit it first at its base near Big Round Top and continued through the Wheat Field. Sickles was wounded by an artillery shell, and Meade and Hancock reacted promptly, sending brigades of all corps to the left flank. The largest unit to attack was General John Caldwell's division of Hancock's II Corps, and Caldwell conducted it efficiently. On Little Round Top, Chief Engineer Warren observed Confederates approaching with no Federals on the hillock: on his own authority, he ordered brigades from V Corps to dispute the hill with the Confederates. After repulsing repeated attacks by two of Hood's brigades, the Federals retained possession of the hill.

h. The attack moved from Hood's Division through McLaws's Division, and through Anderson's Division until it reached Posey's Brigade; then General William Mahone refused to move his brigade, which was next in line, despite direct orders from Anderson's staff officer. Generals Hill and Anderson were conspicuously absent during the attack. Pender rode south to Anderson's sector to investigate the delay in the attack, was wounded by shrapnel, and was carried off the field. (Pender's decision to ride south is not in question here because he was trying to keep the echelon attack going.) The next commander of his division, General James Lane, sent for instructions from Anderson, but decided independently that it was too dark to attack, effectively ending the echelon attack. Cemetery Ridge and the Round Tops remained in Federal hands.

i. On the other side of the fish hook-shaped line, Ewell launched diversionary attacks against Culp's Hill, which had been reduced to Greene's Brigade as units were removed to stop Longstreet's attack. The Federals defended the hill owing largely to Greene's foresight in constructing breastworks resulting in a force multiplier against three

Confederate brigades; reinforcements later in the day also assisted in Greene's defense. Despite this, however, by nightfall a Confederate brigade occupied the lower hump of its crest.

j. Unrelated to the day's fighting, General Stuart arrived in mid-afternoon with no information and 125 wagons of captured supplies. There is disagreement as to what Lee exactly said to Stuart, but it was clear that Lee was irritated with the lack of information that Stuart had had orders to provide.

July 3. Significant command actions this day include:

a. Meade met with his corps commanders after midnight. After some discussion, mostly of the state of their corps after two days' combat, Butterfield polled them, and they all recommended that the army stay and fight. Meade concurred and predicted that the next day Lee would hit the center of his line. Butterfield's poll haunted Meade as critics used it after the battle as an "example" of his indecisiveness.

b. Before sunrise, Slocum's corps launched a severe, determined attack to take the lower hump of Culp's Hill. General Johnson of Ewell's Corps began an attack almost simultaneously. By mid-morning, the Federals occupied the entire hill top.

c. Ignoring Lee's rebuff of his idea from the previous day, Longstreet informed Lee that he had ordered a reconnaissance of the area south of the Federal left, stating that the way was still open for a wide swing around to the south and east. Lee again told Longstreet that the army would attack the line again that day.

Without a group meeting, Lee also learned the state of his three corps. Suspecting that his supplies of ammunition were running low but that that of the Federals would correspondingly increase in the long term, he decided to attack that day. Pickett had arrived

in late afternoon on July 2, and it was the only fresh division in the army. With two other divisions, the attack would comprise approximately 13,000 men (estimates vary from 12,500 to 15,000). It would follow a massive artillery barrage of over 100 cannons concentrated on the center of the Federal line on Cemetery Ridge.

Lee intended initially to use Longstreet's three divisions, but Longstreet protested on two grounds: Hood and McLaws were seriously depleted from the previous day, and those two divisions were protecting the Confederate right. Lee agreed and offered brigades from Hill's Corps: Heth's Division (to be led by Pettigrew) and two brigades from Pender (to be led by General Isaac Trimble). Both replacement divisions had not recovered from their losses from the first day, resulting in two weak brigades on the left of the attack. Anderson would provide brigades to support the attack as requested by Longstreet.

d. Hunt spent the night seeing to the artillery, specifically the repair and refitting of cannons damaged the previous two days. In mid-morning, he observed Confederate batteries forming up from the Peach Orchard due north: he assumed that these guns were to either cover a retreat or prepare for an attack. In either case, his batteries would be prepared.

e. General Longstreet entrusted the placement of his guns to the commander of his corps reserve artillery battalion, Lieutenant Colonel Edward P. Alexander. He placed about 120 guns as required by Lee's plan. Prior to the bombardment, Longstreet, a lieutenant general, tried twice to transfer to Alexander, four grades below at lieutenant colonel, the responsibility to order Pickett to attack, based upon Alexander's assessment of the bombardment's effect on the Federal artillery. Alexander agreed to advise Pickett to attack but was confused by Longstreet's bizarre attempt to foist such an important order on

him. The infantry brigades formed in the trees on Seminary Ridge and its reverse slope and awaited the signal to attack.

f. Relentless in his desire to be prepared for anything, Hunt had inspected all batteries, arranged for the replacement of batteries from the reserve, and ordered all batteries to conserve ammunition for the upcoming infantry attack. The bombardment started around one in the afternoon and continued for upwards of 1.5 hours, depending on the source. Because of Hunt's conservation order, Federal artillery responded slowly. At the bombardment's aim point, two divisions of Hancock's corps, led by Generals Alexander Hays and John Gibbon, awaited the attack behind a low stone wall. The bombardments caused casualties on both sides.

g. The Confederate bombardment suffered from uncalibrated fuses (unknown to anyone in the army) causing its shots to go long and hit the Federal rear areas. It consumed most of the ANV's ammunition, but reloading was difficult because Pendleton moved the ordnance trains back during the bombardment. In addition, he moved to other points support howitzers promised to Alexander for the assault. He informed Alexander of none of these actions. Finally, the army artillery supply wagons had not yet entered Pennsylvania.³⁰ These actions under Pendleton's purview reduced the artillery support available for the assault.

h. The attack started around three and lasted about one hour. The three divisions advanced and were immediately beset by artillery fire from Cemetery Hill to Little Round Top. In performing its left oblique maneuvers, Pickett's right flank was hit especially hard. The three divisions converged on a one-half mile of front around a sharp angle in the Union line, which held. An Ohio regiment on the Federal right on picket duty fired on the

Confederate left and a Vermont brigade swung out from the Federal line and fired on the Confederate right, effecting a double envelopment. In both Federal actions, commanders responded with initiative to the opportunity presented them with no orders from Meade, who was coordinating reinforcements near his headquarters on the Baltimore Pike.

About 300 Confederates under General Lewis Armistead broke through the line, but Federal reinforcements arrived, and they were subdued. The attack was over, and the beaten soldiers returned to the Confederate line. They were met by Lee, who proclaimed that they had performed valiantly, and the attack was his fault. Lee met Pickett and ordered him to form his division for defense. Pickett told Lee that he had no division and continued walking.

i. Three miles east of town and north of the Hanover Road, Stuart formed his cavalry to attack the Federals by surprise. He started his “surprise attack” with cannon fire, which of course alerted the Federals, led by Custer and David Gregg, who mounted successive attacks against Stuart’s flanks. This fight lasted upwards of two hours: The Confederates failed, and the Federals stopped the Confederate incursion into its rear. Except for minor cavalry actions, the battle was over.

Meade did not counterattack after the charge, and both sides nursed their wounds. Lee evacuated the wounded the next day, July 4, and the combat arms on the fifth. Meade started a slow, cautious pursuit on July 6, and maintained this caution through the full pursuit days later. He did not attack the Confederates in strong positions with the swollen Potomac at their backs. On July 14, the last units of the Confederate army crossed the river, ending the campaign.

COMPARISON OF THE TWO COMMAND SYSTEMS

The comparisons below will exhibit no stark difference between North and South. There is no major error such as at Chickamauga when General William Rosecrans ordered the movement from the line of General Thomas Wood's division in the exact spot where Longstreet attacked. There is no complete command shutdown as with the Pacific Fleet at Pearl Harbor on December 7, 1941. Instead, both sides saw excellent performance from many generals, but in this battle, with the AOP command system reaching finally a level of competence deserving of its soldiers and material superiority, minor differences mattered.

For July 2 and 3, each army commander fought his own type of battle: Lee gave orders and did not interfere, and Meade, fresh from corps command, was active across the battlefield, especially on the second day. Both generals took pains to study the terrain and the enemy forces. However, both generals were mostly absent from the start of the battle, the morning of July 1 finding Lee in Chambersburg and Meade in Frederick. How the battle started in the absence of the two commanders offers clues of how the two command systems would function.

Stuart's absence set the stage for a battle, the result of not following orders. Lee compounded Stuart's error by waiting too long for him and ordering no mounted troops whatsoever to cover the army's right in Stuart's absence, for example, Imboden's Brigade assigned to Ewell. The disregard for orders in the ANV continued when commander after commander—Hill, Heth, Pender, Ewell, Rodes, and Early—all entered a battle despite

Lee's order not to start one until the entire army had formed. (To be fair, an alternate view is that all were very aggressive commanders trained and determined to take advantage of situations as presented. They were aggressive commanders, but Lee's orders were clear, and each one had to *independently* violate Lee's order to enter the fight. Had the Confederates won the entire battle on July 1, one could judge it differently, but all they did was push the Federals into a citadel almost impossible to breach.)

Hill seemed to have been nonchalant about his corps's entering the town and did not lead his corps into battle because he was not expecting one. When Lee found Hill in mid-morning, he was sick in his cot at the Cashtown Inn, about seven miles from the battle. In addition, Heth approached the town, potentially hostile territory, casually, his column led by artillery instead of infantry. It is important to note that Hill gave this most important task of entering a town with an enemy of unknown force to his least experienced division commander, Heth.³¹ In summary, on July 1, 1863, the entire command system of the Third Corps, from corps commander to infantry brigade commander on the scene, suffered from a collective delusion as to what faced it up the road.

It is also possible that Hill was in fact looking to start a fight rather than merely converge with the rest of the army per Lee's orders or search for footwear. After all, Hill's Corps was already in the Cashtown-Gettysburg area, as ordered by Lee, and need not have advanced beyond Cashtown, to wit:

Some other points are salient in considering the July 1 fighting. One is that Hill was tacitly, perhaps even covertly, looking for battle as well as for shoes. Ordinarily a full division is not employed for a foray or a reconnaissance, but in this case Hill consented not only to have Heth go to Gettysburg, but had Pender aroused by three o'clock in the morning with orders to follow him and give support. Yet the full intention was not made clear to General Lee.³²

Realizing that a battle had started despite his orders, Lee eventually ordered all units to attack, only to have Ewell and Pendleton decide eventually not to act. Despite these lapses, four divisions of the ANV dealt heavy blows to two corps of the AOP, and pushed them from the town and into the hills beyond.

As with the Confederates, cavalry set the tone for the Federals, albeit a positive one. Federal cavalry executed the scouting and screening for Hooker (and then Meade) that Stuart failed to provide Lee. Because of Buford's report, John Reynolds on the night of June 30 had a clear picture of Confederate divisions and their locations. Knowing this, he sent clear orders to Buford to hold the town. After Reynolds was killed, Doubleday took command readily and continued the battle. When Howard's XI Corps arrived, he assigned a reserve and fallback position. The forward position of his corps might have been extreme, and it was eventually outflanked, but it fought for hours before retreating to Cemetery Hill. Buford's cavalry on July 1 provides an object lesson on what cavalry should do in 1863.

The arrival of Hancock on Cemetery Hill at just the right time offered the disrupted Union soldiers perhaps the best general in the Union army to organize and inspire them. His arrival, reinforcements, and the terrain of Cemetery Hill were enough to dissuade Ewell from attacking that place. The arrival of II, III, and XII Corps in early evening and the later arrival by Meade established that the AOP would stay and fight despite its losses for the day.

Lee appears not to have lost circumspection prior to the battle, but it was certainly lacking among his generals. Lee somehow was not able to impress upon Stuart, Hill, or Heth the seriousness of this campaign. And Lee (and his staff in writing them) somehow

managed to issue orders that everyone seems to have misunderstood or deliberately disobeyed: converge at this place and start no battle. Lee's command system clearly had difficulty with his orders prior to and on July 1.

On the other hand, Meade had little chance to impress anything on his generals because of his short duration in command; however, given the history of the two armies, it seems clear that the invasion itself made an impression on them. Generals Buford, Reynolds, Doubleday, Howard, and Hancock all arrived on the field willing to fight. Of course, as the battle developed, Confederate commanders arriving on the field saw the battle's scope and fought with utmost skill and vigor, but the impairment had been done by the insouciance of many Confederate commanders at the start of the battle.

Therefore, for events leading up to and including July 1, Confederate commanders either misunderstood or disobeyed Lee's orders or approached the unknown with an exceptional irresponsibility. As a result, Hill was not present at the start of the battle and Heth, in his delusion about the forces in town, was initially unaware that he was attacking (and being manipulated by) first-line cavalry. Of course, Heth eventually deployed. In contrast, Federal commanders approached the battle following orders and with determination from the start. Specifically, Buford knew that he was in for a fight on July 1 and prepared accordingly. Neither side fought perfectly—Confederate Generals Archer, Davis, Iverson, and Federal General Francis Barlow, each made tactical errors and Slocum probably waited too long at Two Taverns—but when their heads cleared, the Confederates fought with their typical skill and fervor. In fact, despite its problems, the performance of the ANV's command system on July 1 without Lee was probably the best of the entire

three days. In the evening, Longstreet proposed a southward turning movement, which Lee rebuffed.

July 2 evinced more command friction between Lee and his officers. Longstreet again proposed a southward turning movement, which Lee again rebuffed, but Longstreet disagreed with Lee in the presence of other generals; this apparent insubordination acts as a barometer for the dysfunction of the ANV's command system. Ewell and Early had convinced Lee not to withdraw their Second Corps from its position to straighten the Confederate line and that their location was not the place for the main attack because of the terrain, but that diversionary attacks would be feasible.

On the Federal side, General Hunt required only one order from Meade to organize and deploy the artillery and its support and repair, a task at which he excelled and that he performed enthusiastically. (This corrected Hooker's grievous error in reorganizing the artillery away from Hunt before Chancellorsville and re-established trust in Hunt.) Meade personally placed corps and divisions into position, and there appears to have been no friction between the army commander and his corps commanders except one—Sickles. The III Corps commander twice defied specific orders from Meade's couriers on his corps' placement in his move toward the Peach Orchard.

Lee's echelon plan established no departure interval for the brigades, meaning that the entry of each brigade would be at the discretion of the two corps commanders. This was unwise considering that the attack would begin in later afternoon with only about four hours of daylight remaining. Having no planned attack intervals upset the staggered departure sequence on which the echelon attack depends. Worse, there was no mechanism for transferring control of the attack from Longstreet to Hill, and the attack was executed

with absolutely no command oversight from Lee or his staff. As a result, Longstreet, using the discretion afforded him, consumed approximately 2.5 hours of the approximately four hours available till darkness. The inexplicable inaction of Hill and Anderson and the inertia of Posey and Mahone defy explanation to this day. Pender seems to have understood the spirit of the attack, certainly more than Anderson, but his riding south to check on the pause resulted in his fatal wounding. Ewell eventually attacked Culp's Hill after Longstreet's attack began, but not immediately, and his repeated attacks were repulsed, although by night the Confederates controlled its southern hump.

General Hancock assumed command of the battle line south of Cemetery Hill when Meade was elsewhere. Unlike the inaction of Lee, Hill, and Anderson, Meade and Hancock actively led the defense, not only on the southern part of the battlefield, but also on the northern, where Culp's Hill, stripped of brigades to support the defense against Longstreet, held. For instance, Hancock sent the brigade of Colonel Samuel Carroll to Cemetery Hill to help defend against Confederate attacks there. Other corps commanders also took active parts in managing their divisions and brigades along the entire line. Other than Sickles's breach of orders, the Federal command system functioned with far less chafing than its Confederate counterpart.

July 2 offers a nadir for Lee's command system. In previous battles, not fulfilling Lee's orders could be attributed to inexperience, bad directions, delays in forming, weather, or to many other impediments that battle provides. One rarely finds a day in that war in which Lee's battle plans were questioned repeatedly, and in which he was openly confronted and mostly ill-served by many of his generals. His early morning reconnaissance missions were inaccurate when reported, and too old and stale to be useful

by mid-afternoon. His minimal command and control of the battle might be legitimately questioned, especially governing a three-mile line, an easy transit by horseback, and with two of his three corps commanders new to the job.

However, once the fighting started, Longstreet, Hood, and McLaws performed normally, and their men fought superbly. However, neither General Lee nor his staff provided any transfer of command of the attack from Longstreet to Hill; consequently, with Hill and Anderson, all remaining shreds of command and control almost disappeared and with them, the attack. The fatal wounding of Pender is a sad punctuation mark to the failure of Lee's command system that day. On the other side of the field, Lee's agreement with Ewell and Early committed that corps to fruitless attacks that attained almost nothing comparable to its casualties.

For the AOP, July 2 offers proof that the Federal command system was now functioning well. Meade had capable deputies in Hancock, Newton (Doubleday's replacement chosen by Meade on July 2), Sykes, Howard, Sedgwick, David Birney (Sickles's replacement), and Slocum. Each followed Meade's orders, but each operated independently when required. The initiative of Hancock and Sykes is notable for that day, in addition to that of several subalterns in the army such as Generals Caldwell, Greene, and Stephen Weed; Colonels Strong Vincent, Patrick O'Rourke, Joshua Chamberlain; Lieutenant Colonels Freeman McGilvery and Franklin Sawyer; and Captain John Bigelow, to name a few.

General Sickles's advanced deployment was admittedly a significant anomaly, but at least he moved his men *toward* the enemy, and it is notable that there was no formal attempt to court-martial him afterward. (The latter might be partly attributable to his

political connections and the administration's desire not to sully the Union victory with the court-martial of a general who lost a leg in the battle.)

July 3 opened with Slocum's pre-emptive attack on Culp's Hill, an act unexpected by the Confederates. Having decided to stay and fight, Meade travelled along the line to inspect defenses and observe Confederate activities. The center of his line was held by Hancock's II Corps, specifically the divisions of Hays and Gibbon, veterans like Hancock, who were not apt to cede ground to the enemy. Hunt continued his guidance to his battery commanders to conserve ammunition for the attack that might come later in the day. Hays and Gibbon served Meade well by withstanding the bombardment and repelling the infantry assault.

Lee was surprised by Meade's pre-dawn attack on Culp's Hill, but he had determined to attack again that day. However, Longstreet performed yet another reconnaissance of the Federal left flank even after Lee told him on July 2 that he had decided against that maneuver, and he again suggested his southward turning movement, and Lee again rejected it. Regardless, Lee ignored Longstreet's persistence and ordered his most experienced corps commander to lead the infantry assault. Although Longstreet was against the attack and suggested to Lee that it might not succeed, Lee had no other choice for the attack's leader: Ewell was on the other side of the battlefield and Hill was apparently again ill in his tent (at least there is no indication of where he was). Alexander served Lee well, but both were unaware of Pendleton's mishandling of the ammunition wagons and the supply train. Longstreet's attempt to shift responsibility for launching the attack to Alexander is inexplicable and indefensible.

Although the weak left flank of Longstreet's assault retreated first, overall, the generals and colonels leading the attack and their men performed heroically, but the weight of Federal numbers, artillery, and a command system reaching its stride were enough to repel them with great loss. With no commands from Meade, the Federal line held and even manage to hit the attack on both flanks, an attack formation akin to Hannibal's victory over the Romans at Cannae in 216 B.C. In short, the Federal command system, through the initiative of its commanders, produced a classic formation. Finally, after the attack, the shocked Pickett's walking away from Lee is perhaps the only record of an officer refusing a direct order from Lee.

In previous battles, Confederate errors and mishaps were always exceeded by those of the Federals, but at Gettysburg, the pattern reversed ever so slightly. Except for Sickles's questioning Meade's order on July 2, no corps commander is recorded as openly opposing Meade or disobeying his orders. When Federal officers displayed judgment or initiative, it almost always resulted in correct actions, and this string of successes continued down to colonels and even captains. On the other hand, Lee experienced from his generals unprecedented caution, indifference, ineptitude, confrontation, and even disobedience. Robert E. Lee's plans and planning met their match in the combination of an improved Federal command system and a failing Confederate command system, one of his personal design.

SUMMARY AND CONCLUSIONS

This paper examined the outcome of the Battle of Gettysburg from a systems standpoint. It proposed that the battle be studied in terms of the two command systems,

and not by the acts of individual generals. It offered examples of how the writings of two Mid-20th Century authors unknowingly bordered on this approach, which was not well known at the time of their writings.

The systems approach started with the discussion of the selection of the commanders of both armies. It continued with a chronology of major command decisions on the major phases of the battle and ended with a comparison of how the two command systems functioned during the battle. Analysis of the two army commands as systems (rather than as individual components) presented in this paper confirms that this approach offers a practical method for battle outcome analysis. Also, it continues the novel approach suggested by Freeman and Pratt.

A caution: the system analysis approach presented in this paper is investigative, and not predictive. Its primary purpose is to explain an event, and not to forecast. In sports, the operative forecasting phrase is “on paper,” as in “On paper, the Yankees are better than the Dodgers.” However, comparing two teams on paper before a game is often irrelevant once the game starts, and an upset requires explanation. In the case of Gettysburg, it is tempting to treat the Union victory as an upset or aberration rather than simply an event, mainly because, given previous experience, the Confederates looked better “on paper.” In contrast, the system analysis approach herein offers a method only for explaining the battle as a singular event with no regard to who “should” have won.

That said, several conclusions can be derived from this exercise:

1. Analysis of the command systems shows that the Confederate command system was suffering enough internal strain to render it less effective than that of the AOP *for that battle*, and that is all that was required. Federal corps commanders had more collective

experience than their Confederate counterparts. Confederate commanders approached the town carelessly, openly confronted Lee, and openly failed to perform duties.

2. Meade had almost no say in his command structure (except for replacing Doubleday with Newton). In contrast, Lee had almost total control of his for over a year. Attrition from previous battles is not solely to blame here either because both sides had to make up losses of good officers as the war continued.

3. The analysis of the two command systems offers an interesting approach to explain the battle's result. In the end, it mattered little how many Confederate victories preceded the battle. Neither did Lee's plan or performance matter because the command system to execute it was malfunctioning, starting with Lee and continuing down to brigade commanders. In short, it was not required that George Meade and his generals be brilliant, and few ever claimed them to be so. It was not required that Meade's plan be better than Lee's or even that Meade be smarter than Lee. Nor was it required that the victory be elegant (although the Cannae-type double envelopment during Pickett's Charge might be more highly commended were another general in command).

It was only required that Meade and the Army of the Potomac be good enough to win that battle. As Pratt wrote, the army could function on its own: Meade needed only to keep the army from falling over its own feet. Therefore, the loss was the result of the coincidence of a Confederate command system exhibiting extraordinary strains (the combination of which appeared probably in no other ANV battle prior to that time) and the rise of a Union command system that finally clicked. An analogy from WW2 illustrates this.

In early 1944, *the* problem facing the Allied air commanders was to control the air over France for the invasion projected for spring. The campaign to bomb aircraft factories had not produced the diminished German Luftwaffe required for the invasion, which was approaching. The solution was to stage large bomber raids against central Germany that mainly used bombers as bait for the Luftwaffe. Escort fighter squadrons not only protected bombers in raids against Germany, but attacked Luftwaffe air bases ahead of the bombers, to hunt down German fighters and destroy them. Both sides lost hundreds of pilots, but the Luftwaffe lost many of its irreplaceable aces, whereas the Allied training system continued to provide well-trained pilots.

The tactic worked, and on D-Day, the invasion was supported with approximately 11,500 aircraft, of which 3,700 were fighters, with miniscule resistance from the Luftwaffe. And this victory over the Luftwaffe was not the result of a brilliant strategy: it was simply the only option left to Allied air commanders, and it proved good enough to win.³³ (It should be noted that “the good enough” strategy appears often in warfare: Grant’s constant pressure strategy against the South in 1864, Montgomery’s attrition of the Afrika Korps at El Alamein in 1942, and LeMay’s firebombing strategy against Japan in 1945 are good examples.)

In his book *Engineers of Victory*, Paul Kennedy describes this situation further (italics his):

In this campaign, as in several others described in this book, it was the numbers of *trained* crews that were relevant. Were there enough good pilots left to fly the Hurricanes and spitfires of Fighter Command in 1940? Yes, just. Were there enough well-trained U-boat captains and chief engineers to execute [Admiral Karl] Doenitz’s resumed offensive after the autumn of 1943? No. Were there enough midlevel British Empire officers in the Eighth Army to handle Rommel’s explosive form of ground warfare in 1941-42? No. Were there enough competent Japanese

fighter pilots left after the “Great Marianas Turkey Shoot” of June 1944? No. Were there enough rock-hard major generals left in Stalin’s army after both the purges of the late 1930s and the first year of Operation Barbarossa? Scarcely, but yes...There were certainly not enough competent German airmen left to handle the increasing waves of Spitfires, Thunderbolts, and Mustangs over western Europe from late 1943 and early 1944 onward.³⁴

One could continue: Was the Army of the Potomac good enough to defeat the Army of Northern Virginia in July 1863? Yes. That is all that was required—to be good enough to win. This statement offers no exaggerated claim for General Meade’s ability at General Lee’s expense, no explanation or excuse for any mistakes, but it does offer a clean, simple, and supportable reason for the victory. Authors might present different theories and blame different generals—but in the end, Lee’s command system met its match, finally, on the fields of southern Pennsylvania in early July 1863.

ACKNOWLEDGMENTS

The authors thank graciously those persons who assisted with this paper. Ranger John Heiser, Historian, Division of Visitor Services, National Park Service, Gettysburg National Military Park, reviewed an early version. Dr. Larry Graves, mathematician, and former system engineering colleague of one of the authors at Lockheed Martin, also reviewed an early version. Steve Hedgpeth, former newspaper writer and editor, reviewed it for content, style, and grammatical correctness. Joseph Shakely, Associate Professor of English Literature at Bucks County Community College, reviewed the penultimate version. Errors in the posted version remain the responsibility of the authors. July 2018

REFERENCES

Much of the historical information in this paper is of a general nature and can be found in most works on the subject; therefore, no footnotes are provided for these data. However, they do appear for quotes and for the more obscure items herein.

¹ Merriam-Webster dictionary website, accessed April 17, 2017, <https://www.merriam-webster.com/dictionary/system>, search on “Define system”.

² International Council on System Engineering website, accessed April 17, 2017, <https://www.incose.org/about-systems-engineering>, search on “About system engineering”.

³ Freeman, Douglas S., *Lee's Lieutenants*, 3 volumes, Vol. 3, New York: Scribner, 1972, renewal of original copyright, 1944, p. 169.

⁴ *Ibid.*, pp. 169-70.

⁵ *Ibid.*, p. 70.

⁶ Pratt, Fletcher, *A Short History of the Civil War: Ordeal by Fire*, Toronto: Dover, p. 276. Reprint of 1935 edition published by Harrison Smith and Robert Haas, New York and of 1948 edition published by William Sloan Associates, Inc., New York.

⁷ *Ibid.*, pp. 276-7.

⁸ *Ibid.*, p. 277.

⁹ *Ibid.*, pp. 277-8.

¹⁰ Pratt, Fletcher, *The Battles That Changed History*, Mineola, New York: Dover, 2000, p. 11. Reprint of 1956 edition published by Hanover House, Garden City, New York.

¹¹ *Ibid.*, p. 14.

¹² *Ibid.*, p. 54-5.

¹³ International Council on System Engineering website, accessed April 17, 2017, <https://www.incose.org/about-systems-engineering/history-of-systems-engineering>, search on “History of system engineering”.

¹⁴ Cooper, Matthew, *The German Army, 1933-1945*, Chelsea, Michigan: Scarborough House, 1978, pp. 497-8.

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- ¹⁵ Eisenhower, Dwight, D., *Crusade in Europe*, Baltimore: Johns Hopkins University Press, 1948, p. 164.
- ¹⁶ Bowden, Scott and Ward, Bill, *Last Chance for Victory: Robert E. Lee and the Gettysburg Campaign*, Cambridge, Massachusetts: Da Capo Press, Perseus Groups Books, 2000, p. 521.
- ¹⁷ *Ibid.*, pp. 508-21.
- ¹⁸ Freeman, *Lieutenants, Vol. 2, op. cit.*, pp. 689-714.
- ¹⁹ Meade, George Gordon, editor, *The Life and Letters of George Gordon Meade, Major-General United States Army*, Part 5. Narrative of the Battle of Gettysburg, Perseus Digital Library website, accessed April 13, 2018, <http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A2001.05.0134%3Achapter%3D5>, search on “Halleck order to Meade” .
- ²⁰ Coddington, Edwin B., *The Gettysburg Campaign: A Study in Command*, New York: Charles Scribner’s Sons, 1968, p. 215.
- ²¹ Boatner, Mark Mayo, III, *The Civil War Dictionary*, New York: David McKay, 1959, citations include date for each corps commander and army commander on that date, pp. 372, 413, 664, 694, 730, 760, 765, 825.
- ²² *Ibid.*, pp. 418, 656, 664.
- ²³ Calculator.net website, Math tab, accessed April 17, 2017, <http://www.calculator.net/mean-median-mode-range-calculator.html>, search on “Mean Mode Median Calculator” ; results of entering corps commander durations: Confederate: <http://www.calculator.net/mean-median-mode-range-calculator.html?numberinputs=12%2C1%2C1&x=57&y=13> ; Federal: <http://www.calculator.net/mean-median-mode-range-calculator.html?numberinputs=9%2C9%2C6%2C4%2C3%2C1%2C0%0D%0A&x=59&y=13> .
- ²⁴ Tucker, Glenn, *High Tide at Gettysburg*, New York: Konecky & Konecky, 1958, pp. 100-1.
- ²⁵ Coddington, *op. cit.*, p. 264.
- ²⁶ Tucker, *op. cit.*, p. 101.
- ²⁷ Guelzo, Allen, C., *Gettysburg: The Last Invasion*, New York: Vintage Books, 2013, p. 131.
- ²⁸ Bowden and Ward, Bill, *op. cit.*, p. 151.

²⁹ *Ibid.*, pp. 177-8.

³⁰ *Ibid.*, pp. 503-4.

³¹ *Ibid.*, p. 510.

³² Tucker, Glenn, *op. cit.*, p. 170.

³³ Kennedy, Paul, *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War*, New York: Random House, 2013Pp. 126-35.

³⁴ *Ibid.*, pp. 130-1.