With Violent Intent

Monographs on Military History, 1775-1991

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Monographs on Military History: 1775 to 1991

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Monograph # 1:

2021: *Introduction and Research Methods*

As I sense rather than feel the sands of time slipping from the top of my life's hourglass into the bottom, I want to take an opportunity to record my observations and thoughts on certain aspects of military history, which have been developed over a lifetime of study. Due to my formal training as an accountant and business manager, my take on events often come from a different slant than those of classically trained historians (and with sadness, I note that this classical historical training period seemed to come to an end sometime in the 1990s). At times my observations of the past either follow or only slightly vary from fairly standard historical research routes. Other times, rather than merely strictly observing and recording the facts and events that occurred in history, I take the facts that have been established and synthesize them into plans to solve some of military history's most vexing problems. In any case, this different slant on history has fueled my perceived need to get these ideas recorded for posterity before they, like me, are lost into the dust of time.

During the many years (roughly starting in 1966 and continuing to this day) that I have studied American military history, I have read many books about the time frame from roughly 1754 to 1991, the period in which I have chosen to specialize. One of the advantages of studying a defined, significantly long, and clearly bounded period is that one gets to note and place into context varying trends and relationships. These historical aspects are perhaps not recognized by those who choose to specialize in one narrowly defined event occurring over a relatively short period. Thus, the perspective of "time" is a concept which I value highly. One drawback to having a relative long time period of specialization (roughly 250 years) is that it takes a lifetime of study to read enough material to gain a degree of mastery over the massive amount of information needed to develop these perspectives and relationships. Thus, it is now as a person of advanced age that I put to pen to paper to outline some of the perhaps obscure knowledge I have gained.

Creating this set of writings has not been as daunting as it may seem. Over the years, as I tried to structure and understand complex historical concepts, events, and facts, I took the time to write notes or short essays to organize and clarify my thoughts. After a period of organizing these notes, I am now ready to put a number of perhaps controversial ideas into the public discourse. The following thirteen essays (or "monographs") cover a wide range of American military history topics. These essays discuss certain events that occurred in several of my principal military history interests: The American conquest of the area between the Appalachian Mountains to the Mississippi River (and further into the Great Plains and

Far West); the American Civil War; air war and naval history (including "what could have been"); and the massive wars of the Twentieth Century - World War I, World War II, and the Cold War.

As we get ready to move forward into the monographs contained in this compendium, I think it is pertinent to repeat a discussion of my research methods, which I outlined in an earlier, similar work, *Essays on Controversies Arising from Military Actions in the Western Theater of the War of 1812* (2018). The following discussion will help you understand how I developed the knowledge and information that led to the concepts in the succeeding monographs.

I am what is called in the vernacular a "popular historian," perhaps an anathema to most "academic historians." Until retired, I held down a full-time job in the business world, so I was not able to spend time in archives with original documentation.

Thus, I proceed with secondary sources in many cases (although I read primary sources when these are readily available). This in turn leads to the necessity of using inductive reasoning (inherently based on probabilities). Since my training and profession is in business management, I am skilled in reaching decisions based on incomplete information and subsequent inductive reasoning. All of this is part-and-parcel of the business arena, since managers virtually never have complete information.

That being said, in order to increase the probabilities of accuracy in researching history, I virtually always attempt to have (at least) three sources for every topic as I research historical subjects: one source with a copyright date as close to the event as possible; one source with a copyright date approximately mid-way between the event's date and today's date; and one or more sources with relatively current copyright dates. (I won't go into a mundane defense of this methodology: suffice it to say that experience has shown that this method increases the probability of drawing accurate inferences from the nature of events.)

In reality, I research history along three phases of thought, and each of these three phases has three levels of inquiry:

***Phase I*:** The study of military history can be viewed as ascending along a continuum of the three levels of knowledge that define the historian's craft:

1) **Acquisition of the facts.** Who did what, when? Here the details matter and the historian is tasked with assembling and learning facts.
2) **Defining the flow of history.** What were the larger events that led to the larger decisions?
3) **Determining the grand theories of history and making high-level judgments about trends in history.** Why did events happen as they did?

***Phase II*:** The pursuit of the knowledge along the above continuum can be facilitated by using the following steps for "getting up to speed" on a topic:

1) Read a short three-to-five-page **summary** of the topic.
2) Read an eight-to-fifty-page **article** on the topic.
3) Read a **book** (or several books) on the topic.

***Phase III*:** If the pursuit of the above levels of knowledge is combined with the study of the following categories or sources of information and/or documentation, the historian will be well on the way to acquiring a good understanding of the topic in question:

1) **Review of books and documentation with copyright dates as close to the occurrence of the event as possible.** Here the initial, fresh, perhaps first-person impressions of the event are documented.

2) **Review of books with copyright dates approximately mid-way between the event date and the present date.** Here broader perspectives granted by time are combined with more accurate facts and figures to present a more balanced view of the event.

3) **Review of books with relatively current copyright dates.** These will contain the most recent scholarship of the event, usually combined with a rigorous, heavily-reviewed, carefully-presented study of the source documentation in a flowing narrative format.

Where possible, I have used two other techniques as I have gathered historical knowledge over the years. First, I have read historical military accounts written by the other side. (For example, I have read British accounts of the War of 1812 and German/Japanese histories of World War II). Second, I not only attempt to read what went right with battles and campaigns, but also what went wrong with them as well. (In business terminology, I have not only studied best practices, but have also conducted exception analysis.)

As examples of my methodology for this compendium of essays, in preparation for the completion of Monograph # 12, "The Twentieth Century's Third World War, a.k.a: 'The Cold War,'" I read several five to eight page articles on specific events relating to the Cold War. I then read *The Cold War: A History,* by Martin Walker (copyright 1993); *The Cold War: A New History,* by John Lewis Gaddis (copyright 2005); *The Cold War: A Military History*, edited by Robert Crowley (copyright 2006); *The Cold War Experience,* by Norman Friedman (copyright 2009); and *The Cold War's Killing Fields: Rethinking the Long Peace,* by Paul Thomas Chamberlin (copyright 2018). For an opposing perspective, I read *Khrushchev's Cold War: The Inside Story of an American Adversary,* by Aleksandr Fursenko and Timothy Naftali (copyright 2006). To compliment this research into the opposing perspective, I watched a ten-part DVD documentary series

entitled *Secrets of War: The Cold War*, by The Documedia Group, LLC, (copyright 1998); licensed and distributed by Mill Creek Entertainment, (copyright 2014). Included in this series were four episodes, each one hour in length, entitled "The K.G.B.," "Khrushchev's Regime," "Castro's Revolution," and "Brezhnev's Kremlin," among other topics. Finally, I also read some accounts of "what went wrong" in several Cold War events by reading relevant chapters in *Fatal Victories,* by William Weir (copyright 1993); *Days of Infamy: Military Blunders of the 20th Century*, by Michael Coffey (copyright 1999), *Great Military Disasters*, edited by Michael W. Haskew (copyright 2011); and *The Greatest Blunders…Ever!*, by Ian Whitelaw (copyright 2017). As you may note, much effort has been put into conducting balanced research and attaining factual accuracy to develop these monographs.

You can use the above description of my methodologies to envision how I reached the positions I espouse as I outlined the issues in this diverse set of monographs. As with my earlier collection of essays, there are two caveats to keep in mind as you read these monographs: First, these essays would not pass strict methods of advanced academic review. They have been written as accurately as possible using the research methods outlined above, but are a starting place for discussion, not a definitive ending point. Second, I want to alert you that these monographs are not intended to be an easy, relaxing "Sunday afternoon read." They are heavily fact-based and contain numerous footnotes referencing the sources of these facts. The monographs are intended to highlight increasingly forgotten events or to present different ways of viewing more well-known events. Thus once again, as with my earlier *Essays on Controversies…in the War of 1812*, this set of monographs is free on-line, and available only at my website, www.johnericvining.com.

I hope your interest in history is heightened as you read some ideas about historical events that come from a little different angle than you might have been taught.

Monograph # 2

1779-1791: *Kentucky's Pre-Statehood Military Campaigns into the Old Northwest*

Between 1779 and 1791, there occurred in the territories that are now the states of Kentucky, Indiana, and Ohio a series of campaigns that are little known, and even less understood, today. Although the various battles have received a modicum of documentation through the years, historians have struggled to place these back-and-forth campaigns into a satisfactory context. Some have attempted to insinuate them into existing struggles, such as the "Revolutionary War in the Western Theater" or "The Northwest Indian Wars." However, a close examination of these campaigns and battles must lead one to the conclusion that these were nothing less than a thirteen-year-long private war by the state of Kentucky against the Native American tribes of the lower portion of what would become the Northwest Territory!

Before we dive into the particulars of this subject, we must set up some "semantic" ground rules. First, the area south of the Ohio River was actually a large district or county claimed by the existing state of Virginia during the period discussed in this essay. However, it was well known at the time as "Kentucky" and eventually became the state of that name in 1792, so for the purposes of this monograph, we will refer to this area as Kentucky.

Similarly, the areas north of the Ohio River that we will be primarily discussing in this monograph were relatively unorganized during the time period 1779-1791. They would be grouped into "The Northwest Territory" later in this time period, but the immediate areas being discussed would be known variously as the "Ohio Territory" and the "Indiana Territory" as well, and portions would eventually become the states of Ohio (1803) and Indiana (1816). Thus, for ease of comprehension in this essay, these lands will be referred to as Ohio and Indiana.

Next, the Kentuckians' principal adversaries in this struggle were the Shawnee and Miami Nations (along with the Miami sub-tribes of the Piankashaws and Weas). But at various times, such nations as the Delawares, Wyandots, Pottawatomis, Kickapoos, and Mingos (among others) were drawn into the fighting. In this monograph, the terms "Native Americans" (the currently most academically-accepted term) and "Indians" (the generally-accepted term in use during the timeframe being discussed) will be used interchangeably. No disrespect is intended toward the original inhabitants of the Americas by the use of either term.

Finally, there are some village names that need to be established. There were at least three Indian towns known as "Chillicothe" and two named "Piqua" in Ohio. The Chillicothe on the Scioto River, about half way between centrally-located Columbus and Portsmouth on the Ohio River, is the current city of Chillicothe, Ohio, and is only slightly relevant to this discussion. However, there was another "Chillicothe" on the upper reaches of the Little Miami River, just north of present Xenia, Ohio. It was also known as "Old Chillicothe" and is now known as Oldtown, Ohio. It is very central the campaigns of the 1770s to 1790s, and will be referred to as "Chillicothe" in this discussion. Chillicothe was rebuilt a few miles north of its original location after its 1780 destruction, and this newer "Chillicothe" was destroyed as well in Clark's 1782 campaign.

In similar fashion, there were two "Piquas" in the southwest Ohio area that have caused confusion over the years. There is a Piqua at the confluence of the Great Miami River and Loramie Creek which is still known today as Piqua, Ohio. This Piqua is in very close proximity to the older Miami Indian village known as Pickawillany. For purposes of this monograph, this town will be known as Piqua. There was another village known colloquially as Piqua, on the southwest edge of current Springfield, Ohio, on the banks of the Mad River. It was more properly known at the time by its Native American name of "Peckuwe" and a major battle occurred here during the 1779-1791 campaigns. For the purposes of this monograph, this village will be known as Peckuwe (even though many references to the battle that occurred here refer to it as the "Battle of Piqua").

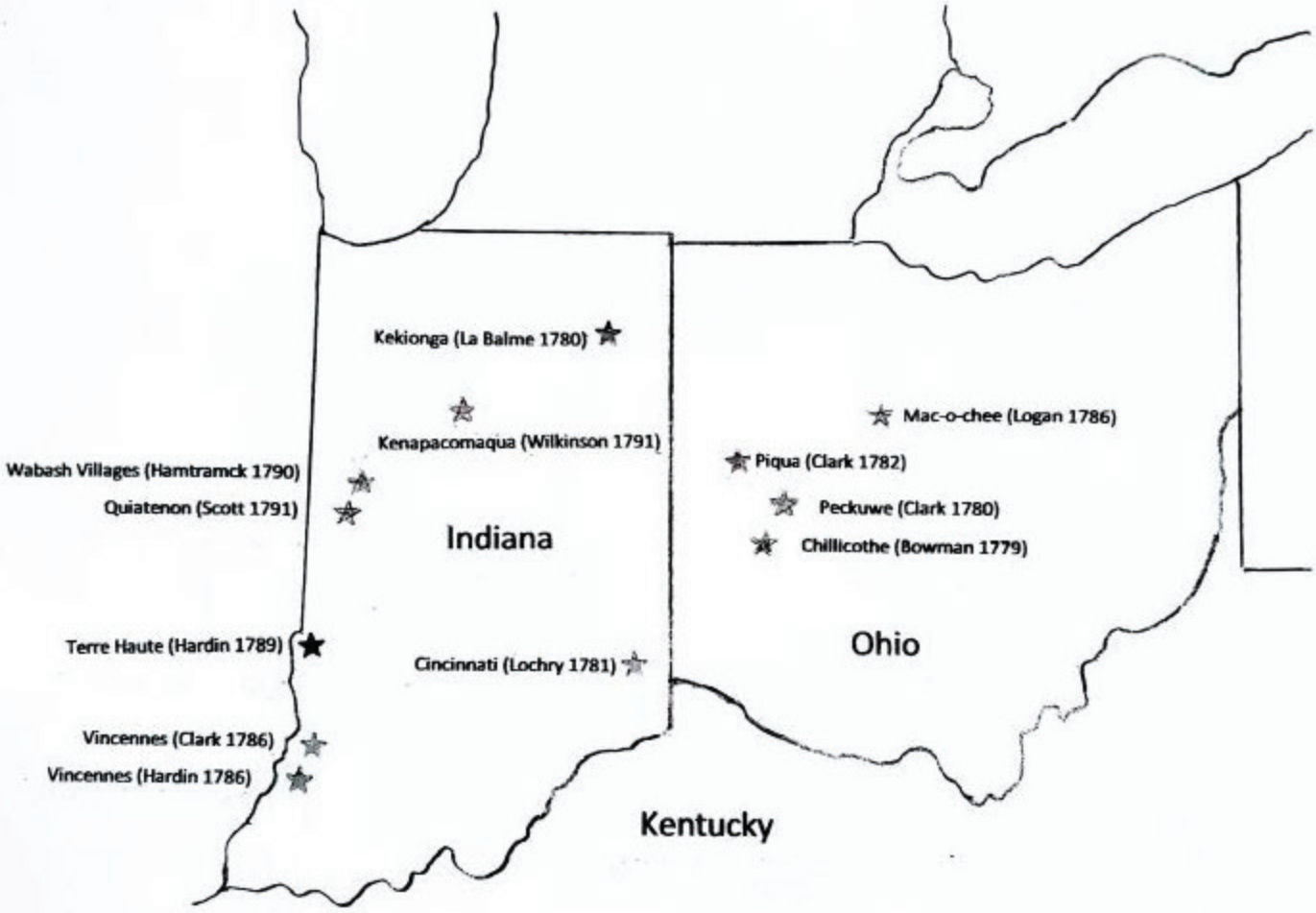
There are several facts that lead to the conclusion that the battles about to be discussed comprise a private "state war." First, in each case outlined below, the armies were comprised of Kentucky militia, regarding both officers and rank-and-file soldiers. (There are two exceptions in the operations of this period. LaBalme's 1780 expedition from Vincennes to Kekionga [present Fort Wayne, Indiana] was reputedly a privately financed campaign utilizing mostly untrained French/Canadian militia. In the case of Colonel Lochry's expedition in the 1781 campaign, a small group of Pennsylvania militiamen was moving west in an attempt to unite with a unit of Kentucky militia under General George Rogers Clark for combined operations. They failed to unite, were ambushed near the Ohio River, and were destroyed, thus playing no part in Clark's now suspended 1781 campaign.) Second, the various operations to be discussed in this monograph were planned, provisioned, launched, and executed by Kentucky governmental and state militia officials. The Continental Congress, or later the Federal Government, played virtually no part in funding or directing these campaigns. But last, and most importantly, the campaigns in the Kentucky-Ohio-Indiana region were mounted back and forth across the Ohio River in response to the ebb-and-flow

of conflict in this particular geographical theater of operations. They were mounted and pursued with little heed to the greater conflicts in the Congressionally–directed Revolutionary War or the Northwest Indian Wars that also raged at different times during the thirteen years being studied. There were several discussions of General George Rogers Clark leading federal campaigns to capture Detroit during the Revolutionary War period. But even these proposed governmentally-endorsed operations were planned to eliminate the British logistical support for the Ohio Indians in their raids against the Kentucky settlements.

The opening acts to this military drama occurred in the late 1760s/early 1770s, when frontiersmen such as Daniel Boone and James Harrod began crossing the Appalachian Mountains to explore the Kentucky area. However, both the Shawnee Nation north of the Ohio River and the Cherokee Nation south of the Cumberland River claimed this territory as their hunting ground. Neither settled the area, but each had hunting parties clash so often with the other in Kentucky that it was known to both as "The Dark and Bloody Ground." On June 16, 1774, Harrod established the first permanent European-American settlement in Kentucky at Herrod's Town (Harrodsburg),[1] followed soon after by Boone's settlement at Boonesborough. Both these settlements were semi-military civilian forts. A series of similar "stations" grew up in the immediate region shortly thereafter, between 1774 and 1778: Ruddle's Station, Martin's Station, McClelland's Station, Leestown, Knob Lick, and Logan's Station.[2]

The Indians north of the Ohio River were certainly aware of these incursions into their hunting grounds and moved south to intervene. In January 1778, Daniel Boone and about 30 men from Boonesborough, Harrodsburg, and Logan's Station journeyed to Blue Licks, about a day's march south of the Ohio River, to refine salt from the deposits there.[3] On February 7, Boone and several other men were attacked and captured,[4] then marched north to the Native American village of Chillicothe on the Little Miami River. Boone was forced to run the gauntlet near the village, but completed the arduous sprint so bravely and skillfully that he was adopted as a son by the powerful Shawnee chief Blackfish, who was based in Chillicothe. Over the succeeding months, Boone adapted to the life of a Shawnee warrior, although always planning and looking for an opportunity to escape. His planning became urgent when he learned that Blackfish was organizing a large raid into Kentucky with Boonesborough as its target. On June 16, his opportunity came; he escaped and raced for Boonesborough, covering 160 miles in 4 to 5 days.[5] Although Boonesborough had only 30 men and 20 boys capable of handling long rifles, the fort successfully withstood a 10-day siege by over four hundred Shawnee warriors which began on September 7.[6]

Kentucky State Wars
1779–1791



The Indians retreated north of the Ohio River, but the experience sobered the inhabitants of the various small American stations in the Bluegrass region of north-central Kentucky. They knew that they would be subject to additional and even more serious attacks if they did not respond in kind. In the Spring of 1779, Kentucky Colonel John Bowman gathered between 160[7] and 300[8] Kentucky militiamen and marched north toward the Blackfish's Shawnee village of Chillicothe. On May 29, 1779,[9] Bowman divided his forces and attacked the village from two sides (Benjamin Logan and Levi Todd leading the other pincer). The Indians retreated into a sturdy blockhouse, and Bowman's force was unsuccessful in prying them from this central redoubt. Bowman then captured 300 horses valued at $32,000, burned the town, and held off a group of pursuing Shawnees as the militia army withdrew on a two-day's march south to meet Clark at the junction of the Licking and Ohio Rivers.[10] Blackfish had successfully defended the town, but he was shot in the leg and died later when the wound became infected.[11] Bowman's raid suffered 8 to 10 casualties, but was credited with the destruction of a major Native American village, the death of Blackfish,[12] and the discouragement of Indian incursions against the Kentucky settlements for some time to come.

There now occurred one of the strangest military campaigns in the history of the Midwestern frontier, or anywhere else. Augustin Mottin de la Balme was a French cavalry officer who left for the New World to assist with the American colonies' revolution against Great Britain. He was commissioned as the Continental Army's Inspector General of Cavalry, but when informed that Casimir Pulaski would be given command of the Continental cavalry, he resigned his commission.[13]

In early 1780, perhaps under confidential orders from General Washington, but most probably acting on his own, La Balme moved from Pittsburgh down the Ohio River and then to Kaskaskia.[14] This was after George Rogers Clark's famous campaign against Vincennes and Kaskaskia (a campaign with federal-objective overtones and thus not covered in this essay). La Balme was inspired to attempt a similar campaign against Detroit. He was contemptuous of Clark, considering him uneducated and untutored.[15] La Balme moved northeast, intending to gather Canadian militia at Kaskaskia, Cahokia, and Vincennes (these villages being settled originally by French-Canadians), then march to Detroit under the French flag.[16]

La Balme gathered approximately 104 militiamen as he moved north. He marched rapidly and virtually uncontested until he reached Kekionga (present Fort Wayne, Indiana),[17] at the confluence of the St. Marys, St. Joseph, and Maumee Rivers. Finding it relatively empty of opposition, La Balme raised the French flag,[18] raided British stores, and left 20 soldiers to guard the stores at that location. He then led the remaining 84 militiamen northwest about 10 miles to plunder another trading post.

The Miami under Chief Little Turtle learned of the incursion and moved swiftly to intervene. Immediately crushing the tiny French garrison posted at Kekionga, Little Turtle followed La Balme's trail to the trading post, which the French expedition was in the midst of plundering. Although there is some confusion over the overall length of the battle and/or siege, on November 5, 1780, Little Turtle's force attacked and subsequently destroyed La Balme's tiny army,[19] La Balme perishing in the struggle.

Typical of the back-and-forth nature of the conflict in this area, British Captain Henry Bird led an expedition from Detroit south toward Kentucky at the same time that La Balme moved north from Vincennes toward Detroit. It has been noted that the British had many plans for the capture of American strongpoints throughout the Midwest. However, in fact this raid materialized as a mainly British-officered, Indian-soldiered army expedition against the Kentucky settlers, mostly in response to Bowman's 1779 raid into Ohio. Bird, an officer of the British 8th Regiment of Foot, moved south on May 25th, 1780, at the head of a 500-man Native American army, comprised of Shawnee, Delaware (Lenape), and Wyandot warriors. This was accompanied by a nominal 150-man force of white soldiers from the 8th and 47th Regiments, Detroit militia, and members of the Royal Regiment of Artillery.[20]

As the army reached the Ohio River, the Indians insisted that it attack the Kentucky settlements. Bird had intended to confront George Rogers Clark's force farther to the west, but acquiesced to the demands of the major component of his army. Pushing south along the Licking River on the familiar route to the Kentucky settlements, the army reached Ruddle's Station on the evening of June 21st. The fire from the expedition's cannons quickly breached the settlement's walls, and the station surrendered. After multiple atrocities by the Native Americans (resulting in 20 deaths among the settlers[21]), order was restored, supplies confiscated, and prisoners taken.[22]

The invaders moved on to Martin's Station, and a further 60 warriors moved to Grant's Station. Relative order was maintained during the investiture and conquest of these two stations (two men and a woman killed[23]), booty was taken, and Bird ordered the end of further offensive actions against the settlements. The army moved back along the track it had taken into Kentucky, crossed the Ohio River, and moved north. At this point, the Ohio Indians peeled off as they reached their homelands, and the remainder of the expedition marched into Detroit on August 4, retaining 300 prisoners as captives.[24]

Such an aggressive move into the heart of the Kentucky settlements by the British-allied Indians could not go unanswered, and George Rogers Clark was quick to retaliate. He quickly mustered between 970[25] and 1,000[26] Kentucky militiamen and moved north across the Ohio River, then up the now familiar Little Miami River corridor to Chillicothe. He found the village abandoned, so he burned it and all

surrounding crops. He then followed the retreating Indians further north toward the Shawnee village of Peckuwe on the Mad River.[27]

On August 8th, 1780, Clark attempted an encirclement of the village, sending a corps under Colonel Logan looping to the right and a second force under militia officers Lynn, Floyd, and Todd on a long, sweeping flank march to the left, while Clark's central force forged ahead nearly due north. The dueling Kentucky and Native American forces spent several hours in combat, each sustaining significant casualties. Clark's accompanying artillery secured the heights above the Indian's central stockade, then succeeded in battering the redoubt and scattering the Native American warriors. Afterward, Clark's men spent two days burning an estimated 500 acres of corn in the fields surrounding the village.[28]

Clark reported a total of 27 casualties (14 dead and 13 wounded[29]). However, based on eyewitness accounts of the battle, this total has been corrected to almost three times this number (perhaps at least 42 dead and 40 wounded[30]). The total number of Shawnee casualties is not known (because the Indians followed their custom of carrying off their deceased battle casualties), but their loss is known to be at least 5 dead.[31]

Clark's subsequent 1781 campaign is another example of an intent to attack the British at Detroit which was adjusted to become a conflict between militia and Native American forces.[32] In late 1780, George Rogers Clark conferred with Virginia governor Thomas Jefferson. In early 1781, Clark was promoted to brigadier general and commander of all of Virginia's Kentucky Militia,[33] and authorized to recruit militia from western Virginia and western Pennsylvania. Because of eastern war pressures, and also because the proposed operation to Detroit was so far from their homes, Clark had difficulties recruiting troops from Virginia and Pennsylvania. Thus, he was only able to recruit 400 men,[34] but nonetheless, he descended the Ohio River in August, 1781 with this meager force.

One Pennsylvanian who had heard and heeded the call was Colonel Archibald Lochry, commander of the Westmoreland County militia. As he recruited in the county, he faced the same problem as had Clark: most militiamen did not wish to campaign so far away from their families and crops while there was a threat of British interdiction from the east. Lochry was able to recruit 107[35] militiamen for the expedition, and duly set out down the Ohio, a trailing Clark's force by a few days.

Clark had intended to unite his force with Lochry's unit at Wheeling (now in West Virginia). However, after waiting for five days past the appointed rendezvous time, on August 8th, Clark resumed his descent of the Ohio River, only a few hours before Lochry's arrival at Wheeling.[36] Although both units exchanged messages and confirmed their intent to combine further down the river, Lochry was not able to overtake Clark.

Meanwhile, at the behest of the British, Mohawk military leader Joseph Brant had moved into the Ohio country and was busily recruiting warriors for a strike at the Americans. Using British intelligence of the movement of the two American units down the Ohio, Brant planned a strike. In May, after gathering about 90 Iroquois, Shawnee, and Wyandot warriors, along with about 10 white militiamen at Upper Sandusky,[37] Brant moved south. He was about to prove to the Americans that the old military maxim "Never split your force before the enemy" was a true one.

Carefully monitoring the two American units' progress, he noted that Lochry's was about the same size as his own. Lying in ambush just north of the Ohio River and west of what is now Cincinnati, Brant pounced on Lochry's flotilla on August 24, 1781. After a pitched battle in which Lochry was caught by surprise and used all his ammunition, the American commander ordered his unit to surrender[38] having lost 37 dead (including some massacred after being disarmed) plus about 64 captured[39].

Considering the campaign at an end because of the receipt of intelligence that Clark had called off his campaign due to a shortage of militia, the Native American force disbursed into Ohio with its prisoners. Simon Girty was able to convince a contingent of these Native Americans to accompany him into Kentucky,[40] where they perpetrated the Long Run Massacre on September 13-14, 1781[41], which resulted in about 32 militia and settlers killed.[42]

From the perspective of history, it seems as if the British/Native American allies intended to consolidate the gains obtained north of the Ohio River in 1781 (the destruction of Lochry's force, and thus the stymieing Clark's offensive) with further gains south of the Ohio River in 1782. In July 1782, British Captain William Caldwell, along with Loyalist agents Alexander McKee, Simon Girty, and Matthew Elliott gathered approximately 50 Loyalists and 300 Wyandot warriors for a raid against the stations in northern Kentucky. Their goal again was to drive the settlers out of Kentucky once and for all.[43]

The army crossed the Ohio River and moved up the Licking River on the now familiar trail to Bryan's Station, arriving at the fortified village on August 18, 1782. The villagers within the stockade held off the besiegers for two days, managing to get runners out to the surrounding stations for help. The warrior army got wind of the approaching militia and, after two days and the destruction of the station's livestock and crops, retreated back down a buffalo trail to a position at Blue Licks.

The contingents of Kentucky militia now arriving at Bryan's Station had a decision to make: they could pursue the retreating Indians immediately, or wait for their whole force to arrive at Bryan's Station and then move at full strength against the Native Americans. Although some, including Daniel Boone, urged caution and consolidation, the majority wanted to move immediately before the enemy force gained the Ohio River and potentially moved out of range. Thus, the Kentuckians struck out, reaching Blue

Licks on the Licking River on August 19. Daniel Boone felt danger, sensed a trap, and urged the militia to pause and reconnoiter.[44] But the hotheads, led by Colonel Hugh McGary, were itching for a fight, and plunged across the Licking River and up a steep hill that was flanked on each side by deep ravines. Just as the first of the rebels reached the summit of the hill, the Native Americans fired at close range from ambush positions. Militia commanders John Todd and Stephen Trigg were killed almost immediately, and the remainder of the Kentuckians retreated precipitously down the hill, fighting hand-to-hand to break the encircling net that the Indians had cast around them. The Americans suffered 72 dead and 11 captured,[45] while the Native Americans had 7 killed and 10 wounded.[46] The Kentuckians fell back toward Bryan's Station, while the Native Americans resumed their withdrawal across the river into Ohio.

George Rogers Clark came in for considerable criticism from the Virginia Council after the battle, even though he was nowhere near either Bryan's Station or Blue Licks at the time.[47] He was castigated for allowing such a destructive raid on Kentucky by British and Indian forces, regardless of his culpability or lack thereof. Clark determined to punish Native Americans for the invasion of Kentucky and the destruction at Logan's Station and Blue Licks. In November 1782, he gathered between 1,000[48] and 1,128[49] Kentucky Militia and moved up the old Bowman/Clark trace along the Little Miami River. On November 10th, Clark's force destroyed the rebuilt Chillicothe[50], Piqua[51], and at least three other Shawnee villages on the Great Miami River[52]. He also detached Benjamin Logan and about 150 militiamen to move north along Loramie Creek and destroy Loramie's Post (current Fort Loramie, Ohio), which had been used as a staging area for Shawnee raids into the Kentucky frontier.[53] Clark then pulled together his militia army in the gathering fall weather and headed south into Kentucky.

For a subsequent period of about four years, what passed for peace occurred in the bloody Kentucky-Indiana-Ohio triangle. This does not mean that there was no bloodshed in the area: there were multiple bloody encounters between whites and Native American on either side of the Ohio River. However, with the ending of the Revolutionary War, the British no longer organized Native American campaigns and expeditions into Kentucky, and for a time the Kentuckians were content to meet small-scale Indian atrocities with equally small-scale and atrocious reprisals. Perhaps 1,500 Kentucky settlers were killed in Indian raids during this period.[54] By 1786, the government of the District of Kentucky had had enough of the constant low-level violence plaguing the area and decided to strike at the perceived roots of the problem. The Kentuckians had determined that the major staging areas for many of these Native American attacks were the villages at Ouiatenon (mostly comprised of Potawatomi, Kickapoo, and Wea tribes) on the Wabash River in North-Central Indiana and the Mad River villages (home of the implacable Shawnees) in the Mac-o-chee highlands of North-Central Ohio.

The Kentucky government called on the venerable General George Rogers Clark to stage and execute one or more campaigns against the Indians in the area north of the Ohio River. Clark designed a two-pronged attack: he would lead one contingent toward Ouiatenon, while his second-in-command, Colonel Benjamin Logan, would lead a second, slightly smaller force toward the Mack-o-chee villages. It was thought that Clark's reputation and larger force would draw some of the Shawnees from the Mac-o-chee, thus giving Logan a better chance at devastating the Ohio villages. As Clark began to gather the militia opposite the Falls of the Ohio (Louisville) at the new settlement of Clarksville, he noted that many of the 1,200[55] militiamen assembled were from areas of Kentucky that had barely been affected by the Indian incursions, were disgruntled, and did not wish to leave Kentucky for a raid into Indiana. Clark departed Clarksville on September 13th, 1786, heading directly for the Upper Wabash villages. However, a large contingent of the soldiers soon insisted that the army detour to Vincennes, where it was rumored that boats would arrive with a large amount of supplies for the extended campaign. Clark reluctantly agreed to this 40-mile detour, knowing that expedition already had sufficient, but not excessive, supplies for a direct march for Ouiatenon. Arriving at Vincennes, the expedition tarried eight days awaiting the boats, then moved out and marched two days north toward the target. On the third day, a large part of the army mutinied and turned to return to Kentucky. Clark returned first to Vincennes, then decided to call off the campaign and conducted a straggling withdrawal to Kentucky with his much weakened army.[56]

Although this prong of the offensive was considered a failure, further tarnished Clark's reputation, and ended his military career, the western part of the campaign did have three positive results. First, the aggressive thrust toward Ouiatenon caused an evacuation and major dislocation of that village's inhabitants, who feared for their lives.[57] The subsequent straggling retreat of Clark's army delayed, and eventually caused the abandonment of, a planned major Native American incursion into Kentucky.[58] Finally, as projected, Clark's western prong of the campaign had the desired effect of drawing a large contingent of the Shawnee warriors based in the Mac-o-chee highlands of Ohio toward the defense of Ouiatenon and thus easing the task of Logan's smaller eastern prong.[59]

During September, Logan gathered approximately 790[60] to 800[61] Kentucky militia at Limestone on the Ohio River. On September 29-30, 1786, the force crossed the Ohio River and moved north. By October 5th, it was approximately 50 miles south of its intended target.[62] The small army had been split into two regiments for the march, with Colonel John Logan commanding the right wing and Colonel Robert Patterson commanding the left, with Major John Hinkston leading the small rear guard.[63] Upon approaching the upper Mad River area on October 6th and determining that opposition to the raid would be light, Logan's army was further subdivided so that as many as possible of the reputed 13[64] Indian

villages in the region could be attacked. By the end of two days, Logan's forces had destroyed seven (Mackacheck, Wappatomica, New Piqua, Will's Town, McKee's Town, Blue Jacket's Town, and Moluntha's Town)[65] or eight[66] (Including the "English Blockhouse" [more likely a British agent trading post and a surrounding village, seven or eight miles north-northwest of where the other cluster of villages was located[67]]) villages, burned 200 cabins and 15,000 bushels of corn, plundered an estimated 200 pounds sterling of booty, killed between 10[68] and 21[69] warriors, and captured 32 prisoners. The Kentucky militia suffered one soldier killed outright, two mortally wounded, and two less severely wounded.[70] This raid was also tarnished by the senseless murder of the aged and peaceful Shawnee chief Moluntha by the cowardly Colonel Hugh McGary, who was seeking retribution by any means possible for the 1782 slaughter at Blue Licks. On October 8, the army headed back to the Ohio River and sanctuary in Kentucky.

There was one other Kentucky militia incursion into Indiana in 1786, this one possessing the elements of a tragic farce. John Hardin (then a Kentucky militia captain) led an attack from Kentucky into southwestern Indiana, destroying a Piankashaw village near what is now Vincennes, which he thought was hostile. Unfortunately, this village contained only friendly Native Americans, tribe members who had been allies of the Americans since the colonial days.[71]

The three raids into Indiana and Ohio brought a return to a slightly lower level of atrocities in the extended Ohio Valley, necessitating only one Kentucky-organized raid north of the Ohio River between late-1786 and late-1790. This was another militia offensive conducted by now Colonel John Hardin. The target of this assault was a recalcitrant Shawnee village in what is now the Terre Haute region, and resulted in the killing of twelve Indians and "pacifying" the Southwest Indiana region for a time.[72]

In general, the four years between late-1786 and late-1790 were a period of treaties made and promises broken. The increasingly predictable pattern, which was repeated time and again in this four-year period, was the negotiation of a relatively one-sided treaty favoring the white settlers, the slow realization by the Native Americans of the inequity foisted upon them, and a breaking of the treaty by one or both sides. The inevitable result was a ratcheting up of violence between Indian and white with each cycle of negotiation and travesty.

By 1790, the cycle of violence was so great in the Ohio Territory that the desperate settlers prevailed upon the federal government for relief. President George Washington gradually came to the realization that no amount of negotiations would pacify the increasingly desperate Native Americans (particularly the fierce Shawnees) in Ohio nor satisfy the increasingly land-hungry Ohio settlers. He therefore came to the conclusion that only military operations deep into Ohio to demonstrate the might and will of the Unites States would end the cycle of violence and result in the pacification of the Ohio

Indians. This realization resulted in the relatively well-known federal expeditions into Ohio comprising the military actions of the Northwest Indian War: Harmar's 1790 campaign, St. Clair's 1791 campaign, and "Mad" Anthony Wayne's ultimately successful 1793-1794 campaign.

What may not be quite as well-known is that Kentucky conducted its own state sanctioned and directed campaigns north of the Ohio River in the period of 1790 and 1791 – two in support of a tandem federal campaign and one independently organized. In September and October, 1790, U.S. Brigadier General Josiah Harmar gathered 1,320 federal and state troops for a campaign against the cluster of Indian villages known as Kekionga (current Fort Wayne, Indiana). Concurrently, Major Jean Francois Hamtramck, based at Fort Vincennes (Indiana) was ordered to raise a force of mostly Kentucky militia (with a smattering of his own fort garrison and some local French residents) and march to the Native American villages on the Wabash, Vermillion, and Eel Rivers in west-central Indiana (raising around 300 militiamen for the task[73]). This expedition was contemplated to create a distraction and keep the residents of these villages from moving east against Harmar's main force. In the event, Hamtramck's force reached only one village; Hamtramck then found that he had run out of supplies to move further and raze more distant ones. He thus retreated to Vincennes. However, Hamtramck subsequently learned that a force of 600 warriors had been assembled from the upper Wabash villages to oppose him. He thus considered that he had accomplished his mission by attracting this force toward him rather than its moving east against Harmar.[74]

Harmar's Defeat in northern Indiana and Hamtramck's rather ineffectual companion campaign in west-central Indiana emboldened the Native Americans in the lower portion of the Northwest Territory toward greater aggressions. Both the federal government and the District of Kentucky realized that additional expeditions similar to but more successful than Harmar's campaign would need to be launched in 1791.

George Washington ordered Northwest Territorial Governor General Arthur St. Clair to assemble and conduct the primary, federally-directed 1791 campaign. He was to start at Fort Washington (Cincinnati) and march north once again to that hotbed of Native American resistance: the cluster of Shawnee, Miami, and Delaware villages known as Kekionga (present Fort Wayne, Indiana). Meanwhile, Washington directed General Charles Scott to assemble a second, Kentucky militia-driven campaign. This would be directed toward a second known hotbed of resistance: the group of Kickapoo, Wea, and Potawatomi villages on the Wabash river known as Ouiatenon (near present Lafayette, Indiana).[75] Scott called the all-militia expedition to assemble at Frankfort, Kentucky on May 15, 1791.[76] The Kentuckians responded well to the call, and 852 soldiers volunteered for the mission. Scott was only authorized to

take 750, so some of the late-comers had to be turned away.[77] Colonel (later, Brigadier General) James Wilkinson served as second-in-command of the Kentucky militia army.

Scott's expedition departed Fort Washington on May 24, 1791.[78] For eight days, the expedition struggled north through terrain that was rugged, and the army was drenched by frequent rainstorms which ruined a portion of the supplies. The Army was forced to gather and eat blackberries that grew wild on bushes along their trek north.[79]

As Scott's army reached an open prairie just south of Ouiatenon, the unit was discovered by an enemy sentry, who raced back to the main villages and alerted the inhabitants. Scott's main force moved within visual distance of the villages, and they noted the residents hurriedly crossing the Wabash River by canoe.[80] Scott immediately split his forces. Colonel John Hardin led a contingent northwest toward Big Pine Creek, where he destroyed a large Kickapoo village in that vicinity. Meanwhile, General Scott led the main force on toward the principal cluster of villages. Ouiatenon itself was burned to the ground, as well as several other large villages in the immediate vicinity, including Keth-tio-e-ca-muck near the mouth of the Tippecanoe River.[81] The Native Americans suffered 38 killed and 58 taken prisoner.[82] The Kentuckians had no killed and five wounded.[83]

General Scott's raid was considered very effective by both President Washington and Northwest Territory Governor General St. Clair. As St. Clair readied his large campaign in the mid to late summer of 1791, he directed Colonel Wilkinson conduct a second raid into west-central Indiana, as a diversion similar in concept to what Hamtramck's expedition had been to Harmar's 1790 campaign. Wilkinson gathered between 500[84] and 525[85] Kentucky militia for this follow-up raid, whose target was the Miami (Wea)[86] and Kickapoo[87] Eel River village of Kenapacomaqua (also known by its French name, "L'Anguille"), about six miles upstream from present Logansport, Indiana.[88]

Although General St. Clair intended that both forces would move north simultaneously to divide and distract the defending Native Americans,[89] supply and personnel issues delayed St. Clair. Wilkinson's command left Fort Washington on August 1st, 1791, well ahead of St. Clair's departure.[90] Upon the army's arrival at Kenapacomaqua, Wilkinson ordered an immediate attack. Two Kentuckians and nine Miamis died in the assault,[91] while 34 Miamis were taken prisoner.[92] Wilkinson destroyed all grain to be found in the area, then retreated by Scott's trace (as military and other paths were sometimes known in those days) from earlier in the year.[93] Due to Wilkinson's success in this raid, he was subsequently given command of the regular army's Second United States Regiment.[94]

We see that in virtually all cases outlined above, the armed incursions north of the Ohio River were ordered by Kentucky authorities, directed by Kentucky militia officers, and pursued by Kentucky militia soldiery. In all but a very few cases, these expeditions were conducted independently of any federal organizations and authorities east of the Appalachian Mountains. So it is indeed difficult to come to any other conclusion than these individualistic campaigns, taken together in a long view, constitute nothing less than an independent and private war by Kentucky against the Native American nations of the Old Northwest.

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Monograph # 3

1840-1890: *The United States' Western Colonial Wars*

The Nineteenth Century was the time of building of great empires across the world. At mid-century, Great Britain was moving to the northwest in India to consolidate its gains in two wars against the Sikhs. It would assume sovereignty of the entire Indian subcontinent in 1858. Late in the century, in southern Africa, Britain was moving steadily overland north from Cape Colony, to eventually combat both the native Zulus and then the Afrikaner Boers. From west of the Ural Mountains, Russia combatted tribe after tribe as it moved eastward into the steppes of Siberia. And as the century closed, many European nations carved up Africa proper into colonial fiefdoms, battling scores of native inhabitants in the process.

America joined this end-of-century thrust into the arena of world domination in what is now somewhat generally, and certainly very reluctantly, recognized as a colonial land grab. It annexed the Hawaiian Islands in 1895 and gobbled up most of what remained of Spain's overseas ocean empire (Cuba, Puerto Rico, Guam, and the Philippine Islands) in the Spanish-American War of 1898. How very curious, then, that most of American society fails to recognize that earlier in the Nineteenth Century, our entire country west of the Appalachian Mountains was acquired via the traditional empire-building model which had been practiced by colonial powers from time immemorial. The model is clear and was virtually universally followed. First, a territory is acquired (either by purchase, treaty, force, or some combination of the three) from another colonial power. Second, it is fully, and often violently, wrested from the indigenous peoples currently residing upon it, often with drastic consequences to the native societies it displaces. Finally, it is economically exploited, almost always by the introduction of new infrastructures, techniques, or tools used in the process.

Perhaps no anecdote more clearly illustrates the Americans' perplexing inability to recognize its own continental, colonial empire-building endeavors than the following: At the time of British Prime Minister Winston Churchill's campaign against Indian self-government [circa 1937], Mrs. Ogden Reid of the *New York Herald Tribune*, who was placed next to Churchill at a White House dinner, asked him: "What do you intend to do about the poor Indians?" Churchill replied: "Madam, to which Indians do you refer? Do you refer to the brown Indians of the Asian subcontinent, who under benign and beneficent British influence have multiplied alarmingly? Or do you refer to the red Indians of this continent, who under the current Administration are almost extinct?'[1]

Throughout the late-Eighteenth Century and extending into the final third of the Nineteenth Century, the European-Americans steadily acquired territory on the North American continent, as the following list delineates:

- Trans-Appalachia (conquered from Great Britain): 1778-1783
- The Floridas (partially purchased and partially conquered from Spain): 1795-1819
- The Louisiana Purchase (purchased from France): 1803
- Texas Annexation (essentially conquered from Mexico): annexed 1845
- Oregon Territory (purchased from Great Britain): 1846
- The Mexican Cession (conquered from Mexico): 1846-1848
- The Gadsden Purchase (purchased from Mexico): 1853
- Seward's Purchase [Alaska] (purchased from Russia): 1867

This above list illustrates the first phase of empire building: North American continental territorial acquisition (either by purchase, treaty, force, or some combination of the three) from another colonial power. This list is based on facts and is incontestable. The next phase, the wresting of land from the indigenous peoples currently residing upon it, was quite violent and controversial. This process was characterized by a clash of cultures that led to numerous wars. The wars were characterized by a relatively infrequent but intensely savage level of violence leading to short, bloody battles and wars. Many times these conflicts resulted in inconsequential conclusions, thus making it difficult to determine the outcome of the battle and/or a war's ending point.

Perhaps the best way to illustrate the entire process is to make a relatively long, but essentially simple list of land acquisitions and resulting "Indian Wars" that resulted from the acquisitions:

- Trans-Appalachia (1778-1832) – (Resulting from the Revolutionary War, 1775-1783)
  - *Algonquian [Woodland] Confederation Wars, 1778-1832*
    - Revolutionary War in the Western Theater, 1778-1782
    - Cherokee Wars, 1776-1795
    - Kentucky State Campaigns, 1779-1791
    - Northwest Indian Wars, 1790-1795
    - War of 1812 in the Northwestern Theater, 1811-1813
    - Blackhawk War, 1831-1832

- Southeast Gulf Coast (1810-1819) – (Resulting from the War of 1812)
    - The War of 1812 in the Southwestern Theater, 1811-1815
    - The Creek War, 1813-1814
  - *Seminole Wars, 1817-1858*
    - First Seminole War, 1817-1819
    - Second Seminole War, 1835-1842
    - Third Seminole War, 1855-1858

- Louisiana Purchase (1803)
  - *Sioux-Cheyenne Wars, 1862-1890*
    - Dakota War, 1862
    - Cheyenne War, 1864
    - Colorado War, 1864-1865
    - Red Cloud's War, 1866-1868
    - Great Sioux War, 1875-1877
    - Cheyenne War, 1878-1879
    - Ghost Dance War, 1890

- Texas Annexation, 1836, 1845 – (resulting from the Texas Revolution against Mexico, 1836, and subsequent annexation by the United States, 1845)
  - *Comanche Wars, 1836-1875*
    - Red River War, 1874-1875

- Oregon Purchase, 1846
  - *Pacific Northwest Wars, 1847-1879*
    - Cayuse War, 1847-1856
    - Rogue River War, 1855-1856
    - Yakima War, 1855-1858
    - Snake River War, 1855
    - Kilckitat War, 1855
    - Coure d'Alene War, 1858
    - Nez Perce War, 1877
    - Bannock War, 1878
    - Sheepeater War, 1879

- Mexican Conquests and Purchases, 1846-1853 – (Resulting from the Mexican-American War of 1846-1848, and the Gadsden Purchase, 1853)
  - *Apache Wars, 1848-1886*
  - *Navajo Wars, 1849-1864*
    - Carson's War, 1861-1864
  - *California-Nevada Wars, 1850-1873*
    - Mariposa War, 1850-1851
    - Klamath/Salmon Wars, 1855
    - Mendocino War, 1859
    - Snake Indian War, 1864-1868
    - Modoc War, 1872-1873
  - *Utah Wars, 1851-1880*
    - Walker War, 1853
    - Tintic War, 1856
    - Paiute War, 1860
    - Ute Wars, 1865-1879
    - White River Wars, 1879

- Seward's Purchase (Alaska), 1867

Finally, as the United States gained control of these colonial areas, it introduced Infrastructures and tools to economically exploit the newly acquired regions:

- Infrastructures of Economic Exploitation:
  - *East of the Mississippi River:*
    - Canals
    - Levees
    - Water-driven Grain Mills
    - Field Tiles
  - *West of the Mississippi River:*
    - Railroads
    - Mines for resource extraction
    - Water &/or Steam-driven sawmills
    - Granaries
- Tools of Economic Exploitation:
  - *East of the Mississippi River:*
    - The Cotton Gin
    - The Long Rifle
    - The Cross-cut Saw
    - Canal Boats
    - Steamboats
    - Wind-driven Clipper Ships
  - *West of the Mississippi River:*
    - The Steam Locomotive
    - The Refrigerated Boxcar: for transporting meat, especially beef
    - Hawken/Sharps Buffalo Rifles
    - Winchester Rifles and Colt Pistols
    - Steel Traps
    - The Moldboard Plow
    - The Grain Reaper
    - Barbed Wire Fence
    - Steamboats
    - Iron/Steel Ocean-going Steamships

I believe it is clear that anyone willing to view the United States' westward expansion in the Eighteenth and Nineteenth Centuries with a clear and unjaundiced eye will recognize that this expansion, commonly known as "Manifest Destiny," was nothing less than a classic empire-building endeavor. Its nature resulted in many horrific occurrences and unfortunate results, and certainly cannot be defended or condoned with regard to the current state of evolution of human society's mores. However, it also

must be placed and viewed in the context of the time period in which it occurred: it was a part of standard societal and governmental activities during the ages preceding the mid-Twentieth Century. Thus, while "Manifest Destiny's" glory must be tempered a recognition of the evil, inequity, and cruelty which it engendered, it also cannot be taken for a cause of national societal self-flagellation. It must be recognized and studied for what it is: a phase of American history which resulted in undoubtedly positive, but also undeniably negative, national physical growth and economic expansion of the United States of America.

Endnote

1. Lord Mountbatten speech to Winston S. Churchill, Society of Edmonton, Alberta, in 1966, *Finest Hour*, no. 127, summer 2005, p. 18; cited in Andrew Roberts, *A History of the English-Speaking Peoples Since 1900* (Great Britain: Weidenfeld & Nicolson, 2006, and New York: Harper Perennial, 2008), 235.

Monograph # 4

1862: *General Nathan Bedford Forrest's Greatest Battle: Parker's Crossroads*

General Nathan Bedford Forrest is justly renown as one of the great small-group commanders in the history of warfare. He raised himself from abject poverty to become a pre-Civil War millionaire planter.[1] He began the Civil War as a private in the ranks of the Confederate army and ended it as a lieutenant general. He is one of the very few generals of his era whose tactics of mobile warfare are still studied by modern soldiers.[2]

General Forrest was involved in numerous battles in the Civil War, and is justly heralded for such famous and astounding victories as Thompson's Station, Okolona, and Brice's Crossroads. However, there is one rather insignificant battle – which in one sense can be considered a draw – that perhaps more than any other placed his full range of skills and capabilities on full display. This is the small battle at Parker's Crossroads, Tennessee on December 31, 1862.

Parker's Crossroads has certainly been overshadowed in the pantheon of Civil War battles by the vast and bloody conflict at Murfreesboro, Tennessee, which took place at the same time that Forrest's small battle occurred in West Tennessee. Parker's Crossroads was a battle in the larger late-1862 Confederate West Tennessee raid, conducted by Forrest to ease pressure on John C. Pemberton's beleaguered army in the environs of Vicksburg, Mississippi. Before we can discuss the raid and battle, we need to view Nathan Bedford Forrest's personal characteristics, his strategies and tactics, and how these all affected his conduct of the astounding Battle of Parker's Crossroads.

Forrest's Personality Traits

It is important to realize that Nathan Bedford Forrest, though exhibiting many indicators of genius, was uneducated and untutored in the military arts. He attended only two 3-month terms of grade school,[3] and by his own admission remarked that he had never spied a pen without envisioning it as a snake.[4] Forrest stated, "I ain't no graduate of West Point, and never rubbed my back up against any college."[5]

Forrest was a born leader of men, and he commanded leadership over his friends from his early boyhood. Other traits exhibited early on were assertiveness and intimidation.[6] During his early childhood, he and some other children were picking blackberries when they suddenly discovered a rattlesnake lurking beneath the bushes. While the other children scattered and ran, Bedford Forrest picked up a stick and

beat the snake to death.[7] There are numerous examples from his youth of Forrest backing down multiple assailants or mobs, armed only a knife or single pistol.

As Forrest grew older, life on what was then still the frontier of Mississippi brought to the fore many traits that would serve Forrest well in the military career into which he was thrust when the storm of the Civil War broke in April, 1861. He showed a penchant for quick results and prompt execution, and in ready and clever expedients, balanced by sound judgment. In business and plantation management, Forrest always instantly knew what he wanted and never exhibited languor, wariness, panic, or fear.[8] It must be noted that Forrest's business acumen was honed not only in plantation ownership and operation – itself an extremely onerous profession – but also in slave trading, the practice of which was reprehensible to large segments of both Northern and Southern societies even at that time. He exhibited self and situational control, quickness of mind, rapidity of directions, and iron-willed expectation of rapid execution of orders.[9] Yet, these same personal characteristics that created greatness in Forrest – honor [as he envisioned it], violence, control, passion – brought the worst out in him as well.[10]

Forrest's Fundamental Strategic Tenants

Nathan Bedford Forrest had many martial strengths that made him one of the most innovative and feared small group commanders of the Civil War. One of his strengths was that he made careful study of the officers and men of his command.[11] He was a strong advocate of strategic reconnaissance, sending scouts out in all directions tangent to his intended line of march. In his homely terminology, it was just as important for him "…[t]o know where they ain't – as to know where they are."[12]

Once an enemy force had been located, Forrest almost invariably pulled some sort of deception to make his opponent think he was much stronger than he really was. He would do this by parading the same troops around and around city blocks or woods and hills, have multiple fake unit flags flown, or send "deserters" into the enemy encampments to spread disinformation about Forrest's overwhelming strength (among other ruses).[13] Once the battle was joined, Forrest made every effort not to stand defensively and absorb a charge, but to take the initiative and either charge first or countercharge, as he put it, to "charge too."[14]

As a battle unfolded, N.B. Forrest made sure that part of his troops was always ready for another assault or a pursuit. While he eschewed maintaining strategic reserves, he did make a point of rotating part of his men out of the line of fire to rest while continually harassing the enemy with small units of two or more companies.[15] He was a great believer in artillery (as was Napoleon),[16] always employing a strong unit of well-trained horse artillery on his raids. Forrest actively engaged in the placement of his individual

artillery pieces, usually well forward on an enemy's flank whey they could wreak maximum carnage and confusion.

Once the apex of the battle was reached, and the enemy wavered in any part of the line, Bedford Forrest was implacable in pressing a beaten foe, never allowing the opponent the moral power, time, or space to turn and regroup,[17] or even to reach the relative sanctuary of a river crossing or defensive earthworks. More than once, he drove his cavalry horses at such a pace that they dropped dead from exhaustion.[18] And yet, that being said, he equally knew the value of withdrawing, even precipitously, at a time of danger to the existence of his command.[19]

Forrest's Battle Tactics

Nathan Bedford Forrest was a commander who seemed to have an inexhaustible store of unorthodox battle tactics, and he seemed to be able to draw on the right one, at the right time, in every instance. Nevertheless, he did have certain standard maneuvers, in the employment of which he and his men were devastatingly effective. First and foremost was the flank attack, with which he ultimately sought to encircle and envelope his opponent. His favorite method of employing the flank attack was to push directly forward a screen of skirmishers, which he made every effort to appear as strong as possible. Meanwhile, he picked the most aggressive and reckless of his remaining men to attack one or both flanks of the enemy line. When possible, he employed the use of hills or wooded terrain to mask the course of this flank movement, so that the attacks from the sides or to the rear seemed to materialize from thin air.[20] He used horses to transport troops to the site of battle, but then dismounted the troops so that they fought as infantry, under what cover they could quickly find, when engaged.[21] When Forrest could not fully encircle his opponent, he often sought to roll up their flanks, instructing his subordinates to "hit 'em on the e-e-end.[22] Thus, he employed the tactics of the dragoon (or mounted infantry), rather than strictly that of cavalry, when the actual fighting took place.

Forrest was intimately involved in his combats, almost invariably personally leading the charges that he ordered. Upon the outset of an attack, his standing order was, "…forward, men, and mix with 'em."[23] Forrest was usually in the forefront of "mixing with them," reputedly personally vanquishing 30 opposing soldiers in combat. His hands-on involvement also resulted in "in-person" battlefield reconnaissance, often conducted in such close proximity to the enemy that Forrest could observe enemy movements without the use of field glasses.[24]

He probably never heard of "Mad Anthony" Wayne, and may only have dimly recalled Andrew Jackson, but Nathan Bedford Forrest maintained the long American tradition of psychological warfare.

One of the ploys he almost always used when investing a fort or strongpoint was to send a message under a white flag to the garrison in question. Upon being admitted into the enemy commander's presence, Forrest's envoy stated that if the garrison surrendered without a fight, they would be offered every consideration granted to prisoners-of-war, but if Forrest was forced to assault the fortification, he would grant no quarter to those who resisted.[25] Forrest usually had no need to use this barbaric practice, which was outside the bounds of civilized warfare even in that day. However, there was at least one time when this tactic was actually put into practice and got out of control, at Fort Pillow, on April 12, 1864, resulting in the slaughter of a disproportionally high number of black Union prisoners. This atrocity has forever remained a terrible stain on Forrest's legacy.

Forrest's West Tennessee Raid, In Context

The Confederate West Tennessee Raid of late-1862, as well as the Battle of Parker's Crossroads which was a component of this raid, should be viewed within the context of the larger scope of the American Civil War in the Western Theater. Federal General Ulysses S. Grant was in the midst of a campaign to conquer Vicksburg, Mississippi, the key to control of the entire Mississippi River Valley and currently under Confederate control. Grant was advancing from Memphis, Tennessee and Corinth, Mississippi toward Vicksburg through northern Mississippi. The Mississippi Central and Mobile & Ohio Railroads were his main sources of supply. Confederate General Earl Van Dorn was sent to deal with the Mississippi Central line, and he did so, destroying Grant's complex of supply depots at Holly Springs, Mississippi in December, 1862.

This left the Mobile & Ohio Railroad with which to be dealt. The Mobile & Ohio nearly directly dissected Union-occupied "West Tennessee," that area of Tennessee east of the Mississippi River, west of the Tennessee River, south of the Ohio River, and north of the Memphis & Charleston Railroad. Though conquered and occupied by Union troops, this area remained a hotbed of Confederate sentiment. It was considered by southern military leadership to be an area ripe for procuring weapons and supplies, as well being a potential recruiting mecca.

General Nathan Bedford Forrest was at that time attached to the Confederate Army of Tennessee, commanded by General Braxton Bragg. Bragg's army was engaged in a slow strategic withdrawal from Nashville toward Chattanooga, Tennessee. At this point in time, Bragg and Forrest maintained a relatively amicable working relationship as superior and subordinate. However, this relationship was soon to receive the first of what would be several hard jolts, eventually leading to extreme enmity between the two generals. Confederate President Jefferson Davis wished for a series of hard strikes against General Grant's

Mobile & Ohio supply line, particularly at Jackson, Tennessee, which formed a junction of the vital Mississippi Central and Mobile & Ohio Railroads. Nathan Bedford Forrest had already developed a formidable reputation as a cavalry raider, and the Confederate military leadership tapped him for the job. Bragg was loath to lose Forrest's seasoned cavalry brigade at a time when he was being heavily pressed by Federal General William S. Rosecrans' Army of the Cumberland in Central Tennessee. Bragg thus called Forrest to his headquarters and ordered him to turn his veteran and cohesive brigade over to General John A. Wharton. Forrest was then to recruit the skeleton of a new cavalry brigade in Central Tennessee, complete the recruiting of the brigade in West Tennessee in the midst of an offensive raid, arm his troops from captured Union weapons and supplies during the raid, and destroy as much of the Mobile & Ohio and Mississippi Central Railroads as possible in the vicinity of Jackson, Tennessee!

Forrest was understandably angered at the loss of his veteran brigade coupled with the enormity of the task assigned to him. The complex and difficult mission would almost certainly be made more onerous by the coming of bad weather and high water in the late-fall and early-winter of 1862 in what was still the frontier area of West Tennessee. He protested vehemently to Bragg in an effort to retain his veteran troopers, but it was to no avail. Bragg was a stubborn and vitriolic commanding officer, and once his mind was set, he brooked no dissent with his decisions. Forrest had his orders, but the first step was taken in what would eventually be a titanic explosion in the relationship between two of the Confederacy's most volcanic personalities.

Forrest duly set up a recruiting center in central Tennessee and soon built a nucleus of raw troops with which to build his brigade. Some of the recruits were able to supply their own horses, but many were unhorsed at this early stage of the unit's development. The growing brigade was very poorly armed, some soldiers bearing no arms whatsoever, others armed the only swords. Most were armed with eclectic array of hunting rifles, fowling pieces, shotguns, or flintlock pistols. Lucky indeed were the men who arrived with cap-and-ball six-shooter pistols or military long-arms of any sort, ranging from Model 1816 flintlock to Model 1842 percussion-cap muskets.

Initially, General Forrest was able to assemble four full cavalry regiments and two batteries of artillery; ultimately he was able to assemble approximately 1,800 troopers for his brigade:[26]

- 4th Tennessee Cavalry; Colonel J.W. Starnes, commanding
- 8th Tennessee Cavalry; Colonel George G. Dibrell, commanding
- 9th Tennessee Cavalry (a.k.a.: 19th Tennessee Cavalry[27]); Colonel Jacob B. Biffle, commanding
- 4th Alabama Cavalry; Colonel Alfred A. Russell, commanding (which contained a cadre of veterans)
- Freeman's Battery; Captain S. L. Freeman, commanding (5 guns)

- Morton's Battery; Lieutenant John W. Morton, commanding (2 guns)

Eventually, over time, Forrest was able to add more small units to his command, until at the time of Parker's Crossroads, he had the above units plus those below as components of his brigade:

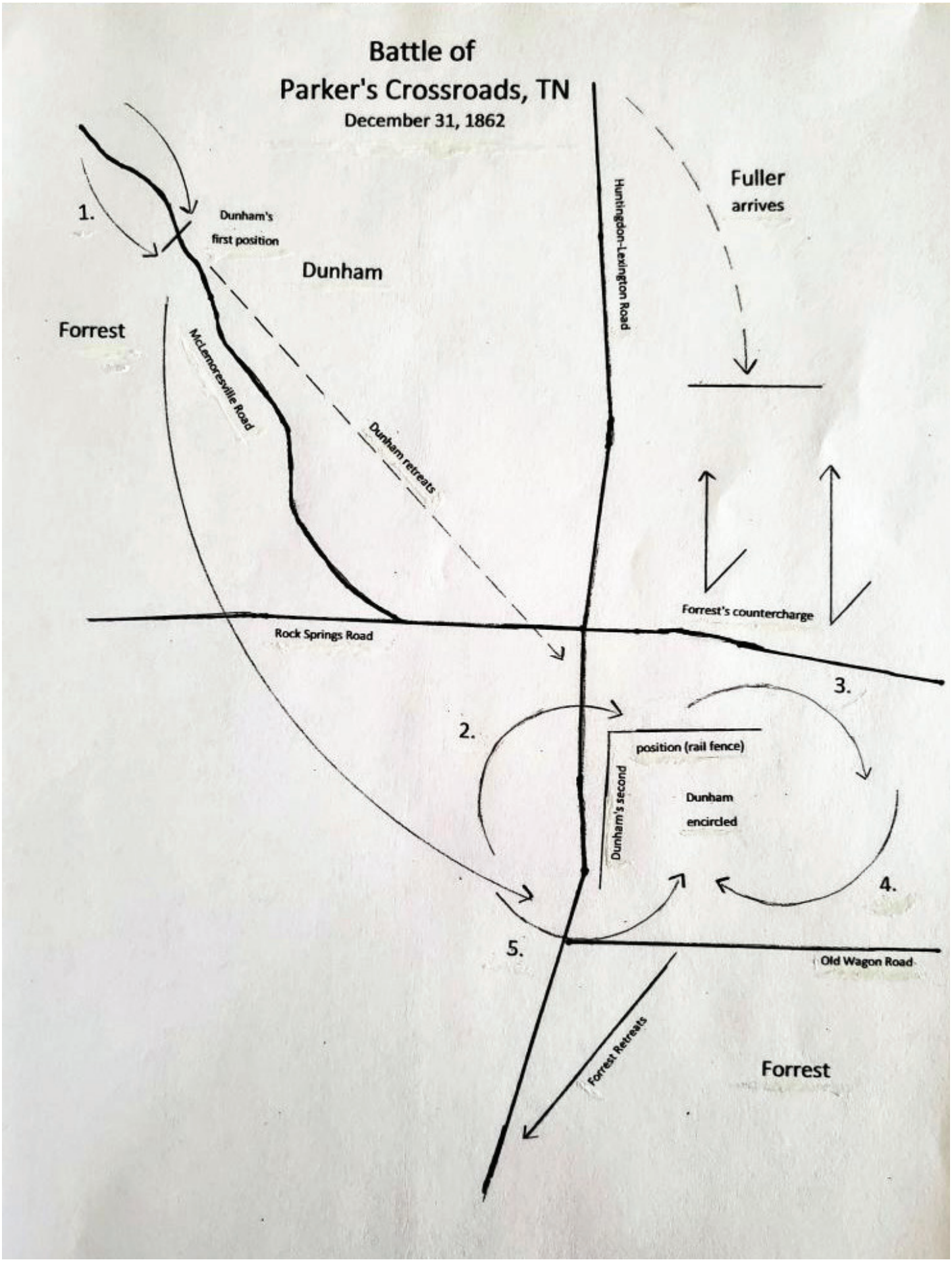
- Kentucky Battalion, Colonel Thomas G. Woodard, commanding
- 2nd Battalion, Tennessee Cavalry, Major Nicholas N. Cox, commanding
- Napier's Cavalry Battalion (a.k.a.: 10th Tennessee[28]) Colonel Thomas Alonzo Napier, commanding

Forrest headed for West Tennessee, and crossed the Tennessee River at Clifton, Tennessee on December 15, 1862. From that point until January 3, 1863, he fought skirmishes or battles at Lexington, Jackson, Carroll Station, Spring Creek, Forked Deer Creek bridge, Rutherford's Station, three skirmishes near Huntingdon, Clarksburg, Parker's Crossroads, and two skirmishes at Clifton as he was in the process of re-crossing the Tennessee River. At one point or another in the raid, Forrest's riders captured Humboldt, Trenton, and Union City, Tennessee. His brigade wreaked tremendous damage on several railroads in the central and upper West Tennessee area, including the vital Mobile & Ohio. Additionally, Forrest was able to completely rearm his entire brigade with modern Union rifle muskets and pistols, completely resupply them with ammunition, and fully re-provision his units with Union clothing, food stuffs, wagons, and all other manner of military gear. As December 31, 1862 approached, the Federal interception net was rapidly closing around Forrest, and his heavily-laden brigade was in full withdrawal toward the Tennessee River and vital road junction of Parker's Crossroads.

<u>The Battle of Parker's Crossroads</u>

One biographer said that, "…the careful student of the military career of Forrest will find no better evidence of his remarkable genius than the fight at Parker's Cross-Roads."[29] I certainly agree with this assessment. I personally found this battlefield site by accident. On a battlefield-walk/research trip, I was in the midst of traveling by automobile from the battlefield at Shiloh, Tennessee toward the site of the Battle of Perryville, Kentucky. As I consulted a road atlas, I noted a battlefield site named "Parker's Crossroads." I was mentally surprised, because after many years of what I thought had been a fairly detailed study of the Civil War, I had never heard of the "Battle of Parker's Crossroads." I decided to make a slight detour to visit this site.

Was I in for a treat! Intermittently driving and walking as much of the battlefield as I could, I was amazed at what the Confederate forces under General Nathan Bedford Forrest had been able to accomplish on the day of battle. In an era where time, space, and conventional military wisdom dictated that most generals could only execute one flanking attack a day, Forrest's Confederates had executed five


Battle of
Parker's Crossroads, TN
December 31, 1862
1.
Dunham's
first position
Dunham
Forrest
McLemoresville Road
Dunham retreats
Huntingdon-Lexington Road
Fuller
arrives
Forrest's countercharge
Rock Springs Road
3.
2.
position (rail fence)
Dunham's second
Dunham
encircled
4.
5.
Old Wagon Road
Forrest Retreats
Forrest

flanking attacks, one complete encirclement of a segment of the enemy force, one "reverse" assault after being surprised, and a precipitous and successful withdrawal under fire!

As Forrest approached Parker's Crossroads from the northwest, two Northern brigades, both under the command of Brigadier General Jeremiah C. Sullivan, were in a position to intercept him. The unit most directly in Forrest's path was Sullivan's 1st Brigade, Colonel Cyrus L. Dunham, commanding. It was composed of the following infantry regiments and artillery units:[30]

- 50th Indiana Infantry; Colonel Cyrus L. Dunham, commanding
- 122nd Illinois Infantry; Colonel John I. Rinaker, commanding
- 18th Illinois Mounted Infantry; Captain John Davis, commanding
- 39th Iowa Infantry; Colonel H.J.B. Cummings, commanding
- 7th Wisconsin Artillery Battery, Lieutenant Arthur B. Wheelock, commanding

A second unit under Sullivan was in a position to possibly support Dunham's brigade depending on the path of Forrest's retrograde movement and the ability of Dunham to slow Forrest's withdrawal:

- Sullivan's 2nd Ohio Brigade; Colonel John W. Fuller, commanding
    - 27th Ohio Infantry; Lieutenant Colonel Zephaniah Swift Spaulding, commanding
    - 39th Ohio Infantry; Colonel Edward F. Noyes, commanding
    - 63rd Ohio Infantry; Colonel John W. Sprague, commanding

Both these brigades together numbered about 3,000 men,[31] considerably larger than Forrest's total force. However, each Federal brigade was approximately the same size, at roughly 1,500 soldiers per brigade; neither unit by itself was as large as Forrest's opposing brigade.

The morning of December 31, 1862 began with Nathan Bedford Forrest's cavalry brigade camped at Flake's Store on the McLemoresville Road, 6 miles west of Clarksville, Tennessee and 4 miles northwest of Parker's Crossroads. Meanwhile that same morning, Colonel Dunham's brigade marched due south from Clarksville to Parker's Crossroads, then the 50th Indiana and 18th Illinois Regiments were turned northwest up the McLemoresville Road about one mile to an area locally known as Hick's Field.

Concurrently, Forrest continued his overall retrograde movement to the southeast toward the Tennessee River down the McLemoresville Road, with the 4th Alabama, 8th Tennessee, and Freeman's Battery in the van. The Confederates ran smack into the Federals at Hick's Field and quickly deployed. Forrest, as was his practice, quickly pushed skirmishers to the central front, circling the 4th Alabama to his

left and the 8th Tennessee to his right. Again, according to his preference, he accompanied Freeman's Battery to the left, personally reconnoitered, then placed Sergeant Nat Baxter's cannon at an advanced, exposed, and critical positon on the end of 18th Illinois' line. Quickly enfilading the Federal line with cannon fire, sowing confusion in the enemy ranks, and creating a frenzy with his double envelopment by the 4th Alabama and 8th Tennessee (in the first of his flanking attacks of the day), Forrest caused the Federals to retreat precipitously down the McLemoresville Road to Parker's Crossroads.

Again according to form, Forrest closely followed the retreating Federal troops to Parker's Crossroads with the troops he had on the scene. He quickly sent word back along McLemoresville Road, exhorting his remaining units to quickly move up and follow suit.

To the Federals' credit, even with the immense pressure Forrest was exerting on his retreating troops, Dunham was able to pull his retreating 50th Indiana and 18th Illinois into a V-shaped line – the apex pointing northwest toward Forrest's onrushing cavalry – just to the southeast of the crossroads. He rushed other of his units forward to fill in the gaps and strengthen his hastily assembled line. Just in the nick of time: Forrest pushed his onrushing 4th Alabama and 8th Tennessee into the west-facing portion of the "V," with the with 4th Tennessee and 9th/(19th) Tennessee immediately in tow.

Forrest then executed his second flank attack of the day. Leaving the 4th and 9th/(19th) Tennessee Regiments to hold the west line, he adroitly shifted the 8th Alabama and the 8th Tennessee to the north, then east around the tip of Dunham's "V." He merged these with the onrushing 2nd Tennessee, 10th Tennessee (Napier's), and Kentucky battalions, along with his hard-charging horse artillery. With these units, Forrest created a new front along the north arm of the Federal "V." Once again presciently, he placed Freeman's artillery at the apex of Dunham's "V," where it could enfilade both extensions of the line. The Federals of the north-facing line, in their haste to find shelter from the ravenous Confederate firepower, had taken cover behind a split-rail fence. This was tailor-made for the guns of Freeman's battery (plus Baxter's later-arriving single cannon and Morton's two-gun battery, which was placed at the east end of the Federal fence line). The fast-firing cannons splintered the dry wood of the fence and created grievous wounds among the crouching Federal soldiers. Unable to tolerate the galling fire, the Northerners attempted to counter-assault the Southerner's line, but were driven back by the accurate fire of Confederate rifles and the flame-belching cannons.

Not content, Forrest executed his third flank attack of the day on Dunham's beleaguered brigade. Pulling the veteran 8th Alabama from the line and uniting it with the also-pulled Kentucky Battalion, Forrest instructed this task force to once again flank to their left, beginning an envelopment of Dunham's right rear area. Dunham, sensing disaster falling upon him from his right, began to pull a significant portion of

his troops from the split-rail fence line, attempting to meet this new threat while at the same time saving as much as his now-threatened command as possible. The 8th Alabama noted this Federal southward movement, and marched to its left to intercept – Forrest's fourth flanking attack of the day.

On the west front of the "V," the Confederate 9th/(19th) Tennessee Regiment noted Dunham's southward march and circled to its right (Forrest's fifth flank march of the day) to build its part of the sack into which Dunham was now marching. Dunham rushed blindly forward and was neatly encircled: the 9th/(19th) Tennessee Regiment pounding him from the south and west, Freeman's battery hammering from the northeast, the 4th Alabama raking him from the east, and the Kentucky Battalion neatly closing the sack to the southeast.

White flags began to sprout from Dunham's southern command, and General Forrest had just begun surrender negotiations when a fresh outburst of heavy firing drifted to him from far to the north. A remnant of Dunham's brigade had remained behind the northward-facing split rail fence, pinned there by the 8th Tennessee, the 2nd Tennessee Battalion, the 10th/(Napier's) Tennessee Battalion, and Morton's battery plus Baxter's single cannon. Suddenly crashing down from the north behind the southward-facing Confederates came Fuller's tardily-arriving 2nd Ohio Brigade: 1,500 revenge-minded Federal infantrymen. Forrest's early-day, northward-directed reconnaissance unit had misunderstood orders and watched the wrong road, allowing Fuller's brigade to steal up on Forrest undetected. Forrest broke off negotiations with Dunham and rode like the wind to his northern line, where he faced his panicky troopers. "General, what're we gonna do?" cried a trooper. "Charge 'em both ways!" shouted the fiery Forrest. Hastily gathering an eclectic group of about 300 southern soldiers, some unarmed and others armed with sticks or artillery spikes, Forrest led a howling charge into the teeth of the Federal brigade. The audacious ruse worked: Fuller blinked and stopped dead in this tracks.

It was just the break that Forrest needed. Demonstrating that he "knew when to git when the gittin' was good," Forrest gathered and consolidated his scattered units, then resumed his withdrawal to the south toward the Tennessee River. A few zealous survivors of the Battle of Parker's Crossroads nipped at his heals, and a few units of the now rapidly deflating net meant to capture him would harass the Confederate brigade, resulting in two skirmishes near the river crossing at Clifton, Tennessee. But on January 3, 1863, Forrest's Brigade crossed the Tennessee River and reached the relative sanctuary of the east bank, the Confederate West Tennessee Raid of 1862 at an end.

A few analysts and pundits have stated that the Battle of Parker's Crossroads was at best a draw, and at worst a defeat for General Forrest. In fairness, Forrest did lose about 300 troopers who were captured, a few wagonloads of supplies and a couple of cannons were lost, and he abandoned the field of

battle to his enemy at the conclusion of the fight. Yet, in the bigger context of the West Tennessee raid, Forrest marched into enemy territory; successfully outfitted, supplied, and "blooded" his rag-tag unit; completed his mission of railroad destruction in the Jackson, Tennessee area; fended off numerous federal combat units which were intent solely with his destruction; and successfully regained the safety of friendly territory, his unit integrity and cohesion virtually intact.

Nathan Bedford Forrest's "…tactics have been copied by everyone from Erwin Rommel to George S. Patton. Seizing the advantage, and bringing the maximum force to bear as quickly as possible, remains one of the most important cornerstones of modern military thinking."[32] Forrest amassed an impressive list of victories in the American Civil War, including authorship of one of the three "battles of annihilation" credited to that terrible war (The Battle of Brice's Crossroads; the Battle of Logan's Crossroads and Nashville being the other two). With the perspective of time, and in its addition to Forrest's near universal acclaim for unprecedented native tactical wizardry, the Battle of Parker's Crossroads might be Lieutenant General Nathan Bedford Forrest's greatest victory.

Endnotes

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16. Wyeth, 499.
17. Wills, 141.
18. http://www.newworlddncyclopedia.org/entry/Nathan_Bedford_Forrest
19. Wyeth, 199.
20. Ibid., 614.
21. Ibid., 610.
22. Robert Selph Henry, *First With the Most* (Indianapolis: Bobbs-Merrill Co., 1944), p. 293; cited in Wills, 212.
23. Richard Taylor, *Destruction and Reconstruction: Personal Experiences in the Late War* (New York: Longmans, Green & Co., 1955), p. 244; cited in Wills, 56.
24. Wills, 59.
25. Wyeth, 81.
26. The majority of the information about the opposing units for the West Tennessee raid and/or the Battle of Parkers Crossroads are obtained from the following source: http://www.parkerscrossroads.com/Battle_Information/forces/index/htm . Both Wyeth and Wills confirm the basic information contained on this website. Variances from the information contained in these sources will be noted in separate endnotes.
27. http://www.civilwar.org/battlefields/parkerscrossroads/maps/parkers-cross-roads.jpg
28. Ibid.
29. Wyeth, 119.
30. The information about the Federal units for the Battle of Parkers Crossroads are obtained from the following source: http://www.parkerscrossroads.com/Battle_Information/forces/index/htm

31. Ibid.
32. Wyeth, xx.

Monograph # 5

1914-1918: *Air War Super-Units of World War I*

World War I introduced many technological innovations into the terrible business of warfare: the machine gun, poison gas, the tank, and an effective submarine being several of the most notorious. But perhaps the weapon that came into its own in the Great War which had the greatest impact on the military history of the Twentieth Century was the airplane. From the crude contraptions of 1914, barely able to stagger into the air at 60[1] miles per hour – to the efficient killing machines of 1918, most averaging 125 to 130[2] miles per hour and some capable of flying around 140[3] miles per hour, possessing outstanding maneuverability, and having the ability to carry multiple machineguns and/or hundreds of pounds of bombs – the airplane had a huge impact on World War I. Most importantly, the airplane had an increasingly greater impact on the almost endless wars that succeeded the Great War in the Twentieth Century.

From the beginning of World War I in August 1914 until the late-summer of 1916, the pilots of the Allied Nations and the Central Powers fought a see-saw battle in the air with the crude aerial weapons available to them. Initially, armament was limited to hand-held pistols, rifles, and other makeshift weapons. Machine guns appeared in late-1914, but were placed on swivel mounts for use by a second crew member, with all the weight and drag that this entailed. What was needed was the ability to fire a machine gun forward longitudinally from a fixed attachment on the aircraft's fuselage, along the pilot's line-of-sight, completely aimed and fired by the pilot alone. The problem was that the most efficient design for an airplane of that period was the "tractor" design, where a propeller pulled the plane along from the front of the fuselage. The danger was that a fixed, forward mounted and fired machine gun's bullets would damage the propeller and self-destruct the airplane.

Frenchman Roland Garros created the first technological innovation. He attached curved steel plates to the propeller of his Morane-Saulnier *"L"* (and later, the more advanced *"N"*) aircraft to deflect bullets fired forward from a fixed machine gun that otherwise would have struck the propeller. This was at best a hasty lash-up expedient, as the deflected bullets were quite likely to damage the propeller, the machine itself, or the pilot. Nevertheless, Garros took his plane up, shot down three German aircraft, and thoroughly frightened his opponents up and down the trench line. He was in the process of stalking a fourth victim when he was forced down behind enemy lines and captured with his plane intact. The

Germans were amazed by the plates, and forwarded the design to an innovative young entrepreneur named Anthony Fokker. He took a look at the design and realized he could improve upon it. Fokker incorporated what he saw into a more advanced design already being worked on, the "interrupter gear," and built the improved gear into his own Fokker "M.5K" monoplane aircraft. The interrupter gear operated by use of a cam on the propeller and a set of pushrod assemblies that were ultimately attached to the machine gun's trigger. When a propeller blade passed in front of the machine gun's muzzle, the cam/pushrod assembly released pressure on the gun's trigger and prevented the gun from firing.

The Fokker fighter took to the air in mid-summer 1915, and immediately asserted dominance over the opposing Allied air forces. Even though the now-renamed Fokker "E.1" possessed relatively modest performance, it did have some positive characteristics and innovations. The Fokker was a steady gun platform in a diving attack. It also had the machine gun's trigger on the control column, so the pilot could fly and shoot with one hand instead of juggling multiple tasks between hands. One of the E.1s was assigned to young Lieutenant Oswald Boelcke, who quickly used it to shoot down eight Allied planes by early-1916.[4] The new interrupter gave Germany a great technological advantage over its Allied opponents. Throughout the late-summer and fall of 1915, and into the early-winter of 1916, the new German combination of airplane, gear, and gun was so deadly to the Allies that they named this time period the "Fokker Scourge."

However, with the coming of the huge German offensive at Verdun, commencing in in February, 1916, change was in the air. The French introduced a new fighter, the Nieuport *"17,"* with its own interrupter gear and a significant performance advantage over the Fokker E.1. (The British fielded similarly superior Airco *"D.H. 2"* and R.A.F. *"F.E.2b"* pusher biplanes at nearly the same time.) But more importantly, the French also introduced an improved operational structure for its fighter arm. From the beginning of the war, the French had grouped their fighters into squadrons (known in French as "escadrilles") of three[5] to four (or six)[6] planes. Now the French grouped four escadrilles together to form "Groupes de Chasse," or fighter wings, with a complement of between 12 and 16 fighters. The first of the new groups was CG 12, originally composed of Escadrilles 3, 26, 73, and 103,[7] later enlarged by Escadrille 10,[8] and at times augmented by Escadrilles 37, 62, and 65.[9] These were all a part of the effort to create a "new math for those days; the cold calculation it took to move a dozen [Allied] planes into position where they could dive, guns blazing, on one or two Germans."[10]

The French were successful. They created the first "super-unit" of World War I: GC 12, *"Les Cicognes" ("The Storks"*).[11] This unit was so named because each of the escadrilles in the group flew into

battle with some representation of a flying stork painted on the fuselages of their planes. In time, many of the greatest aces in the French air force would be a member of one of Les Cicognes' escadrilles:

	Escadrille	Number of Victories:[12]
• Sous Lieutenant Jean Navarre	3	12
• Captain Georges Geynemer	3	54
• Sous Lieutenant Rene Dorme	3	23
• Captain Alfred Hertaux	3 & 26	21
• Captain Albert Deullin	3 & 73	20
• Captain Armand Pinsard	26	27
• Sous Lieutenant Claude Haegelen	103	23
• Captain Rene Fonck	103	75

The group would become famous not only for its high-scoring aces, but also for the planes they flew. The members of GC 12 would become justly idolized for the their Nieuport 17s, Spad VIIs, and Spad XIIIs, as "Les Cicognes" adopted updated aircraft models when these were produced throughout the war.

The British were next to get into the act. They had an initial advantage in that, from the start of the war, their pursuit (fighter) squadrons had always been bigger than either the contemporary French or German units, at 12 planes per squadron.[13] As the war progressed, these larger units somewhat made up for the fact that the British aircraft were in most cases inferior to their German opponents. Some units, most notably No. 24 Squadron with its aggressive and charismatic leader, Major Lanoe Hawker, quickly made a name for themselves in the heavy fighting. As the fighting ramped up during the Battle of the Somme in July 1916, at least some of the squadrons (again, notably Hawker's No. 24 Squadron) were augmented by 6 more aircraft, to make them half again as large, at 18 planes per unit.[14]

Hawker led No. 24 Squadron into glory as the first of the British super-units. In time, it would boast perhaps the largest number of higher-scoring aces the British fielded during the Great War:

	Number of Victories:
• Captain George E.H. McElroy	49
• Major Thomas F. Hazell	43
• Captain John Gilmore	37
• Captain Henry W. Woollett	36
• Major John O. Andrews	24
• Captain A. Hepburn	23
• Captain William C. Lambert (American)	22
• Captain Lanoe Hawker	11
• Captain A. M. Wilkinson	7
• Captain A.J. Cooper	22
• Captain E.C. Johnson	20
• Captain I.D.R. McDonald	20

No. 24 Squadron served on the Western Front throughout the war, and flew most types of single-seat fighters fielded by Great Britain During World War I. Rather than being known by one particular fighter, No. 24 Squadron was known for the variety of fighters with which it was equipped. At different times, it flew the Bristol *Scout*, the D.H. *2*, the F.E.*2b*, the Sopwith *Scout*, the Nieuport *17*, the Sopwith *Pup*, and the later Sopwith *Camel* and Royal Aircraft Factory *S.E. 5/S.E. 5A*.

But Hawker was killed in November 1916, and No. 24 Squadron, while still potent, would soon be challenged for primacy. One of those units which soon rose to prominence was No. 56 Squadron, led to greatness for much of its World War I service by its superb leader, Captain James McCudden. McCudden personally led "B" Flight, which could make its claim as the most successful small unit of any of the combatants in the War:

	Number of Victories:
• Captain James T.B. McCudden	57
• Lieutenant C.A. Lewis	8
• Lieutenant R.A. Mayberry	25
• Lieutenant G.H. Bowman	32
• Lieutenant R.T.C. Hoidge	27
• 2nd Lieutenant A.P.F. Rhys-Davids	23

No. 56 Squadron would be justly renown for being mounted in one of the greatest "ace makers" of World War I, the Royal Aircraft Factory *S.E.5* and its improved model, the *S.E.5A*. At one time or another throughout the war, several other of the highest scoring aces in the Royal Flying Corps (R.F.C.) would call No. 56 Squadron home:

	Number of Victories:
• Captain Albert Ball	47
• Major Gerald J.C. Maxwell	27
• Captain Henry Burden	22
• Captain Brunwin-Hales	27

Not to be outdone by its R.F.C. brethren, the Royal Naval Air Service Corps (R.N.A.S.) also fielded an elite flight of fighters during the spring of 1917. Mounted in a great fighter, the Sopwith *Triplane*, "B" Flight of No. 10 (N) [Naval] Squadron (the so-called *"Black Flight,"* because each plane in the flight carried the word "Black" in its name) roared into action in May, 1917. Between May 30 and July 27, 1917, this flight alone would destroy 87[15] enemy aircraft:

Number of Victories:

- Flt. Sub-Lieutenant Raymond Collishaw *("Black Maria")* 60
- Flt. Sub-Lieutenant W.M. Alexander *("Black Prince")* 17
- E.V. Reid *("Black Roger")* 18
- G.E. Nash *("Black Sheep"):* "at least" 6
- J.E. Sharman *("Black Death"):* "at least" 7

Two more British aces would serve in this unit before the war ended:

Number of Victories:

- J.A. Page "at least" 7
- Flt. Sub-Lieutenant N.M. McGregor 9

Meanwhile, on the other side of the line, Oswald Boelcke continued to run up his score of Allied aircraft destroyed. Possessing a keen mind and developing superb tactical "common sense," he devised a set of aerial combat tactics, soon known as the "Dicta Boelcke,"[16] that guided the German fighter force from 1916 forward. "Boelcke's Dictates" remain valid in basic content to this day:

- *Try to secure advantages before attacking. If possible keep the sun behind you.*
- *Always carry through an attack when you have started it.*
- *Fire only at close range and only when your opponent is properly in your sights.*
- *Always keep your eye on your opponent, and never let yourself be deceived by ruses.*
- *In any form of attack it is necessary to assail your opponent from behind.*
- *If your opponent dives on you, do not try to evade his onslaught, but fly to meet it.*
- *When over the enemy's lines, never forget your own line of retreat.*
- *Attack on principle in groups of four or six. When the fight breaks up into a series of single combats, take care that several do not go for one opponent.*

During the Fokker Scourge of mid-1915 to early-1916, the German aerial high command had spared its Allied opponents the full measure of its possible destructive power by assigning its dominant Fokker E.1s in sections of ones and twos[17] (to perhaps as many as four to six by the late-spring of 1915[18]) to general purpose squadrons. But during the French offensive at Verdun, Boelcke, a sharp observer of enemy dispositions, noted and passed on to his superiors: "The French are flying more keenly now and in larger crowds."[19] The command listened to its brilliant young ace, and during the summer of 1916, it began to reorganize its fighter arm into squadron-sized units called *Jagdstaffeln* (or *Jastas* for short)[20] of 14[21] planes. Naturally, the command called on the brilliant Boelcke to organize on of the first of the new *Jastas.* Boelcke, as sharp in his appraisal of fighter pilots as he was in all else related to aerial combat, quickly

recruited an outstanding group of young pilots to his new *Jasta 2*. One of them was a quiet young aristocrat named Manfred von Richthofen, who would eventually be the highest scoring ace of any nation in World War I.

Concurrently with the reorganization of the fighter arm into *Jastas*, the German air service received a dominant new fighter, the Albatros *D.I* through *D.III* series. The new Albatros were fast, powerful, flame-resistant, and armed with two synchronized machine guns.[22] The concurrent reorganization of the fighter units along with the introduction of the dominant new fighters caused an immediate and drastic change in the fortunes of the competing enemies on the Western Front. The Germans shot the French and British warplanes down droves, exhibiting virtually complete dominance in the sky from September 1916 through at least "Bloody April," 1917.

Oswald Boelcke died in a flying accident on October 28, 1916, and Manfred von Richthofen assumed the mantle of the unofficial new German tactical leader. Reassigned as commander of the previously undistinguished *Jasta 11* in January 1917, Richthofen would soon develop the first German super-unit:

	Number of Victories:
• Rittmeister Manfred von Richthofen	80
• Oberleutnant Ernst Udet	62
• Oberleutnant Lothar von Richthofen	40
• Oberleutnant Kurt Wolff	33
• Leutnant Karl Almenroder	30
• Leutnant Karl Schafer	30
• Leutnant Wolfram von Richthofen	8

Eventually, Richthofen would supervise the organization of the first German fighter wing, *Jagdgeschwader 1* (or *JG 1* for short),[23] a grouping of four *Jastas* (including his own *Jasta 11*) comprising approximately 50 planes.[24] Although Richthofen's "Flying Circus" is forever fixed in the public mind in association with the flamboyant scarlet Fokker Dr. 1 triplane, it was in fact the ravenous Albatros of the various victory-hungry *Jastas* that spelled the doom of so many Allied flyers.

Germany would eventually lose 8,212 airmen in combat, while the British would lose 9,378 (France's losses are impossible to determine, as their records for the last year of the war have been irretrievably lost).[25] Many of these victims would fall to the numerous aces of the various air services. Germany produced 363 aces, 12 of whom would claim 40 or more victories, 21 would claim between 30 to 39, and 38 would claim between 20 and 29.[26] The French produced at least 158 aces, of whom 14 had 20 or more victories credited to them, and 39 had 10 to 19 victories.[27]

The British had an imprecise and unofficial victory-crediting system; thus it is unsurprising that there is wide variance as to how many aces were produced by the British in World War I (somewhere between 550[28] and 800[29]). Thirty-seven flyers claimed 30 or more victories, 57 would claim 20 to 29, and 226 would claim 10 to 19. With Britain carrying so much of the aerial combat load, it is unsurprising that it would produce numerous additional Allied single-seat fighter super-units as well – including those below, each of which notched over 100 victories as a unit:[29]

- No. 1 (N) (Naval)
- No. 3 (N) (Naval)
- No. 1
- No. 22
- No. 40
- No. 41
- No. 60

In conclusion, it is undeniable that World War I produced much death and carnage in a battlefield new to warfare – the sky. It is also undeniable that this aerial warfare produced many aces who became morale-building heroes to the war-weary nations contesting that conflict. These aces tended to congregate in units, where competition for unit top scoring honors spurred huge victory totals. For many World War I aviators, the sight of a diving squadron of enemy warplanes – composed of several of the most outstanding aces their enemy had produced – was one of the final visions of their earthly life.

Endnotes

1. Enzo Angelucci and Paolo Matricardi, *World Aircraft: Origins – World War I* (Milano, Italy: Arnoldo Mondadori Editore, 1975, 1976; and Chicago: Rand McNally, 1979), 109.
2. Ibid., 119.
3. Ibid. The French Spad XIII was capable of 138 m.p.h. (page 157), as was the British S.E.5a (page 193). The Italian Ansaldo S.V.A.5 topped out at 143 m.p.h. (page 231).
4. Ezra Bowen, *Knights of the Air* (Alexandria, VA: Time-Life Books, 1980; 3rd Printing, 1981), 71.
5. Angelucci and Matricardi, 129.
6. Bowen, 59.
7. Christopher Shores*, Air Aces* (Novato, CA: Presidio Press, 1983), 10.
8. Angelucci and Matricardi, 111.
9. Shores, 10.
10. Lou Cameron, *Iron Men with Wooden Wings* (New York: Belmont Productions, Inc., 1967), 123.
11. Angelucci and Matricardi, 111.
12. The lists of victory totals in this monograph were derived from a number of sources, including (but not limited to): Christopher Shores*, Air Aces,* 8-45; Ezra Bowen, *Knights of the Air,* 186; and Lt. Colonel William A. Bishop, *Winged Warfare* (Garden City, New York; and, Doubleday & Company, Inc., 1967), 252-258.
13. Bowen, 59.
14. Ibid., 88.
15. Shores, 25.
16. Bowen, 118.
17. Ibid., 70.
18. Ibid., 59.
19. Ibid., 78.
20. Ibid., 117-118.
21. Ibid., 118.
22. Angelucci and Matricardi, 261, 274-275; and Bowen, 118.
23. Bowen, 133.
24. Ibid.
25. Ibid., 175.
26. Shores, 40.
27. Ibid.
28. Bishop, 252; and Shores, 40.
29. See Endnote 12 above.

Monograph # 6

1918-1939: America's "Manifest Destiny" and "The Lost Cause" Compared to Germany's "Lebensraum" and "The-Stab-in-the-Back"

When it became clear in the late-1930s that the world was headed for another cataclysmic world war, the democratic soon-to-be Allied nations were somewhat shocked at the Axis nations' territorial demands for expansion. The Allies (and particularly the United States) seemed to be astounded at the German concept of "Lebensraum" ("Living space," and the similar concurrent Italian and Japanese concepts of "Spazio vitale" and "Hakkō ichiu," respectively), which involved the forcible annexation of land from its current owners/occupiers. How very curious that at least the Americans should have seen these concepts were so very similar to their own practical philosophy of "Manifest Destiny!"

As America peered across the Appalachian Mountains at the end of its Revolutionary War, it embraced a growing concept that American settlers were predestined to advance west toward the setting sun. The basic tenants of this psychological movement were that 1) the people and institutions of the American people were special and exceptional, 2) it was the mission of the fledgling United States to remake the remainder of the vast western continent in the image of the agrarian East, and 3) it was the unshakable destiny of the people of the United States to accomplish what amount to their duty to complete this mission.[1]

The underpinnings of Manifest Destiny made perhaps their first overt appearance in the very early 1800s, first with the Louisiana Purchase of 1803, and next, with the treaty negotiations that ultimately ended the War of 1812. To end this war, John Quincy Adams, Henry Clay, and Albert Gallatin (among others) negotiated the Treaty of Ghent (1814) with Great Britain. In scripting this treaty, they made clear the United States' stance toward the acquisition of Indian frontier lands:

> *"The United States…are fully determined…progressively, and in proportion as their growing population may require, to reclaim from the state of nature, and to bring into cultivation every portion of the territory contained within their acknowledged boundaries. In thus providing for the support of millions of civilized beings…they will not…give to the few thousand savages…the possession of lands more than they can cultivate, and more than adequate to their subsistence, comfort, and enjoyment, by cultivation. They will not suppose that the government will avow…arresting their natural growth within their own territories, for the sake of preserving a perpetual desert for savages."*[2]

Henry Goulburn, a British negotiator at the treaty talks in Ghent, was aghast at the Americans' attitude:

"Till I came here, I had no idea of the fixed determination which there is at the heart of every American to extirpate the Indians and appropriate their territory."[3]

Adams did much more than just outline America's intentions in the 1814 Treaty of Ghent. He later also designed the Monroe Doctrine of 1823. This doctrine alerted Europe that the Western Hemisphere was no longer open to colonization, and the United States would oppose further European attempts to do so, with force if necessary. The Monroe Doctrine virtually made American expansion necessary to fill a perceived void left by the apparently relatively uninhabited frontier lands acquired in the Louisiana Purchase of 1803 (west of the Mississippi River) and the Trans-Appalachian Wars of 1790 to 1818 (east of the Mississippi River). There was fear that these "open" territories would tempt European powers to attempt to either establish or acquire colonies in these lands. Thus, the United States engaged in open expansion to negate these temptations. As historian Albert Weinberg states, "…the expansionism of the [1830s] arose as a defensive effort to forestall the encroachment of Europe in North America."[4]

Almost lost in this frenzy of Manifest Destiny – the acquisition of and protection of the land from European interference – was the actual plight of the Native Americans already inhabiting the lands in question. "Manifest destiny had serious consequences for Native Americans, since continental expansion implicitly meant the occupation and annexation of Native American land, sometimes to expand slavery. This ultimately led to confrontations and wars with several groups of native peoples via Indian removal."[5]

Perhaps the best way to summarize or define American Manifest Destiny was that it was **a philosophical premise to facilitate expansion into the immediately adjacent western frontier in order to: 1) acquire it through purchase, conquest, or annexation, 2) extirpate the indigenous peoples of said frontier, and 3) place the land into agrarian or mineral extractive production.** (Please see Monograph # 3 of this compendium entitled *"The United States' Western Colonial Wars"* for a further exploration of America's western expansion.)

America's western continental frontier was declared closed in 1890. The United States then began a short, intense period of colonization in which it acquired or conquered the Hawaiian Islands, Cuba, Puerto Rico, Guam, and the Philippine Islands. Several thousand miles to the east of the United States, far across the Atlantic Ocean and half of Europe, another country was completing its unification. It immediately aspired to great power status by seeking and winning a war against another continental power (France), then immediately embarked on a campaign of colonial expansion in Africa, East Asia, and the Western Pacific. This country was Germany.

Germany was not immune to European continental expansionist dreams. Although only consolidated as a united country in 1870, Germany began thinking about "lebensraum" ("living space") in

Eastern Europe in the 1890s. The core element was territorial expansion, and the most extreme views on this subject were held by the Nazi Party from the mid-1920s through the end of World War II.[6] in the mid-1920s, as Adolf Hitler was defining the philosophical underpinnings of his Nationalist Socialist ("Nazi") political movement (as recoded in his book, *Mein Kampf* [1925]), he wrote an entire chapter on his "Eastern Orientation or Eastern Policy." This laid out Germany's need under Nazi leadership for additional "living space" (plainly stated, in Eastern Europe) for Germany. This would allow for an expanded population for Germany, as well as new sources of food for this expanded population.[7] Hitler remembered to his dismay that Germany relied on food imported by sea during World War I, which was cut off by the British naval blockade. He believed this was a contributing factor to Germany's defeat in the war. Hitler believed that only through lebensraum could Germany shift "its dependence for food...to its own imperial hinterland"[8]

Upon Adolf Hitler's rise to power in 1933, lebensraum was the guiding principle in the plan for German expansion into Central and Eastern Europe.[9] By definition, the plan for lebensraum for Germany dictated that this additional living space was "necessary for its survival and that most of the indigenous populations would have to be removed permanently (either through mass deportation to Siberia, extermination, or enslavement) including Polish, Ukrainian, Russian, Czech and other Slavic nations considered Non-Aryan."[10] Due to the pseudo-science of eugenics embedded into the foundations of Nazi politics, the Aryan master races were deemed to have the right to remove the perceived indigenous population (thought of as "Untermenschen" ["subhumans"]) in their need for more living space.[11] The German governmental goal at that point would be to repopulate these newly acquired lands with German settlers under the banner of lebensraum in the midst of World War II and immediately upon its successful conclusion.[12]

Hitler was explicit in *Mein Kampf* as to this justification for lebensraum:

> *"In an era when the Earth is gradually being divided up among states, some of which embrace almost entire continents, we cannot speak of a world power in connection with a formation whose political mother country is limited to the absurd area of five hundred thousand square kilometres.[13] Without consideration of traditions and prejudices, Germany must find the courage to gather our people, and their strength, for an advance along the road that will lead this people from its present, restricted living space to new land and soil, and, hence, also free it from the danger of vanishing from the earth, or of serving others as a slave nation.[14] For it is not in colonial acquisitions that we must see the solution of this problem, but exclusively in the acquisition of a territory for settlement, which will enhance the area of the mother country, and hence not only keep the new settlers in the most intimate community with the land of their origin, but secure for the entire area those advantages which lie in its unified magnitude."*[15]

At the height of his power in 1941, Hitler made explicit his patterning of lebensraum on the American model of "Manifest Destiny" and the ethnic cleansing of Native Americans which took place during the United States westward movement:

> *"There is only one task: Germanization through the introduction of Germans [to the area] and to treat the original inhabitants like Indians. … I intend to stay this course with ice-cold determination. I feel myself to be the executor of the will of History. What people think of me at present is all of no consequence. Never have I heard a German who has bread to eat express concern that the ground where the grain was grown had to be conquered by the sword. We eat Canadian wheat and never think of the Indians."*[16]

I had long felt that there was more than a passing similarity in the concepts of "Manifest Destiny" and "Lebensraum," and my thoughts were now confirmed. In completing the detailed research into these two concepts, the meanings were devastatingly identical. If the exact words of description and methods of enacting the two concepts were not always exactly alike, the overall substance of the terms was disturbingly constant between the two programs. And I had a sneaking suspicion that this was not the only relative parallels in mental concepts between the United States and Germany.

***

In the middle of the Nineteenth Century, the United States endured a terrible Civil War between the industrial "Northern" states and the agrarian "Southern" states, which raged with unabashed fury between 1861 and 1865. Shortly after that war ended with a Southern loss, the term "The Lost Cause" began to appear as a Southern apology for its defeat in that war. It first appeared in an 1866 book by author and journalist Edward A. Pollard entitled *The Lost Cause: A New Southern History of the War of the Confederates.*[17] The writings of Confederate General Jubal A. Early in the 1870s and Confederate President Jefferson Davis in the 1880s gave more prominence to the acceptance of the term by a substantial portion of the Southern populace.[18] A consensus definition of The Lost Cause was that the Civil War was a struggle fought to save the Southern way of life. It was in a large part fought to protect "states' rights," particularly the right of any state or group of states to secede from the Union when faced with overwhelming aggression from another group of states.[19] Three other major themes regarding "The Lost Cause" evolved as the remainder of the Nineteenth Century played out:

1. The main reason the North won the Civil War was the great quantitative superiority of the North's industrial base. This trumped the South's superiority in leadership and fighting ability.[20] This was borne out in Southern minds by the facts that "at the peak of troop

strength in 1863, Union soldiers outnumbered Confederate soldiers by over two to one, and financially the Union had three times the bank deposits of the Confederacy."[21]

2. The Lost Cause was a method of preserving family honor and chivalrous traditions.[22]
3. The Lost Cause was a method of shaping religious attitudes.[23]

In time, the basic tenants of "The Lost Cause" were fleshed out, and remained in relatively widespread agreement among a wide swath of the white Southern population:

- States had the privilege to withdraw from the Union, just as they had the privilege to join it.[24]
- Defense of the above "states' rights" precipitated the Civil War.[24]
- Because of the North's aggression, both politically and economically, the South was justified in leaving the Union.[24]
- The North's motives in oppressing the South in the antebellum years were both economic and venal.[24]
- Adherents to The Lost Cause philosophy exhibited a wistful desire to return to the antebellum lifestyle of the 1820s to 1850s. A major component of this lifestyle was plantation life, which consisted heavily of slave labor provided by African-Americans for the economic benefit of white plantation owners – an unacceptable practice in any age or era.
- The populace of the South had a distinct aristocratic chivalric ideal, commonly called "the Southern Cavalier ideal," which was possessed by most officers and soldiers in general and certain Southern cavalry leaders in particular. Characteristics of this ideal were courage in the face of heavy odds, horsemanship, manhood, and martial spirit.[25]
- The top tier of Southern generals was emblematic of Southern nobility and fought bravely and fairly.[26]
- The eventual wearing down of Confederate resources on the battlefield and on the home front was inevitable, given the Federals' overwhelming superiority in men and materiel.
- In Lost Cause mythology, the South ignored their huge losses in the Western Theater, where the war was ultimately lost, to focus of the heroic, long-term defense of the Eastern Theater by Robert E. Lee and the Army of Northern Virginia. In the West, Union General William T. Sherman wantonly destroyed property out of mean vindictiveness; his war-winning path though the South was intended to humiliate and impoverish his hated foes.

Historian A. Cash Koiniger, in reviewing Civil War historian Gary Gallagher's work, both confirms and criticizes Gallagher's rather mainstream conclusions on "The Lost Cause:"

> Gallagher's work *"... concedes that 'Lost Cause themes' (with the important exception of minimizing the importance of slavery) are based on historical truths (p. 46). Confederate soldiers were often outnumbered, ragged, and hungry; southern civilians did endure much material deprivation and a disproportionate amount of bereavement; U.S. forces did wreck [sic] havoc on southern infrastructure and private property and the like, yet whenever these points appear in films Gallagher considers them motifs "celebratory" of the Confederacy (p. 81).*[27]

The details of this phenomenon provided fascinating information, and reminded me of another, similar narrative about which I had read to a slight degree in the past, that of Germany's "Stab-

in-the-back" myth. This narrative was popular with a significant segment of the German population between the end of World War I in 1918 and the beginning of World War II in 1939. The narrative stated that the German military establishment had not lost the war on the field of battle, but instead had been betrayed by the rear echelon home front, especially Jews in the financial area and socialists who fomented labor unrest.[28]

The basics of the "Stab-in-the-back" theory held that Germany was widely seen to have been undefeated on the battlefield. It had captured vast territories in the Low Countries of Northwest Europe, Northern France, and in Eastern Europe. It had recently knocked Russia out of the war, and part of the treaty with Russia solidified in German hands a large portion of war-won Eastern European territory. A heavily-censored German press had only reported victories throughout the war; the duped population gloried in the repeated victories and captured territories, and boasted that no portion of the Fatherland was occupied by a foreign enemy.[29]

The German people had no idea that the final military offensive in the West, beginning March 21, 1918, the *Kaiserschlcht* (i.e.: the "Kaiser's Battle"), had failed and the German army on the Western Front was in full retreat.[30] They also did not know that their political and military leaders had requested a ceasefire with the intent of negotiating an armistice with the now-surging Allies.[31] Thus, the general public was mystified as to the need for a cessation of fighting and an armistice, and began to look for "scapegoats" for the disgrace. They quickly settled on republican politicians (who would soon establish the hated "Weimar Republic"), socialists, communists, Jewish financial and business leaders, and even the Pope and the Catholic Church. All these entities were accused of at least not fully supporting the men at the front, and some more pointedly "stabbing the army in the back" for supposed personal or political gains. The Socialists especially were blamed for foisting the hated 1919 Treaty of Versailles upon Germany, which cost the Fatherland huge territorial losses and heaped financially crippling war reparations upon the German peoples' backs.

When Adolf Hitler, with his Nationalist Socialist (Nazi) Party in tow, rose to power in 1933, he made the Stab-in-the-back an integral part of his effort to discredit the Weimar Republic and prevent it from resisting his power grab. He portrayed the Weimar Republic as the vehicle of the republicans, socialists, communists, Jews, and Catholics. Through the formation of the Republic, they had grabbed power for their own ends and then mismanaged the economy to cast the hyperinflation plague of the 1920s onto the German people. The Nazis claimed that the Weimar Republic was:

> *"…a morass of corruption, degeneracy, national humiliation, ruthless persecution of the honest 'national opposition'—fourteen years of rule by Jews, Marxists, and 'cultural Bolsheviks',*

who had at last been swept away by the National Socialist movement under Hitler and the victory of the 'national revolution' of 1933".[32]

Most historians now place no stock in the "Stab-in-the-back" myth. They note that while Germany had placed its last military reserves into the line for the great Western Front offensive of March 21, 1918, the war-weary Allies had been powerfully restocked and resupplied by the United States. America had also infused fresh armies into the defense against the March Offensive and had powered the subsequent Allied Summer 1918 counteroffensive.[33] The March Offensive was seen by Germany to have failed due to strikes in the arms industry which limited military materiel at a critical moment,[34] rather than through battlefield defeat. But the truth was that an exhausted and starving (due to the British naval blockade) Germany's failure to knock at least one Allied nation out of the war in 1918 was the major cause for Germany's loss of World War I.[35]

As with the "Manifest Destiny/Lebensraum" debate, I found in the case of the "Lost Cause/Stab-in-the-back" comparison that while the situation and words might have been slightly different, the overall degree of alignment in concepts was astounding. Some Southerners after the Civil War and some Germans after World War I were intent on finding scapegoats to heal their wounded pride in what they perceived to have been unjustly defeated in an unfair contest. Unpopular political, religious, and ethnic entities were seen as ready vessels for this heaping of blame and scorn. Are episodes such as this relics of the past, destined to be unrepeatable in "modern" society? One need only to look at the current state of history education and the neglect of the philosophers of the past to find the answer:

"Those who cannot remember the past are condemned to fulfil it."[36]

-George Santayana (1863-1952)

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Monograph # 7:

(An entry in John Eric Vining's *"Blueprint"* series)

1940: *A Blueprint for Germany's Possible Victory in the Battle of Britain*

(Note: This is the first of four additional entries into the author's "Blueprint" *series of books and monographs. This series evaluates events from military history which were unsuccessful, then applies management techniques to develop a set of actions by which they may have been made successful. This series began with* "Violet Lightning: A Blueprint for Japanese Victory in the Pacific, 1941-1942," Trafford Publishing, 2020.*)*

The Battle of Britain was one of the handful of truly war-changing conflicts in the history of World War II. It was the first battle in history fought entirely in the air, but more importantly, it was the first defeat inflicted on the previously invincible Germany Wehrmacht ("War machine"). A quick summary of the beginning stages of the war in the west will bring us up to July 10, 1940.

Germany began the war on September 1, 1939, with an invasion of Poland in Eastern Europe. There then ensued a break in the war (the so-called "Phony War") until the spring of 1940. In April, Germany invaded and conquered Denmark and Norway. Turning south on May 10, Germany invaded and conquered the Netherlands, Belgium, Luxembourg, and finally France. Germany raced to the sea to try to seal the fate of France's ally, Great Britain, by pinning Britain's Expeditionary Force (the BEF) against the English Channel at Dunkirk. Great Britain previously had lost most of the aircraft she had sent to the Continent in the heavy fighting in France, and now most of her heavy land-based equipment was on the shore of the Channel, along with about 338,000 of her soldiers. All appeared lost, but Adolf Hitler stopped his armored panzer units just outside the swampy ground in the environs of Dunkirk, and called on Hermann Goering and his Luftwaffe ("Air weapon") to destroy the British from the air. But Goering failed, and the British sent virtually every vessel in southern England capable of crossing the English Channel to Dunkirk to rescue her army. While most of its equipment was lost, the British Expeditionary Force was whisked away to England in the nick of time. The Battle of France ended on June 25, 1940. Thereafter, Hitler spent some weeks sightseeing in his newly-conquered western realm.

Adolf Hitler called on Great Britain to surrender or face a German invasion of England and a subsequent conquest. After English Prime Minister Winston Churchill's "We Shall Never Surrender" speech, Hitler began collecting invasion barges at France's Channel ports. Before these barges could be

employed in Operation *Sea Lion,* the sea-borne invasion of Great Britain, Germany would have to secure command of the English Channel from British warships and control of southern England from British resistance, through the aerial bombing of England. In the most basic terms, it came down to the German fighters being able to protect the German bombers, so the bombers could create enough damage in England to force the British to give up. Conversely, the British fighters had to shoot down enough bombers so that 1) the bombers did not create enough damage to cripple Britain, and 2) the overall German losses would be so heavy that the Germans would give up. For the Germans, the first and most important step in winning the Battle of Britain was to defeat the fighters of the British Royal Air Force (RAF). So it all came down to a contest between the leading German fighter and the two leading British fighters:[1]

	Messerschmitt *109*	Hawker *Hurricane*	Supermarine *Spitfire*
• *Model*	Marks E-1 to E-3	Mark I (Late)	Mark I
• *Engine*	DB 601Aa	R-R Merlin III	R-R Merlin III
• *Horsepower*	1,050-1,175 HP	1,030 HP	1,030 HP
• *Speed (MPH)*	"1" = 342 @ 13,120'	330 @ 17,000'	355 @ 19,000'
• *Alt. Speed*	"3" = 354 @ 12,300'	335 @ 18,500'	362 @ 18,500'
• *Range*	412 mi.	525 mi.	395-575 mi.
• *Ceiling*	34,450'	35,000'	31,900'
• *Span*	32' 4.5"	40' 0"	36' 10"
• *Length*	28' 4.5"	31' 9"	29' 11"
• *Height*	8' 2"	12' 5"	11' 5"
• *Wt. (empty)*	4,189 lb.	4,982 lb.	5,332 lb.
• *Wt. (loaded)*	5,875 lb.	6,447 lb.	6,200 lb.
• *Wing Area*	174.00 sq. ft.	---	---
• *Wing Load*	33.8 lb./sq. ft.	25.6 lb./sq. ft.	26.0 lb./sq. ft.
• *Armament*	2 X 7.9 mm. machineguns 2 X 20 mm. cannons	8 X .303 machineguns	8 X. 303 mg.
• *3 sec. wt. of fire*[2]	19.29 lbs.	10.94 lbs.	10.94 lbs.
• *Available*	April-June, 1939	December, 1939	Early 1940

The Hurricane was an older design concept which compared badly with the 109 in regard to speed and rate of climb,[3] and it had poor performance above 18,000'.[4] However it was a steadier gun platform than the Spitfire and thus more effective against bombers.[5] Therefore, because the Hurricane was judged decidedly inferior to the Me 109, it was earmarked for attacks against the incoming German bombers.[6]

However, many aviation experts say the Me 109 and the Spitfire were very evenly matched. Humble states that "matched against the Spitfire, the Me 109 showed that it was the faster machine."[7] Green says, "The Spitfire enjoyed a slight margin in speed, but both the climb rate and ceiling of the Bf 109E were superior, and the German fighter was definitely the better above 20,000 feet. In a vertical dive

the Spitfire could not stay with the BF 109E."[8] "[The 109] lacked the maneuverability of the Spitfire, nor did it possess the British fighter's turning circle, but its angle of climb was extremely good…"[9] Vader says that, "…the Me 109…at some heights was faster in straight and level flight…"[10] Caidin maintains, "It is still believed that the Spitfire I was faster than the Me-109E. Yet almost every German pilot involved in fights with the Spitfire insisted that the Me-109E was the faster airplane. Galland [eventually to become the commander of all German fighter units] makes the point that the Spitfire, faster than the Hurricane, was 'slower than our planes by about ten to fifteen mph but could perform steeper and tighter turns.'" Galland's 'summary judgement' was that "the Spitifre…although a little slower, was much more maneuverable."[11] As far as a conclusion for purposes of this essay, the various strengths and weaknesses of the Me-109 and Spitfire cancelled each other out and the two planes were virtually a dead-even match in combat. The Spitfire thus warded off the Me-109 from the Hurricane as the Hurricane tackled the German bombers.

The Battle of Britain is generally accepted to have occurred between July 10 and October 31, 1940. As it played out, the Battle can be divided into 5 distinct phases:[12]

- July 10 to August 11**:** The Channel Battle (*Kanalkampf*). Bombing of English Channel convoys.
- August 12 to August 18: Operation *Eagle*, classic air-to-air combat between the RAF and Luftwaffe.
- August 24 to Sept. 6: The Luftwaffe focused on bombing the RAF's SE England fighter bases.
- Sept. 7 to Sept. 30: "The Battle of London:" The Luftwaffe switched to razing England's cities.
- Oct. 1 to Oct. 31: A series of minor raids until the Battle was officially declared ended on Oct. 31.

In the end, Germany failed to either defeat the RAF fighters or batter the English into submission. Germany made multiple mistakes, as follows (in simplified form):

- Fuzzy objectives:
  - Did the Germans want to defeat the RAF or bomb England into submission?
- The Ju 87 dive bomber and the Me 110 long-range, twin-engine fighter:
  - Two aircraft that Germany was counting upon heavily were abject failures over England.
- Faulty Intelligence:
  - The Germans didn't stratify the levels of losses between its own medium bombers, twin-engine fighters, and single-engine fighters for analysis purposes.
- Goering's "close support" escort:
  - Goering kept tying his escort fighters ever more tightly to the bombers as the battle progressed. The U.S. later proved this tactic wrong in 1944 after making the same mistake in 1943.
- Switch to daylight attacks on London:
  - Luftwaffe was destroying the RAF fighters and winning the battle until this disastrous shift in focus.

- RAF Bomber Command attacks on invasion fleet:
    - The invasion barges were packed tightly in the French Channel ports, making great targets.
- August squandered by uncoordinated attacks:
    - The onset of "Eagle Day" *("Adlertag"*) was uncoordinated and aerial operations during the whole month of August (until August 24) were sloppy.
- British fighter production was underestimated by Germans:
    - The British could produce fighters much faster than the Germans projected, or could shoot them down.
- Constantly changing objectives:
    - The Germans started with a wrong objective (bombing the Channel traffic), switched to the right one (bombing the RAF fighter airfields), then switched to another wrong one (bombing English cities) in a fit of anger on the part of Hitler.

In terms of planes lost, in the period of July 10 to October 31, 1940 the Germans lost 1,733 aircraft compared to 915 British fighters,[13] an apparently decisive numerical victory for Great Britain. But as noted in the German "Faulty Intelligence" category above, one must delve deeper into the numbers to find the true key to the Battle of Britain. During the crucial period of August 8 to September 15, Germany lost 1,358 planes while Great Britain lost 800 fighters. But of the 1,358 planes Germany lost during the crisis of the battle, 691 were bombers, while 663 were fighters.[14] And of those 663 German fighters lost, 181 were twin-engine Me-110s,[15] clearly inferior to both Spitfires and Hurricanes, and "cannon fodder" for both. So just 482 single-engine Me-109 fighters were lost against between 800 and 832[16] British single-engine fighters during the crisis of the Battle of Britain. Thus, the German single-engine fighters were downing the British single-engine fighters at a 1.66 to 1 ratio in this crucial period. Due to sterling production performance, the British would be able to maintain around 600 Spitfires and Hurricanes serviceable each day, while the Germans would never concentrate more than 800 Messerschmitt 109s against them.[17] Usually there was rough parity in numbers between the Spitfires/Hurricanes and the 109s.

In pilots, the situation for Great Britain was much worse. During the Battle of Britain, the British lost 446 fighter pilots, while German lost only 171 Me-109 fighter pilots,[18] a 2.46 to 1 ratio. These numbers are the true crux of the battle: during the critical first week of September 1940, when the Germans were bombing the English fighter fields, the British were down to the bare minimum of pilots to man their fighters, but they always had enough fighters. They were actively transferring bomber and reconnaissance pilots, as well as foreign refugee pilots, into Fighter Command to make up the shortfall.

Had the Germans continued bombing the fighter airfields in southern England, they may have won the Battle of Britain. There are two crucial reasons for this. One, while bombing the airfields, the Germans were destroying valuable British planes, ground support crew, supplies, and replacement parts,

and the British were losing pilots on the ground as well. But second, and most importantly, they forced the British fighters to come up and attack the German bombers under the protective umbrella of the ravaging, dominant German Me-109 fighters, where the British were losing the "battle of attrition." Once the Germans switched to bombing English cities, particularly anywhere beyond London, their bombers flew out from under the umbrella of the short-ranged Messerschmitt 109s, where the bombers were savaged by the British interceptors. The Messerschmitt 109E only had an operational radius of action of about 125 miles,[19] which meant it could only spend about 20 to 30 minutes over southern England at best.[20] Further, to reach London from Calais in France and still have the 109's protection, all formations – bombers and fighters – had to travel in a straight line to London and back to Calais, which greatly eased the British defensive task.[21]

Many of the 691 bombers shot down during the key period of the battle were lost outside the 109's radius of action. Caidin says, "…there seems to be no doubt that the short range of the Me-109E – never corrected for the crucial engagements with the Royal Air Force – was one of the major factors in the disastrous defeat suffered by the Luftwaffe, a defeat that was one of the turning points of the war.[22] Price summarizes, "The result was that the whole battle hinged on the effective fighting range of the Bf 109…"[23]

The key, then, was to extend the range of the German single-engine fighters. The short range of the Me-109E was not an unsolvable problem: a solution was available to the Germans with both relative technological ease and at very small burden to German industry.[24] This was the droppable additional fuel tank (i.e.: "drop tank"), which became a feature of virtually all fighters[25] in every nation from 1941 onward. The problem was that this technology was not recognized and available in western air forces in 1940. The American army and navy fighters were not plumbed for drop tanks (an example was the Curtiss P-40B) and none of the British or French fighters were capable of carrying drop tanks. Only the Imperial Japanese Navy, under a tight veil of secrecy, was conducting early experiments with drop tanks in mid-1940.

There might have been another way. Throughout the 1920s and 1930s, the United States let out competitive contracts for new fighters, encouraging domestic aircraft manufacturers to fly prototypes against each other in rigorous test competitions. The U.S. Army did this in the '20s with what eventually became the Curtiss P-6 and the Boeing P-12, again in the mid- '30s with the Seversky P-35 and the Curtiss P-36, and the Navy followed suit in the late- '30s with the Brewster F2A and the Grumman F4F. In each case, a winner was chosen, but the runner-up was given a contract for a small-to-medium production run. It worked out well, because clearly in one case (and perhaps two), the runner-up eventually was developed to the point where it out performed the original winner and was produced in greater numbers.

Germany followed this same convention in the mid-1930s when it planned to introduce its first modern fighter for the newly-unveiled Luftwaffe. Four planes competed for the contract, but it became quite apparent that there were only two from which the winner would be chosen: The Messerschmitt 109 and the Heinkel 112. Test pilots determined that when the varying performance factors were considered, the strengths and weaknesses of the two prototypes (the 109V-1 and the 112V-1) cancelled each other out and the planes were considered even. The Luftwaffe officials hedged their bets, and delayed naming a contract winner. And it is no wonder: in their early development production marks, the similarly-engine planes were very similar in overall performance:

	Messer. 109	Heinkel 112 **////**	Messer. 109	Heinkel 112
• *Model*	B-2[26]	B-1[27]	C-1[28]	B-2[29]
• *Engine*	Junkers 210Ea	Junkers 210Ea	Junkers 210Ga	Junkers 210Ga
• *Horsepower*	680 hp.	680 hp.	700 hp.	700 hp.
• *Speed (mph)*	279 @ 13,100'	317 @ 13,120'	292 @14,765'	317 mph.
• ***Range***	**430 mi. (est. long)**	**683 mi.**	**405 mi.**	**714.6 mi.**
• *Ceiling*	31,200 ft.	27,890 ft.	27,500 ft.	31,168 ft.
• *Span*	32' 4.25"	29' 10"	32' 4.5"	29' 9.873"
• *Length*	28' 6.5"	30' 6"	28' 0.66"	30" 2.991"
• *Height*	8' 0.5"	12' 7"	8' 0.5"	12' 6.393"
• *Wt. (empty)*	---	3,571 lbs.	3,522 lbs.	3,565 lbs.
• *Wt. (loaded)*	4,857 lbs.	4,960 lbs.	5,062 lbs.	4,957 lbs.
• *Armament*	3 X 7.9 mm mgs.	2 X 7.9 mm mgs. 2 X 20 mm. can.	4 X 7.92 mm.	2 X 7.9 mm. 2 X 20 mm.
• *Available*	Early 1937	Early 1938	March, 1938	April, 1938

Please note above the substantial increase in ***range*** possessed by the Heinkel He-112: between one-half to two-thirds more range than the Me-109. It is illuminating to note that these similarly-engine competitors had very similar performance statistics in their more developed forms. When comparing the Battle of Britain-era Messerschmitt Me-109E-3 with the advanced prototype Heinkel He-112 V-10, both equipped with the Daimler Benz DB 601A engine of approximately 1,100 to 1,175 hp., it is fascinating that both attained the same top speed of 354 mph![30] Thus, we may project that increased development of the He-112 until the time of the Battle of Britain might have produced *a second German single-engine fighter* of similar performance to the Me-109 but *possessing substantially greater range*…just what was called for to win the Battle of Britain! Alas, over time, the Me-109 gained more acceptance among the German authorities than the He-112; while Heinkel was granted a small production contract for the He-112, the Me-109 went on to become the most produced fighter in history.

However, what might have been more important was that Ernst Heinkel recognized that the He-112 had some significant shortcomings and worked to find a solution for them. The He 112 was a beautiful aircraft, full of graceful lines and innumerable curved panels. It also contained an inordinate number of rivets to hold the aircraft together. One attribute that was very much appreciated in its rival, the Me-109, was the straightforward construction of the Messerschmitt fighter, which made it both simple and economical to manufacture and simple to maintain. Ernst Heinkel took note and worked to design a much simpler fighter, and on that count he succeeded. Here is a small comparison of his prototype for the new Heinkel He-100 fighter that strikingly illustrates this:[31]

	He 112	Prototype He 100 ("P 1035")
• *Individual parts*	2,558	969
• *Rivets*	26,864	11,534

As can be seen, the new He-100 was much simpler than the older He-112. Plus, there was huge bonus with the appearance of the new Heinkel He-100. The plane was a world beater performance-wise! A quick comparison of the Heinkel He-100 with the Battle of Britain-era Messerschmitt Me-109E shows what a great leap forward in performance the He-100 represented:

	Messerschmitt	Heinkel	Supermarine
• *Model*	109 E-3[32]	100 D-1[33]	Spitfire Mark I[34]
• *Engine*	Daimler-Benz 601A	Daimler-Benz 601A	Rolls Royce Merlin III
• *Horsepower*	1,100 hp.	1,020 hp.	1,030 hp.
• ***Speed (mph)***	**354 @ 12,300 ft.**	**416 @ 13,120 ft.**	**362 @ 18,500 ft.**
• ***Range***	**412 mi.**	**628 mi.**	**575 mi.**
• *Ceiling*	37,500 ft.	36,089 ft.	31,900 ft.
• *Span*	32' 4.5"	30' 11"	36' 10"
• *Length*	28' 3"	26' 11"	29' 11"
• *Height*	8' 2.33"	11' 10"	12' 7.75"
• *Wt. (empty)*	4,421 lbs.	3,990 lbs.	4,810 lbs.
• *Wt. (loaded)*	5,523 lbs.	5,512 lbs.	5,784 lbs.
• *Armament*	2 X 7.9 mm mgs. 2 X 20 mm. cannons	2 X 7.9 mm mgs. 1 X 20 mm. cannon	8 X .303 cal. mgs.
• *Available*	Late 1939	Mid 1939	July, 1938

The above table shows the clear superiority of the He-100 over its stablemate, the Me-109, particularly in the all-important category of range. It also shows a substantial superiority over its chief rival, the British Supermarine Spitfire. This superiority is evident in many areas, but one area that the He-

100 was deficient in comparison to its rivals was in firepower. However, I think is fair to note that the He-100's armament of one engine-mounted aerial cannon and two light machine guns was identical to that of the Me-109F-1, introduced in January, 1941.[35] Evidently that armament combination was not considered too light for the Me-109F. And certain of the He-100D-1 models were up-gunned to have two 20 mm MG 151 cannons and one MG FF/M cannon,[36] which was significantly greater firepower than the early marks of the Me-109G, introduced in May of 1942.[37]

One reason (or excuse) given for not continuing the development of the later marks of the He-112 and the He-100 was that they used the same engine as the Me-109 as well as the Messerschmitt Me-110, the Luftwaffe's planned long-range fighter. But the Me-110C-3 had a range of 680 miles,[38] only slightly greater than that of the He-112 and/or the He-100. And as we have shown, the Me-110 was helpless against modern interceptor fighter opposition, something the He-112 and He-100 decidedly were not. Perhaps production of the Me-110 could have been forgone and the engines allocated to that program could have been allocated to the He-112 and the He-100. Certainly the results achieved in daylight combat could not have been worse than that recorded by the disastrous Me-110.

There was one other option available to the Germans in their quest to win the Battle of Britain. When Germany completed its victory over France on June 25, 1940, France was in the process of introducing its most modern and competitive world-class fighter, the Dewoitine D.520. A statistical comparison of the D.520 with its chief competitors shows its advantages:

	Messerschmitt	Dewoitine	Supermarine
• *Model*	109 E-3[32]	D.520[39]	Spitfire Mark I[34]
• *Engine*	Daimler-Benz 601A	Hispano-Suiza 12Y45	Rolls Royce Merlin III
• *Horsepower*	1,100 hp.	820 hp.	1,030 hp.
• ***Speed (mph)***	**354 @ 12,300 ft.**	**331.8 @ 18,044.6 ft.**	**362 @ 18,500 ft.**
• ***Range***	**412 mi.**	**956.9 mi.**	**575 mi.**
• *Ceiling*	37,500 ft.	34,448.8 ft.	31,900 ft.
• *Span*	32' 4.5"	33' 5.5"	36' 10"
• *Length*	28' 3"	28' 2.625"	29' 11"
• *Height*	8' 2.33"	8' 5.125"	12' 7.75"
• *Wt. (empty)*	4,421 lbs.	4,680.3 lbs.	4,810 lbs.
• *Wt. (loaded)*	5,523 lbs.	5,901.7 lbs.	5,784 lbs.
• *Armament*	2 X 7.9 mm mgs. 2 X 20 mm. cannons	4 X 7.5 mm mgs. 1 X 20 mm. cannon	8 X .303 cal. mgs.
• *Available*	Late 1939	Oct. 1939	July, 1938

As may be seen for the above table, the Dewoitine D520 was a very competitive machine with the British Spitfire, and similar in many performance parameters to the Messerschmitt Me-109E-3. However, once again, note the great superiority the D.520 had in ***range*** over the Me-109 and the Spitfire!

In the fear and confusion inspired by the German invasion of France, the French aircraft industry reached incredible levels of productivity in early 1940, turning out D.520s at a rate of 10 per day, a figure seldom exceeded by any aircraft plant in history.[40] By France's fall on June 25, 1940, Dewoitine's nationalized manufacturing arm, SNCAM, had produced 437 Dewoitine D520s. Of these, 106 had been lost in combat and 3 escaped across the English Channel to Great Britain.[41] This left 328 intact D.520 fighters (with a combat range of approximately 957 miles) available for use in cross Channel operations by the Germans against the British. German General Erwin Rommel used the expedient of captured British tanks in North Africa to supplement his forces.[42] What if the Germans did the same thing in Western Europe with captured French aircraft to supplement their air force against Great Britain? Could 328 long-range, single-engine fighters have turned the tide in the Germans' favor in the Battle of Britain?

We have seen that with the creative use of aerial resources (namely, single-engine fighters) by Germany in the summer and fall of 1940, it might have been possible for German to win the Battle of Britain. Perhaps they could have bombed England into submission. Perhaps the Luftwaffe could have protected the German invasion fleet in its cross Channel attack and its forces occupied Great Britain. With the RAF subdued, the "what if" scenarios are endless.

Taking a German-occupied Great Britain into account as a fact from late-1940 onward, we can now ask ourselves several questions:

1) What would have happened in North Africa if there was no British Isles from which to support a war there? Could Axis forces from North Africa have linked up with other German armies in the Caucasus or Crimea in 1941 or 1942? What would have been consequences for the Allies of a Germany in possession of the vast Middle Eastern and Southern Russian oil fields?
2) With no British Isles on which to build and support airfields, what would have been the consequence to the American Eighth Air Force daylight bombing campaign of 1942-1944?
3) With no British Isles on which to build and support airfields, what would have been the consequence to the British night bombing campaign of 1942-1944?
4) With no British Isles on which to build and support airfields, what would have been the consequence to the American Ninth Air Force (and RAF) tactical bombing campaign 1943-1944?

5) With a Germany not weakened by strategic and tactical bombing campaigns, with its pilots not shot down defending Germany from these campaigns, and with a Germany in possession of plenty of oil, what would have been the chances of success in a western invasion of the French coast in 1944?
6) For that matter, with no British Isles from which to base an attack, from what location would an invasion of Western Europe have been launched?

We will never know the answers to the above questions. We do know that the British survived the German onslaught in the Battle of Britain by the barest of margins. Experts have said that the whole battle hinged on the effective fighting range of one German single-engine fighter weapons system. Could another fighter weapons system with greater range, in the possession of the German Luftwaffe, have granted it victory in the Battle of Britain?

Endnotes

1. This table of statistics comes from a variety of sources, including (but not limited to): Enzo Angelucci and Paolo Matricardi, *World War II Airplanes, Volume 1* (Milano, Italy: Arnoldo Mondadori Editore S.p.A./Rand McNally, 1976, 1977); and, Martin Caidin, *Me 109: Willy Messerschmitt's Peerless Fighter* (New York: Ballantine Books, a division of Random House, Inc., 1968); and, John R. Beaman, Jr. & Jerry L Campbell, *Messerschmitt Bf 109, in action* (Carrollton TX: Squadron/Signal Publications, Inc., 1980); and Bill Gunston, *World War II German Aircraft* (Salamander Books/Chartwell Books, Inc., 1985); and, Jerry Scutts, *Hurricane, in action* (Carrollton, TX: Squadron/Signal Publications, Inc., 1986); and, Air Vice-Marshal Ron Dick, *Hurricane: RAF Fighter* (Erin, Ontario: Boston Mills Press, 2000); and, R.M. Clarke, *Hawker Hurricane Portfolio* (Hong Kong: Business Press International Limited/Cobham, Surrey, England: Brooklands Book Distribution Ltd, 1986); and, John Vader, *Spitfire* (New York: Ballantine Books, 1969); and, Jerry Scutts, *Spitfire, in action* (Carrollton, TX: Squadron/Signal Publications, Inc., 1980); and, Bill Gunston, *World War II British Aircraft* (Salamander Books/Chartwell Books, Inc., 1985).
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6. Richard Humble, *War in the Air, 1939-1945* (London: Salamander books Limited, 1975), 13-14.
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15. John R. Beaman, Jr. & Jerry L. Campbell, *Messerschmitt Bf 110, in action* (Carrollton, TX: Squadron/Signal Publications, Inc., 1977), 27-31.
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18. Harry Salzman and S. Benjamin Fisz, producers; Guy Hamilton, Director; *Battle of Britain* (MGM Studios, 1969), Ending Credits.
19. Price, 57.
20. Humble, 12.
21. Price, 57.
22. Caidin., 77.
23. Price, 57.
24. Caidin, 77.
25. Price, 57.

26. All but “Range” from Caidin, 38-40. “Range” from Bill Gunston, *World War II German Aircraft*, 48.
27. R.S. Hirsch and Uwe Feist, in cooperation with H.J. Nowarra, *Heinkel 100, 112* (Fallbrook, CA: Aero Publishers, Inc., 1967), unnumbered, but contained on the next to last page of the publication.
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29. Denes Bernad, *Heinkel He 112, in action* (Carrollton, TX: Squadron/Signal Publications, Inc., 1996), 13.
30. Data for the Me-109 E-3: Caidin, 66; data for the He-112 V-9: Bernad, 15-16.
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32. Data is a composite of Caidin, 66; and Beaman and Campbell, 29.
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34. Data is a composite of Vader, 39; and, Gunston, *World War II British Aircraft*, 49; and Jerry Scutts, *Spitfire, in action* (Carrollton, TX: Squadron/Signal Publications, Inc., 1980), 8.
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Monograph # 8:

(An entry in John Eric Vining's *"Blueprint"* series)

1941-1942: *A Blueprint to Ameliorate the British Disaster in the Southwest Pacific Against the Japanese*

From approximately 10:22 to 10:25 on the morning of June 4, 1942, forty-nine dive bombers of the United States Navy changed the course of history. Over just three crucial minutes, these forty-nine Douglas SBD *Dauntless* dive bombers fell out of the sky and released their bombs on the large Japanese aircraft carriers *Akagi*, *Kaga,* and *Soryu.* The bombs disabled and ultimately sank all three in little more than the blink of an eye, during the struggle known to history as the Battle of Midway. The course of World War II was radically altered in just those few moments.

The Japanese, however, had done nearly the same thing to the British just six short months earlier. From 12:45 to 2:30 on the early afternoon of December 10, 1941, sixty-six unescorted, land-based Mitsubishi G3M *Nell* and G4M *Betty* naval bombers of the Imperial Japanese Navy launched their bombs and torpedoes against the British battle cruiser *Repuls*e and battleship *Prince of Wales* in the waters off Singapore. Both were sunk rapidly by multiple strikes from the long-range Japanese bombers. These bombers altered the early course of World War II in the Pacific nearly as radically as the American dive bombers at Midway.

Did the British necessarily have to suffer this, and other, grievous defeats early in World War II?

Between December 10, 1941 and April 9, 1942, the Allied naval forces in the Pacific/Indian Ocean suffered capital ship losses comparable to the size of the fleet of a mid-sized world power:

(ABDA) = Allied consortium forces (T) = Tons of Displacement

Date	Ship Name	Country*	Ship Type	Size (T)
• Dec. 10, 1941	*Prince of Wales*	Great Britain	Battleship	43,786
• Dec. 10, 1941	*Repulse*	Great Britain	Battlecruiser	34,600
• Feb. 27, 1942	*Langley*	United States (ABDA)	Lt. Carrier/Tender	13,900
• Feb. 27, 1942	*Java*	Netherlands (ABDA)	Light Cruiser	8,087
• Feb. 28, 1942	*DeRuyter*	Netherlands (ABDA)	Light Cruiser	6,545
• Mar. 1, 1942	*Exeter*	Great Britain (ABDA)	Heavy Cruiser	10,490
• Mar. 1, 1942	*Houston*	United States (ABDA)	Heavy Cruiser	9,050
• Mar. 1, 1942	*Perth*	Australia (ABDA)	Light Cruiser	6,830
• Apr. 5, 1942	*Cornwall*	Great Britain (ABDA)	Heavy Cruiser	13,520
• Apr. 5, 1942	*Dorsetshire*	Great Britain (ABDA)	Heavy Cruiser	13,420
• Apr. 9, 1942	*Hermes*	Great Britain (ABDA)	Light Carrier	13,700

(*Note: "ABDA" stands for "American-British-Dutch-Australian" combined naval command.)

Many, if not all, of these losses occurred because the Allied nations were forced to operate without the benefit of sea-borne air cover or the security that a sea-borne strike arm confers. The British basically were tasked with the defense of Southeast Asia and the Southwest Pacific, with the support of the tiny Netherlands and Australian forces in the area plus what forces the United States could spare from its small Asiatic Fleet, based in the Philippine Islands. And in fact, in the fall of 1941, in accordance with a previously negotiated ABC-1 agreement ("American, Britain, China-1," which dovetailed with the America-Britain-Dutch-Australia [ABDA] co-defense commitment), the British were attempting to bring together their Far Eastern Fleet "which had been contemplated in ABC-1, of about six battleships, two or three aircraft carriers, and some additional cruisers and destroyers. Some of these had arrived in Singapore by early November [1941]. Others left shortly thereafter."[1] However, Britain and the British Royal Navy were severely stressed by military commitments that stretched over half the globe, from the Icelandic Straits to Singapore and Hong Kong. It was difficult to break naval units away for tasks in the Far East. Their task was complicated when the carrier *Illustrious* grounded on a reef in the West Indies in the Fall of 1941, which necessitated repairs that delayed her from reaching the Far East by the crucial December 1941 period. Only the old, small carrier *Hermes* was able to be deployed into the Indian Ocean during this period.

But within the voyage of the *Hermes* lies the germ of a deployment plan that might have borne significant operational opportunities. Before we delve into these opportunities, we must discuss the aircraft with which British aircraft carriers were equipped at this period. In reality, carriers were only as powerful and effective as were the capabilities of their aircraft. In the critical period of the fall of 1941 through the winter and early spring of 1942, the British Fleet Air Arm (FAA) was woefully under-armed with obsolescent aircraft. One of three shipboard fighters was the Gloster *Sea Gladiator*, a naval variant of the land-based Gloster *Gladiator*. A remnant of a bygone era, the *Sea Gladiator* was a fixed landing gear, four light-machine gun biplane of modest performance (245 m.p.h.[2]). The *Sea Gladiator* had neither the performance nor range to contest the skies with either its German or Japanese competitors. The Fleet Air Arm recognized this fact relatively early, and Specification O.8/38 was drawn up for a new fighter as a purpose-built replacement for the *Sea Gladiator*. The fighter resulting from this specification was a demonstration of the bubble of unreality within which the FAA operated. The Fairey *Fulmar* naval fighter definitely benefited from the armament precedents set by the land-based Hawker *Hurricane* and Supermarine *Spitfire.* The *Fulmar,* like the land-based fighters, was armed with eight fixed, forward-firing light machineguns. It also had a ninth light machinegun on a flexible mount aft for the rear-seat navigator, who was thought to be required for the long over-water flights envisioned as the mission of the fighter.

All this made the *Fulmar* slow (265[3] to 272 m.p.h.[4]), overweight, underpowered, and relatively unmaneuverable; making it, like the *Sea Gladiator*, cannon fodder for its Axis counterparts.

The Fleet Air Arm seemed to recognize this very quickly. In any event, the dark storm clouds of war on the horizon made them realize that vast numbers of aircraft of any and all types would be needed soon – very soon – and much sooner than British factories could design and produce more competitive replacements. The British went overseas looking to the Americans for a naval fighter with which to arm their carriers – large as well as small carriers. They selected the Grumman F4F-3 *Wildcat* as a fighter with somewhat better performance (331 m.p.h.[5]) and armament (four heavy machine guns[6]) than their existing shipboard fighters. Further, it was available for export under the United States' recently passed Lend-Lease Act. While still slightly inferior to the best of the Axis fighters, it could be operated from all British carriers and went a long way toward establishing a rough parity with its most likely Axis opponents. The British could not purchase and/or resupply enough of these foreign-built fighters, though – the United States needed the *Wildcat* to face its own onrushing troubles.

The situation regarding offensive weapons (i.e.: bombers) aboard the British carriers was both better, and worse, at the same time. All British carriers were armed with only one type of bomber (the torpedo bomber) versus two types for both the Americans and the Japanese (the torpedo bomber and the dive bomber). This would seem to have been a wise choice, given the old naval adage, "When sinking a ship, it is more efficient to let water in from below than let air in from above." Furthermore, the torpedo bomber that equipped the Fleet Air Arm's carriers was the Fairey *Swordfish* Mk. I, characterized by one author as "one of the great combat aircraft in history."[6] And this might have been true where and how it was employed: in the Atlantic Ocean, where German fighter opposition was non-existent, and in the Mediterranean Sea, where Italian fighter opposition was indifferent and almost non-existent at night, when the *Swordfish* was most often sent on its missions. However, the *Swordfish* would be asked to serve in daylight in the Indian Ocean and the Southwest Pacific, where its fighter opposition would be the superb Mitsubishi A6M2 *Zero*, one of the finest fighters in the world in late 1941. There, the *Swordfish's* old fashion construction, fabric covering, slow speed (139 m.p.h.[7]), and short range (546 miles[8]) would make it a deathtrap for its crews.

The British therefore needed 1) a realistically, if barely, effective carrier force to base in the Indian Ocean/SW Pacific Theater, and 2) a more modern (and survivable) naval air arm with which to equip its carriers based there. Given the factors we have laid out above, neither of these scenarios seemed too promising for the British as they faced the rising tide of confrontation in the Far East late in 1941. Let's tackle the carrier situation first. With the four *Illustrious*-class carriers coming into active service in the

1940-41 period, plus the veteran *Ark Royal* still available until she was sunk in the late Fall of 1941,[9] the British had a thin, but serviceable, carrier force with which to handle its naval aerial needs in western waters in the winter of 1941-1942. The *Illustrious*-class, with their armored flight decks, were particularly suitable for operating in the constricted waters of the North and Mediterranean Seas, something that the *Ark Royal* and her older compatriots, with wooden fight decks, were not.

The arrival of the *Illustrious*-class fleet carriers meant that the British now had three more-or-less superfluous carriers which might be used in other areas besides the North Sea, Atlantic Ocean, or Mediterranean Sea:[10]

	Eagle	*Hermes*	*Furious*
• Year Completed	1920	1924	1925
• Size (full load tons)	27,500	13,000	28,500
• Speed (Knots)	24	25	30
• Aircraft Compliment	21	20	36

If you remember from earlier in the monograph, the British, under the ABC-1 agreement, had committed to a "Far East Fleet" containing, among other units, 2 to 3 carriers. Here they are. Given the characteristics of the above carriers, particularly as to speed and aircraft compliments, it would have made sense to operate the carriers in the following manner:

*Two task forces, one centered around the *Eagle* and *Hermes*, always operating together (due to their speed and aircraft compliments), and a second centered around the *Furious*, which could operate most effectively in tandem with the *Eagle/Hermes* task force, but alone if so needed.

*Four naval air squadrons; one bomb squadron (21 bombers) operating from *Eagle*, one fighter squadron (20 fighters), operating from *Hermes*, one bomb squadron (18 bombers) operating from *Furious*, and one fighter squadron (18 fighters) operating from *Furious*.

The advantages of this structure are evident. When mass was needed to confront enemy carrier units, the combined force of three operational carriers could project 39 bombers, protected by 38 fighters, a not inconsiderable force in late 1941/early 1942. When the threat of opposition by enemy carriers was considered less evident, and multiple targets were deemed in need of attacking, the force could split into two parts, with relatively equal striking power between the two task forces. Additionally, if called for, *Furious'* task force would have the benefit of that ship's greater range and speed.

As noted, putting together a credible carrier force was only half the equation, and perhaps the easier half to solve at that. Simply loading up all three carriers with obsolescent Fairey *Swordfish* torpedo

bombers just would not do in the competitive environment of the Indian Ocean/SW Pacific Theater. As we have stated earlier, the British purchasing commission went to the United States in 1939/1940 to buy combat aircraft when it was clear that domestic production would not be sufficient to stem the tide of Axis aggression. The British purchased significant numbers of Bell P-39 *Airacobras*, Curtiss P-40 *Tomahawks*, and Brewster F2A *Buffalos*. However, none of these designs were considered strong enough to withstand combat conditions over Western Europe, and were shipped to other theaters of operation (the P-40s to North Africa; the P-39s to the Soviet Union; and the F2As to the Far East). The *Buffalo* was the only one of these fighters designed for carrier operations, and was indeed shipped to the Far East for combat duties there. Alas, there was only the carrier *Hermes* stationed in the Far East. Further, the British evaluated the carrier performance of the F2A to be marginal at best (a weak undercarriage design was considered to be the greatest, and most fatal, of many perceived hindrances to carrier-based operations). The *Buffalo* was never assigned to shipboard duty on any British aircraft carrier.

If the British had looked farther into the American arsenal of planes available for export, they might have found the Curtiss-Wright CW-21B *Demon*. The Curtis-Wright Corporation's St. Louis Division was involved in building an interceptor fighter strictly for export. Its creation was an extremely clean low-cantilever-wing fighter of extreme lightness. Most astounding about the *Demon* was its rate of climb – much faster than any of its contemporary Allied stablemates. A comparison of the CW-21's statistical characteristics as matched against its most likely competitor in the Southwest Pacific, the Mitsubishi A6M2 *Zero*, is very enlightening:

	CW-21B[11]	*A6M2*[12]
• Length	26' 2"	29' 8.69'
• Wingspan	35' 0"	39' 8.69"
• Height	8' 11"	10' 0.16"
• Empty Weight	3,382 lbs.	3,704 lbs.
• Loaded Weight	4,500 lbs.	6,164 lbs.
• Wing Area	174.3 sq. ft.	241.54 sq. ft.
• Wing Load	25.8 lbs./sq. ft.	22.0 lbs./sq. ft.
• Speed	315 m.p.h.	316 m.p.h.
• Range	630 mi. (clean)	1,160 mi. (clean)
• Range (drop tank)	1,048 mi. (estimated)	1,930 mi. (max. fuel)
• Ceiling	34,300 ft.	33,790 ft.
• Climb:	4,500 ft./min.	4,500 ft./min.
• Armament	2 X .30 cal. (500 rounds per)	2 X 7.7 mm. (500 rounds per)
	2 X .50 cal. (200 rounds per)	2 X 20 mm. (60 rounds per)
• Engine:	1,000 h. p.	940 h. p.

A few points should be discussed about the CW-21B *Demon*. Much has been made of the fact that the CW-21B had no self-sealing fuel tanks and virtually no armor (characteristics which almost certainly added to its phenomenal climbing ability and maneuverability). But it must be remembered that

its Japanese competitors, the *Zero* and the Nakajima Ki-43 *Oscar*, had neither as well. While this might be little consolation for CW-21B pilots, it made the playing field relatively equal. Further, that lack of these two characteristics didn't seem to deter the desperate British when it came to their importation of the very earliest models of the P-40 (the H-81A model). "Arriving in the UK, many of this batch…lacked armor plating, self-sealing tanks, and bullet proof windshields. …Many were shipped to the RAF fighting the Axis in North Africa where they made their presence felt very quickly."[13]

Another point played up by the CW-21B's critics was its relative lack of armament, particularly when compared to other Allied fighters of the time. However, the CW- 21B's armament of two heavy and two light machine guns lies somewhere between the Imperial Japanese Army's most successful fighter, the Ki-43 (two light machine guns in the early models, two heavy machine guns in the later models) and the Imperial Japanese Navy's dominant A6M2 *Zero's* early war armament (two light machine guns and two aerial cannons). Further, CW-21's machineguns were fuselage-mounted (versus some other fighters' wing mounting), and synchronized to fire through the propeller disk. While this limited their rate-of-fire, it did lighten wing loads,[14] enhancing the *Demon's* maneuverability. This center mounting allowed an additional, destructive advantage. Weapons located on the centerline of the airplane all fired directly ahead, creating a devastating phenomenon, colloquially referred to as the "buzz-saw effect." Many pilots noted the tremendous concentration of firepower in the Lockheed P-38 *Lightning*,[15] which also had its armament centrally located and firing straight ahead. Guenther Rall, a German World War II ace with 275 confirmed victories, had this to say about the centrally-located armament of his Messerschmitt fighter: *"I always felt confident flying the Me-109, right down to the armament…I preferred three guns in the center of the aircraft, right along the longitudinal axis. This meant you had to aim very carefully, but when you did…once you hit an enemy aircraft that was 'good night.'"*[16] All this with the growing realization that, in the case of the Japanese Army's KI-43, "owing to its very light structure [it] often disintegrated when hit with 0.5 in. fire,"[17] while "the Zero tended to crumple quickly when caught in a burst of fire because of its lack of structural strength and rigidity."[18] "American pilots knew that virtually any burst of gunfire into a Zero was likely to destroy it."[19]

But the Curtiss-Wright CW-21B was a land-based fighter. Surely this disqualified it for carrier-based use, right? Not necessarily. In October, 1940, the British Directorate of Research and Development requested Hawker Aircraft to conduct research to determine if the *Hurricane* could be equipped with hardware for shipboard catapult launchings. On 19 January 19th, 1941, twenty catapult spools and modification kits were ordered; two weeks after this, an additional thirty modification kits were ordered.[20] The now appropriately nicknamed *"Hooked Hurricane"* was fitted with a V-frame arrester hook;

subsequently, the *Sea Hurricane* IB was the first British single seat monoplane fighter to commence operations from a carrier deck. Flying from both small escort carriers and the much larger armored fleet carriers, the *Sea Hurricane* IB was the most widely used version of the Hurricane in the Royal Navy, eventually equipping thirty-two Fleet Air Arm (FAA) squadrons.[21] By July, 1942, the Fleet Air Arm had about 600 *Hurricanes* of all marks on strength[22] (meaning many must have been converted/manufactured in 1941).

In 1941, after *Sea Hurricanes* had led the way by demonstrating that aircraft with fast landing speeds could operate safely from carrier decks, the British Admiralty gave its approval for *Spitfires* to join the Navy as carrier aircraft. The initial Fleet Air Arm carrier-based *Spitfires* were equipped with instruments calibrated in knots, arrester gear, and eyebolts for deck handling and stowage. Like the earlier vintage *Hurricanes*, they originally were called *"Hooked Spitfires,"* but eventually named *Seafires*. Forty-eight Mark VBs were converted to *Seafires* in 1942.[23]

Not only were the British experimenting with carrier-landing equipment for their land-based fighters, but the Germans were also experimenting with their Me-109. The Me-109T (the "T" stands for *"Traeger,"* or *"carrier"*) was the only World War II shipboard fighter developed by Germany. It was designed for shipboard service aboard the German aircraft carrier *Graf Zeppelin.* However, *Graf Zeppelin* never reached active duty. In circa 1939-'40, subcontractor Fieseler modified ten Me-109E-3 airframes by increasing their wingspan, making the wings suitable for manual folding, and installing the ubiquitous arrester hooks, catapult spools, and locking tailwheels. Fieseler also demonstrated some design originality by fitting spoilers to the upper surface of the wings, which served to steepen the approach and thus shorten the landing run.[24]

As for size and storage aboard carriers, the CW 21B's non-folding wingspan was 35' 0." The Japanese A6M2 *Zero's* full wingspan was 39' 8.69." However, the A6M2 Model 21 had 20-inch wingtip panels that could be manually folded upwards.[25] Thus, the *Zero*, operational on many Japanese carriers, and the CW-21 would have occupied very nearly the same carrier deck and hanger storage space.

This leads to another question: The CW-21B reputedly had difficult landing characteristics, which again, should disqualify it from operating from carriers, correct? Well, the Chance-Vought F4U *Corsair* was once thought to have the same problem, but mid-war, after the F4Us earlier had been restricted to land-basing, the British proved the American naval brass wrong. The British Navy pioneered the landing of the supposedly difficult *Corsairs* on their carrier's decks.

While many derided the Curtiss-Wright CW-21B *Demon*, Erik Shilling, a pilot with the Flying Tigers in China, had these words that provide a fitting summary for this portion of the monologue: *"I have flown*

a CW-21, an aircraft built by Curtiss Wright in 1938 that's empty weight was 3150 lbs., which was 10 mph faster than the Zero, could out climb the Zero by more than 2500 fpm [feet per minute]*, and 100 mph faster in a dive, and had a higher roll rate as well. Why didn't the military buy it*[?] *Just dumb I guess."*[26]

It appears many of the questions and barriers to the British utilizing the Curtiss-Wright CW-21B on their carriers in the Far East have been answered. What about the bombers? We have seen that the British carrier-based bomber mainstay, the Fairey *Swordfish* torpedo bomber (as well as its nearly identical successor, the Fairey *Albacore*), were unsuitable for Far Eastern service. The American contemporary of the *Swordfish*, the Douglas *Devastator*, was visually much advanced on the Swordfish, but in practice suffered a prohibitively high loss rate in the Pacific Theater while proving miserably ineffective at striking its targets. Unfortunately, the best (and virtually only other) carrier-based naval torpedo bomber in the world was produced by Japan, the Nakajima B5N *"Kate"*.

This left the dive bomber classification as the logical bomber with which to arm Britain's potential Far Eastern carriers. The British produced the Blackburn *Skua* in the mid-1930s. It proved to be a very mediocre performer, being underpowered, slow, and under armed. It achieved only limited deployment aboard British carriers in Western waters before going to land-basing and finally training duties.

However, once again, had the British dug deeply into the American aircraft export market, they might have discovered the Douglas SBD-3 *Dauntless* dive bomber. Aviation expert Bill Gunston maintains that the *Dauntless* sank more Japanese ships than any other Allied weapon,[27] and statistics show that it in fact had the lowest loss rate of any American carrier plane.[28] A comparison of the *Dauntless* with the *Skua* and the *Swordfish* (which manned most of the British carriers in 1941) is very revealing:

	Dauntless[29]	*Skua*[30]	*Swordfish*[31]
• Length	33' 0"	35' 7'	35' 8"
• Wingspan	41' 6"	46' 2"	45' 6"
• Height	12' 11"	12' 5"	12' 4"
• Empty Weight	6,535 lbs.	5,460 lbs.	4,700 lbs.
• Loaded Weight	10,700 lbs.	8,228 lbs.	7,510 lbs.
• Speed	252 m.p.h.	225 m.p.h.	138 m.p.h.
• Range	456/773 mi.	800 mi.	546 mi.
• Ceiling	24,300 ft.	20,200 ft.	19,250 ft.
• Climb	1,500 ft./min.	---------	1,220 ft./min.
	Dauntless	*Skua*	*Swordfish*
• Bomb load	1,200 lbs.	500 lbs.	1,500 lbs. (bombs) or, 1,610 lbs. (torpedo)
• Engine:	1,000 h. p.	905 h. p.	690 h. p.

From the data above, we can see that the Douglas SBD-3 *Dauntless* was a considerable improvement over Britain's own equipment with which she could have armed her Far Eastern carriers. But would the United States be willing to part with the Douglas dive bomber via Lend Lease, as she had the fighters mentioned earlier in the monograph? When the Germans conducted their "Blitzkrieg" over Western Europe, in the vanguard were dive-bombing Junkers Ju-87 *Stukas*, destroying troop concentrations and other key targets in advance of the rampaging tanks of Germany's panzer armies. The United States Army took notice, and became interested in dive bombers. Douglas was producing a fine dive bomber, the SDB-3 Dauntless, for the U.S. Navy. In July 1940, the army took on a small stock of SBD-3s after a few revisions for army use. The order was absorbed and pulled from existing Navy orders, and by July, 1941, 168 of these had been delivered to the army as the A-24.[32] So it is clear that the U.S. Navy was willing to supply the needs of others from its orders and stock. We also know that the United States supplied the *Dauntless* to its allies over the course of the war, including Australia, New Zealand, and the UK Royal Navy.[33]

There is a slight chance that the *Dauntless* could have been modified to carry a torpedo. The German Navy was preparing an aircraft carrier, the *Graf Zeppelin*, for service; the project got underway in 1938. Germany had no naval aircraft with which to equip the carrier. Junkers began the project to modify its current production Ju-87 *Stuka* dive bomber for carrier operations. The so-modified Ju-87C-0 appeared in the summer of 1939. While one of the *Stuka's* tasks would be dive bombing, Junkers also fabricated fitments to allow the *Stuka* to carry a torpedo below the fuselage.[34] Could the *Dauntless* be similarly modified to carry a torpedo?

One more problem must be addressed before we can close this topic. Let's suppose that Great Britain did in fact base three carriers in the Far East and arm them with the Curtiss-Wright CW-21B *Demon* fighter and the Douglas SBD-3 *Dauntless* dive bomber. Modern warfare is extremely costly in terms of fuels, lubricants, replacement parts, ammunition, ordnance, and aircraft. The three carriers would be based nearly a half a world away from the factories of either Great Britain or the United States. Sustained fighting of any extended length soon would incapacitate the carriers from lack of supplies and replacements just as surely as would battle damage or sinking. Is there an answer for this conundrum?

In the early 1940s, both the United States and Great Britain operated old aircraft carriers and fleet auxiliaries that served as naval aircraft tenders or aircraft ferries. Below are a few of these ships that are representative of these auxiliaries:

	Argus (GB)[35]	*Pegasus* (GB)[36]	*Long Island* (US)[37]	*Langley* (US)[38]
• Year Completed	1918	1914	1941	1922

• Size (full load tons)	15,775	7,450	13,716	13,900
• Length	566.0 ft.	366.0 Ft.	492 ft.	542.3 ft.
• Speed (Knots)	20	11	16.5	15.5 kts.
• Aircraft Compliment	20	7	30	--
• Aircraft Ferry Capacity	--	--	--	32[39]

Could either the U.S. Navy or the Royal Navy have contributed one (or better yet, two: one for each task force) of these relatively inexpensive ships, filled with fuels, lubricants, replacement parts, ammunition, ordnance, and replacement aircraft, to the ABDA force operating in the Southwest Pacific? A squadron or two of these tender ships, fully provisioned in either Great Britain or (preferably) the United States, could have been sent to the Indian Ocean. Based at the "closely-held secret" British naval base of Addu Atoll in the southernmost Maldives Islands and venturing out of port only to re-provision the carriers at prearranged rendezvous sites, the tender ships could have extended the range and effectiveness of the carrier task forces significantly in the Indian Ocean/Southwest Pacific Theater.

It appears that the British could have assembled a credible carrier force, armed with modern, competitive aircraft, in the Indian Ocean/Southwest Pacific Theater by December 7, 1941. This carrier force could have protected the "lost fleet" delineated on the first page of this monograph. If this in fact was a reality between December 10, 1941 and April 9, 1942, we now are able to ask ourselves the following questions:

- Would the Japanese invasion of Malaya on December 7, 1941 have been as successful as it was, if opposed by a British carrier task force?

- Would the unescorted Japanese Mitsubishi G3M and G4M torpedo bombers have sunk the *Prince of Wales* and the *Repulse* off Singapore on December 10, 1941, if opposed by a British carrier task force?

- With the *Prince of Wales* and the *Repulse* still afloat, protected by the British carrier task force, and now a part of the combined American-British-Dutch-Australian fleet, would the Japanese been able to run roughshod over the ABDA forces in the Battle of the Java Sea on February 27-March 1, 1942?

- With the ABDA fleet (including the carrier task force) still intact and operating in the Indian Ocean, would Nagumo's carrier raid into the Indian Ocean in March and April, 1942 have been as successful as it was? (Indeed, would all of Nagumo's carrier force have survived the raid?)

Could thirty-nine dive bombers have made a difference in the Indian Ocean/Southwest Pacific Theater from December 7, 1941 to April 9, 1942? We'll never know for sure. One thing is certain, though: from approximately 10:22 to 10:25 on the morning of June 4, 1942, forty-nine dive bombers of the United States Navy changed the course of history.

Endnotes

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Monograph # 9:

(An entry in John Eric Vining's *"Blueprint"* series)

1943-1944: *A Blueprint for Germany's Possible Victory in the American Daylight Strategic Air Offensive over Germany*

(Author's note: The official designation of Germany's preeminent World War II fighter was the Messerschmitt Bf 109. However, many, if not most, contemporary accounts of this fighter designated it the Me 109. Thus, for purposes of consistency within the following text, I will use the designation Me 109 for this fighter.)

I have laid out a scenario in a previous monograph that it might have been possible for Germany to have triumphed in the air-dominated Battle of Britain in the summer and fall of 1940. Yet, it was certainly quite possible that air power alone would not have been enough for Germany to win the Battle of Britain. While there were many factors working for Germany in her quest to invade and occupy England, there were almost as many factors working against it. Great Britain still had a hugely formidable navy, although that navy would have in all probability had to operate substantially without friendly air cover in the Channel area had the Battle of Britain stormed on to a loss for Britain as outlined in the previous monograph. Also, Britain still had the approximately 338,000 soldiers who had been successfully evacuated across the Channel from Dunkirk at the conclusion of the Battle of France. These soldiers, plus the hastily-organized "Home Guard" which provided second-line support for them, were largely without heavy and automatic weaponry, most of which was now rusting on the beach at Dunkirk. However, over 338,000 soldiers dedicated to protecting home and hearth were still a formidable force with which Germany had to contend. Add to this the fact that the German army was largely a land-based "continental" force (as epitomized by Hitler's comment, "On land I am a hero; on water I am a coward."), with little experience or specialized equipment for a large-scale amphibious assault. One sees that the subjugation of Britain by Germany was far from a foregone conclusion even if the RAF was beaten to its knees in the Battle of Britain.

Let's take the approach that even after the near decimation of its fighter forces by the German Luftwaffe, Britain somehow survived the Battle of Britain (which was, in reality, what truly happened). Adolf Galland eloquently summarized Germany's later view of the survival of Great Britain: *"Heavily*

wounded but far from conquered, England, the latest enemy in dominated Europe, sat tight on her island, which later was to become the aircraft carrier used for the destruction of Germany from the air."[1]

It is this "later" with which we are now concerned. Germany was defeated in the West in the second half of World War II basically by three efforts, two of which were completely air-dominated and all three were dependent on the existence of Britain as a forward base. The first effort was the strategic bombing campaign, which seriously hampered Germany's ability to build weaponry and accumulate strategic resources (principally, oil) with which to continue the struggle. Second was the tactical bombing campaign, which destroyed Western Europe's transportation system and prevented Germany from quickly moving heavy forces and materials toward endangered areas. Third, the Allied invasion of June 6th, 1944, which inexorably tightened the west side of the noose into which Nazi Germany had stuck its head when it invaded the irresistible colossus of the Soviet Union, almost exactly three years before.

In all three of these strategies, the Luftwaffe fighter force was the key to survival or defeat. The German fighters had to be able to fend off the Allied fighters and destroy the Allied bombers. As outlined above, the combined Allied efforts were a three-legged stool. Cut any one of the three legs, and the entire combination of strategies failed. If the strategic bombing campaign was thwarted, Germany would have maintained the resources and control of the sky (at altitude) to swoop down upon and defeat the tactical air campaign. Without the tactical air campaign, the invasion of Western Europe would have failed. Without the invasion, it is possible that Germany could have withstood Western military pressure indefinitely.

The strategic air campaign didn't eliminate enough of Germany's industrial capacity to win the war by itself. It did severely damage the oil industry, but other industrial capacities actually *grew* in 1943 and particularly in 1944, when the bombing campaign was at its height. What the strategic air campaign did bring to the fore was the tremendous Allied strategic fighter force – principally the American "P-47" and "P-51" day-fighters and the British "Mosquito" night-fighter. These three weapons systems were the key to the entire strategic bombing campaigns. With them, the Allies were able to protect their bomber force and, through attrition, decimate the magnificent German fighter pilot corps.

The Germans shared a fatal flaw with their Japanese allies. Like the Japanese, the German fighter pilots were the elite of their field at the start of World War II. Highly trained, possessors of battle-tested tactics, very experienced by their activities in the Spanish Civil War, and mounted in some of best aircraft of their type in the world, the German day and night fighter forces were truly formidable foes early in the war. However, and again like the Japanese, the Germans had failed to prepare for a long war by producing

large numbers of skilled replacement pilots and successive generations of successful replacement fighters. This combination eventually was the source of defeat in the air for both Axis powers.

The crux of the issue for Germany, then (as for Japan), was to defeat its foes in the air before these faults in strategic planning manifested themselves and provided the impetus for defeat. Like so much of the Nazi air war effort, the key to beating the Allies in the air was the development and use of just a few weapons systems.

Wing Commander Asher Lee has been characterized as "perhaps the most knowledgeable student in the Allied camp of the Air Force."[2] In his work, *The German Air Force*, Lee states,

> *"…If the Allies had a slight technical pull on the whole, it was certainly not till the last year of the Second World War. The big difference was of course in the quality of pilots…By the last year of the war many of the German single-engined fighter pilots were hardly fit to do much more than take off and land the aircraft they flew. It was the German pilot deficiencies much more than the aircraft technical deficiencies which gave the Allies such complete air domination towards the end of the war."*[3]

THE GERMAN DAYLIGHT DEFENSE OF THE REICH

If one intends to develop the reasons for the decline of the German day-fighter pilot efficiency, one must of necessity begin with a review of the Messerschmitt Me-109 fighter and its role in the war in the air in the West. Referring to the 1940-'41 period, no less an authority than Adolf Galland flatly makes the following observation:

> *"The Me-109 was at that time the best fighter plane in the world. It was not only superior to all enemy types between 1935 and 1940 but was also a pioneer and prototype for international fighter construction. The Me-109 did not result from the demands made by aerial warfare. On the contrary, it was a gift from the ingenious designer Messerschmitt, which was at first looked upon with great distrust and was nearly turned down altogether. It was put into mass production far too late. Had this stage been reached during the first two years of the war, it would have given the Germans absolute supremacy in the air."*[4]

The '*Me-109*' variants to which Galland refers were the *Me-109Es* (previously reviewed in Monograph # 7) and the *Me-109Fs*. The 109E was, as noted, superior to all types in the world in the 1939-'40 period, with the possible exception of the British Supermarine *Spitfire*, which it greatly outnumbered. The 109E was superseded on the production lines by the Me-109F in late-1940 and early-1941. The Me-109F "has been claimed by many to have carried Messerschmitt's fighter to the 'crest of its evolution.'"[5] The Me-109F-series, introduced from early-1941 to early-1942, was a light, responsive saber; outstanding at altitude, highly maneuverable at all speeds, and armed with a long-reaching, high-velocity aerial cannon

and two light machine guns. With a 1,300 horsepower Daimler-Benz DB-601E engine, the early-1942-vintage Me-109F-3 was capable of 390 mph at 22,000 feet, and had a service ceiling of 38,000 feet.[6] In all respects except operational range (only 440 miles[7]), it was an exceptional aircraft and superior fighter.

Hitchcock has stated,

> *"The {Bf}109F represented the zenith of the basic design and…all subsequent marks heavily compromised true fighter characteristics for the sake of heavier firepower and increased performance…Yet, it must be said that in the hands of capable pilots, the Messerschmitt fighter was still a formidable weapon of war up until the last."*[8]

This last "formidable" Messerschmitt version was the Me-109K-4, introduced in October, 1944. Caidin stated that "*two pilots of equal ability, one in the (American P-51) Mustang and one in the Me-109, would have found their machines extraordinarily well-matched."*[9] The Me-109K-4's top speed of 452 mph, heavy cannon-based armament, and performance at a high operational ceiling of 41,000 feet[10] made it an intimidating foe. The 109K was the "apogee of development for the Bf 109."[11] Beaman stated, *"It was a remarkable testimony to the original design and to the tenacity of Messerschmitt's continuing development engineers, that the aircraft was still reasonabley [sic] competitive as the war ended"*[12]

Between the magnificent Me-109F of early-1942 and the competitive Me-109K of late-1944, the crucial mark of the 109 appeared. The Me-109G *Gustav* represented the most crucial point in the development of the airplane. When the first "G" models went into production in May of 1942, the Messerschmitt design had reached the height of its development. Many critical observers "felt that after this point, the airplane's continued modifications produced diminishing returns. Most felt that engineering and production efforts which resulted in an entirely new warplane would have yielded better results."[13]

Yet, even this statement is not completely true of the early marks of the Me-109G. The 109G-2, an early "G" introduced in May-July, 1942, was still a very competitive machine with decent "fighter" characteristics. Utilizing the new Daimler Benz DB 605A-1 engine of 1,475 hp, the 109G-2 had a top speed of 406 mph at 28,540 feet, had a service ceiling of 39,750 feet,[14] and was armed with one rapid-firing, long-range aerial cannon and two light machine guns. It compared relatively favorably with the current mark of its long-time nemesis, the *Spitfire IX*, in speed and overall handling characteristics, and in the hands of the experienced Luftwaffe pilots, it was a very tough foe in fighter-versus-fighter combat.

The downward slide for the Me-109 and its pilots began with the step-up in the U.S. Eighth Air Force's daylight bombing campaign. As this strategic bombing offensive began to intensify in early-1943, it was found that the armament of the 109G-2 was not sufficient for the average pilot to destroy a heavy

American B-17 or B-24 bomber. There were no Allied escort fighters that could support the heavy bomber raids deep into Europe at that time and therefore contest the Me-109 (and FW-190) interceptors. Thus, to increase effectiveness against these bombers, the Me-109G-6s were fitted with an armament overload of two additional heavy 20mm cannon in under-wing "gondolas," as well as an improved fuselage gun installation, updated to two 13mm heavy machine guns enclosed in drag-producing fairings. This in effect changed the fighter from its intended role as a lithe, swift attack fighter into a sluggish, overweight flying antiaircraft weapon. The transformation has been likened to attempting to convert a rapier into a broadsword. This was acceptable early in the bomber offensive due to the absence of Allied escort fighters – even though the performance of the Me-109G-6 was reduced to 387 mph at 22,970 feet.[15] The ever-willing Messerschmitt drug its heavy weaponry up to the high operational altitudes of the B-17s/B-24s and shot them down "en masse."

That the Me109G-6s, with their heavy ordnance, and the even more heavily-armed Focke-Wulf FW-190A-4s, were effective in destroying the American heavy bombers, there can be no doubt. The relatively few Western-based German single-engine fighters and the magnificent pilots that flew them in mid-1943 nearly succeeded in stopping the American daylight bombing offensive in its tracks in the period from August to October, 1943.

The beginning of a crucial period for the American offensive and the German defense began on August 17, 1943 with a double-strike mission: 147 B-17s Flying Fortresses were to attack the Messerschmitt factory at Regensburg, while an additional 216 were to bomb a ball-bearing production complex at Schweinfurt.[16] Both of these targets were far beyond the operational range of all escort fighters currently available Allies; the Regensburg force would have to fly 300 miles into enemy territory with no friendly fighter cover.[17]

Some 300 German FW-190s and Me-109s[18] met the unescorted Allied bomber forces under nearly ideal attack conditions, and the results were predictable: 24[19] bombers of the Regensburg force were shot down, while 36[20] of the Schweinfurt-bound raiders met the same fate. Additionally, 55 bombers were damaged beyond repair[21] in structural examinations upon landing. The Germans lost 25 fighters.[22]

Even with this incredibly high cost to the American bomber force, the August 17 raid had not inflicted sufficient damage to stop ball-bearing production, and U.S. General Ira Eaker determined to strike Schweinfurt again. For the next two weeks subsequent to this first assault on Schweinfurt, Eaker built up his bomber forces by sending out only short raids to nearby targets in France, all under very great fighter cover. Then after he determined that the Eighth's strength had been rebuilt to sufficient strength, Eaker launched a set of missions into Germany, ending with large assaults on three consecutive days. On

October 8, a massive raid began what has been called the first big week in the Eighth Air Force's history. A 400-bomber attack on Bremen, Germany cost 30 aircraft.[23] On the 9th, launching the longest mission the Eighth had flown to that point, 51 B-17s struck the port of Danzig (now known as Gdansk) on the Baltic Sea, and a total of 327 Forts and B-24 Liberators struck aircraft factories in occupied Poland and Anklam, to the north of Berlin. The raid cost 28 additional bombers.[24] Finally, a raid on the critical railway center at Munster on Sunday, October 10 cost the Americans 30 more bombers."[25]

A few days later, on October 14, the announced target was again the hornet's nest of Schweinfurt. This second attack on the ball-bearing complex ended up being a disastrous replay of the initial raid. The escorting P-47s were required by their limited fuel supplies to turn back well short of the target; the intercepting Messerschmitts and Focke-Wulfs then tore into the 291 B-17s with blood-thirsty ferociousness.[26] Sixty Fortresses were shot down during the mission itself and five more crashed attempting to land in England. One hundred thirty planes were damaged; of these, 12 were damaged beyond repair."[27]

If many more missions such as these occurred, the VIII Bomber Command would be no more. Before the first Schweinfurt/Regensburg raid, the Eighth Air Force had lost 411 heavy bombers. After that debilitating defeat the loss count was 471. By the time the final number was tabulated after the second strike at Schweinfurt, 723 Eighth Air Force bombers had been lost.[28] The American daylight strategic bombing campaign had virtually been stopped cold by a relative handful of German pilots flying increasingly obsolescent planes.

The beginning of the end for the German daylight fighter force began shortly after its period of greatest success, noted above, was achieved. The Allies' bombing offensive had always been hampered by the short range of its escorting fighters. The superb British Supermarine "Spitfire" had a range of 175 miles (350 miles maximum, round trip) in May, 1943.[29] The American Republic P-47 was introduced in June, 1943, and the advent of the "Thunderbolt" increased bomber-escort range to 230 miles (460 miles maximum, round trip), barely enough to reach the western suburbs of Paris.[30]

Help was on the way however. Lieutenant Colonel Cass Hough was deputy director of the Eighth Air Force's Air Technical Section at Bovington, just outside London. Hough directed the creation of a British-produced 100-gallon drop-tank nearly simultaneously with an 85-gallon drop-tank produced in America. Both were comprised of metal, and technological knowledge involved in their creation led to the ability to pressurize them. This gave the ability to have fuel smoothly forced from them into the aircraft's engine at high altitude. The technological advances of these two tanks led to the definitive 150-gallon drop-tank, a true game changer.[31]

With the new tanks, the P-47 now had a range of 375 miles (750 miles maximum, round trip). This allowed the Thunderbolt formations to escort the heavy bombers to the western part of Germany proper (Mannerheim and Ludwigshafen in west-central Germany and Hamburg in northern Germany).[32]

But it was not enough. Even the introduction of the long-range, twin-engine P-38 in November, 1943 was not the answer. While the "Lightnings" were able to penetrate significantly deeper into Germany and could just reach Berlin (520 miles[33], 1,040 miles maximum, round trip), they were subject to catastrophic and potentially deadly mechanical breakdowns to their engines and turbo-superchargers in the frigid winter air over Germany. The P-38s were also vulnerable to destruction by the agile German single-seat fighters.

The answer came in December of 1943. In the dark days of 1940, a British purchasing commission came to America and approached North American Aviation to attempt to convince them to license-build the Curtiss P-40 on behalf of the British government. North American responded by saying it could build a new, better aircraft with the same engine as the P-40 (the Allison V-1710) in six months. The British agreed and an early version of the "Mustang", the A-36, was born. With its revolutionary laminar-flow wing, the A-36 was a fine performer at low altitudes, but its Allison engine kept it from attaining the performance at high altitudes needed for combat over northern Europe.

In late 1942, the British began experimenting with adapting the Mustang airframe to accept Britain's superb Rolls-Royce "Merlin" V-1650 Model 61 engine. The U.S. Army Air Force picked up on this idea and started refining the process. It was not long until the astounding P-51B was born and started to be shipped to Europe.[34] Mechanically dependable, outstandingly fast (440 miles per hour[35]), containing large internal fuel tanks, and with new laminar-flow wings adding increased fuel efficiency, the Mustang had a fuel consumption rate of about half the P-38 and P-47. Equipped with two 108-gallon drop-tanks, the Mustang had an operational range of 600 miles, enough to reach Prague in western Czechoslovakia or Stettin in far north Germany.[36] With formation-building and aerial combat factored in, the Mustang had an all-out maximum range of 1,700 miles.[37] A potentially war-winning weapon had been forged.

Of the four factors for military success, the United States now had two of them in place. The proper aerial *strategy* had been recognized early: pinpoint bombing of key components of Germany's military machine (aircraft manufacturing, ball bearings, and oil production facilities). It now possessed the aerial *weapons* to pursue that strategy; the B-17 and B-24 heavy bombers and the P-51 fighter. The U.S. next sought the solution for the final two factors: *leadership* and offensive *tactics* for its fighters. It found the answer in one man: Major General James Doolittle. Doolittle had been a champion air racer in the heady, seat-of-your-pants days of the 1930s. He also was the driving force behind the dangerous,

unconventional, but morale-building Tokyo Raid of April 18, 1942, which began America's long, slow climb to victory in the Pacific Theater. Summoned to Great Britain to head the Eighth Air Force effort in Western Europe,[38] Doolittle once again turned conventional turned tactics on its head. During the Battle of Britain, when German bomber pilots had complained that the fighter arm was not protecting them because it was off hunting, German Luftwaffe commander Hermann Goering had responded by tying the fighters to close, visual support of the bombers. It was a crucial mistake, instrumental in losing the Battle, as accurately predicted by fighter commander Adolf Galland. In late 1943 when Doolittle arrived, the Eighth Air Force fighter command was practicing this same discredited theory of close support of the bombers by the fighters.

Doolittle said, "No more." He instituted Operation *Argument*, designed to pursue Galland's Luftwaffe fighter force on the ground and in the air. To actualize this tactic, Doolittle initiated "Big Week," from February 20 through February 25, 1944.[39] Big Week had two purposes: First, to send massive numbers of heavy bombers to strike key targets *in Germany*. This would facilitate the second purpose. With Germany proper being struck, *politically* the German leadership would have no choice but to send its full force of defensive fighters into the air to defend the population of the Reich. Waiting for them would be large numbers of the superior P-51 Mustangs, which were to shoot down the Luftwaffe defenders. Accordingly, the Luftwaffe fighters suffered the following catastrophic losses in three of the days of Big Week.

February 22: 60 fighters

February 24 and 25: 100 fighters[40]

In just three days, the Luftwaffe had lost 16% of its fighter force in the West. With them fell many of the irreplaceable *Experten* fighter pilots. And it was only the beginning. On March 6 and 8, Doolittle sent his bombers to Berlin. As expected, huge numbers of Luftwaffe fighters arose to defend Germany's capital. Germany lost 81 fighters on March 6 and 79 on March 8. A week later, another American raid cost Germany an additional 35 fighters.[41]

Doolittle now made the decision to cut his fighters loose from the bombers to hunt the Luftwaffe wherever it could be found. While the American bomber crews were furious about what they perceived as Doolittle playing fast and loose with their lives, it was an outstanding decision. His gamble paid off. Preceding the bomber stream, large formations of P-47s and P-51s interdicted the German fighters as they were forming up, negating formation security and integrity, and destroying many fighters. On the way home after the bombers had struck their targets, the American fighters dropped down to strafe targets of opportunity – landing fighters, aircraft on the ground, and trains being favored prey. The tactic

was devastatingly successful: many of Germany's remaining fighters and bombers were destroyed on the ground, with one American pilot, Elwyn G. Rigetti, recording the phenomenal total of 27 strafing victories.[42]

The air war in the West was irretrievably lost for Germany. Almost obviously now to 21st Century observers, the seeds of the German loss were planted (at the very latest) near the height of the Fall 1943 successes.

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The root cause for the ultimate defeat of the Western Front German fighter force was the performance of the American heavy bombers. The B-17E could attain 317 miles per hour at 25,000 feet,[43] while the "G" model of the B-17 could fly 287 miles per hour at that same height.[44] The Consolidated B-24D could fly 303 miles per hour[45], while the B-24J could make 290 miles per hour, again at this same 25,000 feet altitude.[46] Although it is significant that the operational speed for the American heavies was a modest 180 miles per hour,[47] it is the operational height of 25,000 feet at which they operated with which we are most concerned.

The German Luftwaffe possessed two single-engine fighters, which were their only fighters capable of operating in the daylight after July, 1940. Compared to the Messerschmitt 109, the Focke-Wulf 190 was more structurally sturdy, was more maneuverable at low to medium altitudes, was easier to handle on the ground because of its wide track landing gear, and carried a heavier punch (four cannon and two machine guns). However, the performance of the crucial early models of the FW-190 (the A-4, A-5, and A-6) fell off badly above 20,000 feet, and above 25,000 feet (the critical operating altitude of the American bombers, noted above) it was cannon fodder for virtually all of the Allied fighters.[48]

This left the Messerschmitt 109. The 109 had been designed as a lithe, swift attack fighter. It was very small – significantly smaller than its companion FW-190 or its British and American competitors. It was basically designed to fit as closely as possible around its magnificent Daimler-Benz 600-series engine. As such, there was little room in the airframe for a large number of heavier or additional weapons. When the need to combat the American heavy bombers became acute, two additional relatively heavy 20 millimeter MG 151 cannon were fitted in air-resistant gondolas ("bathtubs") beneath the wings. Additionally, the "over engine," synchronized light machine guns were replaced with two 13.0 millimeter heavy machine guns. This necessitated further air-resistant bulges over the machine gun breaches[49] (however, these bulges were refined and smoothed out in the later marks of the 109G and K). Sometimes, a powerful, effective, but heavy 30 millimeter cannon replaced the 20 mm in the engine/nose firing position, further degrading the small, heavily-laden 109 airframe with performance-crushing weight.[50]

This was not too much of a problem when the British and American escort fighters could only reach the western edge of Germany: The Germans merely waited until the short-winded escorts turned for home. They then mounted their planes, goaded their overloaded fighters (at this point, the planes were essentially nothing more than flying antiaircraft weapons) up to 25,000 feet over German airspace, and massacred the heavy bombers.

This all ended when the P-51 Mustangs appeared over Berlin in daylight. The ravenous P-51s began to slaughter the sluggish German fighters in droves. Galland said of the overloaded Me-109F and G models with draggy gondolas housing the 20 mm cannon beneath the wings:

> *…the machine "defaced in this was as good as useless for fighter combat…when the fighter escort of the Americans became more and more effective, the 'bathtubs' had to be removed again. The escorting fighters became the primary target. Shooting down bombers took second place."*[51]

This simple quote stated an almost eerie parallel between the British tactics in the Battle of Britain and the German's tactics in the Battle over Germany which now commenced. In 1940, the British Hawker Hurricane was larger, slower, but a steadier gun platform for its eight light machineguns than its stablemate, the Supermarine Spitfire. The Spitfire was nearly an even match for its deadly competitor, the Me 109. Thus, the Spitfires were tasked with blocking the Me-109s so that the Hurricanes could survive to decimate the German bombers.[52]

Now in like fashion, the Germans stripped down the Me-109Gs (which in some very limited combat situations and altitudes were faster, more maneuverable, and faster-climbing than the P-51s) so they could attack the American escorts. Meanwhile, the more heavily-armed but also more sluggish FW-190s were to take advantage of the protecting Me-109s to attack the American daylight heavy bomber formations.[53]

So what does one do when forced to adapt aging aerial technology to compete with newer technology? The Messerschmitt Me-109 was a magnificent weapon when designed and built in 1934-1935. And it seemed to possess a unique ability to accept increasingly advanced engines and somewhat heavier armament. But it was several generations older than the North American P-51, which entered combat in December, 1943. Aircraft technology was improving at an astonishing rate in the 1930s and 1940s. There was only so much that could be done with an eight-year-old design in those hectic days. The German engineers were forced along three paths in order to attempt to make the Me-109G competitive with the P-51D: 1) Put the most powerful engine compatible with the airframe into the Me-109G. 2) Reduce weight and drag to the greatest extent compatible with factor #3. 3) Attempt to approximate the firepower of its most likely opponent over Germany, the P-51D.

The Germans were singularly lucky that its aircraft industry was producing one of the finest in-line, V-12 engines in the world: The Daimler-Benz DB 605A. This power plant, equipped with a powerful supercharger (which incidentally was responsible for the 109's distinctive whistling roar) was capable of 1,475 horsepower[54], and could be boosted to 1,800 horsepower for short periods by water-methanol injection[55] (known as "MW 50"). Another power boosting system was available, known as "GM-1," which injected a nitrous oxide mixture into the supercharger[56] giving vastly improved performance for up to thirty minutes at high altitudes.

The next two factors (reducing weigh and drag, in conjunction with approximating the P-51's firepower) are where the Germans fell short, in my opinion. As I see it, the Germans did not go far enough in stripping and adjusting the Me 109 to tackle the P-51s. There were a couple of reasons for this. The appearance of the P-51 (with the ability to operate over Berlin) caught them by surprise when it came on the scene in December, 1943. By late February, 1944, these great fighters had already gone a long way to decimate the Me 109 formations. Perhaps this only gave the Germans enough time to react rather weakly by merely stripping the underwing-mounted 20 mm cannons and their enclosing gondolas from the 109s and sending them into combat. A further problem was that the Germans may have not had a good intelligence about the performance capabilities of the P-51, so they may not have had a good idea how fast it flew, how rapidly it climbed, how quickly it turned, etc. This probably hampered them in determining what they had to accomplish in the attempt to make the 109 competitive with the Mustangs. But they almost certainly had to know, from combat mission debriefings, that the Mustang was armed with six heavy .50 caliber machineguns.

In the absence of precise intelligence about the P-51B and D, what should have happened (once the decision was made to have the Me-109s combat the P-51s) was that every effort should have been made to increase as many performance parameters as possible (speed and maneuverability at height being the paramount factors) as well as matching the firepower of the Mustang as closely as possible. A relatively straightforward way to do this would have been to remove existing over-engine and wing-mounted armament from the plane and convert the wing fire stations to another arm.

I have conducted a rather complex and detailed analysis of different weapon combinations that would decrease weight and drag in the Me 109G, while at the same time approximating the firepower of the North American P-51D Mustang. Several data factors must be in place to begin to understand this analysis:

In the period of 1939 to 1945, the vast majority of pilots could keep an enemy aircraft in their sights for only three seconds.[57] Thus, the weight of firepower available in three seconds is the only weapon physical performance criteria with which we are concerned:

23.1975 lbs. = Weight of Fire, 3-second burst, P-51D, six .50 caliber machine guns, 1943-'45[58]
Additionally, 437 m.p.h. at 25,000 ft. = Speed of P-51D[59]

The superlative P-51D was matched against the following Me 109 equipment at high altitude in the Spring of 1944:

"Heavily-armed" Me 109G, August, 1943 - May, 1944:[60]
(Two MG 131 .512 caliber machineguns; three MG 151 20 mm aerial cannons):[61]

36.66375 lbs. = Weight of fire, 3-second burst
373.06 lbs. = weight of weapons
214.5125 lbs. = Weight of ammunition
387 m.p.h. at 22,970 ft. = speed of Me 109G-6 in this configuration.[61]

In addition to enduring the overload weight imposed by this weapon installation, the Me 109G in this configuration possessed draggy "bulges" enclosing the breaches of the two MG 131 machineguns on the forward fuselage (responsible for a 6 miles per hour reduction in speed[62]) and underwing gondola farings to house the 20 mm MG 151 cannons under the wings (certainly responsible for at least an additional 6 miles per hour reduction in speed).

Thus, the Germans "stripped" the Me-109G-6 in early 1944 to combat the P-51D:

"Stripped" Me 109G, on-going between August, 1943 to May, 1944.[63]
(Two MG 131 .512 caliber machineguns; one Mg 151 20 mm aerial cannon):

16.87125 lbs. = Weight of fire, 3-second burst
185.66 lbs. = weight of weapons
146.00 lbs. = weight of ammunition
Speed: I have not been able ascertain the exact speed of this "stripped down" version of the Me109G-6. However, I can estimate a speed of between 398 m.p.h. at 20,670 ft.,[64] the speed of the Me 109G-1/Trop with the above armament and same engine (but with a draggy sand filter attached to the supercharger air intake) and before the addition of the heavy, draggy 20 mm MG 151 wing armament; and 404 m.p.h. at 19,700 ft.,[65] the speed of the Me109G-14 after reversion to the above armament and removal of the MG 151 wing armament.

As you will note, the simple expedient of merely removing the heavy wing armament of two MG 151 aerial cannons still retained the drag-inducing fuselage bulges housing the increasingly ineffective MG 131 machineguns while leaving the 109 with a significantly deficient weight of fire (16.87125 lbs.) compared the P-51 (23.1975 lbs.).

I evaluated the following four armament alternatives for the Me 109 G-series on the basis of weight-of-fire, weight of armament, weight of ammunition, and presence of significant drag-inducing impediments on the aircraft as well as comparing them to the two alternatives already outlined above:

-five MG 131 .512 caliber machineguns
-two MG 131 .512 caliber machineguns, three MG FF 20 mm cannons
-two MG 131 .512 caliber machineguns, one MG 151 20 mm cannon, two MG FF 20 mm cannons
-one MG 151 20 mm cannon (centrally located), two MG FF 20 mm cannons (wing mounted)

In every case but one, the alternatives were a varying but unacceptable combination of insufficient firepower, excessive weight of weapons and ammunition, or the presence of drag-inducing bulges or fairings on the fuselage or wings. The only alternative that showed a potentially successful combination of speed at altitude, reduction of weight and drag to achieve maneuverability at altitude, and firepower comparable to the P-51 Mustang was:

Me 109G, Winter-Spring, 1944
(One MG 151 20 mm cannon [centrally-located], two MG FF 20 mm cannons [wing-mounted[66]])

25.86 lbs. = Weight of fire, 3-second burst (compared to P-51 Mustang = 23.1975 lbs.)
209.66 lbs. = weight of weapons
111.6 lbs. = Weight of ammunition
Speed = This factor of necessity must be an estimate since this is a hypothetical installation. This configuration would completely remove the two fuselage mounted .512 caliber (13 mm) MG 131 machineguns, which were becoming ineffective in combat against the tough, robust American fighters. Eliminating these would allow the removal of the drag-inducing fuselage bulges that housed the breaches of the MG 131s, and allow a return to the sleek forward fuselages of the Me 109G-1 to G-5 series. This configuration would also eliminate the heavy, externally-mounted, draggy underwing-mounted MG 151 installations. In their place, this hypothetical version would revert to the internally-mounted MG FF 20 mm cannons, present in the Me109 E-3 to E-8 series. These required only very small blisters on the wings to enclose the fairly light (57.98 lbs. compared to 93.7 lbs. for the MG 151[67]) weapons and the relatively small capacity (60 rounds[68]) drum-fed ammunition supply. Thus, I project that with the Me 109 in this configuration, the performance of the sleek, lightened, but relatively heavily-armed G-6 might approximate that of the G-1 (410 m.p.h. at 22,970 ft.[69]) or G-2 (406 m.p.h. at 28,540 ft.[70]). With GM-1 nitrous oxide injection, the G-1/U4 variant was capable of reaching 420 m.p.h. at 39,370 ft.[71]

This hypothetical adjustment had drawbacks: the 20 mm recoil-operated MG FF was relatively slow-firing (540 rounds per minute, compared to the electrically-fired MG 151's 780 rounds per miinute[72]). The effective range of the MG FF was less than the MG 151 (875 yds. versus 985 yds.[73]) The projectile velocity of the MG FF was slower than that of the MG 151 (2,297 ft. per sec. versus 2,591 ft. per sec.[74]). The 4.73 oz. projectile of the MG FF was more thin-walled than that of the 4.06 oz. MG 151[75], which

caused it to have less hitting power (and thus less destructive power) than the newer MG 151. The wing-mounted MG FF could only accommodate 60 rounds[76] in total versus 135 rounds[77] in the drum-fed, underwing-mounted MG 151 installation. The MG FF was lighter than the MG 151 (57.98 lbs. versus 93.7 lbs.[78]). Relative weapon weight notwithstanding, the overall analysis meant that the MG FF was an inferior weapon compared to the MG 151, which largely led to its phase-out in early 1941.

But over the years the Me 109 gradually was converted from its original role of *attack fighter* to that of *bomber interceptor*. The MG 151 was judged superior to the MG FF in destroying bombers. But we have seen that in the crisis of early 1944, the Me 109 was hurriedly re-tasked as a *fighter interceptor* (also known as *area defense fighter*: the third major role change in one conflict for the Me-109 – incredible for a single weapons system!). The MG FF had proved very effective as an aerial cannon against the *British fighters* in the period 1939-1941. There is no reason to believe it would not have been an effective weapon against the *American fighters* in 1944.

With this prospective weapons installation came a plethora of potential values. As noted, the 3-second weight of fire for this modified weapons installation in the Me 109G-6 would have been slightly higher than that of its main adversary, the P-51. Most fighter-versus-fighter victories came in the initial attack. Thus, the meager ammunition supply of 60 rounds apiece (120 rounds in total) for the MG FFs and 300 rounds for the centrally-located MG 151 may have been (barely) sufficient for fighter-versus-fighter combat. The "buzz-saw effect" of the centrally-located MG 151 was still in place (although lessened by the loss of the two MG 131 machineguns). Further, as the ammunition was used up in the wing-mounted MG FFs, the ammunition weight located in the wings outside the propeller disk (35 lbs.) would have been reduced, enhancing maneuverability as the Me 109G-6 made its getaway. The streamlining and weight savings now available from this installation, enhancing speed and maneuverability, has been noted. Further, with the deletion of the centrally-located MG 131s and their attendant ammunition, there was now room in their positions in the fuselage, near the center of gravity (to maintain maneuverability and stability), for more ammunition for the engine-mounted MG 151, or more crucially, ***additional fuel*** for the Me 109G-6. This potentially could have assisted in mitigating a critical overall shortcoming of all the Me 109-series fighters (limited range).

The conversion process could have been quite rapid, which was vitally important in the crisis of January to May, 1944. The Me 109's wings remained adaptable to the MG FF (although they differed appreciably from the 109E-series wing[79]). The weapon itself remained in wide-spread use. The wing blisters housing the MG FF cannon gun breaches and ammunition drums were available from old wings

or easily built and installed. The fuselage bulges were easily removable, and the old sleek fuselage hood panels easily produced and attached.

Would I have wanted to take the Me 109G-6 that I have outlined here into combat against the P-51D-25? Probably not. As lightened, aerodynamically cleaned-up, and with nitrous oxide or water/methanol injection, the 109G might have been able to climb and maneuver/dogfight with the P-51; plus (crucially) just a few cannon shell strikes from the 109 would have destroyed the P-51. Historian Dennis E. Showalter has stated: "The Mustang's liquid-cooled engine made it less than…ideal. Even a small-caliber bullet could inflict fatal damage."[80] However, even with modifications the Me 109 still would have been slower by a minimum of perhaps 17 miles per hour than the P-51, and out-dived by it as well. Due to its slower maximum speeds both horizontally and in the dive, it would have had trouble "picking its fight" in an advantageous situation, or running away from trouble in an unfavorable situation. But the Germans did not have any choice. They only had the Me 109 to combat the P-51 at high altitude over Germany. The case being as it was, I feel the Me 109G-6 as modified above was Germany's best chance to salvage what they could from an unfortunate situation, and keep alive as many of the irreplaceable prewar-trained *"Experten"* fighter aces as possible, in the air war over Germany in the Spring and Summer of 1944.

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The situation regarding the capabilities of a Me109G versus the P-51D was not optimal, to say the least. However, it was the most viable option available, given the situation in which Germany rather suddenly found itself in December, 1943. But there was another, more viable, but more difficultly-achieved option available, had the right direction and steps been taken in the late 1930s and early 1940s.

If you have read Monograph # 7 *("1940: A Blueprint for Germany's Possible Victory in the Battle of Britain"*), you will have noted that it was quite possible for Germany to have produced the Heinkel He-100 in time for participation in that conflict. As a refresher, here is a restating of the statistical characteristics of the He 100D-1 compared to the Battle of Britain-era Messerschmitt Me-109E-3:

	Messerschmitt	Heinkel
• *Model*	109 E-3[a]	100 D-1[b]
• *Engine*	Daimler-Benz 601A	Daimler-Benz 601A
• *Horsepower*	1,100 hp.	1,020 hp.
• ***Speed (mph)***	**354 @ 12,300 ft.**	**416 @ 13,120 ft.**

• ***Range***	**412 mi.**	**628 mi.**
• *Ceiling*	37,500 ft.	36,089 ft.
• *Span*	32’ 4.5”	30’ 11”
• *Length*	28’ 3”	26’ 11”
• *Height*	8’ 2.33”	11’ 10”
• *Wt. (empty)*	4,421 lbs.	3,990 lbs.
• *Wt. (loaded)*	5,523 lbs.	5,512 lbs.
• *Armament*	2 X 7.9 mm mgs. 2 X 20 mm. cannons	2 X 7.9 mm mgs. 1 X 20 mm. cannons
• *Available*	Late 1939	Mid 1939

It would have been shown that the Heinkel He-100 was quite superior to the Me-109 in most characteristics. The in late 1941, the Focke-Wulf 190 was introduced. It would have quickly been found that the early models (190A-0 through 190A-5) of the new Focke-Wulf fighter were very close in performance to the standard production models of the now middle-aged Messerschmitt 109F-4 then in service; the newer design of the 190 was also considered more promising for higher development than the now aging 109.

	Messerschmitt	Heinkel	Focke-Wulf
• *Model*	109 F-4[81]	100 D-1[b]	190A-5[83]
• *Engine*	Daimler-Benz 601E	Daimler-Benz 601A	BMW D-2
• *Horsepower*	1,350 hp.	1,020 hp.	1,770 hp.
• ***Speed (mph)***	**390 @ 22,000 ft.[81]**	**416 @ 13,120 ft.**	**408 @ 20,700**
• ***Range***	**440 mi.**	**628 mi.**	**345 mi.**
• *Ceiling*	38,058 ft.[82]	36,089 ft.	34,400 ft.
• *Span*	32’ 6.5”	30’ 11”	34’ 1”
• *Length*	29’’ 7.125”	26’ 11”	29’ 4”
• *Height*	10’ 5.875”	11’ 10”	10’ 4”
• *Wt. (empty)*	4,453 lbs.	3,990 lbs.	7,960 lbs.
• *Wt. (loaded)*	6,371 lbs.	5,512 lbs.	10,250 lbs.
• *Armament*	2 X 7.9 mm mgs. 1 X 20 mm. cannon	2 X 7.9 mm mgs. 1 X 20 mm. cannon	2 X 7.9 mm mgs. 4 X 20 mm can.
* *Available*	Early, 1942	Mid 1939	A-0: Sept, 1941

What the Germans might have found in late 1941 is that 1) the Heinkel He-100D-1 remained effective as a “fighter versus fighter” weapon if they still desire to utilize it, 2) it was much superior to the current mark of the numerous but now aging Me-109, and 3) the new Focke-Wulf FW-190 possessed an outstanding potential to be developed into a multi-role fighter, with great success in the “fighter-versus-

fighter" role a foreseeable possibility as well. These observations might have allowed the Luftwaffe to follow General Adolf Galland's recommendations just subsequent his test flight of the revolutionary Messerschmitt Me-262 jet fighter on May 22, 1943:

1) Stop production of the Me-109
2) Limit single-engine fighter production to the FW-190
3) Utilize the production capacity thus freed for all-out production of the Me-262[84]

The story of the turbojet-powered Messerschmitt Me-262 fighter is part and parcel of the precipitous demise of the Luftwaffe's Western fighter command in early, 1944. A brief review of the historical development timeline of this radical aircraft will illustrate the problem. The Messerschmitt jet fighter project was started in late 1938.[85] The design envisioned a slim, single-seat fighter with two revolutionary axial-flow turbojets[86] slung under the wings as the motive power. The first flight of the prototype flew on April 18, 1941[87] with a piston engine mounted in the nose, as the early versions of the turbojets were not yet ready. The results of the initial flight test showed the airframe itself to be potentially outstanding. The first revolutionary examples of the BMW 109-003 turbojets were delivered to Messerschmitt in mid-November, 1941, and the first test flight of the Me 262 with the BMW engines took place on November 25, 1941[88] (some sources say March 25, 1942[89]). The early jet engines were deemed to be not yet perfected, so the nose-mounted radial engine was retained; even so, this first jet-powered flight of the Me-262 almost ended in disaster. The compressor blades in the jet turbines broke off at takeoff revolutions, both jet engines stalled, and the heavily-loaded plane had to make an emergency landing on the underpowered piston engine alone.[90]

Soured on the BMW engines, the Messerschmitt designers decided to wait on the Messerschmitt jet's rival power plant to be perfected and delivered. The newer Junkers Jumo 109-004 jet engines were bigger and heavier than the BMWs, and this necessitated an adjustment to the 262's design. The wings were swept back slightly to better balance the added weight. This slight wing sweep provided benefits in abundance. The swept back wings eliminated the performance-inhibiting effects of compressibility (air velocity over the wings) on the aircraft, adding to speed and handling high speeds.[91]

The Junkers engines arrived and were installed on the now-modified jet. The first test flight with the new engines took place on July 18, 1942[92], and was a resounding success. Messerschmitt Test Pilot Fritz Wendel was barely able to contain his excitement. The Messerschmitt 262 *"was a sheer pleasure to fly,"*[93] Wendel fairly shouted.

Yet official indifference to the revolutionary new jet fighter meant that it was fatally delayed once it was nearly perfected. It was not presented to General Adolf Galland, commander of the Luftwaffe's Western Front Fighter Command until May 22, 1943.[94] Galland test flew the fighter, and landed in a state of exuberance. *"This is not a step forward; this is a leap!"* He quickly sent a telegram to his boss, Field-Marshal Erhard Milch: *"The Me 262 is a tremendous stroke of good luck for us. It will guarantee us an unbelievable advantage in operations, so long as the enemy sticks to piston propulsion. It opens up entirely new possibilities in tactics."*[95] The plane was presented to Luftwaffe commander Hermann Goering on July 23, 1943.[96] Goering immediately caught Galland's infectious enthusiasm for the design, and quickly ordered it into production as a day fighter. The fighter was officially presented to Adolf Hitler on November 26, 1943.[97] Hitler, who was preoccupied with attack and had sullenly noted the growing ineffectiveness of his bomber arm, asked if the plane could be armed with bombs. Assured that it could, he seemingly let the matter drop; Messerschmitt, Milch, Goering, and Galland quickly disregarded Hitler's inquiry. Production went forward in early-1944 with the revolutionary fighter.

Then, at a high-level production meeting in the late Spring/early Summer of 1944,[98] the subject of the Me 262 came up for discussion. Hitler inquired how many of the Me 262s were being produced as bombers. None, he was informed. The Me 262 was being produced solely as a fighter. Hitler immediately flew into a rage, shouting that his orders had been disregarded. Henceforth, he thundered, all newly-built Me 262s would be produced as bombers.[99] Shortly thereafter, additional orders decreed that almost all of the Me 262 fighters produced to this point were to be converted to bombers.

The retooling and retrofitting of the already long-delayed Me 262 was fatal to the plane's remaining effectiveness, and to Germany's defense as well. Although retrograde orders were given in October 1944 that all Me 262s produced from that point forward should be fighters,[100] the damage was done. The fighters arrived too late, in too few numbers, to stem the avalanche of Allied aircraft inundating the skies over Germany. A priceless advantage had been squandered.

In retrospect, it seems obvious that the fatally long timeline in the development of the Me 262 was due to two broad factors:

1) The official disinterest of the Luftwaffe top brass in any aircraft design that could not be operational by the end of 1941, when they thought the war would be over, and
2) the production delays caused by Adolf Hitler when he decreed that the Me 262 should be a bomber.

Of the two factors cited above, certainly the official disinterest of Luftwaffe officialdom toward the Me-262 was the most damaging. The Me 262 project was begun in late 1938. The jet fighter was not

even presented to Adolf Hitler until November 2, 1943. In an era only slightly before the time when the prototype P-51 was created in six months, the Me-262 prototype took two-and-a-half years to fly, and then only on a piston engine!

Certainly part of the reason for the Luftwaffe's reluctance to place a priority on the Messerschmitt jet fighter was that Luftwaffe possessed only one single-engine fighter during most of the Me-262's gestation period – and that was Messerschmitt's own Me-109. The Focke-Wulf 190 first flew in June of 1939[101] and did not reach operational status until July, 1941.[102] It was considerably more complicated and thus more difficult to produce than the Me-109, and only 4,392 examples of the FW-190 had been produced by April, 1944.[103] With above factors in place, the reluctance of the Luftwaffe brass and Messerschmitt leadership to take engineering and production emphasis off the Me-109 and instead place it on the Me-262 is quite understandable. Indeed, during this time, massively increased engineering emphasis was placed on the Me-109 in order to keep it competitive with its Allied opposite numbers. Angelucci and Matricardi write, *"…the Bf.109 was continually improved and strengthened throughout its long career. The final K model shared only its general structure with the original prototype. For the rest, it was a completely different and infinitely superior aircraft."*[104]

This is where the importance of having the Heinkel He-100 in production from 1939 onward might have been so very critical. With 1) the He-100 in production in the 1939-1941 period, 2) it being greatly superior to both the Me-109 and the Spitfire, and 3) the potentially superior FW-190 in the pipeline, the Luftwaffe could have afforded to phase out the Me-109 as early as November, 1940 (when vast engineering efforts were being expended on a heavily re-designed Me-109F model). These scarce and time-sensitive engineering resources could have instead been devoted to the Me-262 design and its rapidly evolving, revolutionary jet engines…with the goal of bringing the plane and engines online in late 1942.

One can only imagine what a fully-developed Me-262, staffed by experienced, pre-war-trained *Experten* fighter pilots, might have meant to the Luftwaffe's day-fighter fortunes from mid-Summer, 1943 to Spring, 1944…

	Messerschmitt	North American
• *Model*	Me-262 A-1a[105]	P-51D-25[106]
• *Engine*	(2) Junkers Jumo 004 B-1	Packard V-1650
• *Horsepower*	3,960 lb. thrust (1,980 lb. each)	1,675 hp.
• ***Speed (mph)***	**540 @ 19,685ft.**	**437 @ 25,000 ft.**
• *Range*	652 mi.	950 mi.
• *Ceiling*	37,565 ft.	41,900 ft.
• *Span*	40' 11"	37' 0"

• *Length*	34’ 9”	32’ 3”
• *Height*	12’ 7”	12’ 2”
• *Wt. (empty)*	8,820 lbs.[107]	7,125 lbs.[108]
• *Wt. (loaded)*	15,523 lbs.	11,600 lbs.
• *Armament*	4 X 30 mm cannons	6 X .50 cal. mgs.
• *Available*	Late 1944	Late 1943

One can see the huge advantage the Me-262 had over its opponent, the P-51, in both speed and firepower. Thus, maintaining the Me-262 as strictly an interceptor fighter was key to Germany’s ultimate success in the skies over the mainland.

However, it is still possible to project that no matter when the first model of the Me 262 was completed, Adolf Hitler might have proclaimed it his “blitz bomber” and forbade its production in any but bomber versions. Thus, the Germans needed to have a relatively conventional (i.e.: “piston-engine”) fighter-bomber with outstanding performance “in the wings” to counter this internal threat.

Germany had this plane, but like the Me-262, the Germans chose to fritter away its potential through official indifference and indecision. The progenitor project for the Dornier Do 335, the 1937 patent that led to the experimental Goppingen Go 9 of 1939-40, was for a fuselage-mounted, pusher-engine aircraft. Official disinterest in the project, coupled with an inherent lack of future vision, was epitomized by Field Marshal Herman Goering’s infamous order of February 3, 1940 (which, as previously noted, also retarded the Me262’s development): “*By all means, the plans must be furthered that will come into being in 1940 or by the spring of 1941. All other programs, which would come to fruition later, must, if they require economic outlays, be postponed in favor of the aforementioned plans.”*[109] Yet Claude Dornier, convinced of Do 335’s efficacy, decided to pursue refinement of the patented aircraft into a formidable fighter-bomber. The official Luftwaffe hierarchy caught wind of the project, and expressed slight interest if the design could be modified into a pure fighter. Dornier accepted this direction, and duly redesigned the early Do 335 prototypes into fighters (with the fighter-bomber designs firmly in his back pocket).

With the advantage of time and hindsight, it is clear that the Dornier Do-335 would have made an excellent fighter-bomber, surpassing the Me-262 in range and bomb load while potentially equaling it in the nebulous category of “survivability.”

	Messerschmitt	Dornier
• *Model*	Me-262 B-1a/U1[110]	Do 335 A-1[111]
• *Engine*	(2) Junkers Jumo 004 B-1	(2) Daimler Benz DB 603E-1
• *Horsepower*	3,960 lb. thrust (1,980 lb. each)	2 X 1800 hp.
• ***Speed (mph)***	**503 @ 19,685ft.**	**474 @ 21,325 ft. (with boost)**

• *Range*	652 mi.	870 mi.
• *Ceiling*	37,565 ft.	37,000 ft.
• *Span*	40’ 11”	45’ 4”
• *Length*	34’ 9”	45’ 5”
• *Height*	12’ 7”	15’ 5”
• *Wt. (empty)*	8,820 lbs.[106]	16,300 lbs.
• *Wt. (loaded)*	15,523 lbs.	21,200 lbs.
• *Armament*	4 X 30 mm cannons	1 X 30 mm cannon 2 X 15 mm cannons
• *Available*	1945	Late 1944

Two statistics which are not reflected in the above table, but were of great consequence to Do 335’s use as a fighter-bomber, were 1) the Do-335 was able to carry a payload of 2,205 lbs. whereas the Me-262’s capacity was 1,102 lbs.,[112] and 2) the Do-335 was capable of flying 398 m.p.h. near ground level,[113] a speed few World War II aircraft, piston- or jet-engine, were capable of achieving, and thus enhancing its ability to survive the low-level attacks in which fighter-bombers engage.

As in the case of the Messerschmitt Me-262, the fatal delays in developing and producing the Do-335 caused it to go into action far too late, in far too small numbers, to have any but the smallest of effects on the air war over Germany. Had it been ready by early 1944, and in the hands of the bomber units (in numbers) by June 6, 1944, it is possible to envision that it might have had at least some degree of adverse effects on the Allied invasion and conquest of France. Its main contribution to Germany’s war effort, however, would have been to quench Hitler’s thirst for a viable fighter-bomber. This in turn would have freed the Me-262 for the role in which it might have won the air war in the West: that of a high altitude bomber-interceptor, a role for which the Allies would have had no answer, perhaps well into 1946.

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The proper utilization of the Messerschmitt Me 262 in the bomber interceptor role almost certainly would have been enough to wrest and secure control of the skies over Western and Central Europe in the crucial days of 1943 and 1944. But Germany had yet another ace up its collective sleeve that, like the He 100, the Me 262, and the Do 335, it chose to squander.

Notably in the mid-Twentieth Century, military armed forces tended to prefer to let out specifications and bids for military hardware (particularly aircraft), sanction several bidders to produce prototypes, have competitions to weed out the weaker prototypes, get down to two candidates, then make a choice between the finalists. Most times, they would issue a substantial production contract to

the winner of the competition, while at least offering a much smaller contract to the runner-up. America often did this: The P-35 and the P-36, the P-38 and the P-39 (to some extent); and the naval F2A and F4F. In this latter case, the F4F proved superior to the winning F2A after the contract was let and the examples were modified, and became the vastly more produced competitor. Even as late as the mid-1970s, the F-16 and the F-20 competed to be America's standard light fighter, the outstanding F-20 being beaten out by the superlative F-16.

Germany engaged in this same type of competition. The very good Heinkel He-112 was beaten out by what became one of the outstanding, classic fighters of all time, the Messerschmitt Me-109. A small production contract was let to Heinkel, and eventually 98 aircraft were built,[114] while the Me 109 became the most-produced fighter ever.

Perhaps inadvertently, Germany engaged in a version of this type of competition with its first jet fighters. While the Me 262 has risen to fame as the world's first jet fighter to operate in numbers, the superb Heinkel He 280 is nearly forgotten. The He 280 prototype was completed in September 1940 and was tested as a glider shortly thereafter. The jet-powered prototype flew on April 2, 1941, and its test flight was considered very satisfactory. Whereas the Me 262 was designed for maximum speed with the ability to carry heavy armament to high altitude at the expense of maneuverability, the He 280 was designed to carry moderate firepower and to be extremely maneuverable at altitude (i.e.: a dogfighter). Had its production been pursued, it might have become the pre-imminent dogfighter of World War II.

	Messerschmitt	North American	Heinkel
• *Model*	Me-262 A-1a[104]	P-51D-25[105]	He 280 V-1[115]
• *Engine*	(2) Jumo 004 B-1	Packard V-1650	(2) Jumo 004 A
• *Horsepower*	3,960 lb. thrust	1,675 hp.	3,704 lb. thrust
• ***Speed (mph)***	**540 @ 19,685ft.**	**437 @ 25,000 ft.**	**508 ("@ altitude.")**
• *Range*	652 mi.	950 mi.	382 mi. (@ alt.)
• *Ceiling*	37,565 ft.	41,900 ft.	38,000 ft.[116]
• *Span*	40' 11"	37' 0"	39' 4.25"
• *Length*	34' 9"	32' 3"	33' 5.5"
• *Height*	12' 7"	12' 2"	10' 5.75"
• *Wt. (empty)*	8,820 lbs.[106]	7,125 lbs.[107]	7,386 lbs.
• *Wt. (loaded)*	15,523 lbs.	11,600 lbs.	11,465 lbs.
• *Armament*	4 X 30 mm cannons	6 X .50 cal. mgs.	3 X 20 mm can.[117]
• *Available*	Late 1944	Late 1943	Mid 1942

The He 280 had a problem with short range, but this could always be ameliorated with drop tanks to fuel it as it rose to its operational altitude. With the fullness of time, it seems relatively clear that the He 280 was still another missed opportunity for Germany, discarded yet again in a spirit of careless

indifference…so hard to understand, given the clarity and precision of the collective German mindset. The German engineering mind was able to produce such a complicated marvel as the Daimler Benz DB 600-series engine…an engine created with such precision that British engineers in the 1980s, attempting to overhaul one built circa 1944, feared they could not, with current computerized machine tools, reproduce parts calibrated to such tight tolerances as those produced with German mechanical machine tools of the 1940s! Yet collectively, the Germans could not see the value of such advanced designs as the Me 262/He 280, and the Do 335, which offered overwhelmingly clear-cut advantages in high altitude combat and low-level ground attack, respectively.

This, I think, is the emerging major lesson of these "Blueprint"-series of essays: The absolute necessity of staying ahead of the curve of technological progress, in the mechanized and computerized fields of conflict of the modern world. As civilians (and taxpayers), we see the price tags of such weapons systems as the F-22 and the F-35, state-of-the-art drones, and the vast sums spent on potential computerized warfare, and question the need for such expenditures. Yet, we look back into the history of the World War II German and Japanese war machines and see the overwhelming cost of failing to stay ahead of the technological curve in modern warfare. This, then, is the cost the United States simply cannot afford to bear, regardless of the political regimes currently in power as this essay is read and contemplated.

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Monograph # 10:

(An entry in John Eric Vining's *"Blueprint"* series)

1940-1944: *A Blueprint for Germany's Possible Victory in the Night Battle of Germany*

"*Night Fighting? It will never come to that!*"[1]

-Field Marshal Hermann Goering, Luftwaffe commander, 1939

If any statement epitomizes the attitude and lack of preparation for aerial night warfare that Germany possessed heading into the maelstrom of World War II, the above quote must certainly be it. This oversight is especially hard to understand, since the Germans themselves were the earliest proponents of nocturnal cross-Channel bombing raids against the British during World War I. First with dirigibles, then with various models of Gotha,[2] Zeppelin (Staaken),[3] and Friedrichshafen[4] heavy bombers, the Germans initiated night bombing raids against Southeastern England's cities and other targets from 1915 onward, spreading terror and destruction right up through the end of the war in 1918. And yet, from being totally unprepared for Great Britain's night onslaught in 1939, Germany had built history's greatest night-fighting defense by 1944. They came within a hair's breadth of stopping Britain's night bombing offensive in early-1944, only to fall victim to the terrible tide of war in May, 1945.

In this monograph, I will very generally describe the Night Battle of Germany, examine some of aircraft involved in the battle, and lightly touch on the back-and-forth of the new phenomenon of electronic warfare that emerged from this struggle. I will then focus on two critical errors that Germany committed, and finally offer a possible solution to Germany's defeat in this battle.

Beginning with Germany's invasion of Poland on September 1, 1939, World War II continued apace (except for a mid-winter/early-spring pause known as the "Phony War") as a relatively foreseeable daylight struggle of continental forces. Although both sides (the Allied and Axis powers) introduced new weapons and strategies (notably "blitzkrieg" or "lightning war"), most combat was oriented toward daytime encounters between broadly traditional daylight-oriented forces. Dusk activities essentially involved the traditional tasks of fortifying the positions one occupied at the fading daylight – emplacing field artillery, digging individual foxholes, laagering (i.e.: "circling") tanks, and camouflaging aircraft on forward airstrips against dawn raids. This all changed on the night of May 15-16, 1940, when a force of British bombers approached Europe from over the horizon. With England's ground forces soon to be

pushed off the continent at Dunkirk by Germany's blitzkrieg, an air assault by night bombers was the only way for Great Britain to strike back offensively at her opponent, at least for the foreseeable future.

Germany's night defense had been left to anti-aircraft artillery (i.e.: "Flak") in combination with searchlights. However, on the night of May 15-16, 1940, ground haze rendered the searchlights and Flak batteries impotent,[5] and Britain's bombers arrogantly swept unmolested through European airspace. Of course, this threat could not continue uncontested, and very quickly a small squadron of German day fighters (single-engine, unmodified Messerschmitt 109s) was assembled and sent into the night air with orders to intercept and destroy the subsequent formations of British bombers. Unsurprisingly, the German fighters were unable to locate, let alone shoot down, the British night raiders. Given this lack of effective interception, Britain sent bombers to the continent in increasing numbers and with increasing regularity.

At this stage of the war, the British were sending to German-occupied Europe a rather eclectic collection of twin-engine heavy night bombers – a trio of aircraft that had originally been intended to be day bombers. Although capable of carrying useful bombloads for this early stage of World War II, these bombers were slow, poorly protected structurally (the Vickers *Wellington* was better in this regard than the other two, given its geodetic construction), and very poorly armed defensively.

(Note: The following tables will allow you to get a feel for the back-and-forth nature of the aeronautic struggle between Great Britain and Germany in the night air war above European territories.)

	Handley Page	**Vickers**	**Armstrong Whitworth**
• *Model*	Hampden Mk I[6]	Wellington Mk. I[7]	Whitley Mk. V[8]
• *Engine*	Bristol Pegasus XVIII	Bristol Pegasus XVIII	R-R Merlin X
• *Horsepower*	2 X 1,000 hp.	2 X 1,110 hp.	2 X 1,145 hp.
• *Speed (mph)*	254 @ 13,800 ft.	235 @ 15,500 ft.	222 @ 17,000'
• *Range*	1,885 mi.	1,200 mi.	1,650 mi.
• *Ceiling*	22,700 ft.	18,000 ft.	17,600 ft.
• *Span*	69' 2"	86' 2"	84' 0"
• *Length*	53' 7"	67' 7"	70' 6"
• *Height*	14' 11"	17' 5"	15' 0"
• *Wt. (empty)*	11,780 lbs.[9]	18,566 lbs.[10]	19,300 lbs.[11]
• *Wt. (loaded)*	18,756 lbs.	28,500 lbs.	28,200 lbs.
• *Armament*	6 X .303 cal. mgs. 4,000 lbs., bombs	6 X .303 cal. mgs. 4,500 lbs., bombs	5 X .303 cal. mgs. 7,000 lbs., bombs
* *Available*	1938	1938	1939

As noted, initially Germany had no success with single-engine fighter interceptions at night. Luckily for the Germans, as they cast about for alternative aircraft to intercept and destroy the British bombers, they were able to find one aircraft already in their inventory that would be quite suitable for immediate adoption as a night fighter, one bomber of moderate performance that with some reworking could serve as a stopgap night fighter, and one high-performance bomber that, with fairly substantial but not overwhelmingly complex modifications, ultimately could provide a powerful stimulus to their night fighter arm:

	Messerschmitt	**Dornier**	**Junkers**
• *Model*	110 C-4[12]	215 B-5[13]	88 C-6b[14]
• *Engine*	Daimler Benz DB 601A	Daimler Benz DB 601A	Jumo 211J
• *Horsepower*	2 X 1,100 hp.	2 X 1,075 hp.	2 X 1,340 hp.
• *Speed (mph)*	349 @ 22,966 ft.	280 @ unknown ft.	298 @ 18,040'[15]
• *Range*	528 mi.	932 mi.	1,243 mi.
• *Ceiling*	32,800 ft.	31,170 ft.	32,480 ft.
• *Span*	53' 4.75"	59' 0.5"	65' 10.5"
• *Length*	39'' 8.5"	51' 9.5"	47' 2.25"
• *Height*	11' 6"	14' 11.5"	16' 7.5"
• *Wt. (empty)*	9,920 lbs.	12,730 lbs.	19,090 lbs.
• *Wt. (loaded)*	15,430 lbs.	19,841 lbs.	27,500 lbs.
• *Armament*	5 X 7.92 mm. mgs. 2 X 20 mm. cannons	5 X 7.92 mm. mgs. 2 X 20 mm. cannons	5 X 7.92 mm. mgs. 4 X 20 mm. cannons
* *Available*	1939	1941	1942

The Messerschmitt Me 110, originally designed as a long-range day fighter, was quickly adapted to the night fighter role basically "as is.". The Dornier Do 215 was rather hastily converted into a "lash-up" night fighter. It was upgraded to the Do 217, but gradually fell out of favor as a night fighter. Its performance regarding speed and climb was marginal from the beginning. As the British introduced faster bombers and Germany introduced airborne radar, the performance of the Dornier night fighters simply would not allow them to remain competitive in the night arena as the war progressed. The versatile Junkers Ju 88 was soon built into a very serviceable night fighter with a relatively easily attained amount of retrofitting.

The British rapidly found their prewar lineup of twin-engine heavy bombers to be lacking in many of the characteristics for favorable use as night bombers, the foremost being speed at altitude and overall survivability. As the war progressed, they introduced a new stable of four-engine bombers, two of which survived and prospered in the role of heavy night bomber until the end of World War II in May, 1945:

	Handley Page	Short	A.V. Roe (Avro)
• *Model*	Halifax Mk I[16]	Sterling Mk. I[17]	Lancaster Mk. I[18]
• *Engine*	R-R Merlin X	Bristol Pegasus XI	R-R Merlin XX
• *Horsepower*	4 X 1,280 hp.	4 X 1,590 hp.	4 X 1,460 hp.
• *Speed (mph)*	265 @ 17,500 ft.	260 @ 15,500 ft.	287 @ 11,500 ft.
• *Range*	1,860 mi.	1,930 mi.	1,660 mi.
• *Ceiling*	22,800 ft.	17,000 ft.	24,500 ft.
• *Span*	98’ 10”	99’ 1”	102’ 0”
• *Length*	70’ 7”	87’ 3”	69’ 6”
• *Height*	20’ 9”	22’ 9”	20’ 0”
• *Wt. (empty)*	33,860 lbs.[19]	44,000 lbs.[20]	36,900 lbs.[21]
• *Wt. (loaded)*	58,000 lbs.	59,400 lbs.	70,000 lbs.
• *Armament*	6 X .303 cal. mgs.	10 X .303 cal. mgs.	10 X .303 cal. mgs.
	13,000 lbs., bombs	14,000 lbs., bombs	22,000 lbs., bombs
* *Available*	1940	1940	1942

Germany responded to this upgrade in British bombers with upgraded night fighters of its own. The Messerschmitt Me 110 was progressively up-gunned and up-engine throughout the war, and remained the steed of many of the top night aces right until the end of World War II. The amazing Junkers Ju 88 proved capable of an astonishing array of upgrades and eventually would become the mainstay of the Luftwaffe night fighter force.

	Messerschmitt	Junkers
• *Model*	110 G-4[22]	88 G-7b [23]
• *Engine*	Daimler Benz DB 605B	Junkers Jumo 213E
• *Horsepower*	2 X 1,475 hp.	2 X 1,880 hp.
• *Speed (mph)*	342 @ 22,900 ft.	389 @ 29,800 ft.
• *Range*	1,305 mi.	1,398 mi.[24]
• *Ceiling*	26,000 ft.	32,800 ft.
• *Span*	53’ 4.875”	65’ 10.5”
• *Length*	41’’ 6.75”	54’ 1.5”
• *Height*	13’ 1.256”	15’ 11”
• *Wt. (empty)*	10,970 lbs.	19,090 lbs. [estimated][25]
• *Wt. (loaded)*	21,800 lbs.	28,900 lbs.
• *Armament*	2 X 7.92 mm. mgs.	1 X 13.0 mm. mg.
	2 X 20 mm. cannons	4 X 20 mm. cannons
	2 X 30 mm. cannons	2 X 20 mm. can. (“Schrage Musik”)
* *Available*	1942	1944

Britain also deployed night fighters into the nocturnal war against Germany. While the Bristol *Beaufighter* was initially intended as an interceptor against German bombers operating over Great Britain, it had enough range and just enough performance to operate for a short period over the European continent as a bomber escort against the German night fighters, with some success. On the other hand, the de Havilland *Mosquito* had sterling maximum speed, high speed at altitude, outstanding range, and devastating firepower. It excelled at many roles, including night intruder and escort fighter for the multiplying numbers of British bombers filling the European night air.

	Bristol	**de Havilland**
• *Model*	Beaufighter Mk. IF[26]	Mosquito Mk. VI [27]
• *Engine*	Bristol Hercules XI	Rolls Royce Merlin XXI
• *Horsepower*	2 X 1,400 hp.	2 X 1,250 hp.
• *Speed (mph)*	321 @ 15,800 ft.	380 @ 13,000 ft.
• *Range*	1,170 mi.	1,205 mi.
• *Ceiling*	26,500 ft.	36,000 ft.
• *Span*	57’ 10”	54’ 2”
• *Length*	41’’ 4”	40’ 6”
• *Height*	15’ 10”	15’ 3”
• *Wt. (empty)*	14,069 lbs.[28]	14,100 lbs.[29]
• *Wt. (loaded)*	21,000 lbs.	22,300 lbs.
• *Armament*	6 X .303 cal. mgs. 4 X 20 mm. cannons	4 X .303 cal. mgs. 4 X 20 mm. cannons
* *Available*	1940	1943

As difficult as was airborne interception for Germany’s night fighters, simply finding the target was just as difficult for the British bomber force. Both parties soon resorted to various means of radio and radar location and interception techniques to assist them in these daunting tasks. Just like the back-and-forth upgrades regarding aircraft between Great Britain and Germany, the two antagonists also traded blow-for-blow in the realm of electronic warfare. It is beyond the scope of this essay to dive deeply into the area of electronic measures and countermeasures – that would take an entire book to cover. However, I’ll name just of few of the competing systems, because one aspect of the electronic weaponry discussed here has a huge impact on the ultimate major thrust of this monograph.

The British developed increasingly sophisticated navigational aids such as *Gee* (with late-war improvements), *Oboe*, and *H2S*.[30] These electronically-based navigation aids materially improved the British’s ability to find and destroy cities, and the military targets within the cities, as the war progressed.

Importantly, the British also developed an onboard radar, capable of being carried by their fighters, known as *AI* ("Airborne Interception"[31]). This was a very important innovation, because not only was *AI* an early (1939) installation of an airborne tracking radar, much enhancing a night interceptor's ability to find and destroy its opponent, but *AI* was developed from that point forward very rapidly. By March 1941, it had been refined into a practical centimetric radar ("*AI* Mark VII").[32] This improvement allowed for the radar antennas that of necessity had to be located on the exterior of the aircraft's fuselage and wings to be very small, barely affecting the airflow and drag on the aircraft. Eventually, the antennas could be housed in a thimble-shaped plastic faring on the nose of the fighter aircraft, allowing the streamlining of the plane to be virtually unaffected.

Meanwhile, the Germans were working on advanced radar tracking techniques. The ground-based *Freya* and *Wurzberg*[33] (along with its most important development, *Wurzberg Riese*[34]) radars allowed the Germans to find and fix the inbound British bombers at a considerable distance from their Axis targets. This allowed the development of a fixed, land-based interception system known as *"Himmelbett"*[35] ("Heavenly bed," or "four-poster bed" [i.e.: an electronic defensive box]) to be developed. A ground controller at a central control point, reading the radar screen for a defensive box, guided a single orbiting night fighter by radio to an individual interception with an incoming bomber which had flown inside the box. When the *Himmelbett* system was countered by the simple expedient of *"Window"* (bundled cut-aluminum strips dropped by bombers which flooded German radars with false contacts) in 1943, the Germans switched to *Wilde Sau* ("Wild Sow"/"Wild Boar") methods (uncontrolled, visually-oriented attacks by single-engine fighters coordinating with ground-based searchlights to find and destroy their foes). This eventually led to *Zahme Sau* ("Tame Sow"/"Tame Boar") and other bomber stream infiltration techniques by all German fighters that almost brought the British aerial offensive to its knees in 1944.

The Germans were also working at developing airborne, onboard radar for their night fighters as well. The *Lichtenstein A* (which was eventually developed through series *BC* and *C-1* into the superlative *Lichtenstein SN-2*[36]) radar was available to the Germans in late 1940, but there was a problem. This onboard radar unit operated on a wavelength of about 60 centimeters, about six times[37] that of its rival British rival *AI*. As antenna size is directly related to wavelength, this in effect meant that the externally-mounted aerials on German night fighters would be approximately six times the size of their British counterparts. These *"Hirschgeweih" ("Stag's antlers;"*[38] a slang term for the huge antenna arrays on the noses of the German night fighters) caused a great deal of wind resistance. The loss of aerodynamics caused by these antennae slowed the German night fighters by about 25 miles per hour,[39] and the German

pilots found they could not climb as quickly or fly as high with the cumbersome aerials in place.[40] To the pilots of the earlier models of the Messerschmitt, Dornier, and Junkers night fighters, this decrease in speed and overall performance made them hard-pressed to intercept the swift and maneuverable new four-engine British bombers, which were steadily replacing the older, vulnerable twin-engine machines. Conversely, escape from the ever-increasing numbers of British *Mosquito* escort fighters was virtually impossible once these magnificent warplanes, equipped with airborne radar, locked on to the now heavily-compromised German night fighters.

The "Stag's antlers" radar antennae array was a problem, and the German engineers knew it. They made plans to develop to a short-wavelength radar that would have allowed a much smaller antennae array to be placed within the fuselage of the fighters. However, in 1942, Hitler got wind of the plan and the development efforts. Unable to see the value and payback of centimetric radar, Hitler expressly forbade additional research and development into this major advance in technology.[41] This was the first critical mistake in the German night fighting effort: centimetric radar installed in German night fighters at an early date might have tipped the scales of battle heavily toward Germany during the crucial early-war period.

The answer to a major part of German's night fighting crisis was in the works as early as mid-summer, 1940.[42] As I have noted in an earlier essay on the daylight air war over Germany, it was possible (indeed, virtually necessary) for Germany to stop the American daylight air offensive dead in its tracks by the Fall of 1943. This was also so in the British-German night aerial war as well. As the production of outstanding new German day-fighter designs could have tipped the daylight air war toward Germany, this same advantage could have been realized by Germany against the British night aerial offensive: a virtual stone-wall stoppage of the British bomber attacks in its tracks in the fall of 1943. The key to realizing this goal lay in the development of a revolutionary new German night fighter.

During the summer of 1940, the design team of Heinkel Flugzeugwerke, under the overall direction of Ernst Heinkel, began work on a high performance, general purpose warplane, the He 219 *"Uhu"* ("Owl"). Like the brilliant de Havilland *Mosquito*, Heinkel's new plane was not built to a military specification; and also like the *Mosquito*, this fact engendered official disinterest in the project from the get-go. (It is a curious trait among virtually all military establishments: most military officials can't quite seem to grasp or accept that others outside of those within their own select fraternity can survey the military/technical landscape and propose weapons or solutions to some of their problems.) Nevertheless, Ernst Heinkel forged ahead with the project using his own funds, obviously recognizing a potentially outstanding aircraft (as did Geoffrey de Havilland). As the war progressed and the British night aerial

offensive gained effectiveness, the German Air Ministry (the "R.L.M.") approached Heinkel and requested that the design plans for the obviously flexible He 219 be modified to make it a night fighter. Heinkel complied at once. Then, after making the request, the R.L.M. stifled the development of the plane with official disinterest. Erhard Milch, head of the Air Ministry, personally disliked both Ernst Heinkel and General Josef Kammhuber, commander of the night defenses. In his official capacity, Milch thus threw innumerable roadblocks into the progress of the He 219 design. Finally, in very late 1941, the German R.L.M. could no longer dismiss the rising tempo and intensity of British night bombing attacks, and it turned to Heinkel to rush production of the plans to turn the *Uhu* into a night fighter.[43] Heinkel immediately complied, starting in January, 1942. However, a full eighteen months had been lost.[44] Once again, as in the case of the development of the revolutionary Me 262 jet fighter and the Do 335 fighter-bomber, the vital year of 1941 had been wasted. This was the second major mistake the Germans made in the aerial night fighting war.

Heinkel rushed ahead, but in March and April 1942, two Royal Air Force attacks on Heinkel's production facility at Rostock destroyed all of the blueprints for the He 219 project (although the partially completed prototype itself escaped destruction). Despite all the operational setbacks and official vacillation, the prototype He 219 V-1 finally flew on November 15, 1942, and immediately proved outstandingly formidable. The inevitable design and production bugs had to be worked out, but on the night of June 11-12, 1943, the prototype Heinkel He 219, piloted by super-ace Major Werner Streib, had its initial live operational test flight. The results were spectacular. On its maiden flight, Streib and his darting, flame-belching He 219 shot down five British four-engine bombers![45] Not only was the *Uhu* an outstanding bomber destroyer, it was superior in fighter-versus-fighter combat to the much-feared de Havilland *Mosquito*…so much so that the He 219 soon acquired the nickname of *"Mosquitojager"* ("Mosquito Hunter").[46]

	Messerschmitt	**de Havilland**	**Heinkel**
• *Model*	110 G-4[22]	Mosquito Mk. VI [27]	219 A-7/R1[47]
• *Engine*	Daimler Benz DB 605B	R-R Merlin XXI	Daimler Benz DB 603G
• *Horsepower*	2 X 1,475 hp.	2 X 1,250 hp.	2 X 1,900 hp.
• *Speed (mph)*	342 @ 22,900 ft.	380 @ 13,000 ft.	416 @ 22,965 ft.
• *Range*	1,305 mi.	1,205 mi.	1,243 mi.
• *Ceiling*	26,000 ft.	36,000 ft.	41,660 ft.
• *Span*	53' 4.875"	54' 2"	60' 8.33"
• *Length*	41'' 6.75"	40' 6"	50' 11.75"
• *Height*	13' 1.256"	15' 3"	13' 5.5"
• *Wt. (empty)*	10,970 lbs.	14,100 lbs.[29]	24,692 lbs.
• *Wt. (loaded)*	21,800 lbs.	22,300 lbs.	33,730 lbs.

•	*Armament*	2 X 7.92 mm. mgs. 2 X 20 mm. cannons 2 X 30 mm. cannons	4 X .303 cal. mgs. 4 X 20 mm. cannons	2 X 20 mm. cannons 2 X 30 mm. cannons 2 X 30 mm. can. *("S.M.")*
*	*Available*	1942	1944	1944 *("Slanting Musik")*

A key point must be made here. An early adoption and rapid production of the He 219 would have meant that Germany's initial major failure to adopt centimetric radar would not have made a difference. The performance of the He 219 was so outstanding that even the drag-inducing "Stag's antlers" radar antennae array had little effect on the *Uhu's* effectiveness. Even with this impediment, the He 219 was still vastly superior to the fast and maneuverable Avro *Lancaste*r bomber and even to the incredible de Havilland *Mosquito*. Thus a previous major error in judgment on the part of Adolf Hitler would have been rendered unimportant.

But it was too late. Such were the vagaries of war for the Germans at this point in the struggle that the incredible He 219 was destined make only a minimal impact on the RAF's losses.[48] Only 294 examples of all versions were produced,[49] and these were produced so late in the war that even significantly more numbers of them probably would have failed to make a difference.

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Over the years, I have had several lively discussions with other aircraft enthusiasts and historians about the true impact that the Heinkel He 219 could have made on Germany's World War II aerial war effort. Several were adamant that weapons systems such as the He 219 are only "force multipliers": that wars are won and lost by men, and not by machines. Others have argued that one weapons system alone could not have made a difference; that the Axis powers were blanketed and driven under by a blizzard of Allied logistical capabilities and supplies.

But I have argued back that the United States has long counted on heavily leveraging its vast technical and technological strengths to overcome superior numbers. The Allies demonstrated this in the summer of 1944 in the race across France against Hitler's legions. Technological superiority was the backbone of NATO's defense strategy in Western Europe against the much great numerical might of the Soviet Union during the Cold War. And this factor was most lately exhibited in the Middle East in "Gulf War I," where an outnumbered but greatly technologically superior Allied *expeditionary* force completely routed (in 100 hours!) the full might of Iraq's battle-tested (and the world's fourth largest) army, which was fully concentrated against the Allies.

And then I continued to come across statements from experts such as these:

"[The He 219] *might have had a decisive effect on the course of the air war if it had been built in larger numbers."* - Enzo Angelucci and Paolo Matricardi[50]

"[The He 219's] *widespread usage…could have had such a radical effect on the nocturnal air war over Germany."* – William Green[51]

"…the He 219 was undoubtedly the weapon needed to redress the balance in the night war."

- Raymond F. Tolliver and Trevor J. Constable[52]

Flying increasingly obsolescent Messerschmitt 110s and Junkers 88's, the German night fighter pilots and radar operators destroyed 107 British four-engine heavy bombers on the night of March 30-31, 1944, in a raid on Nuremberg, Germany (94 shot out of the sky and a further 13 written off as total losses upon landing in England.[53]) This was only the biggest of several large successes in late 1943 and early 1944 for Germany's night fighter arm. What would have been the effect of a large number of technologically superior He 219s, flown by vastly experienced aircrew, possessing plenty of fuel with which to fly, riding the night skies over Europe in the fall and winter of 1943-1944 (and perhaps even back into early 1943)? One can only project that at least one segment of World War II in the Western Theater might have progressed quite differently than what history ultimately actually recorded.

Endnotes

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13. Ibid., 14. [Approximate statistics; data is essentially for the Do 215 B-1, a roughly equivalent model.]
14. Ibid., 43.
15. Green, 62: [Speed only]. Green's data for this aircraft's speed is for the Ju-88 C-2. Gunston, *German Aircraft*, 51, gives the speed of the C-6 as 300 m.p.h. with no altitude specified.
16. Angelucci and Matricardi, *World War II Airplanes, Volume 1*, 62-63.
17. Ibid., 61-62.
18. Ibid., 72-73.
19. Gunston, *World War II British Aircraft*, 38. [Weight (empty) only.]
20. Ibid., 46. [Weight (empty) only.]
21. Ibid., 11. [Weight (empty) only.]
22. Green, 42.
23. Ibid., 69.
24. Angelucci and Matricardi, *World War II Airplanes, Volume 1,* 119. [Range only.]
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33. Ibid., 33, 35, 49, 50-52.
34. Ibid., 65, 90, 98.
35. Ibid., 65, 98, 107, 148, 159, 297.
36. Ibid., 159.
37. Ibid., 67.
38. Ibid., 341.
39. Green, 64.; Hinchliffe, 67.
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43. Ibid., 116.
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47. Green, 122.
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Monograph # 11

1942-1945: *The Allies' Most Unlikely War-Winning Weapon of World War II*

In World War II, the Germans were responsible for producing some of the greatest weapons of their era. The Mauser infantry rifle, the Panzerfaust (bazooka), the Me-109 and FW-190 fighters, and the Mark V *Panther* and Mark VI *Tiger* tanks were some of the best and most innovative weapons of their respective types in the Second World War.

The Germans were also quite inventive in their strategies and tactics for making war. Their groundbreaking use of the new strategy of blitzkrieg, and the tactics developed for employing it, were some of the most innovative and earthshattering changes to warfare ever devised. The disruptive power and especially the speed of blitzkrieg have gained almost mythical status in the annals of military history.

Yet the myth tends to obscure a tremendous chink in the Germans' collective armor. In one critical area of war-making, the Germans were woefully behind the times, and light years behind the Allies: horses supplied 80% of the motive power for the German army and pulled two-thirds of its vehicles.[1] This was a staggering oversight, matched only the Germans' wholehearted failure to foresee the need to effectively combat the British aerial night bombing offensive.

Perhaps more astounding is that the German war planners never seriously considered replacing horses with motor vehicles.[2] The use of horses in the German Army actually tripled during 1939,[3] well after blitzkrieg had been adopted formally as the preferred method of waging war. After late-war shortages in rubber and fuel became acute, the reliance on horse-drawn support became even greater, and near the war's end over one million horses were in service.[4]

As early as 1940, the proposed invasion of the British Isles (Operation "Sea Lion") was set to involve 57,000 horses versus 34,000 motorized vehicles.[5] The Germans used an astounding 750,000 horses in their massive 1941 invasion of the U.S.S.R.[6] The fact of the matter is that the German forces relied on divisions that moved by foot or horsepower;[7] seventy percent of German forces moved on foot,[8] while an infantry division needed 4,500 horses and 2,000 horse-drawn vehicles to operate.[9] Horses under a load could march a maximum of 15 to 20 miles per day,[10] which effectively limited the daily radius of action of an infantry division to that distance. Further, horses slowed the famed German blitzkrieg offensives, because the tanks' horse-drawn supply wagons virtually always lagged behind the hard charging panzers and they tended to clog the roads in the rear logistical areas.[11]

Horses and horse-drawn vehicles had some advantages over motorized transport. Horses could pass more easily through heavily-forested areas and low-lying swamp or marsh areas.[12] However, they presented disadvantages in abundance. They could be killed and needed sleep, and preferred standing to movement.[12] They needed food and water whether they were being employed or not. They had to operate within 25 miles of a railhead due to their tremendous feed and water requirements – a division's compliment of horses needed 53 tons of feed each day;[13] a large horse would consume nearly 20 pounds a day by itself.[14]

Further, the death of one horse could incapacitate an entire team for a time,[15] and it sometimes took as many as 36 horses to move a single piece of heavy artillery.[16] Horses needed harnesses, watering gear, and horseshoes, plus substantial numbers of veterinarians to treat them.[17] They took up scarce room on trains used to transport them to operational theaters: a 55-car train could transport a maximum of 350 horses at approximately 6 horses per car.[18] Horse-drawn vehicles were crucial to keeping the German Army supplied and mobile,[19] but at a tremendous cost: nearly 5,000,000 horses died in the service of the German Wehrmacht in World War II.[20]

In contrast, the Allied armies (principally the Americans) produced only a few truly innovative weapons. The Garand M1 infantry rifle was the only semi-automatic rifle that was standard issue to foot soldiers with any of the combatants in World War II, and conferred a great advantage to the American G.I. over his individual opponent. The North American P-51 *Mustang* fighter with its innovative laminar-flow wing was another truly revolutionary product, greatly responsible for taming the previously dominant Luftwaffe fighter formations in West after February 1944.

However, the Allies generally relied on the mass production of conventional, robust, and simply maintained/operated equipment to overwhelm its opponents. Perhaps the greatest example of this concept was the M4 *Sherman* medium tank. The *Sherman* was only roughly comparable to the German Mark IV tank, and was seriously outclassed by the later Mark V *Panther* and Mark VI *Tiger*. Yet, the Germans produced only 8,000[21] Mark IVs (their most numerously-produced tank), 5,000[22] Mark V *Panthers*, 1,300[23] Mark VI *Tiger Is*, and 485[24] Mark VI *Tiger IIs*. In contrast, the United States produced 49,230[25] M4 *Shermans*, and about 88,000[26] tanks overall (including 6,258[27] of the earlier, relatively formidable M3 *Lee/Grant* medium tanks). The American tanks were built of components similar in concept to those in automobiles and farm equipment, and could be easily maintained and operated by the farm boys, factory workers, and shop-keepers that made up the bulk of the general enlisted ranks of the American and British armies.

But it might have been the humblest of equipment that provided the true edge in the winning of World War II in the Western Theater by the Allies. General Dwight D. Eisenhower observed that "[The] equipment…among the most vital to our success in Africa and Europe were the bulldozer, the jeep, the 2 ½ ton truck, and the C-47 [tactical transport] airplane."[28] Of these, perhaps the most important was the 2 ½ ton truck.

By July 1944, when the Allies had succeeded in breaking out of Normandy after the June 6 invasion of Europe, approximately 28 American divisions were advancing across Europe toward the German border. Since the French railroad system had been essentially destroyed by the American and British tactical air forces in the largely successful effort to isolate the Normandy beachhead from German interdiction, these advancing army divisions, spearheaded by the increasingly numerous *Sherman* tanks, had to be supplied by trucks. This need was triumphantly met by American-produced trucks. At its peak, the whimsically named "Red Ball Express" was running 5,938 trucks (hauling 12,372 tons of supplies) daily from the Normandy coast to the eastward-advancing tanks and infantry at the front.[29]

The heart of the truck fleet was the GMC "CCKW" 2 ½-ton 6X6 Cargo truck. Production of this vehicle was begun in 1941 and continued through 1945. Its specifications were as follows:

Weight (empty)	8,800 lbs.
Weight (loaded)	16,400 lbs.
Length	270 1/8 in.
Width	88 in.
Height	109 1/8 in.
Engine	GMC 270…91 hp.
Transmission	5 speed X 2 range transfer case
Suspension	Beam axles on leaf springs
Fuel capacity	40 gallons US
Operational range	300 mi.
Speed	45 mph.[30]

In every respect the GMC CCKW was an outstanding supply vehicle. It was simple, dependable, tough, and easily maintained and operated. It could be used to transport dry supplies, as a troop transport, hold reservoirs for 750 gallons of liquid (including fuel), provide shelter for radio communications or medical procedures, transport the components of river bridges, and haul ordnance for the Army's fighters and bombers.[31]

The most astounding and important feature of the CCKW was its ubiquity: GMC produced fully 562,750 examples of the CCKW.[32] It was the most commonly-used tactical vehicle of World War II.[33] When one throws in the fact that GM's Chevrolet Division produced another 167,373[34] slightly smaller and only

marginally less capable 1 ½-ton 4X4 "G-506" general duty trucks, the advantage of motorized supply transport to the Allies is further magnified.

Germany's opponent on the Eastern Front, the Soviet Union, utilized motorized transport for almost 80%[35] of its supply needs. This was substantially because another American automobile manufacturer, Studebaker, converted its production facilities to produce the 6X6 "US6" 2 ½-ton truck and dedicated its production to be delivered to the Soviets under the "Lend-Lease Act." The vehicle physical and performance statistics of the Studebaker US6 were almost exactly the same as the GMC CCKW. The Soviet Union's utilization of the more than 200,000[36] Studebaker-produced 6X6 trucks conferred the same operational advantages to the Red Army in the East that the Americans enjoyed in the West.

International Harvester Corporation's Truck Division produced another 30,000[37] 6X4 and 6X6 "M-5-6" 1 ½- and 2 ½-ton trucks during World War II, similar in almost every regard to the CCKW and the US6. Approximately 3,500 of these were shipped to the Soviet Union under Lend-Lease, while the remainder of IHC's production provided outstanding transport capabilities to the United States Navy and Marine Corps.[38]

Another factor was the Allied advantage in tactical battlefield transport. The Germans produced 15,252 Sd.Kfz.251 half-tracks, whose armor was built to withstand standard rifle/machine gun bullets.[39] In contrast, the United States produced 55,853 half-tracks from four primary manufacturers: White Motor Company, Autocar, Diamond T, and International Harvester.[40] Approximately 5,000 of these were shipped to the Soviet Union.[41]

All in all, the transportation capabilities provided by the United States' 6X6, 2 ½-ton truck provided the Allies with perhaps the greatest advantage over its opponents' parallel capabilities of any tool, weapon, or equipment system employed during World War II. General George S. Patton succinctly summed this up perhaps better than anyone: "The 2 ½-ton truck is our most valuable weapon."[42]

Endnotes

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Monograph # 12

1946-1991: *The Twentieth Century's Third World War: a.k.a., "The Cold War"*

"From Stettin in the Baltic to Trieste in the Adriatic, an iron curtain has descended across the continent."[1]
-Winston Churchill, Fulton, Missouri, 1946

"We shall bury you!"[2]
-Nikita Khrushchev, Moscow, U.S.S.R., 1956

"…a long, twilight struggle…"[3]
-John Kennedy, Washington, D.C., 1961

"Mr. Gorbachev, tear down this wall."[4]
-Ronald Reagan, Berlin, West Germany, 1987

For many years, as a "Baby Boomer" born in 1955, slogans and snippets of quotes were all I had available to draw upon in my attempt to understand a very confusing construct that dominated the first half of my life: a sinister, political/military, vaguely-deadly background shadow known as *The Cold War*. The flickering images and raspy voices emitting from our family's old, used, black-and-white television set told tales of first the Cuban Missile Crisis, then President Kennedy's assassination, and on to the Vietnam War. But coded deep within those images and voices, yet lurking just out of sight, the Cold War seemed to be a baffling backdrop to everything that came across the airwaves and into our modest little farmhouse in deeply rural Northwest Ohio.

In the pages that follow, I will first chronical my childhood impressions of the Cold War. I will outline my frustrations in intuitively knowing that the Cold War was a global "world war," yet struggling to place the Cold War within the confines of conventionally understood military-political terminologies and worldviews. This will be followed by a catalog of attempts over many years to develop logical structures with which to conceptualize the Cold War, which itself was inherently nebulous. These mentally-constructed frameworks included: military-chronological, orientation-driven, historical, classical, or "structures to wield power," all of which proved inadequate vessels within which to categorize the attributes and/or events of the Cold War. Finally, I will outline how I found an author/historian who thought similarly to how I thought, discarded my traditional "strictly chronologically-oriented" and "Euro-centric" views of the Cold War, and finally developed a coherent "geography-based" worldview (in

conjunction with time/event considerations) that satisfied my need for order in an inherently disordered Cold War.

My first bewilderment was from hearing about or viewing, as an older child of 11/12 then as an early-teen of 13/14, events around the world: The on-going tensions between East and West Berlin; the tensions between two relatively unfathomable, for a very young boy, military-political organizations, *NATO* and the *Warsaw Pact*; intercontinental ballistic missiles pointed each direction – east and west – in Europe, Asia, and North America. These were interspersed with periodic upheavals like the Paris student riots and the Prague Spring of 1968. What was strange to a young man was that all of the interest and reporting tended to be centered on "The Cold War in Europe: the 'Front Line of Confrontation.'" Yet not much really seemed to happen in Europe: it was basically a world of cement walls, barbed-wire fences, and elevated machinegun turrets, all backed by rows and rows of tanks on either side, facing each other. But essentially, nothing ever happened there.

All the while, there were lesser-reported wars and rumors of wars all over the world. These were reputed to be a part of the Cold War as well. Confrontation between North and South Korea, hostility with Cuba, war between North and South Vietnam, periodic flair ups between Israel and its Arab neighbors, and India and its Pakistani neighbor. These enemies seemed to be equipped with American and Soviet guns, warplanes, and tanks (remember, this is being seen from the viewpoint of a young boy fascinated by "planes, trains, and automobiles"), but the wars were actually being fought by *"others"* …the concept of *"proxies"* (as in *proxy wars)* was too deep of a mental construct for a pre-teen or early-teen.

How about all the conflicts popping up in remote areas? The Congo…Algeria…Bangladesh…Angola…Mozambique? These contestants were reported to be equipped, advised, and financed by one side or the other; or most usually, one side by *"The East"* (a.k.a.: *"Communists"*) and the other side by *"The West"* (a.k.a.: *"Imperialist Capitalists"*). How did all these conflicts fit into the mosaic of the Cold War?

And then there was the ever-present specter of "The Bomb." We had "The Bomb;" the U.S.S.R. had "The Bomb." Our allies Britain and France both had "The Bomb." Now China exploded "The Bomb." India, then Pakistan, developed "The Bomb." Israel allegedly had "The Bomb." It seemed like all the competing enemies in all the hots spots of the world each had "The Bomb." And from my Bible studies as a child, I knew that Armageddon was located in Israel. Pretty scary for a youngster of 12 when the "Six-Day War" broke out in the Middle East in June of 1967.

For a boy already interested in the American Civil War, World War I, and World II, the question became: *Where was the front line?* Was it the "Iron Curtain" that split Europe in half [and what the heck

is an 'iron curtain,' anyway]? Was it the border between North Korea and South Korea [the "38th Parallel" was beyond my comprehension]? Was it the border between North and South Vietnam [once again, the "Demilitarized Zone" or the "17th Parallel" was beyond me]? How about the Jordan River or the Suez Canal?

As I grew older and had spent many years studying conventional American wars from 1754 to 1945, I began to think of these conventional wars in contrast to the Cold War:

-Previous conventional wars usually had lasted 4 to 9 years, maximum.
-The Cold War lasted 45 years: 1946 to 1991.

-In previous conventional wars, military campaigns would last perhaps less than 6 months.
-In the Cold War, campaigns (think of the Berlin Airlift [11 months, 1948-1949], Korea [3 years: 1950-1953] or Vietnam [American involvement - 9 years: 1964 to 1973]) could last from a few months to 9 or 10 years.

-In previous conventional wars, battles lasted a couple of days.
-In the Cold War, conceptually extended "battles" (think of Hungary [12 days, 1956], Israel's Six-Day War [6 days, 1967], Czechoslovakia's Prague Spring [January to August, 1968], or the Indo-Pakistani War of 1971 and Israel's Yom Kippur War [both three weeks, 1971 and 1973, respectively]) could last from a few days to a few months.

At this point, I had already begun to think of the Cold War as global conflict involving incidents all over the world…another "world war." I needed a way to encapsulate what I was now envisioning as the "three world wars." I soon realized that the three major conflicts of the Twentieth Century had been struggles against different forms of "totalitarianism:"

-World War I had been a war against "authoritarian Monarchism."
-World War II had been a war against "Fascism."
-The Cold War hand been a war against "Communism."

I began to think in terms of the major events that comprised the bulk of the Cold War, in linear terms from the beginning of the Cold War in 1946 through the end of the war in 1991. I thought of it in phases: 1) *The 1940s and 1950s:* Expansion by Communism while the West practiced "Containment" of this revolutionary expansion process, 2) *The 1960s and 1970s:* Détente between the major superpowers accompanied by seemingly disparate "brushfire" wars in the far corners of the world, and 3) *The 1980s*

and very early 1990s: Political confrontation and various kinds of non-military (or pseudo-military) competition between the superpowers.

-The 1940s and 1950s:

Mid 1940s: "The Bomb"
1946-1948: The "Iron Curtain," Eastern Europe falls, Greece and Turkey, Truman Doctrine.
1947-1949: Indian Independence and India-Pakistan War I
1948-1949: Israel's "War of Independence"
1948-1949: The Berlin Crisis and Airlift
1949: Mainland China falls to Communism and Republican China retreats to Taiwan
1949-1957: Malaysia (and Indonesia, 1965)
1950-1953: Korea
1954: France pulls out of Vietnam
1956: The Suez Canal War
1956: Hungary
1957: Sputnik
1958 Communist Chinese shelling of Formosa Strait islands
1959: Cuba falls to Communism

-The 1960s and 1970s:

1960: The Congo
1961: The Cuban Bay of Pigs invasion
1961: The Berlin Wall
1962: The Cuban Missile Crisis
1963: The John F. Kennedy assassination
1964-1975: Vietnam
- 1964: Gulf of Tonkin Incident
- 1965-1967: Operation *Rolling Thunder*: Carpet Bombing
- 1968: The Tet Offensive
- 1968-1971: Civil Unrest in the United States
- 1972: *Operation Linebacker*: The Bombing of North Vietnam
- 1973: United States pullout from Vietnam
- 1975: Ultimate Communist victory in South Vietnam, Cambodia, and Laos

1965: India-Pakistan II
1967: Israel's "Six-Day War"
1968: The *Pueblo* Incident
1968: Czechoslovakia: "The Prague Spring"
1968-1970: Israeli-Egyptian "War of Attrition"
1971: India-Pakistan III
1972: Nixon opens Communist China
1973: Israel's "Yom Kippur War," and the onset of the "Oil Weapon"
1973-1979: The Middle East Oil Crisis
1973: Chile: The Monroe Doctrine and the Death of Allende
Early 1970s to 1981: Poland: The Solidarity Movement
1974-1980: South Yemen, Angola, Mozambique, Ethiopia

-The 1980s and early 1990s:

1979-1989: Afghanistan: The "Soviet Union's Vietnam"
1980-1988: The Iran-Iraq War
1981-1989: The rise of Ronald Reagan and the politics of confrontation
1982: The Falklands War
1982: Israel invades southern Lebanon
1983: "Operation Able Archer"
1983-1986: Granada, El Salvador, and Nicaragua, "campaigns of counterinsurgency"
1983-1987: The reversal of the "Oil Weapon"
1983-1988: The *Star Wars* initiative and the intensification of economic confrontation
1986: The Reykjavik Summit
1987-1989: The Berlin Wall under pressure
1989: Tiananmen Square
1989-1991 The Fall of Eastern Europe and the Soviet Union
1990-1991: The Persian Gulf War

I was still thinking in terms linear, chronologically ascending quasi-military events and political confrontations. When I placed "lives lost" next to these various conflicts and wars, I came up with a conservative, approximate total of 12,324,604 deaths.[5] Paul Thomas Chamberlin reckons that 20,000,000 people died in violent conflicts between 1945 and 1990.[6] In either case, this measure would place the Cold War between World War I and World War II, and more than qualify it as the third great global war of the Twentieth Century. But even this did not provide adequate understanding and structure to the Cold War. Seemingly random and unrelated events were popping up all over the world, making mental categorization and understanding very difficult. Thus I came up with a different type of structure to provide a basis for understanding: the concept of "competing orientations."

(Note: If some of the orientations below may seem offensive to you, please remember that the following analytic process was taking place in the mind of a young man in the late-1970s/early-1980s, when this type of thinking was much more common and accepted. I am outlining this to provide enlightenment of my progression toward an understanding of the Cold War, not rendering an opinion on the political correctness of these thoughts in that period of time):

-Social/Geographical Orientation:

West versus East

-Materialistic Orientation:

Capitalist versus Communist

-Technological/Military Training Orientation:

NATO versus Warsaw Pact

-Religious Orientation:

Predominately Christian versus predominately Atheist
Judaism versus Islamic

-Ideological Orientation:

Republican versus Socialist
Democratic versus Monarchial/Dictatorial
Democracy versus Authoritarianism
Individual Primacy versus State/Collective Primacy
Individual flexibility versus individual rigidity

-***Ethnic Orientation:***

Caucasian/American Black versus Slavic/Oriental

The focus of my search for clarification was becoming clearer, but still inadequate. The focus was not akin to the precise measures of a chemist mixing different compounds. It was more like iron filings drawn to competing magnets: ragged and uneven, with too many outlying filings not drawn to either. I decided to go further with my pursuit of structure for the Cold War by looking back into history.

Subsequent to the final defeat off Napoleon at the Battle of Waterloo, Belgium, the nations of Europe met in 1815 at the Congress of Vienna to restructure the governance of Europe after twenty years of upheaval. Prince Metternich of Austria assumed leadership of the Congress, and a major result of the Congress was the restoration of the old system of monarchial rule.[7] From June 18, 1815 (Waterloo, Napoleon's last battle) to August 4, 1914 (the initiation of Germany's "Schlieffen Plan," which started military action in World War I), Europe experienced a virtually unprecedented 99-year period of peace.[8] With her great wealth, attained through manufacturing, a huge empire, and an extensive navy, Great Britain assumed the position as guarantor of the peace, playing off different continental governments to maintain a world balance of power…a "Pax Britannia" ("Peace of Britain"). There would be scattered wars and upheavals (i.e., the revolutions of 1848, the Crimean War, and political riots related to unification in Italy and Germany), but a general peace would remain.[8] Even after World War I, Britain maintained the shaky, uneasy peace that an unsettled world experienced in the 21 years between 1918 and 1939.

However, World War II broke on September 1, 1939, with Germany's invasion of Poland. And then two very significant events (in the context of the post-war world) occurred. On November 4, 1942, Britain claimed its last solo military victory (with the exception of the small pseudo-colonial Falklands War of 1982) with its defeat of German forces at the Battle of El Alamein. Four days later, on November 8, 1942, America invaded the Old World with amphibious landings at Casablanca, North Africa. After that point, Britain and America worked as a team, with a young and vibrant United States taking over the impetus of battle from the sagging and exhausted Great Britain. From that point on, America assumed the mantel of guarantor of world peace, and an uncomfortable "Pax Americana" settled over the world.

From September 2, 1945 to December 31, 1991, a "Long Peace"[9] reigned throughout the world. A Metternich-like persona – Henry Kissinger – attempted to play off different power centers against each other in a process called "détente," similar to the machinations of the Austrian Prince Metternich more than a century before. Kissinger relished this role, but was only partially successful in his results. "Wars and rumors of wars" reigned throughout the entire 45-year period of the Cold War.

This was because a second huge event occurred during the 1940s: the advent of "The Bomb;" the atomic nuclear weapon. In July-August, 1945, the United States exploded its first atomic weapons, and in 1949, the Soviet Union did the same. From that point on, all phases of political and military interactions were colored by the looming specter of "The Bomb" lurking in the background. Direct conflict and battle between the Cold War superpowers – the United States and The Soviet Union – was unthinkable in the nuclear age, due to the possibility of the ultimate catastrophe: the elimination of all life on earth. A mindset of "limited aims" came to dominate intergovernmental interactions.

B.H. Liddell-Hart discussed the concept of limited aims:

> *"The…reason for adopting a strategy of limited aim is that of awaiting a change in the balance of force, a change often sought and achieved by draining the enemy's force, weakening him by pricks instead of risking blows. The essential condition of such a strategy is that the drain on him should be disproportionately greater than on yourself."*[10]

None other than the commander of United Nations forces in Korea, Lieutenant General Matthew B. Ridgway, recognized the new reality of limited aims as early as the middle of the Korean War. He *"accepted the concept of limited war fought for sharply defined goals as the only sensible doctrine the nuclear age."*[11] Historian Dennis E. Showalter summarized this with a retrospective view of the Korean War: *"…the legacy of Korea has finally been established: the first of in a long series of politically structured, mid-intensity conventional conflicts that have decisively shaped international relations in the second half of the twentieth century."*[12]

Sun Tzu, the classic 6th Century B.C. Chinese military theorist, created a hierarchy for fighting one's opponents:

-First, fight an opponent's **strategies**,
-Next, his **allies,**
-Next, his **armies,**
-Finally, his **population.**

America, the force behind "Pax Americana," was limited in following Sun Tzu's hierarchy, due to the presence of "The Bomb" during the entire Cold War period in which the U.S. served as keeper

of the peace. Basically, America kept peace through the expedient of providing arms, finances, military advice, and political advice to various "proxies" around the world. The U.S. would pick a side in a brushfire war, based on that proxy's ability to provide an advantage in the larger Cold War, then provide weapons, finances, and guidance. Because in the nuclear age, it was too dangerous to attack the Soviet Union's **armies** and **population**, NATO in general and the United States in particular chose to fight the U.S.S.R.'s:
-**Strategies:** (in the 1950s/1960s, through **Containment**; in the 1980s, through **Confrontation**), and
-**Alliances:** (in the 1970s, through **Détente**)

As with "The Bomb's" warping effect on the strategies with which with the Cold War must be fought, nuclear arms' immense influence on the tactical weapons with which it must be fought was overwhelming as well. Direct use of guns, grenades, tanks, mortars, artillery, and weapon-bearing aircraft (the staples of NATO's conventional weapon technological superiority against its Warsaw Pact forces) were not employable against the Pact nations directly. The risk of their use in direct superpower conflict causing an escalation in force to first tactical nuclear weapons, then strategic nuclear weapons, was far too great to be taken. Military power could be wielded, but by proxy or by stealth.

Within the contexts of attacking "Strategies" and "Alliances," methods of wielding power became the "weapons" of the Cold War. These were:

1) The Power of Ideas
2) Military Power
3) Economic Power
4) Political Power
5) Scientific/Technological Power

-The Power of Ideas:

This might have been one of the subtler, yet (certainly in the case of Vietnam) most effective of weapons employed in the Cold War – particularly in the case of the Communist East. The Communists' use of "linguistic warfare" was by itself nearly able to trump many of the West's advantages in other "power weapons." The intellectual underpinnings of the war of ideas/language were provided by two well-known leftist theorists of the 1960s: Saul Alinsky and Herbert Marcuse.

In *"Rules for Radicals,"* Alinsky wrote:

> *"Mark Twain once put it, 'The difference between the right word and the almost-right word is the difference between lightning and the lightning bug.' Power."*[13]

Herbert Marcuse was a hugely influential intellectual of the 1960s. The French student radicals who rioted in the streets of Paris in May 1968 did so while shouting, "Marx, Mao, and Marcuse!" Marcuse amplified Alinsky's basic ideas to a much greater extent in his ground-breaking 1965 treatise (with 1968 addendum), *"Repressive Tolerance."*[12] This powerful essay contained the following applicable quotes:

> *"…a matter of semantics: the blocking of effective dissent…which begins in the language that is publicized and administered."*[15]

> *"If objectivity has anything to do with the truth, and if truth is more than a matter of logic and science, then [this kind of] objectivity is false…it is necessary to break the established universe of meaning…"*[16]

> *"But this means that the trend would have to be reversed: they would have to get information slanted in the opposite direction." "…would include the withdrawal of toleration of speech and assembly from groups and movements which promote aggressive policies." "…this may necessitate new and rigid restrictions on teachings and practices in the educational institutions…"*[17]

> *"…the systematic withdrawal of tolerance toward [opposing] opinions and movements…"*[18]

With the theoretical underpinnings of a movement to control language, facts, and information in place, the Communists/Left was now in a position to use these to wield a powerful weapon in the Cold War. In one of the most important military campaigns (Vietnam) of the Cold War, the North Vietnamese instituted a program known as "The *Dich Van* Program."[19] This was essentially a linguistic psychological warfare offensive. While these were nothing new, the *Dich Van* program added some original, sophisticated, and subtly powerful elements. These new elements were all the more effective because the United States was totally unprepared for them and did virtually nothing to counteract them.

This program operated against the people of the United States at two levels: strategically and tactically. The North's linguistic strategic offensive sought to convince the American intelligentsia that the war was unwinnable and immoral. Tactically, it worked to nullify U.S. power by attempting to deny America's use of its most effective physical weapons and tactics through public outcry (examples: carpet bombing, strategic bombing of the North, use of napalm, chemical defoliation, offensives into enemy territory). It was in these realms that "semantic violence" took shape. According to Mark Woodruff,

> *"[North Vietnam] consciously and systematically used semantics to redefine words to make its argument more plausible."*[20]

As examples, it cleverly redefined and inverted the meaning of the words *enemy, anti-war, pro-war, hawks, and pirates*[21] to serve North Vietnamese purposes. Eventually, it propounded a warped propaganda language similar to…

> *"…Orwellian newspeak. Before long, it became impossible to discuss the war rationally because the meanings of words were not those ordinarily used in English language but, rather, those that were dictated and created by Hanoi."*[22]

Perhaps the greatest myth that the North's disinformation campaign created was that the Communist forces "won" the Tet Offensive of January-February, 1968. In fact, the insurgent Viet Cong forces were completely wiped out and afterward no longer a factor in the remainder of the War. Meanwhile, the regular North Vietnamese Army (NVA) suffered staggering losses in men and materiel which threw back its war effort for several years. Yet, through careful feeding of visual images and print information to America's press, academia, and intelligentsia, the North emphasized America's (relatively small) losses, its seeming inability to control South Vietnamese territory, and its seeming inability to provide closure to the war. This effort was staggeringly successful in influencing the uninformed and gullible American Left, eventually dominating the dialog on the war.

Of the overall success of the *Dich Van* Program, there can be little doubt. In June 1967, Radio Hanoi publicly announced its success in halting the bombing of the North due to the fact that the U.S. Air Force *"cannot freely develop its strength, which is really restricted because [they] are highly isolated politically."*[23] Secondly, the success of the *Dich Van* Program is evident because the myths created by it for the edification of American academia and other elements of the domestic intelligentsia still dominate public discourse on the Vietnam War to the present day.[24]

Linguistic violence became a staple of Communist/Leftist rhetoric during the Cold War. This weapon was used consistently to drive wedges in the various factions that made up the Western coalitions, and continued to hinder efforts at presenting a united front in the use of various weapons against "The East/Communism." Although Capitalist/Rightest elements have become more skilled in combatting this corrosive tactic, it still remains a powerful weapon in the Liberal/Leftist arsenal in the post-war world, long after the Cold War has ended.

-Military Power

Military power was a second weapon wielded by both sides (basically the United States and the U.S.S.R.) in the Cold War. Fighting each other in head-up battles was unthinkable, with both sides possessing enough nuclear weapons to destroy each other and the rest of the world many times over.

Therefore, wars for influence in the overall Cold War must be fought by proxy forces. These forces must be armed, and the military/industrial complexes of both sides were more than willing to do this. Thus, a vast arms trade gravitated to the world's hot spots throughout the Cold War. On balance, when operated on both sides by competent personnel in head-to-head proxy combat, the West's/America's weapons generally outperformed those produced by the East/U.S.S.R.

-Economic Power

Another weapon in the Cold War that eventually played perhaps the greatest role in the West's eventual victory was that of economic power. America struck an early powerful blow in the Cold War with the 1947 Marshall Plan. This Plan basically provided for the rebuilding of Western Europe's, notably West Germany's, and Japan's economies. The eventual strength of the combined power of the Far East "Pacific Rim," as represented by Japan, South Korea, Taiwan, Hong Kong, and Singapore, and Western Europe, in conjunction with Middle Eastern oil revenues and American financial instrument strength, provided a huge nail (but still only one of several) in the coffin of the Soviet Union. This effort was spearheaded by the United States, which during most of the Cold War period had by far the largest and most overwhelming economy in the world.

-Political Power

A strength of the West was the ability in many cases to marshal combined political support to contest the forces of Communism. From the Marshall Plan, to the relatively voluntary full support for the formation of both the North Atlantic Treaty Organization (NATO) and the Southeast Asia Treaty Organization (SEATO) in comparison to the coercive, pro-Soviet "Warsaw Pact," to the Allied coalition war efforts in opposing North Korea (1950-1953), Iraq (1991), and to a much lesser extent, Vietnam (1964-1975), the West was consistently able to bring relatively powerful combined political entity forces against the weaker political entities assembled by the East. The most notable exception to this Western solidarity was France, which displayed such maverick tendencies as pulling out of the military aspects of NATO in 1966, pulling military hardware support from West-leaning Israel in 1967, and refusing to aid in the chastisement of Libya's Muammar Gaddafi (for various international misdeeds) in 1986. The political strength and wherewithal of the West eventually provided yet another coffin nail in the surprisingly weak political infrastructure of the "Rule by Terror" Eastern bloc.

-**Scientific/Technological Power**

This factor in conjunction with "Economic Power" was probably most responsible for becoming the figurative "straws that broke the camel's back." The U.S. shone brightly in all things scientific and technical. Since the end of World War II and onset of the Cold War, there had been multitudes of American-built technological wonders: The atomic bomb…the B-36 bomber…the F-86 fighter… the hydrogen bomb…the B-52 bomber…the F-4 fighter…the Titan rocket…the Tomahawk cruise missile…the Polaris rocket…computer miniaturization…the Apollo mission to the moon…polymer research…composite structure technology…stealth technology…GPS positioning…smart weapons…the list went on and on.

-The War in the Air

There were certain areas where East and West (essentially the U.S.S.R. and the United States) went against each in a relatively direct manner, although stealthily and clandestinely. One of these areas was in the air. Direct head-to-head, evenly-matched combat between U.S. and U.S.S.R. fighters, manned by well-trained pilots of the U.S.S.R. and the U.S. (or their close proxies) was very rare. A notable exception was fighter combat in the 1950-1953 Korean War along the Yalu River, where Soviet pilots dressed in North Korean uniforms and flying the latest mark of the MiG-15 directly engaged in combat with U.S. pilots flying the latest marks of the F-86. Another, less well-known confrontation was during the 1968-1970 Middle Eastern War of Attrition, where Soviet pilots flying late-model Russian fighters in Egyptian markings opposed Israeli pilots flying American-made F-4Es near the Suez Canal. It is significant to remark that in these supposedly evenly-matched combats between well-trained pilots on both sides, the late-mark American-built fighters consistently and significantly out-performed late-mark Soviet-built fighters. This fact was most certainly noted by Soviet military authorities, aeronautical engineers, and most importantly third-world proxy-users of Soviet military hardware.

However, at least for the West, a more significant area of confrontation in the air was in the realm of aerial reconnaissance. In one of the least known aspects of the Cold War, intrepid American reconnaissance aircraft crews matched wits with Russian ground detection units and interceptor fighters in an effort to evade detection and map significant areas of the Soviet Union. By 1949, with both the United States and the Soviet Union possessing the atomic bomb, it was very important for the U.S. to know where Soviet airfields were located, as well as pertinent information on potential targets for American bombs should war break out. A substantial problem was that the U.S. at this time did not have dedicated reconnaissance aircraft with the proper characteristics to conduct this aerial reconnaissance.

First, a reconnaissance aircraft had to have the load-carrying capability to lift and transport several of the heavy cameras of the day. Second, the plane had to have good range so that it could map a significant amount of territory with each mission, in an attempt to fly the minimum number of missions to accomplish the task. Third, it must fly fairly fast so that: a) it did not loiter in one area too long and give the relatively unsophisticated Russian radar of the day a large amount of time to pinpoint its presence, and b) it was not a complete sitting duck for the new Russian jet fighters which now might be able to catch it. Finally, the reconnaissance plane must fly high, so the fighters which might spot it would have trouble getting up to heights to shoot at it; but more importantly, so it could evade ground-based anti-aircraft artillery.

The new jet bombers which the United States Air Force had coming on-line in the late 1940s and early 1950s seemed to be able to fit the bill, with modifications. Load-carrying ability was not a problem for the two- and four-engine jet bombers coming into service in the immediate post-War period. The U.S would develop converted bombers over the years which would have increased capabilities in speed, range, and altitude, and would fill the immediate need:

	North American	**Douglas**	**Martin**
Name:	RB-45C *Tornado*[25]	RB-66B *Destroyer*[26]	RB-57D *Canberra*[27]
Speed:	570 mph @ 4,000 ft.	594 mph @ 36,000 ft.	582 mph @ 40,000 ft.
Range:	2,530 miles	2,000 miles	3,000 miles
Maximum Altitude:	40,250 ft.	43,000 ft.	65,000 ft.
Year in Service:	1950	1954	1955

The converted bombers provided yeoman service during the early 1950s, and much of the southern borderlands of the Soviet Union was mapped during this period. But the converted bombers could not look sideways deeply into the Soviet Union. And further, as Soviet air defenses improved and became more sophisticated, the bomber conversions became more vulnerable as time went by…the United States was losing planes and airmen. It was clear that newer, dedicated reconnaissance aircraft were needed to overfly Russia in relatively safety and further the mapping of the Soviet Union. One American aircraft manufacturer, under the guidance of the legendary Kelly Johnson, answered the call with two revolutionary aircraft:

	Lockheed	**Lockheed**
Name:	U-2A[28]	*SR-71A*[30]
Speed:	500 mph @ 40,000 ft.	2,193 mph @ 60,000+ ft.
Range:	2,600 miles	2,982 miles
Maximum Altitude:	70,000 ft. (eventually, 85,000'[29])	85,069 ft.
Year in Service:	1955	1964

For their respective eras, the two Lockheed aircraft were outstanding in their own ways. The U-2's defense was its ability to fly very high, while the SR-71's was to fly even higher *and* very fast. In particular, the SR-71 was never completely superseded in its designed role, being slowly nudged into retirement by the advent of satellite reconnaissance. And the satellite (plus the computerized wizardry that controlled it) was indeed the wave of the future. An in-depth discussion of satellites is far too broad for this essay, both for that reason and because many of the details are still classified. Suffice it to say that shortly after *Sputnik*, the United States gained and held the lead in satellite technology and space flight in general throughout the Cold War, to the extent of landing a man on the moon in July, 1969. But in the Cold War itself, the satellite and its projected uses proved to be the impetus of the final demise of the U.S.S.R.

-The War Beneath the Seas

Just as important as the "war" in the air, the "war" beneath the seas was a signature of the Cold War as well. American and Russian submarines tracked each other, constantly attempting to divine the characteristics, signature sounds, and tactics of their opponents. While almost never firing weapons at each other or at land targets, they engaged in high speed chases and close maneuvers in an attempt to both intimidate and gain information about their opposite numbers. The attack submarines stalked and dodged, while the guided missile subs lurked in the deep water off coasts, ready to respond on a moment's notice to potentially catastrophic orders to launch a devastating salvo of nuclear missiles. As relatively unknown as the reconnaissance war in the air, the shadow war at sea was just as real and potentially even more deadly.

-Star Wars: The true camel's straw

As I noted earlier, the advent of satellites would eventually provide the true "straw that broke the camel's back." That straw was "Star Wars."

Ronald Reagan became president of the United States in January, 1981. Reagan was appalled at the idea that millions upon millions of people on both sides of the Iron Curtain were compelled to live each day under the crushing angst of "Mutual Assured Destruction" (MAD): the subconscious dread that the end of their lives was only a few breaths away, determined by the push of a button by an unknown official in a distance city. He thought the way to a better life was to design a space-based satellite defense system, perhaps laser-armed, that would destroy incoming intercontinental ballistic missiles (ICBMs) far out in space, long before they could do any harm or damage to mankind. Reagan was willing to share this

technology with the Soviet Union. He introduced this concept as the "Strategic Defense Initiative" in March 1983, but an incredulous and derisive press immediately dubbed it "Star Wars."

With the fullness of time, it can be seen that "Star Wars" was the ultimate Cold War weapon. It was a military, political, technological, psychological, but most of all an economic weapon against the U.S.S.R. The Russians were aghast at this proposal. The military aspects are obvious: "Star Wars" was a defensive weapon that had the ability to obviate all Russia's offensive and defensive missiles, rendering the U.S.S.R. virtually helpless before its enemies. Politically, it was equally as devastating. After the Napoleonic Wars and two world wars, which had cost Russia millions upon millions of civilians and soldiers at the hands of Western powers, how could the Soviet politicians go before the Russian populace and admit that they had no defense against further Western incursions? Technologically, the Russian scientists and bureaucrats knew they were far behind the West (principally America) in computerization in general and precise missile guidance technology in particular, exactly the tools needed to match or combat "Star Wars." And they lacked the means to rapidly gain these competencies. Psychologically, the U.S.S.R. virtually had to attempt to match or combat "Star Wars." Time and again since the beginning of World War II, the United States had developed technological marvels, seemingly at the drop of a hat: The P-51, F-86, F-4, and F-15 fighters; the B-29, B-52, B-1, and B-2 bombers; the SR-71 reconnaissance plane; satellites crowding the heavens; ICBMs and cruise missiles able to hit within a few yards of their targets from hundreds or thousands of miles away; the *Gato*-class, Polaris, and Trident submarines. Who was to say that the Americans couldn't develop laser-based defensive satellites? They had achieved the impossible multiple times before!

This led to the final straw. What the world didn't know was that the U.S.S.R. in the 1980s was straining every limb to produce "guns and butter," (i.e.: weapons and consumer goods) while the U.S.A was doing this with relative ease. The Soviet Union already was spending vast, nearly unsustainable sums of money to support Communist insurgencies all over the world. A further, extensive effort to build a "Soviet Star Wars" weapon would bankrupt the Soviet Union and Mikhail Gorbachev, the leader of the U.S.S.R. from 1985 to 1991, knew it. He introduced sweeping changes to ease the burden, but they were too little, too late. In the fall of 1989, the Soviet Union's eastern bloc nations began to rebel peacefully, the "Berlin Wall" fell on November 9, 1989, and the Soviet Union ceased to exist on December 30, 1991. The Cold War Was over.

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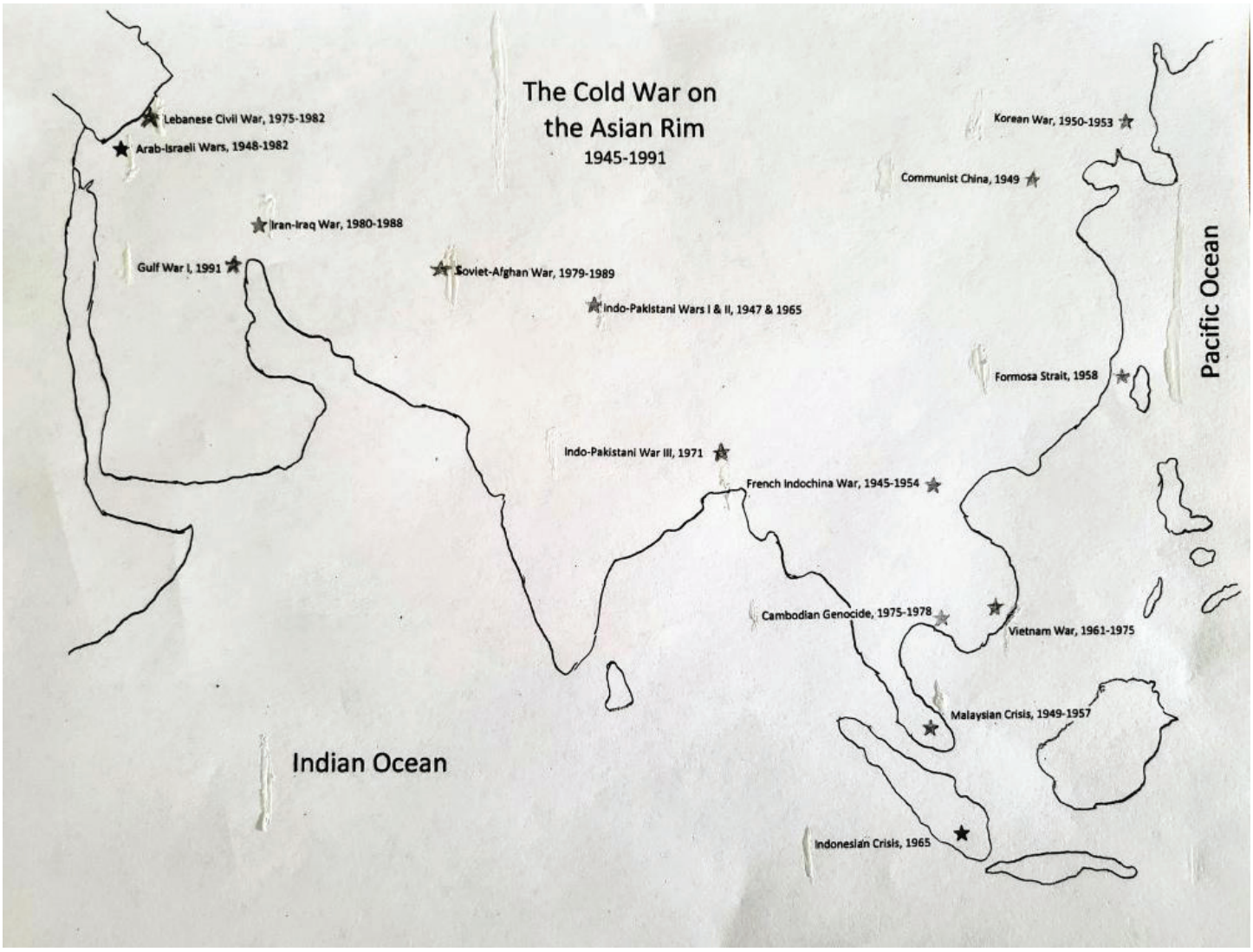
Although it had taken years of reading and thought, I was beginning to get somewhere. I had developed various "structures" within which to place the events of the Cold War. But somehow, a good, concrete, easily visualized construct within which to view the Cold War still eluded me. No matter how I tried to look at them, Cold War events seemed to occur randomly and haphazardly, scattered across nearly the entire globe.

Then I finally read *The Cold War Killing Fields: Rethinking the Long Peace*, by Paul Thomas Chamberlin. Here at last I was able to envision the geo-military structure for which I had been striving. While Central Europe had provided a heavily militarized but essentially stable main theater, the Cold War had been fought almost completely on the *Asian rim-lands*! Starting East to West, and placing dates on events and wars, the geographic progression of the Cold War became clear:

Event[31]	**Region**	**Year**	**Estimated Deaths**
Communist China	East Asia	1949	2.5 million
Korean War	East Asia	1950-1953	3 million
Communist China shelling Taiwan's islands	E. Asia	1958	-
French Indochina War	S. East Asia	1945-1954	290,000
Malaysian Crisis	S. East Asia	1949-1957	-
Indonesian Crisis	S. East Asia	1965	500,000
Second Indochina War (Vietnam War)	S. East Asia	1961-1975	3-4 million
Cambodian Genocide	S. East Asia	1975-1978	1.67 million
Bangladesh Liberation War	S. East Asia	1971	300k -1 million
Soviet-Afghan War	S. West Asia	1979-1989	1 million
Iran-Iraq War	S. West Asia	1980-1988	680,000
Israeli-Arab Wars	S. West Asia	1948, '56, '67, '68-'70, '73, '82	-
Lebanese Civil War	S. West Asia	1975-1982	150,000

Not counting Central Europe, the Asian Rim-land Theater was comprised of three broad fronts: East Asia, Southeast Asia, and Southwest Asia. Chamberlin provided statistics to back his claim that the Asian Rim was the main theater of the Cold War: 70% percent of all war deaths in the Cold War era occurred in the Asian Rim-land Theater.[32] About $.79 of every dollar of aid that the United States sent to the non-Western world in the Cold War went to the Middle East or Asia.[33] The C.I.A. estimated that $.82 out of every dollar the Soviet Union sent to the Third World during this period went to either the Middle East or Asia.[34]

I now was able to visual the Cold War in terms of reference that I could relate to other wars I had studied in detail throughout the years. I began to realize that the Cold War was in some respects similar in concept to the American Civil War. In that war, the heavily reported-upon Eastern Theater was


The Cold War on
the Asian Rim
1945-1991
Lebanese Civil War, 1975-1982
Arab-Israeli Wars, 1948-1982
Iran-Iraq War, 1980-1988
Gulf War I, 1991
Soviet-Afghan War, 1979-1989
Indo-Pakistani Wars I & II, 1947 & 1965
Indo-Pakistani War III, 1971
French Indochina War, 1945-1954
Cambodian Genocide, 1975-1978
Vietnam War, 1961-1975
Malaysian Crisis, 1949-1957
Indonesian Crisis, 1965
Korean War, 1950-1953
Communist China, 1949
Formosa Strait, 1958
Pacific Ocean
Indian Ocean

essentially static (as far as front line physical movement was concerned) from 1861 to 1864. Meanwhile, the relatively under-documented Western Theater was literally full of movement, and was ultimately where the war was won or lost, depending on viewpoint. In the Cold War, for years the bulk of the documentation that I could find on the Cold War was of events in Central Europe, which after the figurative "smoke had cleared" had had little action or movement in lines. Elsewhere in the world, events and conflicts which were reported but either tenuously or not-at-all tied to the Cold War were the locales where the war in fact was being contested.

What about those stubborn episodes outside of Central Europe or the Asian Rim-lands (Cuba, Angola, Mozambique, and Ethiopia) which seemed to contain elements of Cold War proxyism and indirect support, but defied inclusion in the main geographic theaters? These too could be linked to past military campaigns. The Cuban Missile Crisis was in a real sense an attempt on the part of the Russians to outflank the static stalemate of Central Europe and open a new front on the southern flank of the United States: on Cuba in the Caribbean Sea. In this regard, it was quite similar in concept to Great Britain's World War One Gallipoli Campaign of 1915-1916, where Britain tried to outflank Germany's static defense in the Western Front's Northern France trench lines.[35] Like Gallipoli, Russia's Cuban gambit failed.

And what of Angola, Mozambique, and Ethiopia? These in turn were similar to the British Campaign in Burma from 1942 to 1945 during World War II. In this theater, much blood, effort, and treasure was spent on a large campaign in a seeming backwater of the world, which ultimately had little to no effect on overall World War II results. The wars in the Horn and Sub-Sahara Africa in the 1970s were basically civil wars, where the great powers got involved in sending vast amount of men, materiel, and aid to proxies in order to prevent "the other side" (whomever that was) from "winning" (whatever that meant). These wars had virtually no effect on the overall outcome of the Cold War.[36]

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So there it was: my years-long quest to structure, quantify, qualify, and generally understand the Cold War was at an end. My systemic, rational, and organized mind was at peace, and I could move on to other works and efforts without the inherently cluttered Cold War tugging on my shirtsleeve and nagging at the back of my mind.

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Monograph # 13

1971: *An Unexpected Turning Point in the Cold War: The Nearly-Forgotten Indo-Pakistani War of 1971*

(In the fall of 1971, I was a junior in high school and was enrolled in a course in American History. I had taken Current Events as a freshman and World History as a sophomore, and since that time had followed world events very closely. In late 1971, a war broke out between India and Pakistan, starting on December 3 and ending on December 16, 1971. I remember that at the time, this relatively minor war caught my interest – there just was something about it that I couldn't put my finger on.

Shortly thereafter, I received an assignment to write an essay for the American History class, to be completed at the end of the third "nine-week" period, in March 1972. My teacher was quite aware of my interest in recent history, and must have allowed me to write the report on the Indo–Pakistani War, although technically it wasn't an American event. While I have been quite meticulous in keeping my essays over the years, somehow this one got lost. I do remember that, for some reason, my teacher was very impressed with the first line of the report: "It did not happen by accident."

Recently, as I worked on the research for this compendium of monologues, and having decided that one of the monologues would be about my impressions of the Cold War, I once again came upon this same Indo–Pakistani War, now nearly lost to the sands of time. In keeping with my feeling that one cannot really place into context and understand historical events until at least 30 years have passed since they occurred, I felt that the Indo-Pakistani War was a prime candidate for re-evaluation. I was amazed at what I now found: a very important, but nearly forgotten, war. Sticking to the flexibility that I have tried to maintain while completing my various works, I added a late entry to this compendium on the Indo-Pakistani War of 1971, a subject that had first caught my attention nearly 50 years before.)

It did not happen by accident.

For most of the world, the short, sharp conflict that arose in December 1971 between India and Pakistan, two of the most populous nations on earth, seemingly erupted out of nowhere. Yet, for students of the South Asian subcontinent, this multidimensional conflict had been brewing not for centuries, but for millennia. The first seeds of conflict were planted as early as 1500 B.C., when light-skinned Aryans began working their way from the Asian steppes into the northwestern territories of what became ancient India. They dominated the darker-skinned Hindus who already inhabited the area, and set up layers of socially segregated castes between themselves and the initial inhabitants. Then in approximately 700 A.D., Moslems invaded India and immediately began attempting to crush the existing Hindu religion.[1] This wave of religious fervor and strife reached the geographic area of what would become the modern nation of Bangladesh (i.e.: East Bengal, then East Pakistan) in the 1200s A.D., with the Moslem tide slowly migrating through north India to the Ganges basin, and rapidly becoming the dominant religion there.[2]

The differences between the two groups of Moslems in what would become West and East Pakistan eventually became pronounced. The West Pakistanis were tall, fair-skinned, spoke the Urdu language, adopted wheat as the staple of their diet, and felt more in tune with the Arab countries west of them, while mistrusting the overall aims of Hindus. The East Pakistanis were short, dark-skinned, spoke Bengali, preferred rice as the basis of their diet, and had an affinity for the Bengalis (even Hindu) among and west of them. These dual issues of race and religion frustrated all subsequent attempts of would-be conquerors to placate the churning crucible of Indian society. From the Greek titan Alexander in 326 B.C. through the British from the mid-19th to the mid-20th Centuries, all attempts at outside administration of the Indian subcontinent met with various degrees of failure while attaining only moderate successes.[3]

The intermediate range of events in the area drew into focus in the 1930s and 1940s. Great Britain administered India (the geographical area of which included both Pakistans) as a colonial overlord, officially ruling from 1858 to 1947 (although exerting substantial control from the 1757 onward). By the 1930s, religious, ethnic, and political strife was rampant on the Indian subcontinent. Indians wanted their freedom. Great Britain, exhausted both physically and economically from the terrible crucible of World Wars and soon to be further devastated by World War II, was ready to grant it. Within this effort, Moslems pushed for a separate nation in the soon-to-be newly independent region, as they felt Hindus would dominate them politically if the entire area was granted independence as a unit.[4] The problem was how to do this. Moslems dominated the northwest and northeast quadrants of the subcontinent; Hindus dominated the center of said area. The two Moslem-dominated areas were separated by roughly 1,000 miles of Hindu territory.[5] Nevertheless, Britain decided that religious separation was the best way to divide the region: on August 14, 1947, a territorially-divided Pakistan gained its independence, while India was granted the same on August 15, 1947.[6]

Almost immediately, there was explosive ethnic and religious violence in the new states. Upon independence, religious strife killed hundreds of thousands of people in both India and Pakistan, and very shortly perhaps the greatest mass migration in history occurred. It is estimated that 6 million Hindus and Sikhs migrated from Pakistan to India, while 7 million Moslems migrated from India to Pakistan.[7] In addition, the ultimate disposition of Kashmir was never completely settled. Kashmir, on the frontier between India and West Pakistan, has a majority population of Moslems, but is ruled by a Hindu-dominated political party and is technically part of India. Wars broke out over the destiny of Kashmir in 1947-'49 and 1965, but the United Nations-brokered peace[8] never satisfactorily solved the problem in either case.

Other problems plagued Pakistan. Despite containing 56% of the nation's population in the early 1970s, most East Pakistanis felt that West Pakistan dominated them politically. They also felt that West Pakistan's piece of the country's limited economic pie far surpassed that of their own, despite the East's majority of the population.[9]

The near-term situations which led to the 1971 war are now relatively clear. On November 12, 1970, a tremendous cyclone roared up the Ganges River and devastated East Pakistan. Pushed by 120 mile-per-hour winds, 20-foot waves roared into the low-lying Ganges basin, destroying everything in their path. Buildings were flattened; people were killed and carried into trees, where they remained after the waters receded. An estimated 500,000 people died from the storm, making this cyclone one of the worst natural disasters in recorded history.[10]

As bad as the disaster was, Pakistan's official governmental reaction to it was inexcusable. Pakistani President Yahya Khan flew into Dacca, East Pakistan on his way home from a China state visit, and emerged from his airliner obviously inebriated from the in-flight liquor service. He alighted unsteadily, made a cursory aerial tour of Dacca, then stumbled through a brief speech, noting that things "didn't look too bad." He then re-embarked onto his jet and flew back to West Pakistan, his only trip to storm-ravaged East Pakistan at an end. Islamabad then compounded the problem by not offering Pakistani military personnel for relief efforts in East Pakistan,[11] while many East Pakistanis felt that the central government in West Pakistan delayed in sending food and supplies to the devastated Ganges Valley.[12]

East Pakistanis soon had the opportunity to make their displeasure known. Their opposition party, the Awami League, fielded a full slate of candidates in the election of December 7, 1970. The League captured 160 of East Pakistan's 162 open seats in Pakistan's National Assembly, while not taking a single one of West Pakistan's open seats. The Pakistan People's Party (PPP) captured 81 of West Pakistan's open seats, exposing a glaring fissure in the country's electorate.[13]

From the campaign rhetoric during the run-up to the election, there was a clear and distinct possibility that the East Pakistanis might use their newly-realized political clout to declare independence from West Pakistan. After the election they had the votes to legally do this if they so chose. For this reason, in early March, 1971 President Yahya Khan delayed the first meeting of the National Assembly. East Pakistanis rioted in reaction to this blatant power grab and official refusal to recognize their duly won rights. In response, President Yahya sent Pakistani Army units into East Pakistan to quell the riots.[14]

Naturally, the East Pakistanis vigorously resisted this heightened power play. In reaction to the March 25-26, 1971 sending of Pakistani troops into the rebellious eastern province,[15] on March 26, East

Pakistan declared its independence from the central government of Pakistan, naming their new country Bangladesh.[16] Fighting broke out, and it rapidly escalated into a savage civil war.

In quelling the rebellion, the Pakistani Army targeted intellectuals – lawyers, professors, students, writers – as the "trouble makers" responsible for the insurrection. They conducted a ruthless purge of these "rabble rousers," mercilessly gunning them down in cold blood wherever they could be found – college dormitories being a favored venue to be turned into charnel houses. Not satisfied with this gruesome bloodletting, the army then decided to engage in some old-fashioned ethnic hatred and began slaughtering Hindus by the truckloads. A mass migration of Hindus headed for the Indian border – by some accounts 8 million Pakistani refugees eventually crowded East India's border districts.[17]

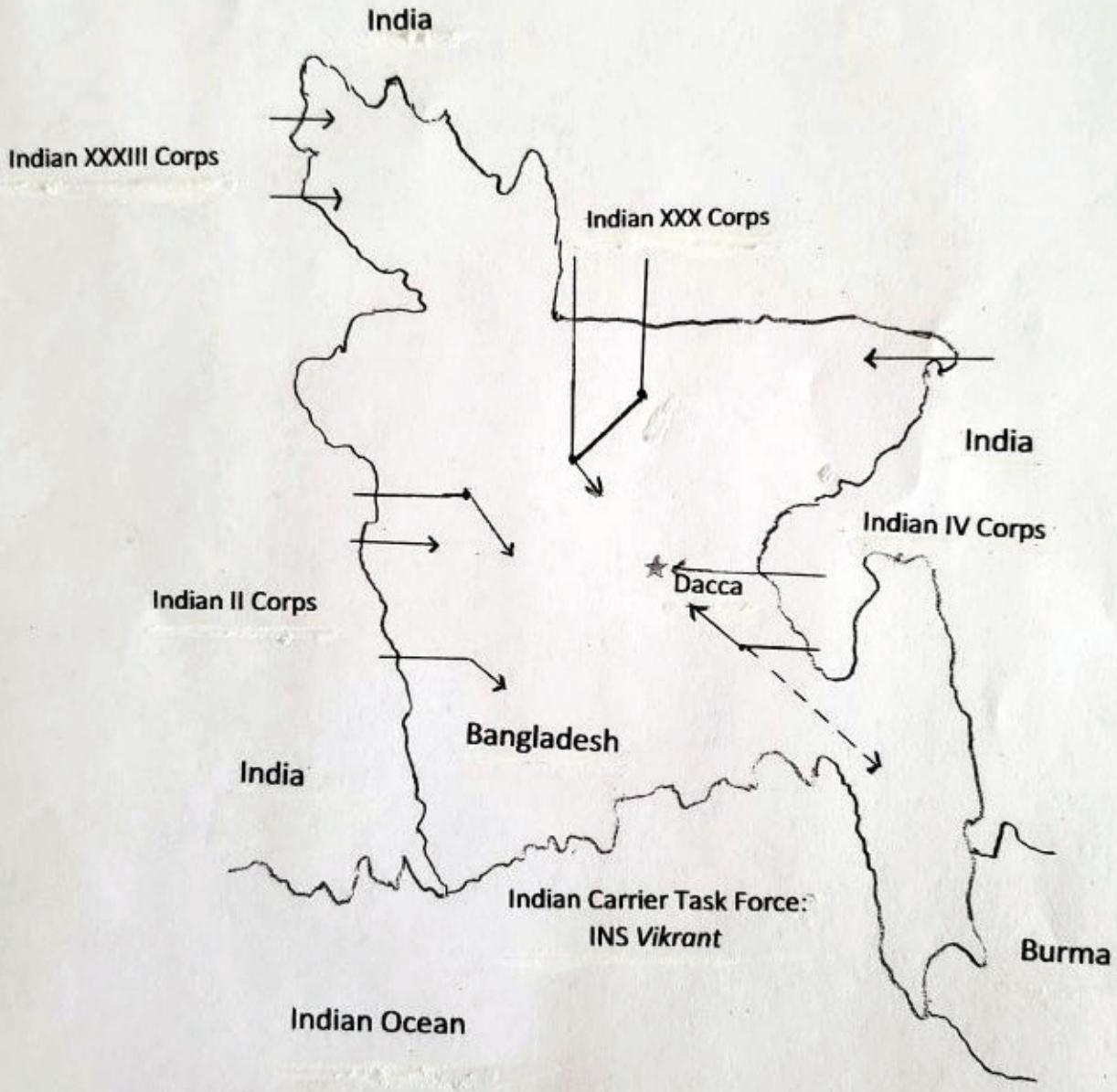
India reacted strongly to the civil war in Bangladesh. The inundating flood of refugees now residing in its eastern districts was unsustainable economically for India in the long term. Also the masses, seething with sedition, might cause the same political unrest in India that they had fomented in the former East Pakistan. India armed, trained, and funded a 100,000-man strong Bangladeshi militia army, the *Mukti Bahini,* also known as the *East Pakistan Liberation Army*, then sent it to harass as well as gather intelligence on the Pakistani Army in the rural hinterlands of Bangladesh.[18] But these measures were not enough to quench the unrelenting violence and unrest in the newly independent country. In late November 1971, Indian military forces began massing along its huge, curving border with Bangladesh.[19]

Pakistan noted this buildup and determined to strike first, on December 3, 1971 (their intelligence was spot on: India in fact planned to attack Bangladesh on December 6[20]). This was much as Israel had done when faced with the same situation in 1967 (which led to the Six-Day War). Pakistan prepared the classic opening gambit of aerial blitzkrieg, first practiced by Germany in 1939 against Poland, expanded upon by Japan in 1941 against the United States, and executed to near perfection by Israel in 1967 against an array of encircling Arab enemies. But their plan failed miserably. Instead of employing the massive numbers of aircraft that characterized the German, Japanese, and Israeli aerial blitzkriegs, the Pakistanis only sent two waves, of three to five aircraft per airfield, to attack Indian installations in the west. And in the east, the Pakistanis expected a single squadron of antiquated American-built F-86 fighters to fully provide air cover in this, the major theater of operations.[21]

In reality, Bangladesh's/East Pakistan's military situation was hopeless. India's 3,000-mile border with Bangladesh was cupped like a giant hand around that country on the west, north, and east, ready to crush the fledgling region in its palm. The Indians deployed four full infantry corps around this perimeter: II and XXXIII Corps on the west, XXX Corps on the north, and IV Corps on the east. And to the south, a

Indo-Pakistani War III

December 3-16, 1971



carrier task force anchored by the carrier INS *Vikrant* prowled the Bay of Bengal, striking coastal ports[23] and enforcing a naval blockade that effectively completed the encirclement of Bengaldesh.[24]

Pakistan's strategy was two-pronged: to fight a holding pattern in East Pakistan while attacking from West Pakistan east into India. This western attack was intended to gain Indian territory, to be used as a bargaining chip against Pakistan's inevitable loss in the east. Their strategy failed badly. In the west, in Kashmir and Punjab, the Pakistanis made some headway. A regiment of Chinese-made T-59 tanks, backed by a squadron of American-made Sherman tanks and four thousand infantry soldiers, penetrated sixteen kilometers into India toward Longewela. Further north, the Pakistanis made a massive push toward Chamb.[25] Eventually, both drives were thwarted and the Pakistanis were pushed back. By December 16, the counterattacking Indians had captured 750 square kilometers of West Pakistani territory.[26]

The Pakistani assault at Longewala was typical of the fighting in the west. The Indian base there was essentially an outpost: a tripwire position intended to alert the Indians of the direction and nature of any Pakistani advance. As such, it contained only the 120 soldiers of "A" Company, 23rd Battalion, Punjab Regiment. For armament, it contained some emplaced machineguns, a few mortars, and two anti-tank recoilless rifles mounted on jeeps.[27] The Pakistani attacking force consisted of an entire infantry brigade, more than 60 tanks, and mobile artillery.[28] On December 5, 1971, an Indian patrol, which had been extended west from Longewala, noted the advancing Pakistani force. The Indian commander at Longewala radioed for reinforcements and prepared for the base's defense. At about 4 A.M., the Pakistanis came into sight and soon made a frontal assault. This attack was blunted and several tanks destroyed. The Pakistanis probed around both flanks of the Indian position but several of their tanks became mired in soft sand and were disabled. With the coming of dawn, Indian Hawker *Hunter* fighter-bombers arrived and, unopposed by the Pakistani air force, destroyed many more tanks. During the cover provided by the air attacks, two companies of Indian infantry and several light tanks arrived to bolster the Longewala defense. The Pakistanis attempted two more assaults but were thrown back both times with heavy casualties. The Pakistanis then withdrew shortly after noon, having suffered 200 soldiers killed and at least 37 tanks destroyed. They also suffered around 100 trucks and other support vehicles destroyed when additional flights of Indian fighter-bombers found the Pakistani supply train in the open.[29] The Indians suffered three dead and three wounded.[30]

In the western air, Indian and Pakistani fighters dueled for supremacy. While both sides used supersonic fighters (the French *Mirage* IIIEP and American F-104 *Starfighter* for the Pakistanis; the MiG-21 PFM for India[31]), the twisting, turning dogfights held speeds to a subsonic 500 miles per hour or less,

negating these fighters' supersonic capabilities. Given this factor, and to the surprise of NATO military analysts, Pakistan's older, subsonic, Chinese-built MiG-19 scored heavily. The MiG-19 featured a tough structure, good power of maneuver, and several large-caliber, heavy-hitting cannons.[32] Numbers told, however, and the much larger Indian air force eventually neutralized Pakistan's air force. As can be seen from the battle at Longewala, Indian control of the air had major consequences on the ground war.

In the east, along the extended India/Bangladesh border, the Pakistanis were devastated. Invaded from three directions, involving at least thirteen separate border penetrations numbering at least fifteen divisions and brigades,[33] the Pakistanis were crushed back into the center of the county. By December 15, Bangladesh/East Pakistan's capital of Dacca was invested on the north and east by four Indian brigades, with more heavy units closing in from the northwest and west. Bowing to the inevitable, the Pakistanis signed the articles of surrender on December 16, 1971. The short, savage Indo-Pakistani War, which caused about 6,200 Pakistani military casualties and unknown numbers of Indian deaths and injuries in roughly two weeks, was over.[34]

As predictable and relatively unremarkable was the 1971 Indo-Pakistani military struggle, the political significance of the aftermath of this war has proven fascinating over the course of time. The Indo-Pakistani War of 1971 was fought within an overarching contextual struggle, a *"sideshow of a sideshow of the main show, which was the Cold War."*[35] Up to this point, nearly all the major political and military conflicts of the Cold War (Eastern Europe, China, Korea, and Vietnam/Southeast Asia) had followed the paradigm of Third-World, Communist, secular, left wing revolutionaries pitted against the interests of old-line, establishment, center/right, pro-western Allies.[36] And both sides played the political card, the United States in particular attempting to play off the growing rift between Communist China and the Soviet Union. In Bangladesh, the United States partnered with China and Pakistan to equip, supply, advise, and bankroll the Pakistani army, while the Soviet Union backed India with "hard aid" in its effort to defeat Pakistan. It appeared to everyone that this was just another round of secular, Marxist, East versus West "battles" in the ongoing Cold War.

But the Indo-Pakistani war of 1971 was in a sense the last of the "secular, politic-centric" conflicts of the Cold War and the start of a new brand of conflict in which "religious, right-wing, ethno-sectarian revolutionaries" played the central role. The old-line political entities on both sides of the Cold War were slow to recognize this paradigm shift. In this new environment, both sides continued to "pick their horses" based on perceived strategic, political, or military advantages provided by one country/entity or the other, in their effort to "win" the Cold War (as they understood it). The rise of the religious revolutionary in

support of Islamic jihad "marked a tectonic shift in the politics of postcolonial revolution."[37] The Indo-Pakistani War of 1971, with its focus of Moslem interests against existing, prevailing power structures, was the first local conflict to exhibit this coming change of emphasis in the Cold War struggle.

(Author's postscript note: *In retrospect, there WAS "just something" about the Indo-Pakistani War of 1971 that the fullness of time has revealed. It only took me 50 years to figure it out!*)

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Monograph # 14

1775-1991: Opinion: *The Greatest United States Generals of Their Eras*

A few years ago, "chatrooms" were all the rage on the Internet. One could go to an online chatroom and discuss various aspects of subjects of one's choice. Of course I was active on one that discussed military history. Unfortunately, that old human characteristic of "incivility" inevitably raised its ugly head. Site administrators got tired of constantly monitoring and policing their sites, and ultimately many chatrooms, including the one I regularly entered on military history, finally shut down.

However, the regulars on the military history site got into some lively and interesting discussions. The really serious participants were always civil, even when they agreed to disagree. One of the fun topics in the military history chatroom I frequented was the participants' opinions on the best military commander of all time. I couldn't come up with just one: I had to stratify this topic into the best commander[s] by war era. And basically being only an American military historian, I had to limit my input to American wars and American commanders. Of course, this led to a new round of debates, and we had a good time with rendering our views on the subject. As a capstone to this compendium of monographs, I thought I'd pass on my opinions of the greatest American commanders in the major American wars from 1775 to 1991. I'll just keep it simple by subtitling the war and commander[s], then jotting a paragraph or two of why I chose the commander or commanders for the war in question.

Revolutionary War (1775-1783)
Strategic Commander: George Washington
Tactical Theater Commander: Nathaniel Greene

In the Revolutionary War, it is impossible to come up with just one great general overall. But from a strategic and operational point of view, **George Washington** was indispensable to the revolutionary movement. He led an army in the central colonies that faced down the main early British effort, conducted a successful withdrawal, gained a morale-saving pair of victories in the middle of the war, maintained a force-in-being throughout the war, held the army together through thick and (mostly) thin, and finally built an army that could parry the best effort the British could offer. Washington also coordinated with other theaters north, south, and west, and thus helped maintain a front of resistance to the widespread British pressure strategies. He was the face of the army and the revolution to the public, the Continental Congress, and the world. It is impossible to relate in just a few lines just what he meant to the final

independence of the American colonies. Suffice it to say, "No George Washington; no independent United States."

But if the United States were to gain its ultimate independence, it had to defeat the British "Southern Strategy" of 1780-1781. And to defeat that strategy, Washington called on his trusted lieutenant**, Nathaniel Greene**. Greene had no formal training, but learned his trade at Washington's side during the early struggles in the middle colonies. After a series of disasters in the south, including Charleston and Camden, Washington sent General Greene to South Carolina to retrieve the situation. Arriving with no arms, no supplies, and few men, Greene quickly organized the small number of volunteers and the somewhat greater numbers of militia he did have. He devised a theater strategy of dividing his small forces to divide his enemy as well, and drawing that enemy farther and farther from its supply base. He then utilized a unique battlefield strategy which sought to use the militia to its fullest while bleeding his enemy with his volunteers in combat. After surrendering a series of "Pyrrhic victories" to the British, Greene had so weakened his foe that the British were bottled up and relatively easily defeated on the Yorktown peninsula while waiting for replenishment of the supplies that Greene had destroyed. Greene's native genius materially aided in the ultimate independence of the American colonies from Great Britain.

Northwest Indian War (1790-1795)
Commander: "Mad" Anthony Wayne

In this first federally funded and supported war, **Anthony Wayne** stands head and shoulders above any other commander involved. The horrendous back-and-forth atrocities between Native Americans and settlers on both sides of the Ohio River in the 1780s finally demanded a federal response. In 1790 and 1791, President George Washington called on Generals Josiah Harmar and Arthur St. Clair to march deep into the Indian territory north of the Ohio to suppress the assorted tribes there, and impress upon them the might of the United States. Both expeditions met with inglorious defeat, and the United States was humiliated in both the Indians' and their British ally's eyes. Washington called "Mad" Anthony Wayne into the fray to retrieve the situation and restore America's honor. Contrary to his sobriquet, Anthony Wayne was neither mad nor rash; he proved to be a careful and thorough commander. He resourcefully recruited a substantial army, stratified it into infantry and cavalry units, and painstakingly trained it with emphasis on classic and brutally effective combat techniques. He then advanced north from the Ohio River, carefully fortifying his encampment each evening. His movement was so inexorable that Miami chief Little Turtle, the victor against Harmar and St. Clair who was monitoring Wayne's northward march, advised the members of his confederation to seek peace with the Americans before

the confederation forces were destroyed. The confederacy ignored his warning and was badly defeated at the Battle of Fallen Timbers. Fallen Timbers effectively ended the Northwest Indian Wars while blunting British influence in the Old Northwest. Anthony Wayne had a substantial influence in stabilizing the fortunes of the fledgling United States.

War of 1812 (1811-1815)
Commander: William Henry Harrison

This was a very difficult decision, as in my mind the choice was between two extraordinarily talented and successful generals: **William Henry Harrison** and Andrew Jackson. Both Jackson and Harrison were outstanding commanders, but I tend to rate Harrison slightly higher. I see Jackson as a "super-early-19th Century" general, but one outstanding in the strategies, tactics, and skills of that time. In contrast, I see Harrison as the first of the modern generals, in the Eisenhower/Bradley mold: Harrison was skilled at working with a diverse officer corps (i.e.: coordinating with the Regular Army [the 19th, 24th, and 27th Regiments] and with the militia); had high concern for logistics (he built fort lifelines across the Great Black Swamp); quickly exhibited recognition of his vulnerable left flank, then mounted a successful campaign to shore it up (he conducted numerous Fall, 1812 raids in Indiana Territory); and demonstrated his ability to work with an inter-service command structure (he cooperated with Oliver Hazard Perry after the decisive Battle of Lake Erie in the amphibious operation across Lake Erie to assault Fort Malden and Sandwich). His victory in the Battle of the Thames ended once and for all both Native American and British pretensions to ownership of the Old Northwest Territory. Hence my opinion and conclusion that William Henry Harrison was, by a very slight margin, the most outstanding general to emerge from the War of 1812.

Mexican-American War (1846-1848)
Commander: Winfield Scott

This may have been the easiest choice of all. **Winfield Scott** participated in virtually every major and minor American war from the War of 1812 through the first year of the Civil War. He was a lawyer who turned to the profession of soldiery at an early age. Scott was a firm believer in military education to such an extent that he carried a portable library of military texts with him on campaigns. He was the author of the legendary amphibious and overland campaign to capture Mexico City during the Mexican-American War as well as the "Anaconda Plan" that formed the basis of victory for the North in the Civil War. Leading an army that was always outnumbered by its Mexican opponent, Scott conducted tactically brilliant battles at a low loss of life as he battered his way into Mexico City. Scott was the preeminent American general of the first half of the Nineteenth Century. None other than the Duke of Wellington –

the final victor over Napoleon – called Scott "the greatest living soldier." Scott was easily the best American general to participate in the Mexican-American War.

Civil War (1861-1865)

Strategic Commander: Ulysses S. Grant
Tactical Theater Commanders: (tie) Thomas J. "Stonewall" Jackson and Nathan Bedford Forrest

The Civil War was one of the most, if not *the* most, desperate wars in which Americans ever participated. Desperate times usually bring great talents to the forefront, and the Civil War certainly did so. In the pantheon of great generals in history, perhaps none is so little recognized as a truly great general as **Ulysses S. Grant**. Grant rose from virtual pre-war obscurity to command some of the largest, most powerful, and most successful armies ever raised by the United States. Having quit the army in the 1850s, Grant early secured a commission as brigadier general of Illinois volunteers through political connections and a dire Northern need in the initial stages of the Civil War for anyone with a West Point education. He showed great initiative in opening the upper Tennessee and Cumberland River basins in 1862 and the Mississippi River by mid-1863. Called to Chattanooga in late-1863, Grant reversed the disastrous siege of that city and masterminded a turnaround from defense to offense in this theater.

Grant was one of the very few Northern generals who had been consistently successful by the midpoint of the war, and as such he was called to Washington to lead the entire Federal effort. Before taking the field in the Eastern Theater as the *de facto* head of the Army of the Potomac, he designed the war-winning strategy of exerting maximum pressure against the Confederacy along all fronts. These included:

- The Trans-Mississippi campaign by Generals Banks and Steele,
- The Georgia campaign by General Sherman,
- The Shenandoah Valley campaign by General Hunter,
- the lower Potomac area campaign by General Butler, and of course,
- The Overland Campaign in northern Virginia by General Meade (accompanied by Grant as *de facto* commander).

There was absolutely no way that the South could match this diverse and massive application of force by the North. Grant went to the Eastern Theater himself and personified the maximum pressure strategy through his ruthless pursuit of the Overland Campaign of 1864-1865. He knew that he had vastly more men and logistical support than his opponent, Robert E. Lee's Army of Northern Virginia. All he had to do was trade men, ammunition, supplies, and time at even a reasonable

deficit rate in comparison to Lee; if he could, the Confederate Army of Northern Virginia would succumb and the North would eventually win the war. This is exactly what happened, and Ulysses S. Grant entered the ranks of the greatest generals of all time.

Generals **Thomas J. "Stonewall" Jackson** and **Nathan Bedford Forrest** pursued different methods for success while valuing the same factors that led to their victories. Both generals realized that time, space, speed, and pinpoint firepower were the keys to success, and that successful manipulation of all of these factors almost inevitably led to battlefield victories. Confederate General Jackson was sent to the Shenandoah Valley early in 1862 by Robert E. Lee to divert Federal attention away from the imminent investiture of Richmond, Virginia by General McClellan's Army of the Potomac. Jackson had very few men and very numerous enemies. Carefully studying the geography of the Valley while maneuvering his small army in a central position between his many opponents, Jackson marched so fast and so long that his infantry was quickly dubbed "foot cavalry" by Northern forces. Brilliantly masking his moves and showing up where least expected much earlier than could be believed, he cut off and defeated segments of his enemies time and time again. Jackson struck hard and fast with massed firepower, then strategically retreated at the point of maximum gain. His task in the Valley completed, he exited the Shenandoah to assist at Richmond without ever being successfully pinned down. Jackson matched this brilliant Valley Campaign with an equally brilliant campaign of maneuver that ended with the devastating Battle of Second Manassas in mid-1862 and a ravaging left-flank march at the Battle of Chancellorsville. Jackson is one of the few Civil War generals whose theories and tactics are still studied by modern students of the military arts.

Confederate General Nathan Bedford Forrest was similarly feared, and considered even more unconventional than Jackson. Dashing back and forth across the Western Theater, Forrest sowed panic behind Northern lines for almost the entire war. Being militarily untutored, he utilized such unorthodox techniques and tactics that his Northern adversaries simply could not figure him out. However, he did embrace the cardinal principles of speed and firepower, always able to "get there first with the most." Both in pursuit and withdrawal, he moved so fast that several times during the war he literally rode the horses of his command to death. Although his units were identified as "cavalry," in effect they were some of the most efficient "mounted infantry" ever seen, riding to the scene of battle and then dismounting to fight. His command was almost always accompanied by a battery or two of horse artillery. Forrest early recognized the value of mobile firepower, and he was uncanny in his personal positioning of these cannons for maximum effect on the battlefield. Forrest was invariably outnumbered in battles, yet lost only the very last fight of his career, vanquished by a foe more than double his number, twice as well

supplied, and possessing weapons a full generation more advanced than those which equipped his command. Like Jackson, Forrest's campaigns and battles are still studied by modern soldiers, perhaps the greatest tribute than can be paid to the "Wizard of the Saddle."

Plains Wars of Native American Suppression (1840-1890)
Commander: Ranald Mackenzie

This is perhaps the most controversial choice of all. In the course of discussions with my colleagues, all were virtually unanimous that the most effective commander on the plains was George Crook. Yet, in over fifty years of study, I found that where Crook was unsuccessful against the Sioux and Apaches, **Ranald Mackenzie** was summoned to succeed in the commands in which Crook had failed. And Mackenzie never failed. Starting with battles against the Cheyenne and Comanche in West Texas and New Mexico, the ruthless and efficient Mackenzie struck hard and deep against these tribes' sources of food and transport, using strikes against both vital assets to bring his opponents in where others had not been able to do so. Moving to the northern plains, after Crook and George A. Custer had been ingloriously defeated in the Battles of the Rosebud and Little Bighorn, respectively, Mackenzie was summoned and rapidly retrieved the situation. Assigned to the desert Southwest, again where Crook was repeatedly stymied by Geronimo and his mobile raiders, Mackenzie cornered and captured the resourceful Apache. Moreover, multiple young subordinate officers such as "Galloping Jim" Parker venerated Mackenzie, allowing him to influence the last great generation of cavalrymen before the coming of the machinegun and the demise of the cavalry arm. Certainly in my mind, Ranald Mackenzie was by far the greatest frontier warrior in United States history.

Spanish-American War (1898)
Commander: William Shafter, or George Dewey

This was a hard selection to make, not because there were so many great generals from which to choose in this war, but because there were so few. My choice finally fell on **William Shafter**, basically because as overall commander in Cuba, he had oversight control of the entire operation while doing little to irretrievably lose battles and thus lose the war overall. I fully realize this is a less than glowing endorsement! Shafter exercised very weak control of the expedition from the very unorganized embarking onto the transports at Tampa Bay, Florida right on through the very disorganized landing at Daiquiri on the southeast coast of Cuba. Falling ill almost immediately upon landing in Cuba, he was far away from the front lines and did little to intercede in any manner of the various battles. Still, Shafter was in charge and his command did succeed in the defeat of the Spanish in these several battles. The

battlefield victories provided major stepping stones toward winning in the major theater of conflict (Cuba), for which the United States went to war against the Spanish. For better – but mostly for worse – William Rufus Shafter was the Army's major commanding figure in the Spanish-American War of 1898.

I think we would have to expand the title of this monograph to "Greatest Commanders" to get to the greatest military leader of the Spanish-American War of 1898. Then we would be able to include naval officer **George Dewey** as perhaps the top commander involved in the war. Dewey was an outstanding junior officer in the American Civil War, then had to wait a third of a century for his next chance at military glory. He succeeded brilliantly. Dewey was placed in command of the United States Asiatic Squadron, which he gathered at Hong Kong. The squadron had at its heart five armored or semi-armored cruisers, several of which possessing the approximate capabilities of a "second-class battleship" as then defined in naval circles. Dewey diligently secured fuel and as much ammunition as he could obtain, then waited for orders to sail for the Philippine Islands, where the major power of the Spanish Navy in the Pacific, a few dilapidated cruisers, was based. On the night of April 30/May 1, 1898, Dewey's squadron sailed into Manila Bay and the next morning thoroughly crushed the Spanish fleet. Although it would take much bloodshed to finally quell all resistance in the Philippines, American was now an imperial power with many holdings in the Pacific Ocean. As such, America became a major player on the international diplomatic stage, with all the foreboding impact this would have on the history of the Twentieth Century. Much of this was the result of George Dewey's victory at Manila Bay in the Spanish-American War of 1898.

Philippine-American War (1899-1902)
Commanders: Ewell Otis and Arthur MacArthur, Jr.

The wars around the turn of the Nineteenth and Twentieth Centuries were dismal in almost every sense of the word. Started for murky and imperialistic reasons, hastily organized, and sloppily yet brutally executed, the Philippine-American War gave little cause for any sense of euphoria or accomplishment. I guess if we grant William Shafter credit for being in charge when the deed was accomplished in the Spanish-American War, we must bestow the same dubious honor on **Ewell Otis** and **Arthur MacArthur, Jr**., for the "victory" in this unsavory conflict as well. In a war characterized by floundering marches and unspeakable atrocities, Otis and MacArthur at least administered and led the effort during the chaos, and had the huge new colony under some semblance of control by the time the war was declared over. With this decidedly minimal nod to these commanders, I close discourse on this most troubling of American wars.

World War I (1917-1918)
Commander: John J. Pershing

As George Washington personified the American struggle in the Revolutionary War, **John J. Pershing** was the face of the American effort in World War I in the eyes of the world. Pershing was involved in virtually every aspect of the American presence in World War I, from the raising of millions of recruits in a very short time, to training them, getting ocean transport organized, getting the levies to the ports of egress, and then getting them off the ships in France. Once there, Pershing had to wage perhaps the toughest battle of all to keep the American Army together as a single entity, and not parceled out as replacements to the worn British and French armies. This was a key initiative, because the fresh Americans, not jaded by four previous years of static trench warfare, quickly infused their can-do and aggressive attitudes into the tired Western European armies. The Americans under Pershing thrusted forward savagely into the ebb tide of the German "Spring Offensive" and provided the decisive impetus to push the Germans out of Northern France and end the War. John J. Pershing is justly venerated as one of the greatest of American military commanders for his leadership in the Allied triumph in World War I.

World War II (1941-1945)
Strategic Commander: Dwight D. Eisenhower
Tactical Theater Commander: George S. Patton

Perhaps no other individual soldier, with the possible exception of George C. Marshall, was as indispensable to the ultimate victory of Allied forces in World War II as **Dwight D. Eisenhower**. When appointed as Supreme Allied Commander, he was not the oldest or most experienced officer in either the United States or among the Allies, and was derided by one senior Allied general as the best clerk that general had ever employed. Yet he might have been the shrewdest pick possible. Eisenhower had the rare ability to work simultaneously with a tremendous number of diverse personalities, and somehow salve and draw the best from all of them. He needed this ability, working with the likes of De Gaulle, Churchill, Lord Allanbrooke, Clark, Patton, and Bradley, yet he succeeded brilliantly. After leading the American charge across North Africa, then through Sicily and into Italy, Eisenhower assumed the greatest challenge of all in coordinating that boldest and most complex of all amphibious invasions, Normandy. Making the call for the Allied forces to cross a storm-swept English Channel to face the unprecedented Axis defenses on the Normandy coast, Eisenhower then sweated through those first tenuous hours of death and destruction as the Allies stormed ashore and established beachheads. Retaining command during the race through France, the crossing of the Rhine, and the final subjugation of the German

homeland, Eisenhower stands immortal as the implacable guiding force of the final victory over Fascism in Western Europe.

If Eisenhower was the guiding force, then **George S. Patton** was the spearhead of the Allied victory. The volcanic and verbose Patton was nevertheless a tremendous battlefield leader, admired and feared by friend and foe alike. Starting on the ground with the invasion of North Africa, Patton's tank corps stormed ashore in Sicily, where Patton conducted the legendary Messina campaign. His complex and rapid assaults gained him the respect of his foes, the German panzer armies. Yet the slapping of two G.I.s in the midst of this campaign marred his triumph. This faux pas cost him the chance to take an active role in the Normandy invasion. However, such was his stature among his foes that the German High Command could not believe that the Allies would sideline their best battlefield commander over what was to them a rather insignificant personnel incident. The Allies leveraged this incredulous attitude by having Patton stationed opposite Calais to play up a false invasion force there, complete with bogus radio transmissions and dummy tanks in southeast England's pastures. The ruse worked as the Germans kept many units near Calais to confront the falsely-threatened invasion at that point.

Once the Normandy beachhead was established, Patton was released for action, and he subsequently completed two epic marches: one, the unbelievably rapid advance across France to Germany's doorstep on the Rhine, and two: the ninety degree turn of his Third Army to race north and puncture "The Bulge" at Bastogne. Both swiftly became the stuff of legend, and firmly ensconced George S. Patton in history as the best American battlefield commander of World War II.

The Korean War (1950-1953)

Commanders: Douglas MacArthur and Matthew Ridgway

Perhaps best remembered for infamously being sacked for defying the direct orders of his commander-in-chief, **Douglas MacArthur** was nevertheless architect and executioner of perhaps the most audacious and technically difficult amphibious invasion of all time: The Inchon Landing of September 15, 1950. Surprised and caught flat-footed by the Communist invasion of South Korea on June 25, 1950, Allied forces were squeezed back into the tiny Pusan Perimeter in the southeast corner of that country at the outset of the war. With little room to either receive supplies or maneuver, a bold stroke was needed to retrieve the increasingly disastrous situation. And bold indeed was the stroke envisioned by MacArthur. The tiny port of Inchon on the west-central coast of South Korea was now well behind Communist lines and wracked by murderous 15-foot tidal swells. Precisely because it was considered invulnerable to invasion by his foes, MacArthur conceived the daring landing. In completing it, MacArthur landed a

significant force well behind his enemy, completely surprising them and launching them into headlong retreat almost to the Chinese border. Even if he had not compiled a superlative career in World War II, for no other reason than for the masterful Inchon Landing, Douglas MacArthur belongs in the pantheon of the greatest of American generals.

General Matthew Ridgway was summoned to command United Nations forces in Korea when Allied forces were at their lowest ebb. He found Western forces' morale nearly nonexistent, the troops poorly positioned, and supplies low. Bringing fire and a can-do spirit to the task, Ridgway turned the Allied army's fortunes around in the amazingly short period of three weeks. He was one of the first commanders to recognize the new reality of "limited aims" in conducting warfare in the nuclear-armed world. Ridgway stabilized the front roughly along the 38th Parallel, created the environment for the uneasy armistice that characterized this new reality, and created the pattern for conducting military operations under the strategy of containment. For his recognition of the modern world coupled with old-fashioned confidence and hard work, Matthew Ridgway deserves recognition as perhaps the outstanding commander of the Korean War.

The Vietnam War (1964-1973)
Commander: Hamilton H. Howze

Like the Spanish-American War, the Vietnam War was relatively bereft of top commanders. William Westmoreland and Creighton Abrams struggled under unbelievably cramped and complicated rules of engagement, typified by Lyndon Johnson's sardonic exclamation that, "They don't dare bomb an outhouse without my approval." Under such strictures, success in battlefield maneuvers was difficult, if not impossible. But in the field of tactical operations and deployments, **Hamilton H. Howze** defined and expanded the operations of a new mode of warfare.

Since the beginning of recorded warfare, combat had been two-dimensional: straight ahead and/or flank-to-flank. The advent of the machinegun and quick-firing artillery in World War I had ended the era of the horse cavalry, but the fast armored tank had restored a measure of speed and mobility to the battlefield that cavalry had once supplied. The next innovation was to open a third dimension: the vertical, aerial flank and the associated troop insertion via transport aircraft and parachutists. Vertical envelopment was the infant concept of "airmobile." But once the parachutist jumped, the "air" part of the equation was gone, and once the parachutist landed, the "mobile" part was gone as well. What was needed was a working combination of cavalry tactics, parachute infantry tactics, and the newest development of the "horse/tank:" the helicopter. Hamilton Howze supplied the new formula in time for

the Vietnam War. His new concept of air cavalry allowed an airmobile unit to appear on the battlefield with the advantage of surprise, then dismount, hit hard, remount, re-attack from a different angle and perspective, confuse the enemy, and cut off his retreat. With the full application of this tactical revolution (including the insertion of mobile field artillery and light armor via heavy-lift chopper, plus integral close-support firepower from HueyCobra attack helicopters), the surprise, speed, and tactical numerical superiority enabled by air mobility allowed an "air-cav" unit to both roust an adversary from his position and also block his retreat. It was a measure of the veneration of cavalry tactics pioneered by Nathan Bedford Forrest in the Civil War that these tactics were resurrected and amplified by Hamilton Howze in Twentieth Century warfare.

Gulf War I (1991)
Strategic Commander: Colin Powell
Tactical Theater Commander: Norman Swartzkopf

It was almost an eerie parallel to World War II: The suave, smooth Allied supreme commander holding the coalition forces together behind the scenes, with all the pressures this entailed, while the fiery, swashbuckling combat commander crushed the opposition on the battlefield.

General **Colin Powell** had the honor of leading the Allied coalition forces in the war against Iraq after Saddam Hussain invaded Kuwait in August, 1990. The task of gathering and coordinating the united but disparate arms of a host of participating countries was mind-boggling in itself. On top of that, what may have been forgotten with the passing of years was that Iraq possessed the fourth largest army in the world at the time, and that army was battle-tested by nearly a decade of war (1980-1988) against Iran, only two years before. It could have been perceived at that time that this might not be a walkover. Powell assured that a defeat would not occur due to lack of supplies and ammunition: he oversaw the transport of supplies and infrastructure equivalent to a metropolis the size of Oklahoma City to the Saudi Arabian desert over a period of a less than six months. He then managed to keep in line the political and military forces of many nations over the period of the buildup and the devastating air war that preceded the massive and lightning-quick 100-hour attack in late February, 1991. He served in the best tradition of Dwight David Eisenhower.

The volcanic ground commander in Gulf War I was pugnacious **"Stormin' Norman" Swartzkopf**. Possessing the stance and demeanor of a bulldog, Swartzkopf designed an offensive that put all the various components of the coalition forces to optimum use. From the threat of an amphibious U.S. Marine landing from the Persian Gulf, to the anvil of Middle Eastern Kingdom forces along the coast, to the mixed group of U.S. and Western European divisions that provided the hinge, to the group of mobile divisions

that delivered the devastating “Left Hook” flank attack, Swartkopf’s army proved irresistible and swiftly gobbled up thousands of prisoners, leaving shattered formations in its wake. As the remaining elite Iraqi forces scrambled up the Bagdad Highway to perceived sanctuary inside Iraq, dozens of A-10 ground attack bombers and Apache helicopter gunships created a nearly unbelievable smoking ruin in what became perhaps the world’s largest northward-pointing junkyard. Swartzkopf returned to the United States to justly deserved laurels as the man who redeemed America from the ignominy of Vietnam.

So there you have it…my opinions on the greatest American generals of their respective eras. I hope this stimulates some thoughts and counter opinions – have at it!

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