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## FOR SKY, SEA, AND LAND TO MEET: THE D-DAY INVASION ENABLED BY B-17, P-51, AND GLIDER AIR DOMINANCE

A visit to Normandy today reveals a tranquil atmosphere in which sky, sea, and land meet harmoniously, contrasting sharply with June 6, 1944's unmistakable images of "the ocean [running] red from the blood of men killed."<sup>1</sup> The clamor and clash of Allied troops storming ashore is difficult to imagine today in Colleville-sur-Mer, especially while standing amidst the calm of the Normandy American Military cemetery. Honestly, if records, such as photography, video, eyewitness accounts, and 9,387 American service members' graves did not attest to them, one might find the events of D-Day inconceivable.<sup>2</sup> But, the landing was conceived and conducted successfully with Allied invasion plans enabled by air dominance. Although the costly air war leading up to and during D-Day may be a lesser-known tactical component of the operation, collaboration among B-17 "Flying Fortress" bombers, P-51 "Mustang" fighters, and gliders was crucial in determining D-Day's successful outcome.

Prior to the United States' involvement in World War II, Germany enjoyed air supremacy with their air force, the Luftwaffe, effectively dominating European air space, defending territorial gains, and protecting industrial capacity. However, once the U.S. joined the war effort officially

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<sup>1</sup> "Past Is Prologue Essay Contest – American Battle Monuments Foundation." Accessed March 6, 2024. <https://abmf.org/past-is-prologue-essay-contest/>.

<sup>2</sup> "Normandy American Cemetery | American Battle Monuments Commission." February 20, 2024. <https://www.abmc.gov/normandy#:~:text=The%20cemetery%20site%2C%20at%20the.>

in December 1941, American contribution to the air war facilitated incremental then decisive progress. Starting in 1942, America joined Britain's Royal Air Force (RAF) in its bombing campaign on German war industries' "choke points"—factories and oil refineries—, but Allied fighter planes' fuel capacity limitations left the B-17s vulnerable without cover on longer bombing missions.<sup>3</sup> With losses high through 1943, daytime missions were scuttled (after Black Thursday) and equipment redesigns hurried.<sup>4</sup> However, Allied airmen still encountered heavy losses, and military strategists knew that no European invasion could be undertaken without first ensuring air supremacy, or at least superiority. The weight of the world was on the United States Army Air Forces (USAAF).

The fight for progress across the air war spectrum—from “air inferiority” to “air parity” to “air superiority” then “air supremacy”—was bloody.<sup>5</sup> Consider that the USAAF “lost 4,325 fighters and bombers before D-Day, with 17,000 killed and 21,000 wounded or POW in the fight for air superiority.”<sup>6</sup> Compared to the total number of American servicemembers killed on D-Day itself (2,501)—the loss rate for airmen in the years-long effort to enable that landing is shockingly high.<sup>7</sup> It was previously thought that the B-17 “Flying Fortress” could enact the “steel, not flesh” strategy that reacted to WWI's bloody, entrenched stalemates by flying long-range bombing missions untouched, at high altitude, and with optimized accuracy due to the new Norden bombsight.<sup>8</sup> Commander Ira Eaker and other Air Corps strategists sought to maximize the Norden's potential

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<sup>3</sup> “Bombing Germany by Day” in *Smithsonian: A Short History of WWII*, ed. Alison Sturgeon (London.: DK: Penguin Random House., 2020), 330-333.

<sup>4</sup> *Smithsonian*, 330-333.

<sup>5</sup> Roughton, Randy. “Air Superiority: Advantage over Enemy Skies for 60 Years.” Air Force Reserve Command. April 19, 2013. <https://www.afrc.af.mil/News/Article-Display/Article/156278/air-superiority-advantage-over-enemy-skies-for-60-years/>.

<sup>6</sup> Roughton, Randy. “Air Superiority.”

<sup>7</sup> “D-Day by the Numbers.” U.S. Dept. of Defense. Accessed April 2, 2024. [https://dod.defense.gov/Portals/1/features/2016/0516\\_dday/docs/d-day-fact-sheet-the-beaches.pdf](https://dod.defense.gov/Portals/1/features/2016/0516_dday/docs/d-day-fact-sheet-the-beaches.pdf).

<sup>8</sup> “Tactics and the Cost of Victory in Normandy.” Imperial War Museums. Accessed March 23, 2024. <https://www.iwm.org.uk/history/tactics-and-the-cost-of-victory-in-normandy#:~:text=Keeping%20casualties%20to%20a%20minimum>.

for accuracy by scheduling sorties in the bright light of day. However, only 2-12% of bombs dropped hit their targets, 89% of combat crews failed to complete their combat tour during the first year, and the famous Norden's accuracy was hampered by Europe's cloudy conditions.<sup>9</sup> By February 1943, Col. Curtis LeMay had innovated strategy away from the vulnerable zig-zagged "Javelin Formation" to the straight-and-true spread formation known as the "Combat Box," which tightly arrayed B-17 bombers at different altitudes with a maximum of 900 feet spread top-to-bottom in order to evade German anti-aircraft detectors, enable defensive machine gun cover, and mitigate losses.<sup>10</sup> The number of machine guns on board B-17s was also increased, but the Germans adapted by "unlocking the box." Air superiority was still out of reach.<sup>11</sup>

Allied bombers needed fighter support to disrupt German industries and gain air superiority. 1944's North American-designed P-51 "Mustangs" boasted a new fuselage system, laminar flow wings, and drop fuel tanks.<sup>12</sup> Once equipped with a Rolls Royce Merlin engine (produced by Packard in the U.S.), the Allies had their fighter.<sup>13</sup> <sup>14</sup> The P-51 boosted the Allies to air superiority then dominance in the latter half of the war, providing bombers with durable, agile cover on longer sorties while nimbly engaging the Luftwaffe fighters.<sup>15</sup> And with U.S. fighter plane production outstripping that of the Reich by 71%, the Allies gained air supremacy in 1944.<sup>16</sup>

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<sup>9</sup> Rogers, J. "Doolittle, Black Monday, and Innovation." Accessed April 2, 2024. [https://web.mst.edu/rogersda/american&military\\_history/Doolittle-Black%20Monday-Need%20for%20Innovation-1944.pdf](https://web.mst.edu/rogersda/american&military_history/Doolittle-Black%20Monday-Need%20for%20Innovation-1944.pdf).

<sup>10</sup> Rogers. "Doolittle."

<sup>11</sup> Smithsonian, 330-333.

<sup>12</sup> "How the P-51 Mustang became a legend." Imperial War Museums. Accessed April 5, 2024. <https://www.iwm.org.uk/history/how-the-p-51-mustang-became-a-legend>

<sup>13</sup> "The North American P-51 Mustang: A 'Little Friend' with a Big Impact." The National WWII Museum | New Orleans. May 24, 2020. <https://www.nationalww2museum.org/war/articles/north-american-p-51-mustang>.

<sup>14</sup> "Why the Merlin Engine Was Essential to the War." Imperial War Museums. 2022. <https://www.youtube.com/watch?v=aqqw6oSiPDw>.

<sup>15</sup> "75th Anniversary of the Combined Bomber Offensive: American and British Forces Work Together to Attack German Industry from the Air | American Battle Monuments Commission." June 10, 2018. <https://www.abmc.gov/news-events/news/75th-anniversary-combined-bomber-offensive-american-and-british-forces-work>.

<sup>16</sup> Miller, Donald L. *Masters of the Air*. (New York, NY: Simon & Schuster, 2006), 201-05.

In the words of Lt. Gen. Elwood R. Quesada: “The P-51 made people think we could go in farther and farther and win and win...the P-51 won every battle...[and] turned out to be able to slaughter the German fighters. The odds were great.”<sup>17</sup>

With air dominance secured over Europe, Allied leaders could devise Operation Neptune’s goals—gain beachhead, isolate the battlefield, and support ground forces—with gliders as a silent vanguard.<sup>18</sup> Gliders’ D-Day role was to interdict inland causeways, prevent movement of German logistics and reinforcement, and drop paratroopers and supplies at crucial strategic locations. Gliders were towed by C-47s and left to coast into the midst of German positions six to ten miles behind Utah beach.<sup>19</sup> A second-hand idea that the Allies borrowed from the Germans’ notoriously quick capture of Fort Eben Emael in Belgium, gliders had a distinct advantage: silence.<sup>20</sup> The U.S. scrambled to order a large number because the gliders’ engine-less silence meant they could be used just once; as Gen. Westmoreland quipped, “The combat glider, the only military aircraft built to crash.”<sup>21</sup> Although many “Jeep[s] with wings” included in the paratroopers’ first wave actually crash-landed or missed their landing zones, they also achieved quick tactical victories like the one at Pegasus Bridge during the early morning hours of June 6th and delivered mission-critical cargo, conveying to the German enemy a breadth of Allied attack that diffused their first D-Day defenses and prevented armored reserves from engaging.<sup>22 23</sup>

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<sup>17</sup> Kohn, Richard H. and Harahan, Joseph P. “Air Superiority in World War II and Korea: An interview with Gen. James Ferguson, Gen. Robert M. Lee, Gen. William Momyer, and Lt. Gen. Elwood R. Quesada.” *Office of Air Force History*, (May 1, 1983): 39-41. <https://media.defense.gov/2010/May/25/2001330267/-1/-1/0/AFD-100525-068.pdf>

<sup>18</sup> Kohn. “Air Superiority.”

<sup>19</sup> Lee, Russell. “Fighting Gliders of WWII.” National Air and Space Museum. May 8, 2020. <https://airandspace.si.edu/stories/editorial/fighting-gliders-world-war-ii>

<sup>20</sup> Barr Smith, Robert. “Silent Blitzkrieg: The Battle of Fort Eben Emael.” Warfare History Network. March 2002. <https://warfarehistorynetwork.com/article/silent-blitzkrieg-the-battle-of-fort-eben-emael/>

<sup>21</sup> Lee. “Fighting Gliders.”

<sup>22</sup> “Pegasus Bridge.” D-Day Revisited. Accessed April 3, 2024. <https://d-dayrevisited.co.uk/d-day-history/d-day-landings/pegasus-bridge/>

<sup>23</sup> “From Promise to Production.” Silent Wings Museum. Accessed April 3, 2024. <https://youtu.be/zyeqHBMZdRU?feature=shared>

When the front congealed in the weeks following D-Day, the combined effect of aerial bombardment, fighter plane support, and glider attack had not only softened German defense of key D-Day sites, but it had detrimentally affected German capacity to rearm and refuel. Although air dominance could not prevent significant infantry setbacks or casualties, it invariably reduced them, ultimately contributing to the breakdown of the German war effort.

I could cite lessons about how crucial it is for democracies to maintain air dominance in a world that is, still today, violent and full of territorial political conflict. Or, I might suggest America keep an eye on new, technological axes of military strategy—one of which may soon rival air supremacy for significance. But I think the best lesson has to do with sacrifice. Some historians say that our age is less violent than any previous human era, and maybe that is true by the numbers, but the scale of Allied courage in the face of fascism and tyranny from 1941-1945 must weigh more heavily on the human timeline, including and especially the sacrifice made by the members of the USAAF who flew despite terrible odds so that others could be free.

On a 2023 visit to Normandy, I realized how connected I am to D-Day's importance. My paternal great-grandfather, 1st Lt. Anthony Kosinski, served in the war as a B-17 navigator. And my maternal great-grandparents, Herbert and Lotte Strauss, were German Holocaust survivors. The Strauss' fled Germany for Switzerland in May 1943 and then to the United States in October 1946 while, on the other side of my family tree, 1st Lt. Kosinski enlisted in the Army Air Force in July 1942, trained through spring 1944, and finally arrived at the Eighth Air Force Replacement Depot in England on June 11, 1944 with the 95th Bomb Group, 412th Bomb Squadron.<sup>24 25 26 27</sup> Although he did not fly missions prior to or on D-Day, my great-grandfather Kosinski flew 35

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<sup>24</sup> Strauss, Lotte. *Over the Green Hill: A German Jewish Memoir, 1913-1943*. (NY: Fordham University Press, 1999), 65-138.

<sup>25</sup> Strauss, Herbert A. *In the Eye of the Storm: Growing Up Jewish in Germany, 1918-1943*. (NY: Fordham University Press, 1999).

<sup>26</sup> Blackwood, Michael, dir. 1981. *We Were German Jews*.

<sup>27</sup> Susan Leininger (Kosinski's daughter) in discussion with the author, March 2024.

missions with the same crew from July 1944 through December 1944, and they experienced no casualties. They were lucky. The Strauss', too, were lucky to escape many narrow scrapes and near-arrests, but they lost most of their family members to concentration camps. Once they settled in New York, they were grateful to have escaped but struggled to make sense of their own survival. I think this is true for all those who survived World War II, and it must be true for the airmen who lived when 79,265 of their USAAF (and another 79,281 RAF) brothers did not.<sup>28</sup> My great-grandmother cried when she first met Dotty, Anthony's widow, in the 1990s, and as they hugged, I am told she repeated, "Thank you. Thank you for what he did for us."<sup>29</sup>

Where sky, sea, and land meet at the Normandy American Military Cemetery, I have stood, reflecting on its peace—a peace gifted to me because of others' sacrifice. I will always be grateful.

[[word count: 1,787]]

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<sup>28</sup> Lopez, Jean, et al. *World War II Infographics*. (London: Thames & Hudson, 2019). 124-5.

<sup>29</sup> Jane Jones (Strauss' daughter) in discussion with the author, April 2024.

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