

Largest amphibious landing since end of World War II,  
September 15, 1950, at Inchon Harbor, Republic of Korea  
(U.S. Army/31<sup>st</sup> Infantry Regiment)



# Time in War

By Phillip S. Meilinger

*Go sir, gallop, and don't forget that the world was made in six days. You can ask me for anything you like, except time.*

—NAPOLEON

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Time has always been considered a key element in war. Speed, by definition, derives from time: “distance traveled divided by the time of travel” is the usual definition. Over two millennia ago, Sun Tzu remarked on its importance, noting that “speed is the essence of war” and “divine swiftness” is to be “esteemed.”<sup>1</sup> Carl von Clausewitz believed similarly, commenting that time had a major psychological effect that would help provide secrecy as well as speed.<sup>2</sup> Not just theorists, but also practitioners (such as Napoleon as quoted in this article’s epigraph) have recognized the importance of time and timing in war. But what is time?

There are several ways to describe the concept, but most consider time to be a straight line. Things begin, they develop, and they end. One can remember or read about the past, but we cannot go back; time marches inexorably forward, and the future remains unknown.

Albert Einstein introduced a new concept: time was flexible and relative. Physicists have adapted this bendable concept of time when discussing cosmology. For theologians, God is both timeless and endless; He always was and always will be. Moreover, God's time is not an arrow but a circle: He sees all—past, present, and future—whichever way He chooses to look.<sup>3</sup>

Besides its physical and theological aspects, time also has a psychological component, which we all experience. Although the clock ticks on rhythmically, we often feel it differently. On some days, the clock appears to move very slowly—when we are waiting in anticipation for something to occur. On other occasions, time appears to accelerate—as when we are enjoying ourselves and want to prolong the moment.

For the military, it is the notion of time as an arrow—the orderly sequencing of events—that matters most. Yet the psychological aspect of time, especially its apparent suddenness, is also of great importance, especially in military operations. John Boyd, an Airman and theorist of war, devised his famous OODA Loop—Observe, Orient, Decide, Act—to illustrate the cycle through which the human mind makes decisions. Boyd posited that the side whose OODA Loop was quicker—who acted most appropriately in the fastest time—would have an advantage.<sup>4</sup> Military forces also use terms like *tempo* and *synchronization* to explain the importance of conquering and best utilizing time in their operations.<sup>5</sup>

An example I have often used to illustrate this psychological effect concerns the fates of Carthage and Hiroshima. The Third Punic War ended with the defeat of Carthage at the hands of Rome. When defeating the African power in 146 BCE, the Romans wanted to ensure there would be no Fourth Punic War, so they razed Carthage; killed its inhabitants or

sold them into slavery; and then, as tradition has it, sowed the ground with salt so nothing would grow.<sup>6</sup>

On August 6, 1945, a single B-29 bomber took off from the Mariana Islands, and at 0815 it arrived over Hiroshima and dropped a single atomic bomb. The horrible blast and radiation effects of the bomb on the structures, people, and land of the Japanese city were not all that dissimilar from the effects of the Romans' actions at Carthage two millennia earlier.<sup>7</sup> The difference between the two events was that the destruction of Hiroshima was effected virtually instantaneously by one weapon, and not over a period of years by several legions. It was the conquest of time, not of matter, that so stunned the world—both then and since.

### Time and Land Warfare

There have been countless examples of when time played a key role on the battlefield. At Borodino in September 1812, Napoleon met the Russian army outside Moscow. He thought it could be the decisive battle of the war—a victory would destroy the enemy army, open the door to the capital city, and force the tsar to surrender. Yet the Emperor was reluctant to use all his troops in the battle, especially his Old Guard. One general who was on the scene reported that Napoleon stated, “I want to see more clearly. . . . My battle hasn't begun yet. . . . The day will be long. You have to know how to wait. Time always has to be considered. . . . Nothing is clear yet.” He then asked an aide what time it was, and when told, Napoleon remarked, “The time for my battle hasn't come yet. It will begin in two hours.”<sup>8</sup> But the Emperor had miscalculated. In 2 hours, the battle was already decided; his timing was off, and the Russian army survived to fight again. Napoleon would lose the war.

On the second day at Gettysburg, Confederate Lieutenant General James Longstreet was to attack the Union left wing in conjunction with other unit attacks on the Union's right and center wings. But his corps took the wrong road and was several hours late getting

into position. What if Longstreet had attacked in coordination with his comrades as General Robert E. Lee had intended instead of the piecemeal attacks that did occur? One historian summed up the day by stating, “Lee's offensive, based upon attacks in progression until it developed into a giant pincers squeezing both enemy flanks, required careful coordination and expert timing.”<sup>9</sup> For the Confederates, that timing was off.

The Schlieffen Plan was devised in Germany in the last decade of the 19<sup>th</sup> century by the Chief of the Great General Staff, Field Marshal Alfred von Schlieffen. The plan posited a worst-case scenario of a two-front war. To be successful, Schlieffen believed that Germany had to hold in the East against Russia and then strike quickly in the West against Belgium and France, knocking them out of the war to enable a turn back to the East in time to meet the lumbering Russian army as it moved toward Germany. It was assumed that the Russians would take 2 months to mobilize and thus would not initially be a serious threat. Therefore, the war in the West had to conclude within 2 months. Schlieffen retired in 1905, and over the next decade his successor, Field Marshal Helmuth von Moltke (nephew of the great von Moltke who was a hero of the German wars of unification) continued to tinker with the plan. Unfortunately, the necessity of maintaining a rigid time schedule for the huge military turning movement that would move through Belgium and northern France remained a dominant feature.<sup>10</sup>

When war broke out in July 1914, von Moltke feared the Russians would mobilize and attack more quickly than had been anticipated, which they did. As a result, he ordered six of his army corps detached from the Western arm to bolster the East. For this and other reasons, the rigidly timed attack in the West went awry. The German armies fell behind schedule and had to readjust their timing. Gaps also developed between the armies as they maneuvered to readjust; the French and their British allies noticed the faulty German dispositions and hurried to act. Even so, it was a close-run thing. As the German armies moved to

the Marne River shielding Paris, a hastily cobbled-together French army was rushed to the front just in time—partly by 2,000 Parisian taxicabs—and managed to deliver a decisive tactical check to the enemy.<sup>11</sup> The carefully timed Schlieffen Plan had fallen apart, and the Western Front soon devolved into a stagnant trench war of attrition that would last for much of the next 4 years.

In June 1950, North Korea attacked across the 38<sup>th</sup> parallel demarcation line into the south. Caught unprepared, Republic of Korea (ROK) forces precipitously retreated south. The United Nations (UN) appointed General of the Army Douglas MacArthur, the U.S. commander in Japan, to lead a coalition against the aggression, and he began deploying U.S. troops and air assets based in Japan into South Korea to help stem the tide, and reinforcements were hastily ordered from the United States. Initially, this did not work; the UN and ROK troops were pushed into a perimeter at Pusan on the southern tip of the peninsula, but MacArthur was planning a counterstroke. Operation *Chromite* was to be an amphibious assault at Inchon, the port city near Seoul, which would take place in mid-September. As one historian phrased it, “One of General MacArthur’s outstanding attributes, demonstrated quite often in World War II, was a keen sense of timing.”<sup>12</sup> His forces would not be ready for the operation until mid-September, but waiting until October would be too late for his forces in Pusan. The window of opportunity was narrow.

The obstacles at Inchon were formidable. The tides often exceeded 30 feet, and when the tide was out, the mudflats left behind were so soft and deep as to preclude movement. Twice a day, the tides came in, but the time available for an assault to occur was only 3 hours. After that, the retreating tide would leave the attackers and their craft stranded on the mud for the next 12 hours—sitting ducks for the defenders. On September 15, the UN forces landed at Inchon, totally astonishing the North Korean defenders. The assault force landed at high tide, disgorge its troops, and the landing

craft backed out before the tides began to recede. It was a brilliant maneuver, perfectly timed, against what many thought were hopeless odds.<sup>13</sup> Concurrently, MacArthur directed an assault by his forces at Pusan timed to coincide with Operation *Chromite*; the North Koreans were caught in an enormous vise. The aggressors fled north to escape that trap even faster than they initially had moved south.<sup>14</sup>

### Timing and Air Warfare

Between the wars, U.S. thinkers and planners at the Air Corps Tactical School devised a doctrine for employing heavy bombers in a future war. They settled on an “industrial web” theory that likened an economy to a spider’s web—all was interconnected, and damage anywhere in the web would reverberate throughout the entire structure with dramatic effects. This theory also hypothesized that certain resources or facilities were more important to the successful operation of an economy at war than others. Typical ideal target sets included oil refineries and storage facilities, the electric power grid, steel plants, and armament factories, among others.<sup>15</sup> In addition, it was believed that gaining air superiority was crucial to ultimate victory; therefore, destroying aircraft and engine factories was just as important as destroying the aircraft themselves.

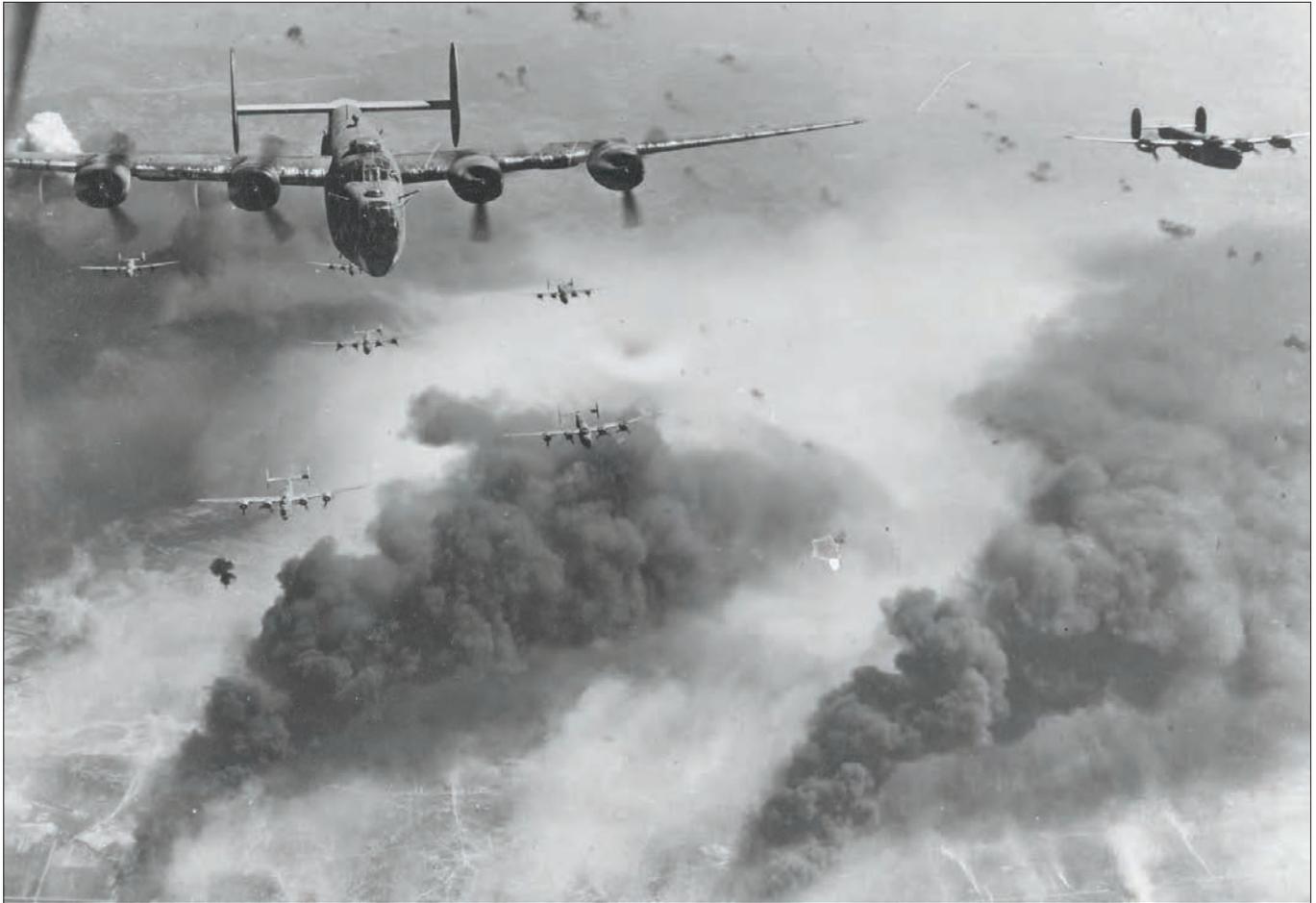
Germany had little internal oil resources, and during peacetime most had to be imported. When Adolf Hitler launched the war, one of his first objectives was to secure the oil fields and refineries of Romania. These resources, centered around the town of Ploesti, would soon supply over 60 percent of Germany’s crude oil supply.<sup>16</sup> Air planners argued that knocking out this complex would have a disastrous effect on Germany’s “web.”

From the nearest Army Air Force bases in Africa, the attack would be a deep strike over hostile territory (1,200 miles each way). Moreover, the refineries themselves were heavily defended by anti-aircraft guns and enemy fighter aircraft. Planners therefore suggested a low-level

attack (300 to 500 feet) using B-24 heavy bombers to strike the complex in a coordinated attack. Nearly 200 bombers would be used and, given the unusual tactics as well as the extreme distance, the B-24s were fitted with extra fuel tanks and supplied with a low-level bomb-sight. In addition, the crews practiced over the Libyan desert, flying low and dropping practice bombs on a dummy complex built to resemble that at Ploesti. Complete rehearsals were flown on July 28 and 29, and on both days the mission went flawlessly, “completely destroying” the dummy site.

On August 1, 1943, 177 planes in five groups took off from Libya and headed east. Beforehand, crewmen were told to write letters home and leave them on their cots—if they did not return, the letters would be mailed. It was not long after takeoff when things began to go awry. The weather was far different from the endlessly clear skies over the Libyan desert, and thunderstorms en route broke up the formation. Radio calls would have assisted planes to rejoin the formation, but the crews were told to maintain radio silence so as not to tip off the enemy. Things worsened.

As a result of the disruption in timing caused by the formation breakup, two bomber groups arrived over the target well before the rest of the force—thus alerting the defenses for those coming behind. Two other groups misidentified a checkpoint and turned too early; they flew all the way to Bucharest before realizing their mistake. This too alerted defenses and scrambled Luftwaffe fighters. Another group encountered heavy anti-aircraft fire approaching Ploesti, so it made an unplanned deviation to the east to avoid the threat. The result of these snafus was an uncoordinated attack as most of the bombers blew in piecemeal from different directions and altitudes as opposed to the plan of arriving at the target en masse in a single formation. Colonel Leon Johnson—awarded the Medal of Honor for his actions that day—later wrote, “We flew through sheets of flame, and airplanes were everywhere, some of them on fire and others exploding.”<sup>17</sup> Upon departing



Through flak and over destruction created by preceding waves of bombers, 15<sup>th</sup> Air Force B-24 Liberators leave Ploesti, Rumania, after one of long series of attacks against primary oil target in Europe, August 1, 1943 (U.S. Air Force/Jerry J. Jostwick)

the area, instead of reforming for the journey home, the groups pressed on by themselves stretched out over 100 miles, making them easier prey for enemy fighters. By the time it was over and the B-24s straggled back to Africa, 54 bombers were lost as well as 532 Airmen. Only 3 of the 177 bombers that had started the mission were still fit to fly the following day. To illustrate the harrowing nature of the mission, five Medals of Honor were awarded that day—the most ever for a single air operation.

The keys to success at Ploesti were to be “surprise and razor-sharp timing,” but both were lost and the result was carnage. It would not be until April 1944 that the Army Air Force attempted further attacks on Ploesti—and those attacks were conducted at high altitude in standard air group formation.

Schweinfurt was Germany’s major production center of ball bearings, which

practically all mobile weapons relied on. This was a “bottleneck” target whose destruction prewar air planners believed would have a disproportionate effect on the German economy. Regensburg, a nearby city, had a large Messerschmitt factory that produced 48 percent of the Luftwaffe’s fighter aircraft. In the summer of 1943, planners thought they knew how to neutralize them.<sup>18</sup> Due to the lack of long-range escort fighters to accompany the bombers deep into Germany—a major shortcoming of airpower thinking between the wars—it was concluded the bombers would suffer heavy losses at the hands of the Luftwaffe fighter force. Planners therefore decided to throw the enemy a curveball. There would be two separate waves of bombers. The first would depart bases in England and head directly for Regensburg. Spitfires and P-47s would accompany them for the first part of their journey, but would be

forced to turn back when low on fuel. The bombers would then be hit hard by interceptors, but after striking the target they would turn south for North Africa rather than reverse course and return to England. It was believed this would so surprise and confuse the defenders that the second half of the bombers’ journey would be fairly easy.

A second wave of bombers would depart England 10 minutes after the first and would head for Schweinfurt. The close arrival of the second wave was timed so it would arrive over the target while the Luftwaffe fighters were back on the ground refueling and rearming. They would be airborne again within 30 minutes, but the planners figured this would allow the bombers to get to the target relatively unscathed—although afterward they would have to fight their way back to England.

In other words, the timing of the two-wave assault would mean the first wave (Regensburg) would only have to defend itself on the way into the target, whereas the second wave (Schweinfurt) would only have to fight on the way home. It made sense.

Crews were awakened at 0130 and served *real* eggs and bacon for breakfast—they knew something was up, and many referred to the meal as “the Last Supper.”<sup>19</sup> In the briefing room, the map showing their target for the day was covered by a cloth, but the crew members had learned that a string with a bob at the end would trace their route of flight; more string left hanging at the bottom of the chart meant the target would be close to the coast and therefore include escort. Today, there was no string showing. This would be a very deep strike, unescorted.

Unfortunately, heavy fog rolled into England the morning of August 16, 1943. The first wave of 146 bombers had no choice but to take off because its timetable required it to land at the unfamiliar North African bases before dark. Fortunately, Colonel Curtis LeMay, who led the first contingent, had trained his men rigorously on instrument takeoffs and climb-outs. The training paid off, and not a single bomber was lost during the form-up.

But the takeoff of the second wave of 230 bombers, led by Brigadier General Robert Williams, was then delayed for over 3 hours. The crewmembers knew exactly what this meant: they would engage a freshly fueled, armed, and rested fighter defense not only into their target, but on the return as well. Their escort fighters could not offer much help and would have to turn back upon reaching the German border. There would be hell to pay.

As expected, the first wave of bombers led by LeMay endured heavy attacks inbound to Regensburg—losing 14 aircraft while they were still more than 100 miles from the target. Ten more were lost over the city—but their turn south did indeed catch the defenders by surprise. As a result, the bombers’ 5-hour journey to North Africa was largely uneventful.

On the other hand, Williams’s unescorted Schweinfurt crews were hammered both to and from the target—over 300 Luftwaffe fighters pounced on them. Overall, the Eighth Air Force would lose 60 bombers that day; another 100 bombers were so heavily damaged that they would not fly again, and well over 550 aircrew were dead, missing, or captured. This toll amounted to over 20 percent of the attacking crew force and nearly 60 percent of the airframes—losses that were completely unsustainable. It was not difficult for even the most mathematically challenged crewman to figure his odds: such losses would mean the entire bombing force would theoretically be annihilated in 5 missions, yet they were required to fly 25 combat missions.

In short, both missions had relied on superb timing to achieve success. But in both cases that timing broke down and resulted in disaster.

A basic tenet for Airmen concerns the importance of command of the air. For aircraft to operate effectively, the opposing air force and air defenses must first be neutralized. One method of achieving air superiority is defeating enemy interceptors in the air, but another is attacking the aircraft while they are still on the ground and at their most vulnerable.

During Operation *Rolling Thunder*, the air interdiction campaign against North Vietnam between 1965 and 1968, U.S. aircraft flying north were met by extremely heavy enemy air defenses—antiaircraft artillery, surface-to-air missiles (SAMs), and MiG fighters. These defenses were deadly, yet they could not be systematically attacked. Rules of engagement (ROE) stated that SAM sites could not be hit while being built and still harmless. Similarly, MiG airbases were off limits—enemy aircraft could only be attacked if actually airborne. Achieving air superiority under these rules appeared impossible.

In 1966, Airmen at bases in Thailand devised a plan to destroy MiGs while still adhering to the ROE. Colonel Robin Olds, commander of the 8<sup>th</sup> Tactical Fighter Wing at Ubon, took the lead in this effort. Olds was a bit of a legend in the Air Force; he had been

an All-American football player at West Point, was an ace in World War II with 13 victories, and had married movie actress Ella Raines. Olds devised a plan, Operation *Bolo*, to sucker the MiGs into air combat.

When bomb-laden F-105s were sent north to strike various targets, they were usually escorted by F-4s and “Iron Hand” assets—F-105s equipped with electronic jamming pods and anti-radiation missiles to suppress the SAMs. If MiGs showed up, the F-105s would continue to their targets while the Phantoms engaged the MiGs. The North Vietnamese were aware of these tactics, so they avoided the Phantoms whenever possible.<sup>20</sup>

Operation *Bolo* proposed that F-4s would mimic the actions of an F-105 strike package. The Phantoms would be loaded with air-to-air missiles (four radar-guided and four heat-seekers) but no bombs; they would use standard F-105 routing, altitudes, speeds, tactics, and call signs. It was hoped that North Vietnamese radar operators would paint the incoming aircraft and assume they were unescorted F-105s. They would then scramble MiG interceptors from the five airfields ringing Hanoi and direct them against the incoming bombers. Not until sighting the Phantoms would the MiGs realize they had been duped. It was then expected that some of the MiGs would peel off and head for home, knowing their landing fields were protected sanctuaries. But Olds was prepared for that: F-4s stationed at Da Nang Airbase in South Vietnam, also mimicking F-105s, would be heading toward Hanoi from the east. Radar would assume these aircraft were also bombers intending to strike targets near the capital. Instead, the Da Nang fighters would head for the MiG bases and orbit overhead. Their intention? When the MiGs fled from the Thailand-based F-4s to recover at their airfields, the Da Nang F-4s would be waiting there. The MiGs would be forced to fight.<sup>21</sup>

Timing was crucial for the plan to succeed. Not only did the F-4s need to mimic the airspeed, altitude, and tactics of the F-105s, but they also had to arrive in separate flights and waves.



Troops of the 31<sup>st</sup> Infantry Regiment land at Inchon Harbor, September 18, 1950 (National Archives and Records Administration/U.S. Army/Hunkins)

Studying the actions of the MiGs over the previous months, Olds knew they remained airborne for only 50 minutes, less if they used afterburners. The F-4s, even though hitting tankers just prior to entering North Vietnamese airspace, still had only 5 minutes to engage over the target. Accordingly, the MiGs would encounter several waves of U.S. Air Force fighters—arriving at 5-minute intervals—allowing successive aircraft to continue the fight while others departed for home.<sup>22</sup> In addition, the Da Nang aircraft also had to arrive over the MiG airfields in a series of waves so as to meet enemy aircraft attempting to flee. If those F-4s arrived too soon, they would run low on fuel before the MiGs showed up; if they arrived too late, the MiGs would have already landed.<sup>23</sup>

Other activities had to be precisely timed as well. To ensure secrecy, the aircraft in Thailand and South Vietnam

had to continue their regular routines—combat missions were still flown against normal targets. The F-4s also had to mount the anti-SAM pods carried by Iron Hand—if they did not, North Vietnamese radar operators would be suspicious—but the switch could not be made too soon. The pods were therefore removed from the F-105s at Korat and Takhli and flown by C-130 to Ubon and Da Nang. There, maintenance crews worked all night installing them so they would be ready for Operation *Bolo* in the morning.

As is usually the case in war, the mission did not go as planned. Bad weather meant the Da Nang aircraft did not arrive over the MiG bases as intended. Nonetheless, Olds led his Ubon-based aircraft as scheduled, the North Vietnamese were tricked, 12 MiG-21s scrambled to intercept what they supposed were unescorted F-105s,

and they did run into a buzz saw. Seven MiGs were quickly downed, one by Olds, before they fled for home. Unfortunately, the lack of the Da Nang force meant the remaining MiGs were able to recover safely. Even so, the Ubon crews claimed seven enemy aircraft at no loss to themselves.

### What It Means

Time has always been a crucial factor in war, and commanders and planners should give it great consideration when developing strategy and tactics. Although timing in war is a somewhat theoretical concept, it is also essential. As one expert on the subject has stated, “The purpose of theory is to change current doctrine through intellect rather than through the bloody empiricism of extinction.”<sup>24</sup> The job of theory is to solve new problems for which current doctrine is inadequate.

Inchon was an example of excellent timing carefully planned and artfully executed. In some cases, however, commanders have too quickly discounted or ignored the importance of time, while on other occasions they have given it too much importance. The Schlieffen Plan was built upon a foundation of quicksand: it imagined an ability to maintain an impossible time schedule given the nature of man, beast, and vehicles. Things usually go wrong in war, yet German generals thought they could overcome such pesky details and proceed with rigid precision. The result was calamity. The same belief in timing was also seen at Ploesti and Schweinfurt/Regensburg. Timing was crucial to the successful outcome of these plans, but air planners failed to account for a situation in which the timing went awry. Too much weight was placed on this one pillar of timing; it could not support the pressure, and when it buckled, so did the entire edifice.

Certain factors become clear when studying the issue of time in war. The conquest of time can produce other qualities and situations that can turn the tide. The first of these is *speed*. Theorists and commanders have realized since antiquity that moving quickly is a major goal to be achieved both approaching the battlefield and then during the battle itself. Speed often grants *surprise*, which contains both physical and psychological elements—most theorists would argue that the psychological impact is more powerful. The shock of arriving in force when and where an enemy does not expect it can often cause panic, as was the case for the arrival of the Prussian army of Frederick the Great at Leuthen in 1757, the arrival of Admiral Horatio Nelson's fleet at Aboukir Bay in 1798, or the drive through the Ardennes by German blitzkrieg forces in 1940. In addition, time is crucial in the collection and dissemination of accurate intelligence. Indeed, most commanders would argue that the value of intelligence is directly proportional to the speed of that gathering and dissemination.

The conquest of time also grants *flexibility* and *mobility*. It should not be surprising that the great captains of

history—Alexander, Hannibal, Genghis Khan, Frederick the Great, Napoleon, Nelson, Wellington, Lee, and Patton, among others—were known for their rapidity of movement and ability to adjust quickly to events. With the arrival of the airplane, this ability to move quickly and conquer time was multiplied by an order of magnitude or more. Even in World War I, aircraft struck targets hundreds of miles behind enemy lines, with several tons of bombs, while traveling 20 times faster than infantry on foot. It has been a facet of modern air warfare that this ability to strike deeply and quickly allows parallel warfare—speed and precision-guided munitions permit a multitude of enemy targets to be struck throughout a theater in a remarkably short period of time. More targets were struck across Iraq from the air in the first 24 hours of Operation *Desert Storm* in 1991 (152 separate targets) than the Eighth Air Force had been able to hit in its first year of operation over Europe in 1942 and 1943.<sup>25</sup> It is not unreasonable to suggest that Iraq was defeated on the first day of war; Saddam Hussein was cut off from his forces and knocked off balance to such an extent that he was never able to recover. The speed of the coalition attack conquered time and made it virtually impossible for Saddam to avoid defeat.

Time can in some instances substitute for *mass*. Although a principle of war, the tremendous speed and accuracy of modern air weapons can now assure density—mass precision. As noted, such mass-precision attacks in a short period of time allow simultaneity—and those attacks generally neutralize targets due to precision-guided munition accuracy. This also means the lowering of risk—fewer aircraft, operating in a danger zone for a greatly reduced period of time, means lower casualties. Since *Desert Storm* in 1991, the United States has sustained just a handful of casualties in air operations despite hundreds of thousands of combat sorties flown in various theaters around the world.

As noted in the introduction to this article, the telescoping of time can provide a great psychological impact. Because of the speed with which airpower

can operate, psychological effect has always been touted by Airmen. Air Marshal Hugh Trenchard, regarded as the Father of the Royal Air Force, stated that the psychological impact was 20 times greater than the physical effect of bombing.<sup>26</sup> Although he was exaggerating, Trenchard was not alone in his belief regarding these psychological repercussions.

It was one of the great irritants of the Vietnam War to Airmen that civilian thinkers in Washington devised a strategy of “gradual escalation” against North Vietnam. This policy was intended to serve as a carrot and a stick: the United States would bomb some valuable targets in the North with the clear implication that if enemy leaders would not modify their behavior and cease fomenting war in the South, the bombing would increase in volume and include higher value targets. If, however, the North did ease off, then carrots—favorable political or economic terms—would be forthcoming. In the words of one National Security Council document from December 1964:

*Such a program would consist principally of progressively more serious air strikes, of a weight and tempo adjusted to the situation as it develops (possibly running from two to six months) and of appropriate U.S. deployments to handle any contingency. Targets in the DRV [Democratic Republic of Vietnam] would start with infiltration targets south of the 19<sup>th</sup> parallel and work up to targets north of that point. This could eventually lead to such measures as air strikes on all major military-related targets; aerial mining of DRV ports, and a U.S. naval blockade of the DRV. The whole sequence of military actions would be designed to give the impression of a steady, deliberate approach, and to give the U.S. the option at any time (subject to enemy reaction) to proceed or not, to escalate or not, and to quicken the pace or not. Concurrently, the U.S. would be alert to any sign of yielding by Hanoi, and would be prepared to explore negotiated solutions that attain U.S. objectives in an acceptable manner.<sup>27</sup>*

This strategy of gradual escalation was deeply resented by the Airmen assigned to implement it because it robbed airpower of one of its greatest weapons—the psychological impact of dominating time. Worse, the strategy did not work. The stick used in gradually escalating air attacks was never hard enough or swift enough to prevent the North Vietnamese from stealing the carrots.

Time has been a key factor in war since antiquity, and commanders and military thinkers have constantly tried to harness it for their advantage. To do so would grant them speed, secrecy, surprise, and shock. Great commanders were those most adept at conquering time. This quest took on new vigor with the invention of the airplane in the first decade of the 20<sup>th</sup> century. The conquest of time, as well as the medium in which aircraft operate, was recognized as revolutionary within the first decade of manned flight. A century later, that revolution is even more apparent as speed, accuracy, range, and secrecy continue to increase. Joint commanders must recognize this capability and factor it into their military plans. JFQ

## Notes

<sup>1</sup> Sun Tzu, *The Art of War*, trans. Samuel B. Griffith (London: Oxford University Press, 1963), 106, 134.

<sup>2</sup> Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 198.

<sup>3</sup> For excellent discussions of the physical, religious, and psychological dimensions of time, see Paul Davis, *About Time: Einstein's Unfinished Revolution* (New York: Simon & Schuster, 1995); and Colin Wilson, ed., *The Book of Time* (North Pomfret, VT: Westbridge, 1980).

<sup>4</sup> For the best examination of John Boyd's theories—and my simple overview does not do it justice—see Frans P.B. Osinga, “The Enemy as a Complex Adaptive System: John Boyd and Airpower in the Postmodern Era,” in *Airpower Reborn: The Strategic Concepts of John Warden and John Boyd*, ed. John A. Olsen (Annapolis: Naval Institute Press, 2015).

<sup>5</sup> One author, an infantryman, also uses more scientific terms, such as frequency and amplitude, to describe the effects of time on the battlefield. See Robert R. Leonhard, *Fighting by Minutes: Time and the Art of War* (Westport,

CT: Praeger, 1994), chapter 5.

<sup>6</sup> Brian Caven, *The Punic Wars* (London: Weidenfeld & Nicolson, 1980), 273–291.

<sup>7</sup> Vincent C. Jones, *Manhattan: The Army and the Atomic Bomb* (Washington, DC: U.S. Army Center of Military History, 1985), 534–550.

<sup>8</sup> Count Philippe-Paul de Ségur, *Napoleon's Russian Campaign* (Boston: Houghton Mifflin, 1958), 70. For the battle itself, see David Chandler, *The Campaigns of Napoleon* (New York: Macmillan, 1966), 790–810.

<sup>9</sup> Edwin B. Coddington, *The Gettysburg Campaign: A Study in Command* (New York: Simon & Schuster, 1997), 384. Debates over who was at fault for the delays and lack of coordination on day 2 have raged for well over a century. Longstreet usually gets the blame, but others argue Lee gave confusing and contradictory orders and failed to exercise the requisite control over his subordinates. Others blame the guides who failed to scout an appropriate route that would allow Longstreet's corps to move into place without being seen by the Union spotters on the Round Tops. In any event, the timing was seriously compromised and defeat was the result. See Noah Andre Trudeau, *Gettysburg: A Testing of Courage* (New York: HarperCollins, 2002), 282–371.

<sup>10</sup> For the plan, see Gerhard Ritter, *The Schlieffen Plan* (New York: Praeger, 1958). For the first two decades after World War I, most believed the plan was a brilliant concept that was incompetently carried out by von Moltke and his generals. When the plan itself was finally discovered and studied after World War II, that opinion changed. Most historians have since decided there were not enough German troops to carry it out, it was politically foolish, and the plan was so dependent on precise timing of an extremely complex and difficult maneuver as to be impossible of execution.

<sup>11</sup> For an overview, see Martin Gilbert, *The First World War: A Complete History* (New York: Henry Holt, 1994), 29–30, 72.

<sup>12</sup> James F. Schnabel, *Policy and Direction: The First Year* (Washington, DC: U.S. Army, Office of the Chief of Military History, 1972), 144.

<sup>13</sup> *Ibid.*, chapters 8 and 9. For an excellent account of MacArthur and his role in Operation *Chromite*, see D. Clayton James, *The Years of MacArthur: Triumph and Disaster 1945–1964*, vol. 3 (Boston: Houghton Mifflin, 1985), 464–485.

<sup>14</sup> Schnabel, 173–177.

<sup>15</sup> For an excellent discussion, see Stephen L. McFarland, *America's Pursuit of Precision Bombing, 1918–1945* (Washington, DC: Smithsonian, 1995), chapter 5.

<sup>16</sup> For the strategic context of this mission, see Wesley F. Craven and James L. Cate, *The Army Air Forces in World War II*, 7 vols. (Chicago: University of Chicago Press, 1948–1958), II, 477–483. For a more detailed account, see Donald L. Miller, *Masters of the*

*Air: America's Bomber Boys Who Fought the Air War Against Nazi Germany* (New York: Simon & Schuster, 2006), 187–192.

<sup>17</sup> Miller, 191.

<sup>18</sup> For the strategic context, see Craven and Cate, II, 681–687; and for a more detailed account, see Miller, 192–205.

<sup>19</sup> Miller, 193.

<sup>20</sup> For the beginning of Operation *Rolling Thunder*, see Jacob Van Staaveren, *Gradual Failure: The Air War over North Vietnam, 1965–1966* (Washington, DC: Air Force History and Museums Program, 2002).

<sup>21</sup> For an overview of Operation *Bolo*, see Wayne Thompson, *To Hanoi and Back: The USAF and North Vietnam, 1966–1973* (Washington, DC: Air Force History and Museums Program, 2000), 52–55.

<sup>22</sup> Olds had eight flights of four aircraft each at Ubon. There would be three waves: the flights would arrive on scene in 5-minute intervals with 10 minutes between waves. This would ensure there were U.S. fighters on scene for the entire fuel duration of any MiGs that came up.

<sup>23</sup> For an excellent and detailed account, see Robin Olds, with Christina Olds and Ed Rasimus, *Fighter Pilot* (New York: St. Martin's, 2010), 271–282.

<sup>24</sup> Leonhard, xxi.

<sup>25</sup> David A. Deptula, *Effects-Based Operations: Change in the Nature of Warfare* (Arlington, VA: Aerospace Education Foundation, 2001), 2.

<sup>26</sup> Hugh M. Trenchard, “Bombing Germany: General Trenchard's Report of Operations of British Airmen against German Cities,” *New York Times Current History* 10, April 1919, 152.

<sup>27</sup> Department of State, *Foreign Relations of the United States, 1964–1968, Vol. I: Vietnam, 1964* (Washington, DC: Government Printing Office, 1992), 970.