



**STRATEGY
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**THE COMBINED BOMBER OFFENSIVE:
A RETROSPECTIVE**

BY

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**The Combined Bomber Offensive:
A Retrospective**

by

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ABSTRACT

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This paper analyzes the Combined Bomber Offensive (CBO) as it relates to 1.) the application of air power, 2) how the use of current doctrine led to the misapplication of air power 3.) how limited technology affected the design of the campaign, and 4.) how the misunderstanding of the effects of bombardment led to a successful campaign.

The intent of the CBO was to devastate Germany through the application of bombardment upon a center of gravity. Because the CBO did not identify decisive target sets this led to an operational level failure of the strategy. The CBO was a success at the strategic level.

Analysis of the CBO shows that to be successful, an air campaign needs to be phased such that it is first focused on air supremacy. This could have been achieved through attack on air fields and command and control facilities. Planners were challenged by undemonstrated technology. Had they utilized more stringent battle damage metrics, it is likely that the CBO would have been more effective over an evolving set of priorities based on actual effects.

The CBO over-relied upon pre-war expectations of the consequences of the damage they were inflicting.

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ANALYSIS OF THE ANGLO-AMERICAN COMBINED BOMBER OFFENSIVE 1942-1945

This paper discusses the merits of the Anglo-American Combined Bomber Offensive (CBO). Specifically, as it relates to 1.) the application of air power, 2.) how the use of the then current doctrine led to the misapplication of air power 3.) how limited technology affected the design of the campaign, and 4.) how the misunderstanding of the effects of aerial bombardment led to an overall successful campaign. However, this was through the unintended consequences of attrition rather than the planned for effects on the German economy.

The intent of CBO was to create a devastating effect upon the German war machine and its supporting economic base through the application of strategic bombardment. This was to be a direct attack upon the perceived strategic center of gravity, the German industrial base.^{1,2} The failure of the CBO to identify such a critical target, set of targets or the identification of a critical capability which could be exploited through direct aerial attack led to the failure of the strategy at the operational level. This paper will assert that the CBO had success at the strategic level because it diverted German resources from the front line to home defense and demonstrated western allied resolve to Russia, thereby maintaining the Alliance. Eventually, through the attrition of German pilots, the CBO had the unintended consequence of becoming successful at the operational level by winning air supremacy over Europe, thus enabling the invasion of France and the subsequent ground campaign and the defeat of Germany.

CONFLICT AND CAMPAIGN BACKGROUND

World War II occurred as a direct outgrowth of World War I. The harsh and punitive reparations imposed on Germany by the winning coalition of nations did nothing to re-harmonize a post-war Europe into a peaceful post-war, economically viable environment. The peace imposed on post-war Germany, characterized by huge punitive fines, fostered an ever increasing economic and political tension within Germany and across Europe. The era is highlighted by the ineffectual Weimar Democracy, the rise of socialism and the National Socialist Movement (Nazi), outrageous inflation, and a failed economy. All effects directly leading to the installment of Adolf Hitler as the leader of the Third Reich and the rise of Nazism.

Hitler, a charismatic leader, created a war economy based on hatred and a propaganda campaign which leveraged the German economy into one of the strongest in Europe. Through a series of political alliances and limited objective offensives (Saarland, Czechoslovakia, and the annexation of Austria) Hitler was able to achieve great military and political short term

success. Short-sighted inter-war Western European and American politicians dealing with near world-wide depression of the early thirties, failed to maintain and provide for military capabilities to offset the rise of German nationalist power. Western diplomats were left without a military recourse or option. At the outset of the conflict it can be argued that Germany did not have a preponderance of military power. What Germany did have was the ability to project decisive military power and the political desire to do so. The Allies at the outset of the war did not have the means to project power to counter the use of force by Germany.

This gave Germany the aura of being materially and militarily superior. Given this perception of a one-sided balance of military power, appeasement, as assessed by western leaders, was the only viable alternative available to achieve their national political goals and preserve the status quo. This only served to whet Hitler's appetite for future expansion as his successes continued, his unbridled greed drove his ambition to seek even more territory.

THE EVENTS LEADING TO THE CONFLICT

As the conflict of World War II unfolded, Germany (the senior partner) had forged a system of alliances with Italy and Japan. A fourth partner, the Soviet Union, was afforded protection from attack, as well as support for her Finnish campaign, and promised a division of Polish territory. The German national strategy was to win global domination and divide the spoils amongst the victors. The agreement with Russia was betrayed when Germany attacked and seized the Ukraine, the Georgian Republics, and marched on Moscow in the summer of 1941. The break with Russia resulted in the isolation of the Soviet Union and as a free agent being attacked, the Russians sought a connection with a western alliance. The attack on Russia forced her to seek an alliance with England and the U.S.

On the other side of the world the US, though neutral, was working hand-in-hand with the British to ensure its survival against the German/Axis threat. On 7 December 1941, the US was catapulted into the war when her neutrality was broken by the Japanese attacks on US military bases in Hawaii and near simultaneous attacks around the Pacific Rim. The US then declared war on Japan. Germany, though formally not required to, declares war on the US as part of her alliance with Japan. Based on previous agreements with the British, it is determined that the Axis strategic center of gravity is Germany. Therefore, Germany became the primary effort of all allied effort.

All allied effort was focused on delivering a knock-out blow to Germany and then dealing with Italy and Japan as separate issues.³ At the start of 1942, America and Britain's ability to mount a ground offensive was severely limited. While the US planners were eager to mount

early entry operations into Europe, British planners were more experienced and realized that time was required due to the limited logistics base, lack of air and sea supremacy as well as a lack of trained forces.⁴ After much deliberation and argument, coupled with course of action analysis; options were weighed, prioritized and evaluated and it was determined that the only viable option for immediate direct attack on Germany was through aerial bombardment. This took place while Operation Torch, the invasion of North Africa was planned and executed.

Working within the constraints of a limited bomber force, an untried doctrine, and a combined chain of command, the US had been observing Royal Air Force (RAF) bomber operations. The US surmised several doctrinal and tactical application short comings of the RAF Bombing Campaign in comparison to Army Air Corps employment tactics, techniques and procedures. The US planners believed that with the technology on-hand the US bombers could attack in daylight with precision, while the British, suffering from a higher sensitivity to casualties, could conduct night area bombing attacks.

POLITICAL/MILITARY LEADERSHIP

Coalition and Allied military and political leadership were strong. The British had a very seasoned Prime Minister, Winston Churchill. As former Lord of the Admiralties, he was well versed in military history and technology as well as being extremely popular, a direct result of the recent victory over the German Luftwaffe during the Battle of Britain. The US enjoyed the leadership of one of the most popular presidents ever and the only President ever elected to a fourth term, Franklin D. Roosevelt.

CBO Military leadership was headed by such iconoclasts as General "Hap" Arnold, US, and "Bomber" Harris of the RAF. The Combined Chiefs of Staffs, led by General Eisenhower, while pursuing the same goals as the CBO discounted the ability of the CBO to achieve their stated objectives, favoring instead an invasion and military occupation.⁵

PREVAILING DOCTRINE

The prevailing air power doctrine of the day stated that "land power and air power are co-equal interdependent forces; neither is an auxiliary of the other. [The] gaining of air superiority is the first requirement for the success of any major land operation."⁶ It is ironic that the CBO from the first dismissed Douhet's concept of bombing cities with weapons of mass destruction and then later dismissed their own doctrinal assertions in favor of targeting a key war-stopper, a Clausewitzian center of gravity⁷ or a target set from and through which all power flows. Taken to a higher degree of specificity, strategic bomber advocates focused their campaign on trying to select that key strategic vulnerability or strategic economic capability

which they could target and eliminate through direct attack from the air. The CBO campaign design was a forerunner to today's concept of asymmetric attack.

STRATEGY ANALYSIS

OVERVIEW

This section will analyze the effects of the CBO in terms of how the way it was executed, the means by which it sought to achieve the objectives, and the ends it set out to achieve. In a more narrow context, this will look at how it was derived and how well it supported national strategic and operational objectives.

It is clear and universally agreed that World War II and the threat posed by the Axis constituted a national survival-level threat to the United States. Should the Axis gain hegemonic control over Europe and the Pacific, many if not all of the US world markets would fall under the control of dictators unencumbered with the morals, beliefs and ideals held by the western democracies. The threat posed by the Axis was one of US national survival, to the country as well as the American way of life.

THE CBO STRATEGY

The US national military strategy for winning WWII was based on the ABC-1 Final report which stated that US strategy was to be conceived on a global basis. The offensive strategy was based upon the belief that Germany was not only the predominant member of the Axis but the center of gravity in the Axis coalition. "The Atlantic and European area of operation is considered to be the decisive theater."⁸

Paradoxically, the untried concept of a CBO was tailored to meet the National Policy yet it, in and of itself was incapable of achieving that goal without the influence of other military effects. Specifically, ties to Douhet's theory of aerial bombardment coupled with faulty targeting concepts and the inability to precisely and accurately attack selected targets ensured that the CBO would not be as effective as its supporters claimed. However, given the state of the Allied Military forces, the disarray of logistical support and the need to mount some kind of military action to maintain the Soviet Union in the coalition, the CBO was the best, fastest, and most economical means of demonstrating western Allied coalition resolve. Stalin chided the western leaders, "You can't win wars if you are not willing to take risks." Churchill, responded by disclosing Operation Torch, the Anglo-American invasion of Northern Africa and the heavy

bombing of Germany. Stalin immediately saw how Torch would defeat Rommel in North Africa and liked the effect that directly attacking the primary enemy would have both materially and psychologically.⁹

The overriding limits to the use of air (military) power in World War II lay in the technology and the use of an untried aerial bombardment doctrine to achieve the stated ends. The proponents of air power professed that they could directly target and attack key industries or centers of gravity which would immediately halt the German war machine. Unfortunately pre-war expectations did not match wartime realities.¹⁰ The limited and flawed understanding of the German economy and wartime manufacturing capabilities, strategic stockpiles of critical spare parts and alternative sources coupled with inexact military capabilities to inflict the advertised amounts of lethal damage severely limited the ability to achieve the stated objectives of the CBO¹¹.

PRE-WAR EXPECTATIONS:

A key pre-war expectation that proved fatally wrong was the belief that bombers could self-escort to and from the target area. It was never envisioned that the level and intensity of Anti-Air Artillery and enemy fighters could be so dense and so devastating to the bomber fleet. Thus the early lack of escort fighters caused considerable allied losses.¹² With the advent of drop tanks and the extension of fighter escort range, losses dropped commensurately.

The CBO, while promoted as applying mass directly at Germany and thereby attacking a center of gravity, in fact became a war of attrition. The only true operational center of gravity that was affected was Germany's ability to defend herself. Specifically, Germany had to re-prioritize resources to aid in air defense. But, as pilot losses mounted, Germany, without sanctuary or the requisite amount of fuel to train and season a capable pilot force, soon found herself more than able to produce all the aircraft and air defense artillery required but was unable to produce the requisite skilled pilots to fly and fight them.

The allies realized that it would take time to train an adequate army as well as build the appropriate stock piles of material and supplies to mount an invasion and subsequent land campaign against Germany.¹³ The US war machine was just beginning to turn out weapons in mass, the War in the Atlantic was slowly turning in favor of the Allies but until sea control had been achieved, a secure exterior line of supply to the European theater of operations could not be assured. Conversely, the German Navy and Luftwaffe were unable to replace their losses fast enough to counter the output from the US. This relates to the production of seasoned and

trained submariners but more precisely in terms of CBO effectiveness, the German loss of aircrews.

ALTERNATIVES STRATEGIES:

There were numerous alternative strategies to the CBO: Attack directly across the channel such as the abortive attempt at Dieppe, France, attack in Norway, and attack German and Italian forces in North Africa. This was done with "Operation TORCH" and served to allow for simultaneous engagement of both German/Italian forward deployed units while attacking via the CBO directly at Germany. Beginning with the North African campaign and then capitalizing upon a sequel opportunity to invade Sicily and subsequently the Italian peninsula, coupled to the second Russian front, the Allies showed that a roll-back strategy to achieve limited objectives would ultimately serve to bleed Germany of her men, complicate her defense structure, and increase the burden to produce material and the ability to prosecute either offensive or defensive operations.

There were also alternatives to the strategies utilized by both the RAF and the USAAF. The strategy of the day definitely overlooked many of the doctrinal issues that had recently been demonstrated to the British by the Luftwaffe during the Blitz. The British had come close to losing the battle for air supremacy because the Luftwaffe was conducting an Offensive Counter Air campaign and had attacked the British primary vulnerability, her ability to defend herself against attack from the air. The British had for centuries relied upon the channel to defeat and deter invaders while her vaunted Navy was used to assure her sea lines of communication thereby guaranteeing access to her colonies, which were the source of her wealth, power and prestige. German air power did not recognize these physical barriers nor was it encumbered by the capabilities of Britain's vast navy.

LESSONS UNLEARNED FROM EXPERIENCE:

Through the application of the German offensive counter air strategy, the British nearly found itself out of pilots and planes. Had the Germans realized the significance and importance of early warning radar and continued to destroy the Royal Air Force's radar installations, it is doubtful that the British could have continued to mount an effective defense.¹⁴ When the Luftwaffe strategic campaign objectives shifted to an attack on cities, the RAF was able to rebuild its fighting strength and ultimately win the air battle.¹⁵

It is interesting that these very lessons learned at such a cost of life and combat power were not heeded by the Allies. This suggests that the wrong lessons might have been learned and that the bombing of Berlin, the refocusing of German air offensive objectives, and the relief

that brought to the RAF, should have pointed to the CBO planners that the critical capability for the air war was not industry, or production, or even the aircraft themselves but the pilots who flew them. As Clausewitz pointed out, "We should choose as object of our offensive that section of the enemy's army whose defeat will give us decisive advantages."¹⁶ For the CBO this was focused on the planners' pre-war expectation of the German war economy.

OPERATIONAL FOCUS AND ITS TIE TO STRATEGIC CONSEQUENCES:

Why was the CBO important to the Alliance? The CBO demonstrated allied resolve. It took the war to the enemy. While initially the alliance was unable to mount effective ground combat operations, the CBO bought time for the US industrial base to swing into wartime surge production. In addition, it provided the opportunity for the required forward allied logistical stockpiles to be built while simultaneously diverting German resources from other theaters of war. Thus, the adoption of the air campaign to devastate the German economy was seen as the optimum, if not the only medium of attack available at the onset of hostilities to inflict damage upon the German economy.

The ability to immediately attack Germany was important on many levels. To the American people still reeling from the attack on Pearl Harbor, it showed that the US was conducting immediate combat operations against the enemy. This served to bolster home front support. To the Allies, both Britain and Russia, it demonstrated US resolve thus reinforcing the alliance. Even though the doctrine for employing the then limited capabilities of the then current air power was flawed, it still achieved success by diverting resources from front line units as well as increasing the burden on German production capabilities.

The means by which the air campaign was to achieve coalition objectives was by specifically targeting and destroying 60 critical industries which would force capitulation.¹⁷ To win the war from the air, the planners of the day failed to fully understand the fabric of the society and the economy they were attacking. They did not fully understand the limited effects their weapons would inflict. The air campaign objectives were on paper, focused and linked to achieving the national objectives in that they directly attacked the enemy's center of gravity both at the strategic and operational level of war. That threat was Germany and her ability to wage war. Thus any attack was deemed as directly supporting the national objective. But, battle damage assessment did not address the theater level effect of the bombs being dropped. Therefore the linkage between achieving success at the operational level was never articulated or tied to its effect at the strategic level. For example, the attacks on ball bearing production

plants was hypothesized to cause a critical war stopping effect on production and army capabilities. Yet this was not the case.

NATIONAL OBJECTIVES:

The strategic national political objective was to achieve the complete and unconditional surrender of the Axis coalition. The national military strategy to accomplish this was completely in line with this endstate and in fact this closely resembled the pure Clausewitzian definition of total war. Therefore it was easier for war planners to implement campaign strategies which focused on achieving the defeat of the enemy, an easily definable metric. This directly contrasts with some ill defined or thought out political effect on the battlefield. Thus, if the enemy loses ground or as in the case of the CBO, production capability, then the military strategy is achieving its political objective.

At the outset of the conflict, Allied industrial capability was still in the process of increasing its ability to meet demand. Logistical support and by extension military power was very limited in its ability to project power to the European continent and directly attack Germany on the ground. A direct ground campaign against continental Europe would have been foolhardy as was demonstrated by the Canadians in their raid at Dieppe. Air power's ability was also limited in that bomber accuracy and efficiency had never been tried and proven on a scale of the CBO before, nor was it up to the task of the advertised "precision daylight bombing." The lack of escort fighters gave the German Air defenders a huge advantage that pre-war planners had not only not foreseen, but had actually determined would not exist against massed bombers conducting self-escort.

Alternative campaign strategies that were addressed can be best summarized by a review of three sequential campaign plans and their prioritized target lists.¹⁸ Each target set shows basically the same variations on a central theme of direct attack on critical war stopping manufacturing capability. The number one goal was to destroy aircraft production. This was due in large part to faulty prioritization of other more critical targets such as electric power generation capability. Failure to accurately measure damage and its effects directly led to the inefficient application of air power.

AIR CAMPAIGN EXECUTION

THE AIR CAMPAIGN PLAN:

Based on the Casablanca Directive, the CBO was to destroy and continue to neutralize some seventy-two targets of the German war economy. Specifically, these target sets would impact upon Germany's ability to defend herself, produce and transport war materials to wage offensive operations and her ability to interdict Allied shipping.¹⁹ The intent therefore was to put Germany on the defense to protect her cities and her production centers. As well as indirectly protecting allied sea lines of communication by conducting a counter-submarine campaign by denying ports, shipyards, and replenishment facilities.

AIR CAMPAIGN PHASES, DATES, TARGETS, AND RESULTS:

The strategic bombing campaign itself was broken into three distinct periods. But, critically there was no phasing to the campaign plan nor was it characterized by decisive points or measures of effectiveness. There was no dedicated effort made at first achieving air superiority, let alone air supremacy and then shifting priorities. Rather the CBO, based upon pre-war expectations of enemy capabilities, assumed away losses and attrition in a doctrinally myopic sense in favor of achieving results by directly attacking and servicing the target list. The shift in priorities that did occur represented a reappraisal of the effectiveness of the strategy and a refocusing of assets to achieve a desired effect based upon a perception of changes in enemy economy and war machine efforts. It was not linked to other theater of war efforts until the month prior to the Normandy invasion when Eisenhower directed the attack on petroleum production and storage facilities and the French lines of communications in an all out effort to isolate the beachhead.

Initially the Allied War Planning Document (AWPD) -1 targeted 191 targets utilizing 3800 bombers and was to begin in Mid-1943. Of the five primary target sets, aircraft production was number one and electrical power was number two on the prioritization scheme. AWPD-42 narrowed the target set down to 177 targets and began in late 1943. Whereas, aircraft production continued as the primary target, submarine building yards and interdiction of the transportation systems now took over second place with electrical power dropping to priority four.

The CBO targeted 76 targets while replacing the AWPB-42 in late 1943 and had 3500 bombers to bring to bear on its target list.²⁰ During the life span of the CBO campaign, the effects of escort fighters became more and more important as corresponding bomber accuracy and effectiveness increased.²¹

All three strategies maintained generally the same central approach, while variations were achieved, at best, at the margins. While the number of sorties flown is not an accurate metric of actual effectiveness, it is interesting to note the total numbers and mass that this effort represented. US Strategic Air Forces flew 754,818 combat sorties and lost 9,949 bombers, while the RAF Bomber Command flew 687,462 combat sorties and lost 11,965 bombers.²²

AIR CAMPAIGN EVALUATION:

The CBO failed to achieve its stated objective of defeating the German war machine by inflicting irreparable damage to a critical industry. Given the doctrinal thinking of the time, this was predictable, especially in light of the experiences and expectations. Douhet, in his writing cited "that accuracy of bombardment was not required because a.) the targets were not hardened and b.) that bombing objectives should be large [as] small targets are unimportant and do not merit attention."²³ The British followed this doctrinal concept with their carpet bombing concept of night bombing attacks. This gave the British two distinct policy advantages, first it gave the perception of increased survivability of the RAF bomber crews which in turn showed to the casualty-sensitive British public that they were being cautious with British forces. The American doctrine of precision daylight bombing showed both our over-reliance on non-perfected technology, (the Norden bombsight) and our dogmatic belief that by crippling a critical industry, the coalition would paralyze the German capability to wage war.

The inability of the Targeting Board to assess theater effects caused by battle damage as it was applied to the economic impact of the damage being done to the nominated targets highlights that the Allies were attempting to wage asymmetrical warfare when we did not have sufficient understanding of the interrelationship of the target sets. The targeting board was unable to define the enemy's target's criticality either metrically, nor were they able to assess the ability to absorb damage and still continue to be productive.^{24,25}

The CBO was initially the only tool available to Allied War Planners to take the war to Germany. This plays at two levels. First Strategic. In coalition and alliance maintenance, it was critical to keeping Russia securely in the coalition. Without a massive demonstration of US-British resolve to engage Germany in combat, Russia would have sued for peace with Germany as it had done in the first World War and have removed the second front for the

Germans. This would have capped off a vast drain on German resources, war material and troops. These troops could have then been shifted to other defenses and would have slowed down the allied advances throughout Africa and Europe. On the home front, both Britain and the US, needed to show decisive steps towards success early in the war as this was critical to successful national mobilization. This was particularly important to the mobilization of industry, and perhaps more importantly mobilization of public opinion and public buy-in to ensure popular support for the war effort. With the CBO, both governments could show massive amounts of planes, dropping massive amounts of bombs and inflicting "massive damage."

The CBO utilized mass as one of its greatest tools.²⁶ Sending up incredible 1000 bomber raids would have been intimidating to the German defenders and overwhelming to the German people. The reality of the situation was that it was not until the advent of the escort fighter that the massing of offensive power really became a heavily weighted factor in determining effectiveness and success. Being able to assemble and then attack the target unmolested by defensive fighters allowed for the focusing of bomb mass at the primary target. Conversely, the faulty target selection doctrine negated many of the pre-war expectations of how effective mass bombings might have been.²⁷ Specifically, target selection doctrine called for mass to be applied against targets with seemingly the highest payoff, yet in terms of theater effect, this was an undefined quality. For example, aircraft production actually peaked for Germany in 1944 though it was a number one priority throughout the campaign. In parallel, targets which were highly exploitable by air power, such as electrical generation capability were placed on the target list but were not targeted by dedicated raids.

The CBO at the operational level of war did not utilize economy of force.²⁸ The use of massed bombers to carpet bomb a specific target used overwhelming force and the hope that some mixture of aircrew skill and "Kentucky" windage would allow the destruction of the target. This was directly contrary to the early writings of Douhet and Mitchell who both were adamant that a target should be serviced once and then be completely destroyed. To do less was to imperil the aircrew as well as give the enemy a chance to build defenses and distribute targets.

At the strategic level, the CBO was a total success in terms of economy of force.²⁹ Here, the US and Britain did not initially have the strategic or logistical wherewithal to directly attack Germany by any other method. Therefore, the CBO allowed the grand strategy of bringing the entire might of the US industrial complex to bear on Germany by demonstrating allied resolve, directly attacking Germany as well as buying time to bring the American industrial military complex on line and up to speed. Coincidentally, it showed resolve to Stalin that Anglo-American forces were engaged in combat, directly against key targets in Germany. Finally, it

had the effect of forcing the Germans to divert fighting men, artillery and aircraft from the front lines to serve as air defense forces.³⁰

The CBO utilized maneuver to its advantage in that an inherent attribute of air power is its ability to range targets that would be un-exploitable by ground forces due to range, enemy forces or natural obstacles.³¹ At the same time maneuver was not exploited to its fullest by CBO due to its over emphasis on mass as a driving attribute. Whereas the daylight raids used multiple axes of attack, they were still focused on a single target set. While this made planning easier and allowed for massing of bombs and coincidentally the damage, it also made defending easier as German air defenders were able to mass their defense assets. Had maneuver been more emphasized strike packages might have ranged the entirety of the German target complex sets, thus diluting the German defenders, increasing survival rates while having only minimal negative consequences to bomb damage effects. At the same time, the possibility of low level attacks were never exploited as another tactic for making the defenders' job more complex and the accuracy of bomb delivery more precise.³²

The Anglo-American CBO epitomized the concept of unity of command. The combining of the allied staffs under a single commander ensured that whereas tactics, techniques and procedures might be different, all assets were focused on achieving the same objectives. In addition, with the British flying night only attacks, the US selected daytime attack operations ensuring that targets were de-conflicted. While this was not strictly a function of unity of command, it did compliment the effort and serve to relieve potential competition while simultaneously stretching German defense resources by forcing them to defend twenty-four hours a day.

The application of security for the CBO can best be expressed in view of the physical remoteness of the bomber bases in the United Kingdom.³³ These bases were well out of range of the Luftwaffe bombers' ability to range and thus won a strategic and operational sanctuary. Of interest to note, the Luftwaffe never mounted a serious counter Offensive Counter Air Campaign against the bomber bases in England, thus pre-empting their combat power. In addition, taken as a whole the CBO forces were exposed to horrendous anti-air artillery and enemy fighter forces on a daily basis. No thought or effort was ever given to a dedicated enemy air defense suppression mission, nor was a calculated counter air campaign utilized as a phase within CBO plan. A critical vulnerability for Germany was that it could not produce fighter pilots for homeland defense. This was never directly exploited except through attrition in air-to-air combat.

Given the German use of radar and her vast network of observers in Great Britain, it is doubtful that the appearance of thousand bomber raids appearing over the skies of Germany was much of a surprise to her defenders. The only variable that could be introduced based on the tactics, techniques and procedures of the day was the routing to target. Surprise did exist on occasion however, the initial bombing of Berlin by the British in 1940 so upset Hitler that he changed his whole objective for the Battle of Britain. Additionally, the raid on the Ploesti oil fields, also achieved considerable surprise given its low level penetration.³⁴ This was a major departure from the high altitude raids on central Europe and was never exploited again until 1945, when in the Pacific theater, Major General Curtis E. LeMay ordered B-29 bombers to attack Japanese cities from low level to avoid high altitude winds and thus improve bombing accuracy.³⁵

The CBO plan was simple in its construct. At the strategic level of war, it was a meaningful gesture to an impatient Stalin for a western front. At the operational level of war it was the application of destructive power directly at the source of the enemies strength. Select key targets that would be most vulnerable to aerial bombardment exploitation. By taking out this key target set, the impact on Germany's ability to wage war would be drastically impaired. Taken at the tactical level, simplicity reigned. Group level formations bombed based on a lead aircraft's signal, thereby saturating the target area in the hopes of scoring damage.

Without debating whether the CBO was successful at the operational level of war, the single greatest contributing factor to the success of CBO was the courage of the men who flew the missions. Despite heavy losses these men went up day after day, month after month to rain destruction down on the enemy and thus achieve a strategic level victory by keeping the coalition together and the home front energized and focused on defeating the enemy.³⁶

The flaw in the air campaign strategy at the operational level can be placed squarely on the target selection process. Planners disregarded previous lessons learned on selecting targets and emphasized other marginal successes and attributed critical vulnerabilities to other targets which led directly to the selection of targets which were less than exploitable given the technology of the day. For example, although the electrical generation capability was a critical capability to the German military-industrial complex, it was not as high a prioritized target as were ball bearings yet it was highly exploitable to direct air attack.³⁷

By over emphasizing the effects of mass, the CBO was able to accomplish a derivative objective of air supremacy by destroying the Luftwaffe fighter pilot force. Without this vulnerable resource and with no way to generate new pilots, air supremacy was eventually established and this enabled the subsequent ground invasion and offensive campaign.

However, by failing to observe objective, the air campaign failed in its primary objective of destroying Germany's ability to wage war. This was best demonstrated by the fact that Post-CBO manufacturing and production capabilities actually exceeded that of pre- CBO periods.³⁸

Due to the fact that the CBO doggedly remained fixated on the destruction of critical industry, they obliquely engaged in the un-stated yet, by today's standard, sound primary objective of achieving air supremacy every time they flew and every time they downed a Luftwaffe pilot. A more direct Offensive Counter air offensive would have attacked asymmetrically and exploited the Luftwaffe's critical vulnerability more directly just as the Luftwaffe had almost achieved in the Battle of Britain.

SUMMARY AND STRATEGIC/DOCTRINAL IMPLICATIONS

SUMMARY:

The CBO was an effective extension of the national strategy. It immediately took the war to the enemy and directly focused on his ability to conduct war.³⁹ It seized the initiative and demonstrated Western Alliance resolve. It failed to achieve its published doctrinally based operational objectives of immobilizing the enemy through the targeting of a critical vulnerability and an operational level center of gravity to his war machine. The greatest contribution of the CBO therefore was not in its delivery of bombs on the German economic apparatus, but rather as an unintended consequence of an attrition strategy focused on the true German strategic critical vulnerability, her inability to produce quality pilots to continue the defense of the homeland. By attriting the pilots, the CBO eventually achieved the unintended consequence of air supremacy which in turn gave the invasion forces sanctuary from German air attack. The planners can claim a successful campaign, however the harsh light of reality speaks of a more effective methodology of achieving the same ends.⁴⁰

STRATEGIC AND DOCTRINAL IMPLICATIONS:

The strategic and doctrinal lesson learned was that the air offensive always needed to be focused on first achieving air supremacy through a counter air campaign, thus achieving air dominance earlier on in the war thereby enhancing the over all effects of subsequent bomber attacks and simultaneously creating sanctuary for follow on ground operations.⁴¹ However, the visionaries and planners of the day were challenged by undemonstrated technology and its effect on never before tried strategy on this grand a scale. Further, had they utilized a more stringent system of battle damage assessment metrics, campaign focus and reassessment, it is

likely that the CBO would have been much more effective in achieving an evolving set of target priorities based on real time feed back and effect.

Simply put, the CBO planners failed to understand that in order to prosecute an effective air campaign they first needed to achieve air superiority. This could have been achieved more decisively through the direct attack on German air fields and command and control facilities. Once this phase had been accomplished, they could have then re-engaged on their integrated priority target list with much more accuracy and effectiveness.^{42,43}

The failure of the CBO to phase the campaign and define a measurable metric for determining success, certainly did nothing to enhance its effects nor ensure its success. Had the campaign planners had a greater understanding of tying operational level success to the strategic objectives, the CBO may have actually achieved the success it was envisioned to have to achieved.⁴⁴

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ENDNOTES

¹ Carl Von Clausewitz, On War, ed and Translated Michael Howard and Peter Paret, (Princeton University Press, Princeton, New Jersey, 1984),224-227.

²Michael I.Handel, Masters of War, Sun Tzu, Clausewitz and Jomini, (Frank Cass, Portland, Oregon, 1992), 23

³ Thomas Greer, "Refinement and Substantiation of the Long Range Bombardment Concept, 1935-1939" in The Development of Air Doctrine in the Army Air Arm, 1939-1941, (Office of Air Force History, Washington D.C. 1985), 201.

⁴ Wesley F. Craven, and James L. Cate, Ed, The Army Air Forces in World War II, Vol. II Europe: Torch to Pointblank, August 1942 to December 1943, (Office of Air Force History, Washington D.C. 1983), 209,213.

⁵ Haywood, S. Hansell, Maj Gen (USAF, Ret) The Plan for the Combined Bomber Offensive (Air War College Nonresident Studies, Vol. II, LSN 8), 265.

⁶ James Ferguson et al., Air Superiority in World War II and Korea, (Office of Air Force History, USAF, Washington DC 1983), 143

⁷ Handel, 4-23.

⁸ Greer, 201.

⁹ Overy, Richard, Why the Allies Won; (W.W. Norton & Company, New York, 1995) 102.

¹⁰ Greer, 196.

¹¹ Hansell, 252.

¹² *ibid*, 259.

¹³ *ibid*, 255.

¹⁴ Overy, 1995, 247.

¹⁵ James A. Mowbray, Ph.D., The Battle of Britain: Air Strategy and Operations, 1940, 4 February 1989, 112-143

¹⁶ Alan L. Gropman, The Battle of Britain and the Principles of War, (Air War College Nonresident Studies, Vol. II, LSN 8) 24.

¹⁷ Greer, 255.

¹⁸ *ibid*, 253.

¹⁹ *ibid*: 255

²⁰ *ibid*, 253.

²¹ *ibid*, pg 260.

²² *ibid*, pg 259

²³ Douhet, Giulio, *The Command of The Air*, Ayer Company, Publishers, Inc. Salem, New Hampshire, Reprinted 1984, 32

²⁴ Hansell, 264

²⁵ Air Force Manual 1-1, Vol. I & II, Basic Aerospace Doctrine of the United States Air Force, Mar 1992), 276.

²⁶ Donn A Starry, Gen (Ret), USA, "The Principles of War," (*Military Review*, Vol. 61, No. 9, September 1981), 2-12.

²⁷ *ibid*, 276.

²⁸ Starry, 2.

²⁹ *ibid*, 3.

³⁰ *ibid*, 276.

³¹ *ibid*, 3.

³² Hansel, 272.

³³ Starry, 3.

³⁴ Ambrose, Stephen E. *The Wild Blue*, (Simon and Schuster, New York, 2001), 118-121.

³⁵ R.J Overy, *The Air War 1939–1945*, (Norton and Company, 2nd Edition, New York, 1991), 212-220.

³⁶ Jablonski, Edward, *Flying Fortress*, (Doubleday & Company Inc., Garden City, New York), 1965 323.

³⁷ Overy, 215.

³⁸ *ibid*, 217.

³⁹ Carl A. Spaatz, General, USA, *Strategic Air Power: Fulfillment of a Concept; Foreign Affairs*, Vol. 24, No. 3, April 1946, 385–396.

⁴⁰ Philip A.Crowl, "The Strategist's Short Catechism: Six Questions Without Answers," *The Harmon Memorial Lectures in Military History*, No. 20, October 6, 1977, 1-14.

⁴¹ James M. Holmes, Major USAF, *The Counterair Companion, A short guide to Air Superiority for Joint Force Commanders*, School of Advanced Airpower Studies, Air University Press, April 1995; 3.

⁴² Air Force Manual 1-1, Vol. I & II, Basic Aerospace Doctrine of the United States Air Force, Mar 1992.

⁴³ United States Air Force, Deputy Chief of Staff, Plans and Operations, *JFACC Primer, Second Edition*, (Washington D.C. Feb 1994) 1-5.

⁴⁴ Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907-1960*, Vol. 1, (Air University Press, Maxwell AFB, AL, 1989) 1-23.

BIBLIOGRAPHY

- Ambrose, Stephen E., The Wild Blue, The Men and Boys who flew the B-24s over Germany, Simon and Schuster, New York, NY 2001
- Clausewitz, Carl Von, On War, Edited and Translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, New Jersey, 1984
- Craven, Wesley F. and Cate, James L., Ed, Europe: Torch to Pointblank, August 1942 to December 1943, The Army Air Forces in World War II, Vol. II, Office of Air Force History, Washington D.C. 1983
- Crowl, Philip A., The Strategist's Short Catechism: Six Questions Without Answers, The Harmon Memorial Lectures in Military History, No. 20, October 6, 1977
- Douhet, Giulio, The Command of The Air, Ayer Company, Publishers, Inc. Salem, New Hampshire, Reprinted 1984
- Ferguson, James., et al., Air Superiority in World War II and Korea, Office of Air Force History, USAF, Washington DC 1983
- Futrell, Robert Frank, Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907-1960, Vol. 1, Air University Press, Maxwell AFB, AL, 1989
- Greer, Thomas, The Development of Air Doctrine in the Army Air Arm, 1939-1941, Chapter V, Refinement and Substantiation of the Long Range Bombardment Concept, 1935-1939, Office of Air Force History, Washington, DC, 1985
- Gropman, Alan L. The Battle of Britain and the Principles of War, Air War College Nonresident Studies, Vol. II, LSN 8, pp. 242-250
- Handel, Michael I., Masters of War, Sun Tzu, Clausewitz and Jomini, Frank Cass, Portland, Oregon, 1992
- Hansell, Haywood, S. Maj Gen (USAF, Ret) The Plan for the Combined Bomber Offensive, Air War College Nonresident Studies, Vol. II, LSN 8,
- Holmes, James M. Major USAF, The Counterair Companion, A short guide to Air Superiority for Joint Force Commanders, School of Advanced Airpower Studies, Air University Press, April 1995
- Jablonski, Edward, Flying Fortress, Doubleday & Company Inc., Garden City, New York, 1965
- Mowbray, James A. Ph.D., The Battle of Britain: Air Strategy and Operations, 1940, 4 February 1989
- Overy, R. J., The Air War 1939-1945, 2nd Edition, New York, 1991
- Overy, Richard, Why the Allies Won; W.W. Norton & Company, New York, 1995

Starry, Gen (Ret) Donn A., USA, "The Principles of War," Military Review, Vol. 61, No. 9, September 1981, pp. 2-12

Spaatz, Carl A. General, USA, *Strategic Air Power: Fulfillment of a Concept*; Foreign Affairs, Vol. 24, No. 3, April 1946, pp. 385-396.

Air Force Manual 1-1, Vol. I & II, Basic Aerospace Doctrine of the United States Air Force, Mar 1992

United States Air Force, Deputy Chief of Staff, Plans and Operations, JFACC Primer, Second Edition, Washington D.C. Feb 1994