

OUT OF GAS?: THE DELAY IN UNLEASHING THE FIFTEENTH AIR FORCE
ON THE PLOESTI OIL REFINERIES IN WORLD WAR II.

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INTRODUCTION

During the Second World War, a relatively new weapon grew to enormous proportions. Some strategists felt that the war could not be won without fully developing the potential power of this deadly instrument. This new weapon was the combat aircraft, used in both strategic and tactical applications by the Allies and the Axis powers. What is of particular interest to me is the decisions that shaped the use of this weapon.

This paper focuses the decisions directing the Allied air commanders' selection of enemy targets. The strategic and tactical missions flown by Allied combat aircraft against Germany included over 4,120,000 sorties flown and 2,700,000 tons of bombs delivered to enemy targets.¹ It would take volumes of books, like the United States Strategic Bombing Survey (USSBS) to analyze such an immense operation. However, I believe that by examining one portion of the United States Army Air Force (AAF), particularly the Fifteenth Air Force, it will be possible to examine the decisions made in regard to target selection. In short, the Fifteenth Air Force would have shortened the war if the Ploesti refineries had been the top priority targets.

This paper's primary purpose is to analyze whether or not the Fifteenth Air Force should have made Ploesti its' most important target, beginning in January 1944. In order to be prepared to analyze this question, we must review some other factors. First, it will be important to review the history of the Fifteenth Air Force. This will be necessary in order to understand the environment and complex issues that drove the

decisions made in regards to their orders. Although the Fifteenth had Ploesti within range, they weren't given the go ahead until June 1944.

Secondly, it is important to discuss how Allied and Axis leaders viewed the seriousness of German oil supplies during World War II. Ploesti is rather important because of the degree to which it supplied oil to Germany's war effort. There are conflicting statistics as to the percentage Ploesti oil refineries added to the total German oil production. The numbers range from 25% to over 30% of totals mentioned throughout the primary and secondary materials I have reviewed. I have decided to use the conservative figure of 25% in order to remain consistent in my analysis and not overstate the affects of the campaign against oil on Germany's war effort.

Once the level of importance that German oil supplies is determined it will be necessary to contrast it with the top priority target system. The German aircraft industry had been the top priority target until a few days after D-Day, June 6, 1944. Why did the Allied Commanders consider this group of targets to be more crucial and what results could they produce to support their efforts in that direction? In answering that question, we must consider if the objectives stated by the Allied air planners were accomplished and how they were met. Not only does the reasoning for prioritizing targets need scrutiny, but the way in which the air war was conducted also plays a large role.

After comparing the oil and aircraft production target

systems and the reasons for each being the top candidate for destruction, an analysis will be possible using that information. I believe that the data on production of both aircraft and oil demonstrates the effectiveness or the ineffectiveness of each respective bombing campaign. It will be necessary to take into consideration the obstacles and hurdles that each of these campaigns experienced. Many of these roadblocks came from within Allied Armed forces as well as the German defenses. Finally, I will draw a conclusion generated from the information about the decisions regarding prioritizing targets. Specifically, did the Allies do themselves a disservice by concentrating on the German aircraft industry or was it their best available option?

CHAPTER I: A history of the Fifteenth Air Force

Before we start analyzing the bombing objectives of the Allies it is important to understand how the Fifteenth Air Force came into existence. In 1942, the Allies engaged the Axis forces in North Africa and by the summer of 1943 had succeeded in pushing the enemy off of the African continent. While this campaign was in progress, the American and British forces had a small and chronically ill-equipped air force. After the Allies had consolidated their hold on North Africa, they decided to organize the air forces under one command. The Mediterranean Air Command was this solitary organization created to coordinate the Allies southern air offensive against the enemy. This new command was handicapped by the Allied war planners constantly diverting deliveries of new aircraft, supplies and air crews. The Allies larger British based contingent, the United States Army

Air Corp Eighth Air Force and Royal Air Force Bomber Command were considered a higher priority than the southern air contingent. By the Fall of 1943, the Allies once again reorganized their air commands and created the Fifteenth Air Force. Traditionally the air war had only involved targets that were in range of bombers flying out of British bases, but now Allied bombers could fly missions out of North Africa and, by the Fall of 1943, the southern half of Italy.

The Fifteenth Air Force relocated its air bases from Tunisia to the area of Foggia, Italy. Foggia is located near the heel of the Italian peninsula (see Appendix A). This location for the Fifteenth was very crucial in regards to its sorties against Ploesti, Rumania. This relocation reduced the distance to Ploesti from 1300 miles to 700 miles. The Fifteenth Air Force still had the task of bringing Germany's war production capabilities under strategic bombardment. However, even these objectives were constantly being undermined by Allied war planners with diversions. One of these diversions was assigning tactical duties such as providing air support to land forces stalled in the Italian campaign. Sometimes the Fifteenth Air Force had to suspend strategic bombing in order to assist ground forces in breaking up German and Italian defenses at Anzio and Cassino. These targets and similar types of targets are important to note because of both the effort and the net gain from these operations. In short, the Fifteenth Air Force had a difficult time establishing itself as a strategic bombing force with enough independence to choose strategic targets that it felt

worth their best effort.

CHAPTER II: Allied Bombing Philosophy

While analyzing the German oil situation it is essential to acknowledge the Army Air Force's air war philosophy. Between the World Wars, the United States Army Air Force had a tough job convincing the public and the Army brass of the need for strategic bombers. However, there were a few men that dedicated themselves to the idea of strategic bombing. Men like Carl Spaatz, "Hap" Arnold and Ira Eaker. Arnold and Eaker co-authored the book, Army Flyer, in which they described what any competent air strategist's primary goals were to achieve. They wrote, "The schooled air strategist will study the enemy nation to determine his solar plexus, his nerve center.....first objectives include.....five major subdivisions: the munitions factories, the oil supply, the rail and communications systems, the power plants and lastly the people, the workers...."2

It was clear to Eaker and Arnold that oil must be only second behind munitions, the most sought after target. Both of these men would be involved from the very beginning in United States bombing effort in the European theater. Arnold became the Commander of United States Strategic Air Forces in Europe (USSAFE) and Eaker commanded the Eighth and then the Fifteenth Air Force. These two men represented a powerful influence on the Allied air effort and the selection of target priorities.

Although Arnold and Eaker had some influence, there were many more individuals who were involved in making bombing decisions. In January 1943, leaders and military officials of the

Allied nations met in Casablanca to discuss the progress of the war against Hitler. At this meeting, these leaders debated and then formulated some objectives for the air campaign.³ The objectives aimed at "the progressive destruction and dislocation of the German military, industrial and economic system....to a point where....capacity for armed resistance is fatally weakened."⁴ These newly established objectives were ambiguous at best and became the directives for the bombing campaign. What was absent in these directives was a clear set of rules governing the way in which targets were prioritized. The directives that Casablanca established did not focus the Allied air effort, but rather allowed for differences in among the Allies.

The list of Casablanca objectives would allow the RAF and the AAF to each "proceed in it's own way".⁵ Differences between the two Allied contingents were the AAF's insistence on daylight precision bombing while the RAF vehemently insisted that night area bombing was the only way to success. So it is not just the differences in target selection that polarized the Allied bombing effort, but rather many philosophical questions. The RAF's position on bombing selection leaned heavily on the German aircraft industry and railroad marshalling yards. Even when the Fifteenth Air Force moved to the Foggia air fields and started to receive new long range P-51 fighters, bringing Ploesti well within fighter escort range, the British were still more interested in bombing the enemy's aircraft production sites and transportation centers rather than bombing oil refinery sites.⁶

CHAPTER III: The Views Towards German Oil Supplies

It is evident that the selection of bombing sites was often a complicated political endeavor. How did the Germans react to their oil production situation in relation to their military activities? As early as November 20, 1940 Adolf Hitler wrote in a letter to Mussolini that "If the [Ploesti] petrol refineries are destroyed the damage will be irreparable." In a November 1942 speech, Colonel Alfred Jodl announced to the district leaders of the Nazi party that in the Eastern Front, "no success gained by the enemy there can be directly disastrous unless we should lose the Rumanian oil fields."⁷ The Allies knew that German oil producers, before the war, had been under great pressure to increase their production. In 1936 only 7% of Germany's oil came from its' own oil fields and this was supplemented by synthetically produced oil, which amounted to about 30% of national consumption. This meant that in 1936, Germany was importing about 60% of its' national oil appetite.⁸ The Germans in subsequent years tried to boost their ability to produce more oil at home. However, even with these extraordinary programs, the Germans found themselves with only a two to three months supply of motor and aviation fuel when the war started in 1939. The amount of stockpiles they had in reserve were only about half of their peacetime production. It should be noted that these synthetic refineries also produced nitrogen and methanol which are used in the production of explosives and chemicals. The official History of the Fifteenth Air Force quickly came to the conclusion that bombing oil production facilities would reduce both oil and explosives production.⁹

To demonstrate how important the oil issue had become to the German High Command, a thorough examination of the invasion of Poland and the takeover of Rumania is required. It was known in 1940 that during the first stages of Poland's invasion, the Germans had issued a warning to the Polish government concerning oil wells. The warning simply stated that for every oil well tampered with or destroyed the German Army would level one Polish city.¹⁰ This is obviously an overriding concern when it becomes a major goal of the invading force to make such a demand. There can only be one conclusion and that is the Germans, in part, needed Poland for its' oil production capacity. The warning given to the Rumanian government was issued even more harshly. The German High Command also considered the replacing of refinery staff with military personnel as a punishable offense.¹¹ Another point to consider is that the British, Italian and German commercial interests had gone to great trouble to gain control over the oil industries in the Balkan countries.¹² It would seem that before and during the early part of the war the Germans exhibited a real concern for oil and their lack of it.

CHAPTER IV: The German Oil and Aircraft industries as Targets

It is crucial to remember that most of this information was common knowledge among government officials and industry experts. Many of the refineries at Ploesti were owned before the war by some American and British investors. These individuals had extensive knowledge about the layout and operations of all these facilities and provided excellent intelligence for Allied war planners. These facilities were too large and complicated to

move and therefore were a target of great certainty. There was no lack of information concerning Germany's shortage of oil and the location of its' sources. What must be asked is why didn't these targets get immediate top priority in the list of targets to destroy?

What is fascinating is that the Allies seemingly did not act until after the Normandy invasion by bombing oil as if it were the "solar plexus" of Nazi Germany. If the Casablanca Conference's ambiguous objectives were matched with such common knowledge, why the Allies didn't target oil first seems hard to explain. This is a hard question to answer, especially for the Allies who couldn't agree on what type of bombing campaigns to plan (e.g. night vs day bombing). The tentative consensus of the Allies was to attack the German aircraft industry by day and night as their top priority. What were the reasons behind selecting this industry as the most important? Several reasons come to mind. Perhaps the British were exhausted from the Battle of Britain and the incredible pounding that their cities had endured. To the British it seemed sensible to destroy Germany's capability to produce aircraft while getting revenge on the German cities hiding these facilities. The Allies also desired to destroy the German Air Force (GAF) before they attempted to land troops and start the second front, so fiercely sought by the Russians. Most importantly the GAF fighters were taking a heavy toll on Allied bombers. Thus the German aircraft industries came under constant air attack by the Allies from England starting in April 1943.¹³ The Fifteenth Air Force began bombing similar

targets in November 1943. It is important to review the kind of effort the Allies launched and were their efforts justifiably fruitful.

The Allies, up until a few days after going ashore at Normandy, had made the German aircraft industry their most important target priority. It had been reasoned that in order for the Allies to create the second front against Hitler, the GAF would have to be destroyed. The objective was attained, but not in the way the Allied strategists had originally intended. The United States Strategic Bombing Survey (USSBS) indicated that the GAF had been destroyed by D-Day when German Air Commanders had only 80 planes operational in Western France when the Normandy invasion began.¹⁴ The USSBS also reported that until this time the German aircraft industry was producing more planes every month. The numbers of planes available to fight were limited mainly by the number of experienced pilots, transportation restrictions and the lack of fuel. The Germans were able to mount a tremendous effort to supply combat aircraft to the GAF, but how could they produce more planes during the Allied bombardment?

It was mentioned earlier that the German aircraft industry was still increasing its' total output through 1944. The numbers shown in Appendix B demonstrate the remarkable increase in combat aircraft produced between 1939 and 1944, a whopping 747.8%. More importantly, between April 1943 and August 1944 the AAF had dramatically stepped up the amount of tonnage they were dropping on the German aircraft industry, illustrated in Appendix C.

Even with a escalation of attacks on the aircraft producers, the Allies seemed to be getting no positive results in their objective to eliminate the GAF. The conclusion drawn by the USSBS was that the German aircraft producers had "tremendous recuperative powers" and that in the final analysis it was a lack of fuel and transportation that kept the GAF from receiving deliveries.¹⁵ However, the USSBS does go on to report that even the disruption of production efficiency may have been worth the effort, but adds only to the extent that the industry had to rely on more transportation of individual parts.¹⁶

There seems to be no question that bombing the German aircraft industry produced results, but not as the strategists had planned. As depicted by Appendix B and C, the Allied effort to destroy the capabilities of production were failing miserably. The strategists hadn't realized until later on in the bombing campaign how effective the bombing air battles themselves and the ever present lack of fuel were diminishing the GAF. First, the bombing air battles were costly to the GAF. Even if the AAF and RAF did little damage on the ground, they were exacting a heavy toll in the air. The cost to the GAF was in the tremendous human loss. Experienced pilots were being lost at a much faster rate than could be easily replaced. In other words, "the attrition imposed in battle upon its personal and equipment assumed proportions of greater significance than production losses in the factories."¹⁷ Appendix D also illustrates the losses of single engine fighters in combat and it reveals the same conclusion, that the Germans were expending experienced pilots in their

defense.¹⁸ Another piece of information connected with the attrition is contained in Appendix E. This illustration characterizes the training afforded to the GAF and shows the steady decline of flying hours given to fresh pilots. The USSBS concluded from their number crunching that as "more experienced pilots were killed or retired from combat, the quality of the German Air Force declined."¹⁹ A declining number of pilots and insufficient training hours contributed significantly to the downfall of the GAF. The USSBS concluded that the "principle cause" of the defeat of the GAF was a result of the shortage of aviation fuel.²⁰

The question remains, could the Allied efforts have reaped bigger dividends if they had targeted another sector of the German's war production capabilities. In the next chapter it will be important to look at the campaign by the Allies against German oil production. This is especially relevant to the Fifteenth Air Force since they were given the responsibility and possessed capacity to eliminate Ploesti which produced about 25% of the Germans' oil.

CHAPTER IV: A comparison of Target Systems

In order to analyze the sensibility of the target priority rating, we must look at what the Allies committed to the oil bombing campaign. Appendix F shows German production of petroleum products in relation to the tonnage of Allied bombs dropped. As you can see by the illustration, oil production had been on a consistent pattern of growth between 1940 and March of 1944. What is interesting about the Figure 1 is that only a

modest tonnage load had been delivered starting in April 1944, but nets considerable results. German oil production took a precipitous fall when the Allies brought their attention to the industry. Until May 1944 only 1.1% of Allied tonnage was dropped on German oil targets.²¹ The USSBS gave most of its' information about the oil targets on German soil, but included very little information about the oil campaign on Germany's satellites. This is remarkable since the USSBS Summary Report states that the "Ploesti oil fields in Rumania and the Hungarian fields which together account for about a quarter of the total supply of liquid fuels..." seems to get little analysis or recognition.²² However, this is not entirely an oversight considering that the Russians overran Rumania in August 1944 and cooperated with very little information on those sites in their possession. Still the report seems to exclude the Balkans as much as the strategists who ranked the priority targets.

The Allies had, as mentioned before, only targeted 1.1% of their expended bomb tonnage on oil sites before May 1944. However, once the Allies made oil their primary priority on June 8, 1944 this percentage climbed very rapidly.²³ As Appendix G clearly shows, by war's end, the Allies had expended 9.3% of their deliveries on oil targets. The timing of this shift in priority targets is a bit confusing since General Spaatz's June 8, 1944 orders were to "deny oil to the enemy air forces."²⁴ However, this is a significant policy change, but with some extenuating circumstances. This order came after the Normandy invasion and the obvious lack of the GAF. Remember there was no

real GAF support of their ground troops during the Allied invasion of the continent. If there was no presence of the GAF, there would be no need to deny fuel to aircraft that didn't exist. The only conclusion that I can draw is that the Allies had a rough idea about how many planes the Germans were building. This explains the fact that CBO still regarded the German Air Force as a viable entity. Spaatz's directive, for example, would have made more sense if it tried to deny enemy Panzer units fuel. Essentially, the Allies could have listed industry, mobile units or even civilians be denied fuel. This is a rather small oversight by the Allies not to phrase the directive more carefully, but it highlights the CBO's lack of confidence that strategic bombing had eliminated German aircraft production. Even when the Allies switched priorities, it was still hung-up on the issue of destroying German aircraft production. What is necessary to understand is that the CBO realized the need to limit the Germans' capacity to wage war. It would have been a hard pill to swallow if CBO admitted their efforts had paid little dividend and needed to focus their attention to another segment of the German war machine. Although Spaatz's directive mentions oil, the shift to oil targets was subtle and motivated by the shrinking number of targets combined with a growing Allied air force.

Although the Allies did increase their effort against oil targets in mid-1944, it must be understood that Germany's holdings were shrinking. The number of targets were beginning to decline as Allied ground forces were capturing more and more

ground from the Germans. Another factor in the amount of tonnage dropped on particular target was the fact that the size of the Allied air forces was growing at the same time. The Fifteenth Air Force was steadily accumulating bombers and was able to assemble larger and larger missions with their increasing number of bombers.

Once oil had been declared the prime objective, why was Ploesti such an important target? As demonstrated earlier, the Germans were deriving 25% of their oil from the Ploesti refineries. The Fifteenth Air Force concluded in early spring of 1944 that German oil was "susceptible to strategic air attack..." and that refineries were the most "vulnerable" to those attacks. The same paragraph also pointed out that Ploesti should be a target of "primary importance."²⁵

The oil refining complex at Ploesti was concentrated in a relatively small area. Using Appendix H, it is obvious that the majority of oil capacity from German occupied territories rested in Rumania. Synthetic fuels produced in these plants were not included in the totals, but only made up about four percent of the total monthly output.²⁶ What is significant is that Rumania possessed the capacity to produce 62% of the oil within the range of the Fifteenth Air Force, and 48.4% of that total production capacity came from the Ploesti facilities. A conscientious air strategist could not have ignored such a target because it presented a target concentrated both in area and in a vital industry. So far we have been discussing capacities, but what did the Rumanians actually produce for the Germans?

Appendix I shows actual Rumanian exports of crude oil during the months of 1944. The first three months of 1944 shows a steady level of production. April's production dropped off by about half due to the Fifteenth Air Force's interdiction program. In this month the Fifteenth only visited Rumanian oil targets five times and dropped a modest 71 tons of bombs on these sites.²⁷ In May and June the Fifteenth only paid four visits during each of those two months. The production in June had been substantially reduced not so much by bomb tonnage, but by the frequency of the visits they made (5 bombing missions were flown to the Balkans between May 31 and June 10). It is interesting to note that the Rumanians were not willing to accept much of a sacrifice for the German war effort. Appendix J shows that the Rumanians were keeping a consistent percentage of the oil produced for themselves, even after production fell off due to Allied bombing.

I have established the fact that during the war Rumanian oil was heavily depended upon by the Germans. What possible reasons could have postponed an all out effort against such a vital target? Until April of 1944, the Allies (Americans) only made two attempts at Ploesti. The "Halverson mission" was undertaken in June of 1942 from the airfields in Fayiad, Egypt. This mission was carried out by thirteen B-24s flying a staggering 1300 miles, all without fighter escort. Although the raid did little damage to Ploesti's oil production, its' primary purpose was to boost Allied morale and signal to the world that bombing forays could be launched from the south.²⁸ This raid had been

fashioned after Doolittle's bombing raid on Tokyo, which had been carried out two months earlier. The "Halverson mission" had two enduring consequences for the Allied bombing effort. The first consequence was the AAF actually hit a truly strategic target and defined it as a top priority target in Axis Europe.²⁹ The second consequence was that the Germans and Rumanians began to strengthen the defenses around Ploesti, making future low level bombing missions much more hazardous and difficult. The next attempt to damage Ploesti came a full year after the "Halverson mission" and encountered stiffer defense measures instituted as a result of that first attempt. In August 1943, 178 B-24s carried out a daring low level mission on Ploesti with very little success. Even before the bombers made their runs on their targets, they had been separated, some became lost and some simply were confused when they reached the Ploesti refineries. The Germans had reinforced Ploesti's anti-aircraft defenses that made it the third most heavily defended target of the Reich. Only Berlin and Vienna were more heavily protected than the Ploesti oil refineries.³⁰ The amount of resources that the Germans threw into Ploesti is important to analyze. For example, the German's had 225 fighters committed to defend Ploesti. These pilots had been reassigned from the Russian front and all of them were well experienced.³¹ The war on the Eastern Front was going poorly for the Germans by 1943 and for the GAF to commit such resources to a target must have reaffirmed, for the Allies, the fears of German war planners about their oil situation.

General Spaatz at CBO was beginning to see the importance of

oil and by January 1944 wanted to destroy Axis oil supplies and means of production. The official view of the CBO was that oil was not a top priority target until June 1944. However, unofficially the Americans started to gear up against oil targets in April 1944. Eisenhower, the Supreme Allied Commander, sympathized with the AAF, but was in a precarious position and could not disregard the British opinions.³² The British had advocated bombing targets such as aircraft manufacturers, rail yards and V-weapon launching platforms. However, Eisenhower told General Spaatz to attack Ploesti oil, but on paper it had to appear that the bombers were attacking the marshalling yards.³³ This back door policy into conducting the oil campaign was opened on April 5, 1944 and on paper, the orders to AAF pilots were to bomb the marshalling yards. This curiously disguised directive signaled the end to Ploesti indiscriminately producing oil for the German war machine.

Oil is the most important ingredient in modern warfare. The Blitzkrieg depended on extreme mobility of armed forces which in turn heavily depended on motorized vehicles. All of this information was recognized by the Allies as they began to plan an invasion of the continent. Many had realized early in the war that oil would be a priority target and tried to bring forces to bear on these principles. However, the Allies were made up of many nations and it sometimes took political maneuvering to institute directives that left the individual parties able to pursue their own interests and conduct the war as they saw fit. We have seen that Ploesti was a huge factor in the fueling of

Germany and its' military operations. What is not clear is the timing for the targeting of oil as the top priority. The only way to state clearly the importance of oil is to highlight the importance of one of its major players. Ploesti was the single largest location for producing oil in Axis Europe. By analyzing the differences and outcomes between attacking oil and the German aircraft industry we shall see which target system should have ranked higher. At the same time we must relate this analysis to the main objective of eliminating the GAF to allow for a successful invasion of the continent. The bottom line is what would have brought the best results to the Allies.

CHAPTER VI: Conclusion

The main goal of the Allied bombing campaign was to eliminate the GAF from the skies before the D-day invasion. If the Allies had targeted German oil resources starting in January of 1944, the bombing campaign would have produced quicker and more substantial results. This is an important question for the Fifteenth Air Force and would define its' contribution to the war effort. It has to be mentioned that while the philosophy of the AAF was strategic bombing the Fifteenth seldom received orders that allowed it to operate under that premise. The USSBS analysis confirms this statement by citing that only about 20% of the tonnage dropped by the Fifteenth Air Force could be classified as strategic in nature.³⁴ This means that the Fifteenth was truly taken into an area in which they were not well-equipped to perform. In other words, the Fifteenth's real job became beating German ground forces rather than the GAF.

Allied commanders were not allowing the Fifteenth to follow through on the GAF objective.

The main objective behind strategic bombing was to destroy the GAF before the Normandy invasion. For some reason the Allied air war planners thought that the only way to accomplish air superiority was to eliminate the production line. The Allied (AAF) aircraft bombing campaign rested upon pin-point accuracy to destroy a specific section of an industry related to aircraft manufacturing. The ball-bearing plant at Schweinfurt was attacked on October 14, 1943 in accordance to this principle and temporarily immobilized about 67% of production capacity.³⁵ Although the Allies had initial success, they failed to sufficiently revisit Schweinfurt. The Allies had a tendency to rotate targets and this policy did not work on a mobile industry. The oil refineries, unlike the ball-bearing production lines, were not easily distributed over several locations. Albert Speer wrote in his memoirs that the Allies had allowed German industries, starting with the ball-bearing industry, to decentralize and therefore minimize the effects of strategic bombing. In his words, "the Allies threw away success when it was already in their hands."³⁶ The Allies did not realize that the Germans were capable of simply scattering production sites making it impossible to knock out the aircraft manufacturers.

Oil refineries were not mobile or capable of scattering their production capabilities. Late in the war, the Germans began to build underground refineries, but the project was just too daunting to complete and the refineries produced minimal

product. Therefore, oil refineries were targets that lent themselves to being revisited sporadically to insure production was kept at a minimum. Since Ploesti's individual refineries were concentrated targets, any type of bombing strategy here would have produced results: either the AAF's precision bombing or even the RAF's area bombing. The British were entirely in favor of area bombing and regularly took on much larger targets than Ploesti's refineries, like Berlin and Hamburg. Here was a target that could be shut down for short periods of time with very few direct hits. Some of the repaired damage simply sprung leaks from the concussion of near misses and the threat of starting fires was always a possibility with incendiary bombs. The refineries were always repaired, but at a great expense in labor, as sometimes as many as 100,000 men were needed to restore minimal production.³⁷ The bombing campaign not only denied Germany of oil, but drained their manpower resources as well. The stationary refineries were a perfect target to siphon of the war making capacity of Germany.

When the Allies did go after Ploesti they experienced some problems at the target and amongst themselves. Low level missions seemed only to complicate matters by limiting the number of landmarks that could be seen compared to the view at 25,000 feet. The Allies were still using low level missions in order to surprise Ploesti. This reasoning was based on decisions made during the 1942 raid and was unfortunate since the bombers never could surprise the German defenses especially the smokescreen generators. Some 2,000 chlorsulfonic acid smoke generators were

in use by June and July 1944, making the target almost impossible to see.³⁸ Even if the Norden bombsight was rendered useless by the German made smokescreen, the refineries lay in a spot where different techniques could be used. Eventually, the Fifteenth overcame the affects of the smokescreen by instituting two new bomb-sighting techniques, Synchronous and Offset. The British who favored area bombing only went after Ploesti four times between May and August 1944, confirming their desire to bomb every German occupied city. This philosophy differed dramatically from the United States, which preferred "specific German industries..."³⁹ Air Marshal Sir Arthur Harris in July 1942 said "We are bombing Germany city by city and...we shall pursue it relentlessly."⁴⁰ October 1944 saw Harris only committing about 6% of his attacks on oil targets when the Allied top priority had been oil for nearly five months. This 6% effort towards oil targets was minimal compared with the 66% devoted to area bombardment.⁴¹ If Ploesti were to be razed, it would fall squarely on the American contingent of the Fifteenth to complete such an objective.

It is clear that after the initial stages of the Allied campaign against aircraft manufacturing the Germans simply dispersed their industries to every forest, cave or basement. As shown in Appendix B, German aircraft production was affected minimally by Allied bombs through 1944. The German ability to move a target or simply hide it entirely prevented strategic bombardment success. Although smoke can obscure a target, it doesn't actually hide the target completely as the Fifteenth

showed when using triangulation techniques with success.

So far we have analyzed the differences based on stopping production and the long term affects, but what about destroying the GAF on the short term?. Ploesti has already been established as being the third most heavily protected target.⁴² If the Allies wanted to lure the GAF into the sky, Ploesti would have presented itself as a perfect case. For example, the Ploesti raid on May 31, 1944 recorded 19 downed German fighters by the bombers and an additional 27 victories by Allied fighters with only 20 Allied aircraft reported missing.⁴³ This kind of attrition rate on the GAF was the ratio of kill to loss the CBO had hoped would materialize. The GAF was committed to defending its' oil lifeline at great expense of pilots and aircraft.

The advantages of bombing oil were numerous. Another example would have been to starve the GAF and ground motorized divisions within the German armed forces, simultaneously . In June of 1944 the oil campaign had barely begun in earnest when Albert Speer indicated in a letter to Hitler that by the 22nd of that month, the Allies had stopped production of aviation fuel by 90%.⁴⁴ However, not only did the GAF suffer, but so to did German ground forces as Panzer divisions were restricted by decreasing amount of fuel availability. Also, by December 1944 the fuel shortage had reached "catastrophic proportions" and the counter-offensive on December 16, 1944 failed in part because the Panzer division did not capture Allied supplies.⁴⁵ The result of the Battle of the Bulge was the irreplaceable loss of many Panzer units that simply ran out of gas.

By December 1944 the stockpiles of motor and diesel fuel were larger than aviation fuel. Motor and diesel fuel were derived from crude oil and the sites that refined crude like Ploesti had not received the same attention as the synthetic production sites.⁴⁶ A quicker and more substantial campaign against the top producer of crude oil (e.g. Ploesti refineries) could have seriously affected the German ground forces ability to react to the invasion forces. The Battle of the Bulge would have not been possible if the Allies had started three months earlier on the oil campaign. In Appendix J, if you were to apply the export rate from the last four months to Germany to the first three months exports Germany would have ended up losing about 500,000 tons of oil. This amount of oil is equal to about 25% of Germany's total prewar stockpiles during a time when Germany was fighting on three fronts and under a tremendous amount of pressure from the Allied bombardment. In December 1944 the Germans only had a combined stockpile of about 500,000 tons of aviation, motor and diesel fuel.⁴⁷ The German counter-offensive of December 1944 needed to capture Allied stockpiles to survive, but if they had been denied that half a million tons of oil there could have been no attempt.

After the war, some analysts believed that if the Allies had gone after oil earlier, the war would have ended much sooner.⁴⁸ This is a relatively easy statement to make based on some key facts discussed in this paper. The first reason was that the Allied attack on aircraft production was ineffective in destroying the GAF before it left the assembly plant. It did,

however, drain the GAF of experienced pilots during the air battles themselves. An attack on oil targets would have produced results both on land and in the air. Ploesti was the third most heavily protected target and the GAF demonstrated the determination to protect that target with heavy losses of planes and pilots. This willingness to defend Ploesti at all costs should have been "convincing evidence" to the CBO that they had "chosen wisely in selecting oil as the first priority."⁴⁹ While the Fifteenth was shooting down enemy pilots, they were also starving the GAF of fuel to train new pilots and to fly combat missions. The industries that produced the German combat aircraft needed petroleum products too. By restricting their ability to use chemicals and other related products, the aircraft industry would have been unable to produce the same numbers that they did during the Allied bombing campaign.

Another benefit that the Allies could have used was to deny the German Army fuel for ground operations. As demonstrated, the German High Command could not have launched the counter-offensive in December 1944 if an earlier Allied attack on oil had denied them half a million tons of fuel. How many lives would have been spared if the Battle of the Bulge didn't occur? The Russians were also gaining from the German fuel shortage. The Russians were able to easily overrun 1,200 German tanks massed at the Baranov bridgehead, simply because the tanks ran out of gas.

If the Germans had been denied oil starting in January 1944 it is clear that the war would have ended sooner. The amount of lives and materials that could have been saved is incalculable.

What if the Allies had stuck to strategic industrial targets such as oil? Would there have been the need for the firebombing of Dresden that produced in excess of 135,000 fatalities? I believe if the Fifteenth Air Force had been unleashed on the Ploesti oil refineries in January 1944 we wouldn't have to answer these questions. However, these questions do exist and an attempt should be made to be answer or at least be studied by people. The United Strategic Bombing Survey is one of these attempts to objectively analyze the decisions made in time of war. Although the USSBS makes no judgments about those decisions, it is evident that they viewed the German aircraft bombing campaign as ineffective and the oil campaign as producing far more results. What authors like myself attempt to accomplish is to put some human value on the decisions that were made. I have chosen to use the activities of the Fifteenth Air Force to uncover some of the decisions affecting world history. I am not sure if I would call the decisions made concerning oil as a strategic priority mistakes, miscalculations or just dumb luck, but if the Fifteenth Air Force had been unleashed on Ploesti in January of 1944 the German war machine would have been out of gas by December 1944.

APPENDIX B

GERMAN AIRCRAFT PRODUCTION

	COMBAT TYPES		ALL TYPES	
	Number	Index % Increase	Number	Index % Increase
1939	4733	100%	8295	100%
1940	7103	150.1%	10,826	130.5%
1941	8082	170.8%	11,776	142.0%
1942	11,752	248.3%	15,556	187.5%
1943	20,327	429.5%	25,527	307.7%
1944	35,394	747.8%	39,807	479.9%

Taken from the United States Strategic Bombing Survey
(Volume II page 78)

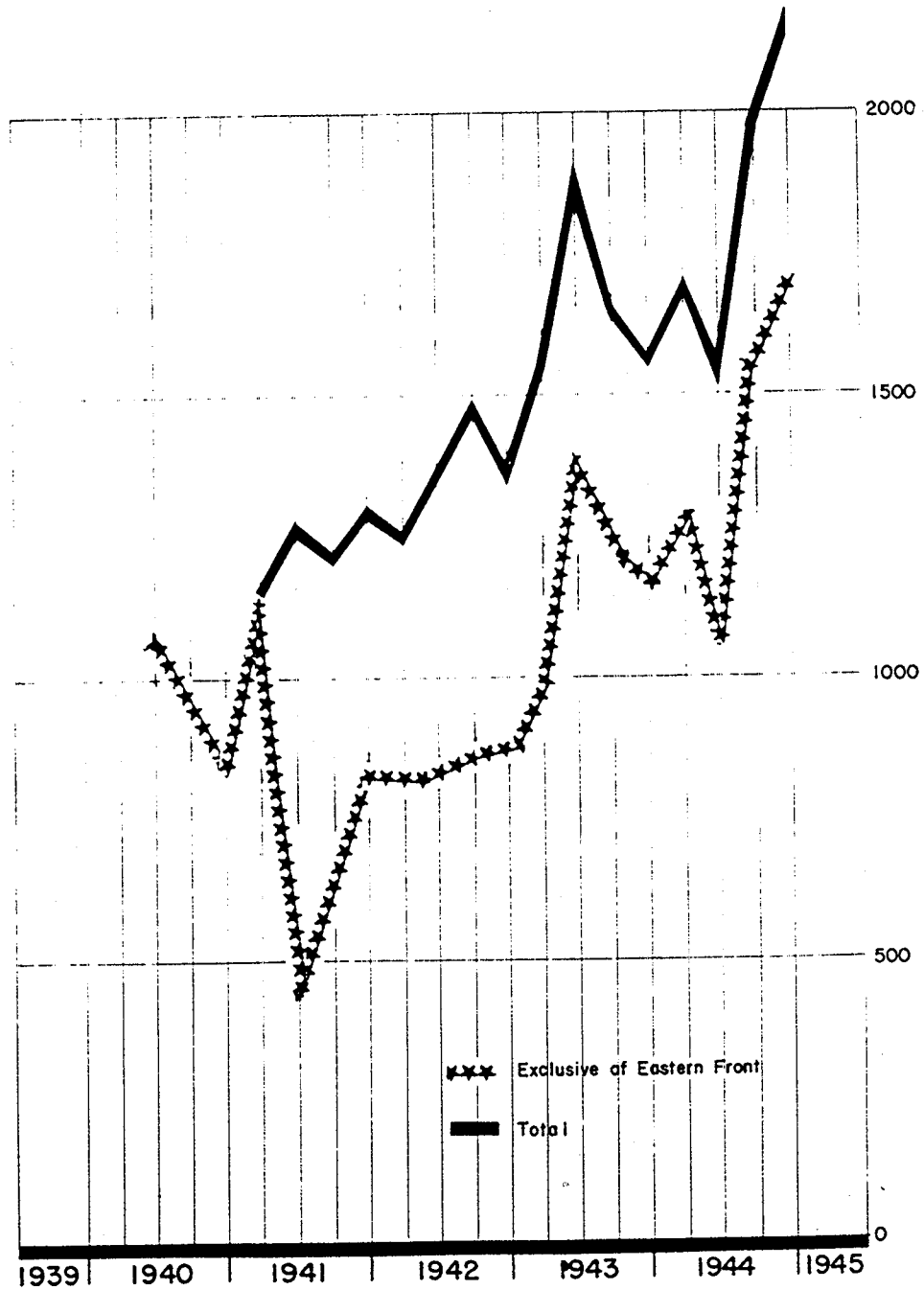
APPENDIX C

TONS OF BOMBS AIMED AT GERMAN AIRCRAFT INDUSTRY

Before April 1943:		Total Tons	162
1943	Tons	1944	Tons
April	509	January	2802
May	218	February	5234
June	212	March	4516
July	1243	April	10,224
August	556	May	5345
September	889	June	2834
October	756	July	7389
November	471	August	8442
December	238		

Taken from the United States Strategic Bombing Survey
(Volume II, page 58)

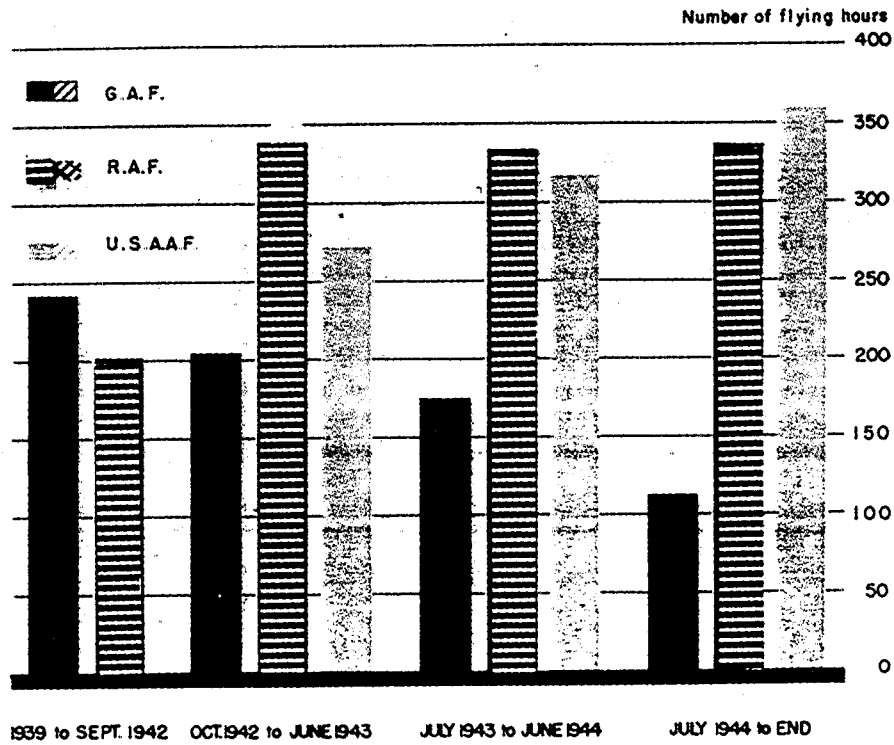
APPENDIX D
GERMAN AIRCRAFT LOSSES



Taken from the United States Strategic Bombing Survey

(Volume I page 20)

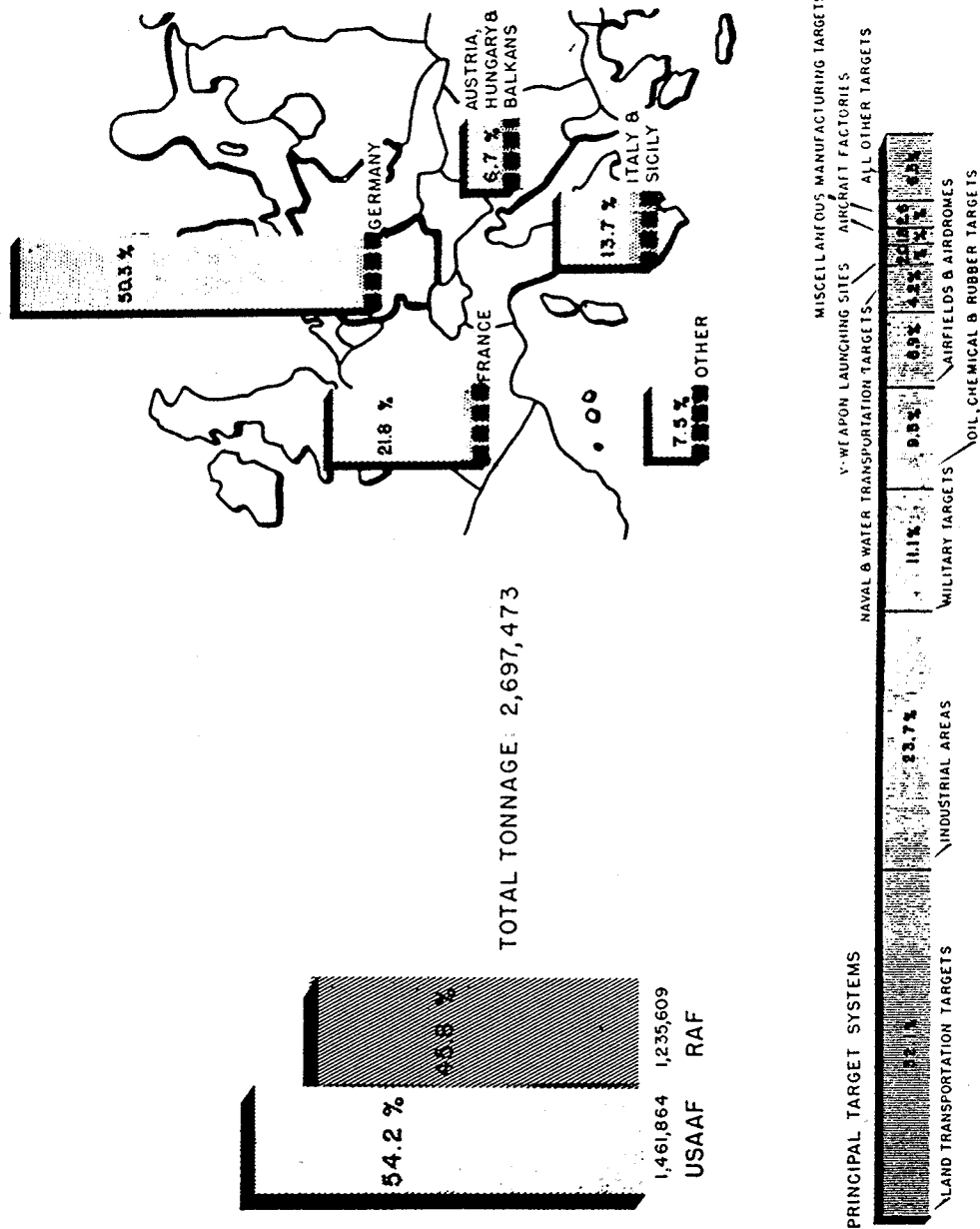
APPENDIX E
 GERMAN AIR FORCE TRAINING



Taken from the United States Strategic Bombing Survey
 (Volume I page 21)

APPENDIX G

DISTRIBUTION OF BOMB TONNAGE



Taken from The United States Strategic Bombing Survey

(Volume I page 2)

APPENDIX H

Natural Oil Refinery capacities within Fifteenth Air Force range
(all figures in tons per month)

<u>Location</u>	<u>Total Production Capacity</u>	
Vienna Area	76,000	5.5%
Czechoslovakia	59,200	4.4%
France	139,300	10.1%
Hungary	68,500	5.0%
Italy	115,300	8.3%
Poland	65,500	4.7%
Rumania	857,500	62.0%
(Ploesti Area)	(669,100)	(48.4%)
Total	1,381,300	

Compiled using data from The History of the Fifteenth Air Force
(Reel I frames 875-877)

APPENDIX I

Total Rumanian Exports of Crude Oil and Finished Products
during 1944 in Tons

Month	Exports
January	257,800
February	248,300
March	261,200
April	137,600
May	115,000
June	99,900
July	133,516
August	84,325

Taken from the History of the Fifteenth Air Force
(Reel I, frame 883)

APPENDIX J

Rumanian Domestic Petroleum Consumption During 1944

Month	Tons	% of Crude Throughput
January	175,685	43
February	154,484	40
March	162,096	44
April	63,365	36
May	69,466	42
June	68,970	88
July	94,000*	50
August	58,000*	41

*Estimated

Taken from the History of the Fifteenth Air Force
(Reel I, frame 882)

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