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An analysis of the factors which limited the strategic air offensive against Germany in World War II

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AN ANALYSIS OF THE FACTORS WHICH LIMITED
THE STRATEGIC AIR OFFENSIVE AGAINST GERMANY
IN WORLD WAR II

A Thesis
Presented to the
Department of History
and the
Faculty of the College of Graduate Studies
University of Omaha

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Robert McLean Behr
June 1965
Accepted for the faculty of the College of Graduate Studies of the University of Omaha, in partial fulfillment of the requirements for the degree Master of Arts.

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PREFACE

In what may be his greatest painting, Pablo Picasso recorded the horrors of war fought in the third dimension. Guernica compels attention to the effects of war once removed from personal combat. Its subjects are the victims, living and dead, of bombardment from the air. They are soldier, civilian and beast—all caught together in one moment of convulsed agony, each capriciously fated by the accidents of time and position.

The bombing of Guernica in April of 1937 was an event in the Spanish Civil War—a contest into which selected rightist forces of Germany and Italy were sent to test newly devised strategies and tactics. The savagery of the attack drew world-wide protest because of the probably well-founded suspicion that the Germans intended the operation to serve as a clinical experiment which would disclose the effects of a heavy air assault against an essentially non-military objective.

Two years later, with the onset of World War II, the bombing of non-combatants was to become a routine operation, but an operation that nevertheless raised emotional storms of great intensity. Today the issue, far from having subsided, is central.

There is a consensus among military historians that the strategic air offensive against Germany was a decisive factor in the ultimate victory of the Allies. There has not been, nor perhaps will there ever be, a corresponding unanimity which assigns a measurable weight or value to the part played by this
new method of warfare. Although numerous assessments have been made, none is conclusive.

This study will examine the strategic air offensive against Germany within the broad context of Allied war aims and the then prevailing military doctrines. Emphasis will center upon major obstacles that stood in the way of its greater achievement. No attempt will be made to describe or assess the operational aspects of the bombing campaign conducted by the British and American forces. Such an attempt would be presumptuous in the face of the superb official chronicles that are now available to satisfy the most searching of inquiries. Finally, as the result of my endeavors, I hope to draw some general conclusions that have relevance to the strategic problems of today.

For the inspiration underlying this study I owe a debt of gratitude to Doctor A. Stanley Trickett, Chairman, Department of History, University of Omaha, who taught me to avoid a phenomenalistic reading of history and to seek for truth beneath the web of incident. For the production of the paper I must thank my wife, Margery Peters Behr. It was she who, with considerable insight and tact, applied the goads that moved me from contemplation to activity.

ROBERT M. BEHR

June 1965
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CHAPTER I

INTRODUCTION

Before becoming too deeply concerned with a particular facet of one particular war, it is useful to reflect, if only briefly, upon the subject of war itself. Without some beginning philosophical basis to aid in establishing a perspective, no worthwhile purpose would be served by dredging up portions of what is already thoroughly documented history.

War as a social phenomenon is usually thought to have a nature that is either rationalistic or deterministic. On the one hand, those who accept the rationalist view believe that war is a matter of choice or decision. Someone, or some group of people, consciously and willingly chooses organized violence as a way of relieving tensions or redressing wrongs. On the other hand, those favoring a determinist explanation offer such varied suggestions for the causes of war as the essentially aggressive nature of mankind; the cyclical economic patterns which result in material deprivations and, hence, an unrestrained acquisitiveness on the part of the depressed peoples; or even the search of surplus capital for new outlets, thus leading to territorial exploitation and colonialist expansion.

Without attempting to argue the validity of either of the two theories, let it suffice to say that, for this study, a rationalist construction of war will be understood, and further, that the embodiment of this particular viewpoint is contained in the writing of Karl von Clausewitz.

If the proposition of Clausewitz can be readily accepted—that "war
is only a continuation of State policy by other means, " then some relevant de-
ductions can be drawn from observing the behavior of nation-states in World War
II. One of these observations is that the Hitlerian expansionist program was a
modern archetype of the Clausewitzian maxim. The facile transformation of the
National Socialist revolution into a purposeful scheme of external conquest was
manifestly an example of how an authoritarian government can force the progres-
sion of political activity from the non-violent end of the spectrum to the violent
without, in the process, developing massive resistance within the populace. 2

Another observation quite in contrast with the German example is
that the experience of the Allies, while conforming to Clausewitz' theory in out-
line, was notable not for its conformity to the theory but for the tempestuous
ambivalence generated in the movement from peace to war. There is no evidence
to show that, before the war, any of the Allied governments, either secretly or
otherwise, had foreign policies that were aggressively oriented. Consequently,
when confronted with the need to fight to preserve peace, an emotional crisis
arose among the people because the only avenue open to continue state policy
was one by definition contrary to the policy itself. This was significantly different

1 Quoted in J. F. C. Fuller, The Conduct of War, 1789-1961

2 How this was done was brilliantly exposed by Hermann Rauschning
who traced the ideological machinations of the National Socialists from the
beginnings to the then present (May, 1939), and foretold with amazing accuracy
the catastrophic events that followed. See The Revolution of Nihilism: A Warn-
ing to the West, trans. E. W. Dickes (New York: Longmans, Green & Co.,
1939).
from the situation inside Germany where mass psychological conditioning of the
citizenry assured the continuity of state policy in the channel desired by the Nazi
hierarchy.

The problem of the Allied governments then became one of motivating
the people, who were not as attuned to the dangers of facism as were their leaders.
This task, that of re-orienting the emotional sub-structure of a population into new
and unfamiliar ways, was not an easy one.

In order to capture the enthusiasm of the people, once war was upon them,
it became necessary to compensate for the aversion to violence, subconscious or
not, with a stimulus acceptable to the Judeo-Christian ethic. A new mystique
had to be created and new goals identified. This phenomenon, related in generally
non-specific terms to the American experience, has been described by a contempo-
rary political scientists.

The extremism of the American doctrine in refusing to countenance
the use of force except in very limited circumstances allows the pendulum
to sweep far in the opposite direction once force is undertaken defensively
against aggression. That is, when force finally is resorted to, it seeks very
large aims—aims which, prior to the resort to force, were regarded as ob-
tainable only by peaceful means. The psychological attitude which permits
policy extremes to be pursued in a defensive war that could not be pursued
by peaceful means is obviously an attitude of vengeance that is more than
a little reminiscent of the righteous posture of the medieval warrior, who
may have made war more barbarous through his conviction that he alone
fought for a just cause. We have noted before the difficulties inherent in

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3In America, where the feeling against war was the greatest, the work
of conversion was made easier by having been the object of direct attack, which
generated a spontaneous sense of great outrage.
showing tolerance toward the enemy when one is convinced that the enemy's cause is totally unjust. As to the American attitude, the assertion is made that "it is difficult not to conclude that this doctrine places almost no substantive limits upon the specific objectives which may legitimately be sought once force is employed in defense against aggression." War is to be waged, once it has been forced upon the nation, until the enemy surrenders unconditionally or the entire world has been made safe for democracy. 4

The war aims of the belligerents grew out of the philosophical underpinnings of their governments. On both sides the aims were ideological and hortatory, which, as will be discussed later, had repercussive effects upon the military strategies adopted by each.

The long-range aim of the Nazis was thus described by Rauschnings:

The essential aim is preparedness, with the determination to push onwards and emerge from central European continental confinements an unscrupulous, doctrineless determination to seize anything and to be ready to do anything that serves the increase of power and dominion. It is a conquistador policy. . . . The aim of this foreign policy is the revolutionary redistribution of the world and creation of a German Grossraum, in which everyone will have a share, and the wealth of which will offer very different prospects from those of sharing out of poor little poverty-stricken Germany, which cannot be made any larger by dividing it up. National Socialism discovers many pretexts for its political actions; but behind them all stands, plain for all to see, the nihilist revolution. 5

The aims of the Allies were more reactive and short-ranged than those of their opponents and were formed within the context of the Western liberal tradition.

All Western nations are heavily influenced by the humane ideals of Christianity, the Enlightenment, the scientific revolution, and from these


5Rauschning, op. cit., pp. 263 and 266.
and other influences the liberal tradition has been distilled. As far as foreign policy is concerned the most important result of liberalism has been the dissociation of power and policy. Liberalism assumes that all states are equally interested in peace, that force and power politics are always to be deprecated in international relations, and that the conflicting policies of countries and power groups can usually be harmonised by the same means that govern internal domestic differences—due process, reason, common sense, elementary morality and institutions such as the United Nations. War on the other hand is a completely different state of existence to peace, an aberration, and it can only be justified when fought as a crusade against tyrants in a mood of righteous indignation. Then, maximum force must be used to end the conflict as quickly as possible, and so total wars fought by democracies quickly take on an ideological character. . . .

No better illustration of the foregoing concept of democracy at war can be found than in the statement of Winston S. Churchill in his speech to the House of Commons, which had been summoned to register a vote of confidence in his new governments:

You ask, what is our policy? I will say: It is to wage war, by sea, land, and air, with all our might and with all the strength that God can give us! to wage war against a monstrous tyranny, never surpassed in the dark, lamentable catalogue of human crime. That is our policy. You ask, What is our aim? I can answer in one word: Victory—victory at all costs, victory in spite of all terror; victory, however long and hard the road may be; for without victory, there is no survival. Let that be realised; no survival for the British Empire; no survival for all that the British Empire has stood for, no survival for the urge and impulse of the ages, that mankind will move forward toward its goal. But I take up my task with buoyancy and hope. I feel sure that our cause will not be suffered to fail among men. At this time I feel entitled to claim the aid of all, and I say, "Come, then, let us go forward together with our united strength."
With such stirring words as a persistent backdrop for their combined efforts, there is no reason to suppose that the Allies would have agreed upon any other terms for the cessation of hostilities than "unconditional surrender." Although President Franklin D. Roosevelt was somewhat off-handed about the policy declaration at the Casablanca Conference of January, 1943, it is evident that the matter of how the war would be terminated had been a subject of serious deliberation. Among the notes carried by Roosevelt to the press conference where the "unconditional surrender" policy was announced was this paragraph:

The President and the Prime Minister, after a complete survey of world war situation, are more than ever determined that peace can come to the world only by a total elimination of German and Japanese war power. This involves the simple formula of placing the objective of this war in terms of an unconditional surrender by Germany, Italy and Japan. Unconditional surrender by them means a reasonable assurance of world peace, for generations. Unconditional surrender means not the destruction of the German populace, nor of the Italian or Japanese populace, but does mean the destruction of a philosophy in Germany, Italy and Japan which is based on the conquest and subjugation of other peoples.8

According to some thoughtful observers, the dictum of the Allies carried within it not only grave implications for the prosecuting of the war, but, indeed, nothing less than the seeds of future war.

The only justification of the Western statesmen is that their conduct of the war was characteristic of democracies of our age: they submitted passively to the dynamism of hyperbolic war. They propagated the simplest and most convincing of myths: the United Nations were the harbingers of Justice, the enemy was the incarnation of Evil. Incapable of thinking about peace, which comes after war and is its real purpose, until the end

of the destruction, they made no effort to alienate the German people from
the Hitler clique and took no precautions against their ally, whose ambitions
were hardly more of a mystery than those of Hitler. By the time the illusions
of propaganda were dissipated and the governments in London and Washington
had the support of public opinion in their will to resist, the rewards of victory
had been lost; Eastern Europe was Sovietized, Germany divided, and the
Chinese Communists armed by courtesy of the Russian Army. The Second
World War had laid the foundations for the third.9

Because the aims of a nation at war control the manner in which the war
is fought, it follows that if fault can be found with the one, suspicion is then cast
upon the other. In no instance has this been more sharply focussed than in the
still-heated controversy over the air attacks upon non-combatants during World
War II. If, as Aron suggests, meaningful effort should have been made to turn
the German people against their leader, then the nature of the battle waged
against them bears re-examination.

The following chapters will be concerned with one of the ways by which
the Allied war leaders carried the battle to the homeland of Germany. This method
of warfare—the strategic bombardment of cities—was undertaken for three reasons;
(1) Hitler had used it first; (2) it was a way of striking at the enemy while the
ground forces were strengthened and readied for engagement; (3) the war aims of
the Allies were non-restrictive and, except for the terms of surrender, indefinite.

One has only to know the shocking details of the raids upon Coventry,
Hamburg and Dresden to understand that a savage and utterly conclusive technique
had been found to aid man in his melancholy drift toward self-destruction. And

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9Raymond Aron, The Century of Total War (New York: Doubleday &
yet, despite its obvious promise, it was a method of warfare used by neither side to the limits of its potential. The endeavor of this study will be to describe the many constraints that acted upon the Allied bomber forces. Some of these were circumstantial: shortages of men and equipment, inexperience, technological inadequacies, and a lack of essential information (primarily military intelligence). Others were behavioristic—doctrinal prejudice, strategic rigidity, analytical error, and ethical conditioning. After a brief prelude to strategic bombardment in the form of encapsulated opinions on the subject, each of the constraints mentioned above will be addressed, some in more detail than others. Finally, whatever constructive lessons this investigation may suggest will be offered for critical evaluation.

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10 An equally instructive analysis could be done using the German Luftwaffe as the subject. Such a study would reveal a marked asymmetry between the two sets of factors regulating the Allied and German strategies.
CHAPTER II

CONFLICTING OPINIONS

The time is perhaps at hand when judgments on the strategies employed in World War II can be formed with an objectivity missing from pronouncements made in the aftermath of the war. Then opinions were formed with the heat of the conflict still tempering individual biases. Various arguments were supported with the vigor that can only come from participation in the events of the time. Now, however, greater reflectivity is possible; time has broadened perspectives and the development of an historical literature has tended to synthesize heretofore unrelated facts into a deeper understanding of the event as it really occurred.

One issue which gave rise (during and after the war) to sharp disagreements among Allied strategists and military theorists was that of the effectiveness of the strategic air offensive against Germany. ¹ The bombing of objectives far behind, and directly unrelated to, the battle lines represented a radical excursion from classical military tactics. Extreme claims on the part of its adherents and opponents alike served to isolate the argument from reality and to exaggerate its significance over and above the true relationship of a part to its whole. Opinions generally followed traditional service lines although, as will be seen, exceptions were to be found. Even within the air service there were those opposed to the new

¹The strategic air offensive represented the efforts of the Combined Bomber Offensive against Germany; the concerted actions of the Royal Air Force Bomber Command and the United States Strategic Air Forces in Europe.
doctrine, but for reasons dissimilar to the views of their colleagues in other services.

Among the severest critics of the bombing strategy was Admiral Sir Gerald Dickens of the British Royal Navy. Writing after the war in a polite but resolute attack upon the theories of Marshal of the Royal Air Force Sir Arthur Harris, wartime Air Officer Commanding-in-Chief, Bomber Command, Admiral Dickens questioned both the military value and the ethical basis of the Royal Air Force bomber offensive (which, of course, implied a similar criticism of American strategy).  

His thesis, on the military side, alleged violation of two rather straightforward maxims. The first, according to Sir Gerald, was the wrongful neglect of the need to assure "vital minimum security." Because Britain was primarily a maritime power, the destruction of German seapower—especially the submarine threat—should have been chosen as the strategic keystone. However, instead of making direct attacks on the U-boat menace, the weight of the available striking force was directed to submarine production facilities; perhaps of long-term benefit, but certainly not an immediate answer to the strangling depredations of the German raiders.

Associated with the failure to put first things first was the departure from the principle of "objective" wherein all forces are united in the pursuit of a common

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3 Ibid., pp. 19–25.
endeavor. Admiral Dickens considered that the efforts of the Royal Air Force were spread over a multiplicity of tasks, but with, for each, insufficient strength to gain mastery over any one of them. In particular he decried what he thought to be a lack of coordination and integration of planning with the British Army and Navy. This deficiency in planning had the dual effects of, on the one hand, an uneconomical use of air power, and on the other, a non-availability of air support when and where it was needed by the other services. 4

Apart from purely military factors, ethical and moral objections to the strategic air offensive were raised by Sir Gerald. His critique of the strategy invoked a distinction between what was the principal and what the accessory. In pleading for proper recognition of ends and means, he branded the wholesale destruction and the loss of non-combatant lives as inexpedient. If, he said, men are foolish enough to engage in warfare, their lack of wisdom is not then justification for haphazard excess. On the contrary, there is a positive obligation to lessen the calamitous aspects of warfare in every way possible. This line of reasoning was capped by his belief that the attainment of a just and lasting peace is prejudiced in direct proportion to the lack of restraint practiced by the ultimate victors while securing their victory. 5

Even though the views of Admiral Dickens constitute a categorical rejection of the strategy behind the Combined Bomber Offensive, there is expressed

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4 Ibid., pp. 31-42.

5 Ibid., pp. 75-81.
throughout his writing a profound appreciation for air power in the abstract. It is only with its World War II application that he quarrels.

An altogether different opinion of the role of strategic air power was expressed by Major Alexander P. de Seversky. He also believed that the great bombers were misused, but his ideas grew out of a concept that was as extreme in its fundamentals as Admiral Dickens' concept was conservative. Far from accepting the idea that the strategic effort was insufficiently integrated with land and sea power, Seversky held that the whole of air power was insufficiently exploited. Whatever misfortunes it experienced were the result of failure to obtain full command of the skies. Only by achieving such supremacy could the bombers range freely and perform the missions for which they had been designed. Further, he believed that air power alone could bring victory. In Seversky's words:

Air power alone can impose surrender on an enemy. . . . The goal of air power applied strategically is not bombing as an end in itself but conquest of the air, in which bombing is an incidental procedure. Once a nation has stripped its adversary of air power, obtaining the right of way over his territory, bombing follows as needed to confirm the victory and enforce surrender. 

Seversky has long been an ardent and uncompromising advocate of air power. His writings are polemical, but, in a sense, fiercely honest. Hence,

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7 Ibid., pp. 197-221.

8 Ibid., p. 198.
in evaluating the future of air power, he demands that the preparation of modern strategies be based more upon lessons derived from the failures of the past than from successes. 9

A third critical view of the strategic air offensive has been supplied by Kent Roberts Greenfield in a book of reflective essays upon American grand strategy during the war. 10 His opinions serve as a useful complement to those discussed above because they represent a scholarship enriched by long association with the United States Army; 11 additionally they provide a balance to the Navy and Air Force persuasions of Dickens and Seversky. Greenfield argues that the strategic air offensive was an influential factor in the defeat of Germany, but not a decisive one (in the sense of delivering the victory). While giving generous recognition to the military contributions of the air arm, he cites many deficiencies within the Allied air effort, most of which he attributes to organizational problems and to inter-service strife and bull-headedness. 12

In evaluating the bomber campaign he notes that, by the time it had reached its peak of effectiveness (early 1945), the ground forces of the Allies had by then virtually crushed the German military machine. His major concession to

9 Ibid., p. 221.
11 Doctor Greenfield served from 1946 to 1958 as Chief Historian of the Department of the Army.
12 Greenfield, op. cit., pp. 90 - 112.
the Combined Bomber Offensive was that "it hastened the internal collapse of
Germany."13

Like Dickens, Greenfield deplored the indiscriminate character of the
bombing. He carefully distinguished between the American tactic of daylight pre-
cision bombing against selected target systems and the British technique of night-
time area bombing. While marking the obvious operational differences, he con-
cluded, nevertheless, that in practice the results were the same—a massive bludge-
oneing succeeding more from sheer weight of repetitive effort than from "pickle
barrel" accuracy. Despite their sensitivity to the consequences of area attacks,
the American leaders, he states, were often compelled by the circumstances of
adverse weather and primitive blind-bombing techniques to use their forces in a
fashion not unlike the British.14

As a final argument, Greenfield, with a hint of satisfaction, informs
his readers that the Combined Bomber Offensive made its most telling contribution
to the Allied campaign in a purely tactical role—when it conducted a sustained
attack upon the German transportation system in preparation for the Normandy
invasion. In this connection it is of interest to note that, during this phase of
operations, the Combined Bomber Offensive performed under the direct command
of Supreme Headquarters Allied Expeditionary Forces, functioning apart from the
control of the air power specialists who, Greenfield implies, would not have
sanctioned such employment of their forces.15

13 Ibid., p. 120.  14 Ibid., pp. 112-117.
15 Ibid., pp. 117-118.
Marshal of the Royal Air Force Sir Arthur Harris stood, not alone but
conspicuously high, among the individuals who championed the strategic bombing
policies of the Allies. Even though he knew his critics to be legion, he maintained
throughout the war a dogged faith in Bomber Command and its tactics. In a bluntly
detailed account of his wartime years, he upheld the logic of his actions and called
to task those in high places who had either opposed his proposals or thwarted his
programs. 16

Sir Arthur believed that the war could be won by a carefully planned and
properly executed bomber offensive. 17 The strength of his opinions fell short of
the extreme positivity of those of Seversky, but among his contemporaries they
were none the less controversial. 18 Although the Marshal may have agreed, in
theory, with the Major, he was too much of a practical soldier not to fully ap-
preciate the strong doctrinal attachments of the other two services and, as a corol-
lary, the assurance of their persistence. Always the pragmatist, he said:

Winning a war by bombing, as at that time we were proposing to
do, can mean several things. It may mean bringing the enemy’s war
effort so completely to a standstill that you are invited into the country
to clear up the mess; in which case the only army you will need will be
a well-trained police force. Or it may mean little more than softening
up the enemy’s defences, communications, and war industries so effec-
tively in advance of a well prepared invasion that that invasion goes


17 Ibid., p. 54.

18 Hastings Lionel Ismay, The Memoirs of General Lord Ismay (New York:
according to plan; in which case you will need a large and very well-equipped army. And, of course, it may mean, and probably does mean, something between these two alternatives.19

The foundation of Harris' operational credo was painfully simple—bomb the cities wherein German war-sustaining industry was located. He did not shrink from admission that this inevitably meant fatalities among non-combatants, but he rather cavalierly explained away the need with a series of shallow justifications, all of which reduced to a form of "war is hell" attitude. The argumentation could have been made stronger by placing greater emphasis upon the savings in Allied casualties where the operations were successful to the extent of avoiding land engagements in the assault of the objectives.20

"Bomber" Harris, as he was called, was utterly candid about the early failures of Bomber Command, but unswervingly loyal to its ultimate successes. He remained to the end unperturbed about the inability of his staff and the Americans to resolve their long-standing difference over the most effective modus operandi. To Sir Arthur the matter was not worthy of argument. His own vindication of night bombing versus daylight "precision" bombing derived, he claimed, from achievement—not theory. By the middle of 1944, and coincident with the deterioration of German air defense, the British attacks, according to Harris, "...proved to be rather more accurate, much heavier in weight, and more concentrated, than the American daylight attacks, ..."21 His views were those of a stalwart man

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19Harris, op. cit., p. 54.  
20Ibid., pp. 176-177.  
21Ibid., p. 203.
whose lasting accomplishments followed a long series of tireless battles—with friends and foe alike.

Perhaps less parochial, and certainly less emotionally charged, was the overview of strategic air power written in 1946 by General Carl A. Spaatz, who commanded the United States Strategic Air Forces in Europe. The cool objectivity of General Spaatz, as compared with his counterpart, Sir Arthur Harris, may be explained either as a temperamental difference between the two men, or because Spaatz had not, as did Harris, over two decades of service in an independent air force. His position, then, as a general officer in the United States Army could very well account for his tempered appraisal of the role of air power in the defeat of Germany.

General Spaatz introduced an interesting variant to the theme of Harris. He suggested that the outcome of the war might have been different had the Nazis used strategic bombing on a vast scale. The penalty they paid for their failure to capitalize on possessed skills so evidently compatible with the strategic bombing concept was nothing less than their total defeat.

23 Ibid., pp. 226-228.
24 Ironically, Hitler seems to have grasped the idea of strategic bombing, but he had not the singleness of purpose to make of it a reality. In Berlin, on 25 July 1943, he said at a daily military conference:

'I have already told you...that terror can only be broken by terror. One has to counter-attack, everything else is nonsense...In my opinion we should use our planes for attacking them directly, especially since they are putting so many planes in the air...But we are handling them with kid gloves. It is going to work only if we attack their cities systematically...I can only win the war if I destroy more of the enemy's than he destroys of ours.'

In the matter of the supremacy of air in the battle against Germany, Spaaatz concluded that the Allies could not have won the war solely with strategic bombers. The basis for his belief rested not in a disavowal of the bombing strategy, but in the framework of time in which the war was fought. Had the Allies entered the war with the air power they were able to draw upon at the end, there would undoubtedly have been an entirely different character to the conflict—one in which the new technique of warfare could have been the dominant force. But as it was, the long delay required to build to maximum strength gave to air a participating—but not preponderant—share in the victory along with sea and land. 25

To support his own appraisal, the General quoted the opinions of several responsible enemy officials. One of the most relevant statements was attributed to Lieutenant General Linnarz, commander of the 26th Panzer Division, who said during interrogation on 26 June 1945: 26

In my opinion, you might have won the war through strategic bombing alone—granted adequate bases, tactically secured. Since you wanted to end the war quickly, you did not rely on strategic bombing alone; you fought the war in combined operations on land, sea, and air. At the beginning of the war we failed to see that the material power of the coalition against us was strong enough to destroy our war industries by strategic air attacks, even if we took the whole Continent. As our leaders couldn’t see this, and as you were unwillingly to rely entirely on strategic bombing, you brought the war to an early and successful close by both strategic and tactical use of air power.

All of the foregoing expressions of opinion serve as background material for a more detailed examination of the strategic air offensive and some of its limitations. As an introduction to this discussion, an observation of Seversky is perti-

"Europe and Germany provided no conclusive tests of the efficacy of all-out air strategy, simply because the war was not planned or fought that way."  

27 Seversky, op. cit., p. 200. (Italicized in the original.)
CHAPTER III

EARLY CONCEPTS

The strategic air concepts culminating in the operations of the Combined Bomber Offensive of World War II had their origins in World War I. German bombing raids over London by Zeppelins and giant Gotha bombers caused considerable consternation and prompted a British government investigatory committee to assess the threat from the standpoint of guarding against it and, also, to determine the utility of the tactic as a method of reprisal. Field Marshal Jan Christian Smuts of the Union of South Africa was the committee chairman. One of the reports issued by the committee stated:

Air Service...can be used as an independent means of war operations. Nobody that witnessed the attack on London on 11th July could have any doubt on that point. Unlike artillery, an air fleet can conduct extensive operations far from, and independently of, both Army and Navy. As far as can at present be foreseen there is absolutely no limit to the scale of its future independent war use. And the day may not be far off when aerial operations with their devastation of enemy lands and destruction of industrial and populous centers on a vast scale may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate.1

In America, however, there was very little understanding of the military potential of air power. Although the airplane was an exciting addition to the military arsenal, the schemes for its employment were tentative and, for the most

1"The Second Report of the Prime Minister's Committee on Air Organization and Home Defense Against Air Raids," dated 17 August 1917, quoted in Emme, op. cit., p. 35. As a result of this report an Independent Bombing Force was established and soon followed by an autonomous Royal Air Force.
part, developed on an ad hoc basis. In fact, one senior Army officer described the fledgling staff of the Air Service as a "lot of good men running around in circles." ²

After the United States entered the war a young major named William Mitchell was sent to Paris as a representative of the Air Service. He remained in France for the duration of the war, rising rapidly through various staff and command assignments to the rank of brigadier general. In May of 1917 he visited Major General Hugh M. Trenchard, then commander of the Royal Flying Corps, and listened attentively to the crusty British general as he explained his ideas about the offensive nature of air power, the value of deep-penetration bombardment, and the need for a unified air command. These became the principles that guided Mitchell until his death.³

During the time that Mitchell held the position of Chief of the Air Service, First Army, American Expeditionary Force, he lacked the resources to mount anything more than a token bombing effort against the Germans.⁴ Although a


³Ibid., pp. 12-16.

⁴The total weight of U. S. Bombs dropped during World War I was 138 tons—or 275,000 pounds. (Craven and Cate, I, 15.) During the first month (August 1942) of its operations in World War II, the USAAF dropped 166 tons. ("Statistical Appendix to Overall Report [European War]", The United States Strategic Bombing Survey [Washington: U. S. Government Printing Office, 1945], p. 11.)
Strategical Aviation Branch of the Air Service had been formed and a comprehensive plan laid down for the attack of German targets, the field forces had neither sufficient bombers to carry out the plan, nor, even had the equipment been available, the approval of Major General John J. Pershing, commander of the American Expeditionary Force.  

The limited bombing successes experienced by the Allies were encouraging to the extent that an agreement was reached on 3 October 1918 to create an Inter-Allied Independent Air Force under the general supervision of Marshal Ferdinand Foch, the Allied Supreme Commander. Operational command was to be vested in Trenchard, and the strategy presumably patterned after his convictions. Even though Mitchell’s forces would have become an integral part of the unified command, the Wilson Administration severely proscribed for the American element any form of strategy that would have "...as its objective, promiscuous bombing upon industry, commerce or population, in enemy countries disassociated from obvious military needs to be served by such action." In any event, the project was abandoned with the signing of the Armistice a month later.

The ideas of Trenchard and Mitchell had a great deal in common with those of General Giulio Douhet, an Italian ex-cavalryman and an advanced thinker on the subject of air power. Douhet believed that the next war would be

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6 Ibid., p. 37.
total and would involve the heartlands of the combatants. The way to these heartlands was, of course, through the air. New ordnance and chemical munitions would put at risk the enemy's vital centers, which, once reduced, would cause him to sue for peace before land and sea forces had been committed to long, bloody, and indecisive engagements. The key to this capability was air superiority, which would permit, after the destruction of the enemy's air defense, unimpeded transit over his territory. All of these operations would be conducted by an independent air arm whose activities would not, except in a general sense, be associated with the objectives of either the army or the navy. Before he died in 1930, Douhet could reflect upon the rewards of his prescience—ridicule, imprisonment, and widespread, obtuse disbelief.

The war ended without the advocates of strategic bombing having had an opportunity to prove their theories. The long-term effect of their inability to cite historical evidence in support of their thesis was to deny them, in the United States at least, any meaningful acceptance of the new ideas. That air should be independent of both sea and land, organizationally and operationally, was regarded as a heresy too extreme to be taken seriously. On the other hand, the demonstrated effectiveness of air power in support of battlefield objectives argued strongly for the continuance and, indeed, the strengthening of air in that role.

In Great Britain the situation was somewhat different. As a consequence

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of Smuts's recommendation the Royal Air Force had been formed as a separate and independent service on 1 April 1918. The years of autonomy between the wars provided an opportunity for novel and iconoclastic strategies to be developed.

Under Trenchard, now an Air Marshal and Chief of the Air Staff, the doctrine of strategic bombardment was refined and extended to the point where it was suggested that, in war, major reliance should be placed upon the offensive strength of the bombers.

The exposure of England to German bombing raids during World War I unquestionably fostered a climate of opinion (essentially vengeful) that was at least partially receptive to the new air doctrines. The real problem was that although the new force was thought to have considerable strategic potential, it was a force additive in cost to both the Royal Navy and the Royal Army. The venerable traditions associated with the two older services and the myriad loyalties attaching to each prevented any widespread belief that air could assume defense burdens at the expense of either of the senior services. Thus, when World War II came, the

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10Robert Saundby, Air Bombardment: The Story of Its Development (New York: Harper & Brothers, 1961), p. 35 and pp. 40-42. It is of value to note, however, that the British interests in Iraq, Transjordan and Aden during the period between the wars were secured by the Royal Air Force. Using precision bombing techniques against the villages of refractory desert tribesmen, the British were able to maintain air control over vast stretches of territory without the expense of supporting large occupation forces in those areas.
designs of Trenchard had not materialized into a formidable offensive capability. For no less significant reason than concern for its own survival, the Royal Air Force began the war on the defensive.

In the period between the wars the United States military philosophy was narrowly defensive. The emotional pendulum-swing after World War I had brought with it a determined isolationism. The military task was viewed as being limited to the defense of the Western hemisphere—a task ideally suited to the United States Navy. Not being entirely unmindful of the experiences of World War I, the writers of military doctrine did accept the postulate that, if war came, only an offensive strategy could prevail, and that meant the conquest of one land army by another. But because it was the intention not to again become involved in a great foreign war, only a small standing army was maintained; a decision fortified by the knowledge that, if the need arose, divisions could again be mobilized and transported overseas to the arena of conflict.

This doctrine was not fully accepted by the Air Corps. Loyal to the ideas (though not the insubordinate tactics) of Billy Mitchell, the Air Corps Tactical School favored a strategy based upon the destruction of the will of the enemy to continue fighting. This would be done by bombing the elements of his society necessary to provide for and support his military forces and, at the same time,

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11 H. S. Hansell in the Muir S. Fairchild Address to the Air War College, Maxwell Air Force Base, Alabama, 1 December 1964. Major General Hansell, USAF (Ret.), is a distinguished military scholar and was a leading Air Corps planner before and during World War II.
threatening the survival of his governmental apparatus because of the great suffering imposed upon the population. The selection of individual targets was to be made by exercising a highly practical formula that weighed both target worth and the probability of a successful attack against it. (See Appendix 1.) This doctrine formed the pattern for the air offensive; other doctrines were developed for air defense and air support of the surface forces. 12 The recognition of the tri-partite responsibilities suggests that the Air Corps had adopted views of air power that were less extreme than those held by some of their European contemporaries.

In October, 1941, the Secretaries of War and Navy were directed by the President to prepare their estimates of what each of the services would require in the event of war. Unfortunately, neither a strategic purpose nor a set of qualifying assumptions was contained in the President's message. There were no beginning "ground rules" so each service prepared its requirements on the basis of how its planners forecast the United States' participation in the war. The Navy saw a vast naval struggle with Japan, while the Army visualized a continental effort against Germany—with all of its complex problems of transportation and logistics. 13

Immersed in a bog of detail, the War Department had little time to compute the requirements of the Air Corps. Thus, when the Air War Plans Division of the Office of the Chief of Air Corps offered to submit an Air Annex, the gesture was gratefully accepted. But when the annex was reviewed in its final form there was bitter opposition to its inclusion by a number of officers on the General Staff.

12 Ibid. 13 Ibid.
The requirements expressed therein, and the estimated resource allocation to support them, were by no means conservative. Notwithstanding this opposition, General George C. Marshall, Chief of Staff, directed the inclusion of the annex in the plan forwarded to the Secretary of War. 14

Despite its administrative support by the Chief of Staff, the Air Corps plan (designated AWPD-1) differed in its basic philosophy from those of the Army and the Navy. AWPD-1 and its follow-up plan, AWPD-2, laid the groundwork for the employment of United States air power. In the section dealing with strategy AWPD-1 placed first priority on an air offensive against Germany, stating that the end purpose of the air war would be:

To wage a sustained air offensive against European Axis Military power.
To apply air power for a breakdown of the industrial and economic structure of Germany. To support a final offensive if invasion becomes necessary. 15

The implication of the plan was, unmistakably, that air could conceivably win a victory without an invasion being necessary. However, when the overall plan was prepared by the Joint Army-Navy Board, there was not even a passing reference to the "sustained air offensive," and the dominant strategic concept postulated the classical confrontation of surface forces, following the truism that wars could only be won by land armies. It was not until the ARCADIA and Casablanca conferences that clearly defined policies with respect to the application of air power were finally enunciated. 16

14 Ibid. 15 Ibid. 16 Ibid.
Throughout the years of appeasement and mis-reading of the Nazi threat, the British Air Staff remained attached to the principle of offense which Trenchard had so carefully nurtured. Because the threat was mis-read, there were few individuals (outside of the military) interested in challenging a strategic theory that sounded plausible, even if it had not been tested in war. When, in 1934, a sense of growing danger began to grip the British people, an awareness of the need for accelerated military preparation grew apace.

Faced with the task of repairing over a decade of neglect, the competition for resources among the three services became acute. A new and sharpened illumination was thrown upon the Air Staff doctrines when it became apparent that the country could build upon one principle—either offense or defense—but not both. The intelligence estimates of the strength of the Luftwaffe, vis-a-vis the Royal Air Force showed an alarming numerical superiority on the German side. Influenced by this knowledge, the decision was made within the Government to give priority to defense.

Consequently, Bomber Command entered the war unprepared for the offensive task recommended by the Air Staff. In retrospect, however, the wisdom of the decision is clear. The aircraft produced for Fighter Command (and the radars to guide them) provided the margin of victory in the Battle of Britain, granting to Bomber Command the precious time to build and train for the eventual assault upon Hitler's Germany.  

\[17\] Webster and Frankland, 1, 65-90.
Not only was Bomber Command deficient in crews and aircraft at the beginning of the war, but, additionally, it found itself without an agreed mission, or at least a mission of the kind envisioned in the early 1930's. After 1934 numerous schemes had been drawn up for the attack of industrial centers, communications hubs, power systems, and other military objectives. All of these plans suffered from the uncertainties deriving from the lack of knowledge of when and where the war was to begin, and how the enemy would deploy his strengths. Furthermore, exploratory staff conversations with the French, when the war was close at hand, revealed the disquieting expectation (to Bomber Command) that the entire bomber force would be used as long range artillery in support of the French Army. 18

But even after the importunings of the French had been disregarded, the development of a plausible target system separate from the then conjectural tactical land requirements was a difficult matter. The range limitations of the aircraft in the Bomber Command squadrons established an automatic sanctuary for those German targets deemed suitable for attack, but lying beyond the maximum radius of operations. The corollary to this problem, then, was the questionable prudence of striking half-blows at an enemy whose capacity to retaliate far exceeded the attackers' ability to inflict punishment. Appreciation of this disturbing reality led the Government to announce on 21 June 1938 that Britain was sensitive to the effects of indiscriminate bombing and would, therefore, consider only the attack

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18 Ibid.
19 Webster and Frankland, I, 86-106.
of military objectives, and then with due regard for civilian casualties. The definition of "military objectives" was not supplied. 19

The war opened with hardly a glimmer of how it would conclude. The main task for which Bomber Command was then charged, best equipped, and best prepared was the dropping of propaganda leaflets over enemy territory—at night.20 It was a time intense frustration, dolefully reflected in the observation of Sir Arthur Harris to one of his close associates: "Every time you pass a lamp post, take your hat off, because if the war starts seriously the blame is going to be put on us and that is where we shall finish."21

September 1939 to May 1940 was the period of the "phony" war, which provided Bomber Command the respite to plan, organize, and train the force for the infinitely greater effort to follow. During this time Bomber Command sought to conserve its forces, leaving the initiative to Germany. Attacks against land targets were prohibited, but no restraints were imposed upon operations against enemy naval vessels and shipping. Because attacks against such targets required full visibility, the sorties were confined to daylight hours. These early forays proved to be costly because the bombers, with their scanty defensive armament and relative disadvantage in speed, were easy prey to German fighters operating from coastal airfields.22

19 Webster and Frankland, I, 86-106.
20 Ibid., pp. 36-37.
21 Harris, op. cit., p. 32.
22 Webster and Frankland, I, 192-143.
Notwithstanding the position of inferiority in which the British found themselves, the Air Staff was aware that if the Germans broadened the scope of the war by unrestricted bombing, by invasion of the Low Countries, or both, the Royal Air Force would be forced to respond, even at the risk of severe losses. Accordingly, a plan was drawn up for attack of the Ruhr industrial complex. It was a lucrative area within range of the bombers, and moreover, there were within it targets such as steel mills and oil refineries that were self-illuminating. Having recognized the extreme vulnerability of their aircraft during daylight, the Bomber Command leaders were now beginning to favor nighttime operations. 23

On 10 May 1940 the Germans opened the Western offensive. With the savage bombing of Rotterdam it was immediately apparent that Germany had no intention of following restrictive bombing practices. The realization of what was to come caused the British War Cabinet to authorize bombing attacks east of the Rhine River. Thus began the strategic bombing offensive against Germany—an offensive which was to continue over the next five years. 24

For the next two years Bomber Command had the unrewarding experience of knowing full well what it wanted to do, but without the wherewithal to do it. The command was deficient in suitable aircraft and trained crews, navigational techniques and equipment, communications gear, and effective ordnance. At no time, however, did the Air Staff or Bomber Command waver from their conviction that the offense had to be pursued relentlessly. Significant successes were obtained

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23 Ibid. 24 Ibid., p. 144.
in isolated raids, but for the most part the burdens of the time were borne more by the spirit of the crews than by their accomplishments. In recalling "...what it meant to go out night after night from a darkened field in Lincolnshire into that cold inferno over Germany..." Marshal of the Royal Air Force Sir John Slessor observed that, in general, the results of the missions were poor and that "...the crews were sustained by the belief that they were hitting the enemy harder than they actually were." 25

After the United States entered into the war in December, 1941, the first conference of the new allies (ARCADIA) was held in Washington. On 22 December Prime Minister Churchill arrived with an entourage of staff officers and other high-ranking officials. From then until 14 January 1942 the conference met with their American counterparts to lay the plans for the prosecution of the war. The conference first determined the way in which the two countries would cooperate militarily and, this being agreed, then set the bases of strategy for the ensuing effort. 26

Of the many decisions reached at the conference, the most important was the determination to place first emphasis upon the war against Hitler. This was by no means a popular cause in America, but it was a strategy that had long been advocated by many senior Army officers, including most of the Army Air Forces' senior commanders.


26 Craven and Cate, 1, 237-245.
planners. Among the strategic sub-objectives was the reaffirmation of the plan to weaken Germany by air attack. The Army Air Forces were to join the Royal Air Force in concentrated attacks as soon as squadrons could be readied for deployment. Preliminary plans set March, 1942, as the date when the first heavy bombardment groups would cross the Atlantic. These plans failed to consider expanded training requirements and the really desperate need for crews and aircraft in the Pacific. When these factors were introduced into the program, the build-up of American bomber forces in the United Kingdom was delayed for many months, and the bomber offensive did not begin in strength until after the Casablanca conference of January, 1943.  

When the high commands met again, this time in Casablanca, the course of the war had begun to change. The German offensive had lost its momentum as a result of the disastrous Russian campaign. Slowly the roles of the combatants began to shift, the aggressors becoming the defenders, and vice versa. The purpose of the conference was to respond to this shift in initiative and to plan the Allied strategy in light of the new developments. 

Underpinning the strategy was the unshakable conviction that defeat of Germany would have to come through land operations. Not all of the conferees agreed (especially the airmen), but those who were the final arbiters persisted in their orthodoxy and unequivocally subordinated the strategic bombing campaign to

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27 Ibid.

28 Webster and Frankland, II, 10-21.
the invasion of the Continent. Thus the three-pronged plan developed at Casablanca called "...for sustaining the Russian armies in the field, for military operations of their own on the Mediterranean flank and for intensifying the strategic bombing offensive against Germany herself." 29

Quite clearly, the air offensive was considered a prelude to the ultimate invasion. The importance of the Casablanca conference to the Strategic Air Offensive was that it gave unified direction (however vague) to the British and American bomber forces, although each still clung stubbornly to its own strategic concept and preferred operational tactics. Within the framework of a general mission statement, a set of specific target priorities was prescribed:

(a) German submarine construction yards.
(b) The German aircraft industry.
(c) Transportation.
(d) Oil plants.
(e) Other targets in enemy war industry.

The directive containing the priority list told the air planners what to do, but not how to do it. Because the document required interpretation, the obvious occurred. Each force put its own interpretation upon the wordage, which then became justification for doctrinal rigidity. To the detriment of the Allied cause the division of opinion persisted. Nor was the directive ever amended to the degree needed to resolve the issues. 30

Viewed in retrospect, the Casablanca directive to the strategic air elements produced results commensurate with its intrinsic quality as a staff document.

29 Ibid.
30 Ibid.
Both could have been considerably improved. Its meaning to the enemy, however, was unambiguous:

The significance of the Casablanca Directive lies in the fact that it sought to make indiscriminate bombing respectable as a means of waging war, in the belief that it promised to exercise a decisive influence on the course of the war. The whole of Germany was now declared a target area.\(^\text{31}\)

\(^{31}\) Rumpf, op. cit., p. 50.
CHAPTER IV

STRATEGY AND UNITY

Often a good basic idea suffers from the failure to follow it with equally good supporting ideas. A case can be made that this was true of the Combined Bomber Offensive. Given the early persuasions of both the British and American air staffs that strategic bombing would be instrumental in the defeat of Germany, it is not surprising that a unified structure comprising both of the bombardment forces was created. What is less understandable is that the necessary sub-structures did not evolve which would have made of the whole a thoroughly integrated effort, from planning to execution. Whatever may have been the reasons for not doing so at the time, today's perspective can only suggest that subjectivity and pride were in part to blame.

Following the Casablanca Conference at which the Allies endorsed the concept of a combined bomber offensive, a period of time elapsed wherein both the United States Army Air Forces and the Royal Air Force (to a lesser extent) worked out the planning details of the forthcoming systematic attack upon Germany. The plan was approved by the Combined Chiefs of Staff on 18 May 1943 and followed by a formal directive of implementation on 10 June 1943. The operation was designated by the code name POINTBLANK.\(^2\)

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1“Plan for the Combined Bomber Offensive from the United Kingdom.”

2Craven and Cate, II, 348 and 631.
Because Bomber Command was of necessity committed to night strikes against area targets, the task cut out for its crews in POINTBLANK was not greatly different from what they had been doing, except that now they were merely to shift the loci of their attacks to complement the American daylight missions. These daylight raids were to be conducted against selected military and industrial targets, and in a specified priority.

The targets described by the plan had been chosen by a group of analysts in the Washington Headquarters of the United States Army Air Forces. Convened as the "Committee of Operations Analysts" by General Henry H. Arnold, Commanding General of the Army Air Forces, the group sought to define a system of targets that, if destroyed, would most weaken Germany in the shortest time. After the completion of their work in March of 1943, the findings (which closely approximated the Casablanca objectives) were sent to the British Ministry of Economic Warfare, the Royal Air Force, and the Eighth Air Force, then commanded by Lieutenant General Ira C. Eaker. With only minor qualification the report was enthusiastically received and generally accepted.3

If, as originally written, the POINTBLANK plan had been rigidly followed, it would have meant acceptance by Sir Arthur Harris of the principle of selective attacks upon key industries. The modifications in terminology requested by Harris, and written into the final version of the plan, clearly indicated that no such transformation had taken place. He had, instead, opened a loophole using

3Ibid., pp. 348-366.
conveniently ambiguous phraseology that permitted him to proceed more or less unhindered along his own tack. There is reason to believe, and not unfairly, that Harris and Marshal of the Royal Air Force Sir Charles Portal, Chief of Air Staff, were more interested in quickly developing a strong partner in the Eighth Air Force than they were in arguing the niceties of a target system based more upon American estimates of capability than upon experience. In any event, both knew that to oppose the plan would have strengthened those other service factions in the United States who wished to limit the allocation of resources to the bomber program.

The structure framed for the conduct of the Combined Bomber Offensive was singularly informal. At TRIDENT, the Washington conference of May, 1943, convened to implement the Casablanca decisions, the Combined Chiefs of Staff stipulated that the Royal Air Force Chief of Air Staff would be their agent in the direction of the bomber offensive. In his 10 June 1943 directive to Harris and Eaker, Portal re-phrased, but generally preserved, the specifics of the Combined Bomber Offensive plan which had assigned the selective attack targets to the Eighth Air Force and reserved for Bomber Command its main task of disrupting German industry.

4It should be noted, however, that Portal was a strong supporter of the American priority requirement to gain air superiority over the Luftwaffe. Harris was less ardent, although he saw the advantage to Bomber Command were air superiority to be achieved.

5Webster and Frankland, II, 17-21.
acting, when practicable, in a role complementary to Eaker's forces. The job
of ironing out the necessary details was left by Portal to the two commanders. 6

A system of operations, imposed from above, was clearly needed. Even
though the degree of integration of effort prescribed by the Combined Bomber
Offensive plan was watered-down by the Portal directive, a requirement for close
coordination none the less existed. General Arnold, after a review of the docu­
ments, asked Sir Charles for the establishment of some form of machinery that
would more closely interlace the activities of the two commands. Consequently,
the Combined Operational Planning Committee was created. Unfortunately, the
committee was a planning organ that had no directive or executive authority. It
could only recommend, and because it concerned itself primarily with the daylight
targets, it became a consultative body whose main benefit was to act as liaison
between Bomber Command and the Eighth Air Force. 7

The net effect of the failure to superimpose clear-cut direction over the
two forces was to drive them along two parallel courses. "For the most part of 1943
there was no combined offensive, but on the contrary, a bombing competition." 8

Fundamentally, the strategic issue was not the distinction between day
and night bombing. Even if it had been, both forces were by now too far entrenched
through crew training and aircraft selection to abruptly change their ways of

6 Craven and Cate, II, 373-374.
7 Ibid., pp. 374-375.
8 Webster and Frankland, II, 5.
fighting. The real issue was disagreement over the question of selective or general attack. The Americans held that "it is better to cause a high degree of destruction in a few really essential industries than to cause a small degree of destruction in many industries." This could be done by precision bombing of selected key industrial plants, by area bombing of the cities wherein the industries were located, or by a combination of both. The Bomber Command view (accepted with diminishing enthusiasm by the Air Staff of the Royal Air Force) was that general bombing on a vast scale would gradually, by cumulative effect, destroy the material base of German industry and the morale of the people who were responsible for production. Furthermore, it was held, attacks against key industries alone could be offset by dispersal and stockpiling of critical items in areas unlikely to come under attack.  

There could be no doubt about the logical extension of the Bomber Command view. Quite simply, if permitted to proceed without siphoning-off the command's strength in side excursions, Harris believed that he could preclude an invasion of the Continent. With the flush of success occasioned by his brilliant attacks upon Hamburg and the Ruhr he became more adamant in his beliefs and railed against those who sought to divert his efforts;

9 Ibid. 
10 Ibid. 
11 Harris, op. cit., p. 223.
Had I paid attention to the panacea-mongers who were always cropping up and hawking their wares, Bomber Command would have flitted continually from one thing to another during the whole period of my Command; the continuity of the offensive as a whole would have been irretrievably lost.  

On the American side there was an equally mulish resistance to change. They, after all, had thrown down the glove in the Combined Bomber Offensive plan—with a scanty foundation of experience behind them (mostly sorties against poorly-defended French targets or very shallow penetrations into Germany). With their insistent avowal of their capability to penetrate the German heartland by day and without fighter escort, the only course open was to attempt to prove what they said they could do.

Lessons were learned in both camps through the notorious operations conducted against the ball-bearing center—Schweinfurt. From the American standpoint the raids of 17 August and 14 October 1943 signalled the time of acute crisis. On the first raid a loss rate of 19 per cent of the attacking force was sustained; on the second, 21 per cent. These losses were out of all proportion to the damage and interference caused within the ball-bearing industry. After the first attack the Germans quickly recognized the Allied intent and moved production facilities to other areas. The second attack was, therefore, of little consequence because it happened after the re-location had been accomplished. Entirely different results

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12 Harris, op. cit., p. 223.

13 Craven and Cate, II, 681-706.
would have probably been achieved if the Army Air Forces attack had taken place on successive days. British follow-up sorties at night would have been of great assistance, but the coordination between the forces was woefully deficient. The Eighth Air Force picked the period of a full-moon for the August raid, a time when obviously the Royal Air Force could not dispatch its bombers because of their extreme vulnerability under those conditions. 14

The Americans were faced with a serious dilemma. On the one hand, their losses were approaching a magnitude that made continued operations of doubtful value. On the other hand, only by sustained operations could any lasting successes be attained. There were determinable limits to the loss rates that could be borne by the attackers in relation to the results the survivors could be expected to achieve. It appeared that the limits had been reached. The experiences of Schweinfurt unquestionably influenced two of the conclusions of the United States Strategic Bombing Survey:

The significance of full domination of the air over the enemy—both over its armed forces and over its sustaining economy—must be emphasized. That domination of the air was essential. Without it, attacks on the basic economy of the enemy could not have been delivered in sufficient force and with sufficient freedom to bring effective and lasting results.

The German experience showed that, whatever the target system, no indispensable industry was permanently put out of commission by a single

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14 Webster and Frankland, II, 62-63.
attack. Persistent re-attack was necessary. 15

Within the Royal Air Force, their Schweinfurt incident was not one of operational significance but instead, a crisis in authority. In December of 1943 Sir Arthur Harris wrote to the Air Ministry stating that, with only his programmed force of Lancaster bombers, he could make the German surrender inevitable by 1 April 1944. This presumed that the necessary priorities would be allocated for production and repair of aircraft, and that he would be free from diversionary force commitments imposed upon Bomber Command by external headquarters. 16

Although the position taken by Harris reflected no more than a very literal reading of the Bomber Command mission tasked in the POINTBLANK directives, it was not well-received by the Air Staff for several reasons. (1) The opinion of the Air Staff was beginning to evidence growing doubts about the efficacy of general attacks. (2) The ineffectiveness of the Eighth Air Force against selected targets (the Luftwaffe, in particular) was becoming alarming. (3) The attacks on key industries required massive concentration of effort. (4) Neutralization of the German Fighter Force was preconditional to the success of OVERLORD (the invasion of the Continent). 17

For these reasons, and because the entire strategy of the Combined Chiefs of Staff hinged on OVERLORD, Air Chief Marshal Sir Norman Bottomley, Deputy


\[16\] Webster and Frankland, II, 53-72.

\[17\] Ibid.
Chief of Air Staff, was forced to reply to Harris in what amounted to an unequivocal reversal of the Bomber Command strategy. Harris was instructed to shift his attacks to the selected targets with the hope that what the Eighth Air Force could not do in daylight, Bomber Command might be able to do at night. Specifically, Harris was pressed to strike Schweinfurt because of the high priority that British Intelligence placed upon the German ball-bearing supply. The request was not honored. Sir Arthur considered the attack to be a waste of time. Clearly, the contest had reached a state where the inaction of the Commander-in-Chief, Bomber Command, was verging on insubordination. The authority of Portal as Chief of Air Staff was being openly flaunted. Firm action was required, not only to preserve discipline, but also because Portal had come to full agreement with the American Air Staff as to the necessity for pursuing the detailed POINTBLANK objectives. On 14 January 1944 a directive was issued to Harris ordering him to attack Schweinfurt until it was destroyed. He continued to protest but his reasoning was flatly rejected. Again, on 27 January, Portal’s order was repeated. As a consequence, but after still more delay, on the night of 24 February 1944 Bomber Command sent 734 bombers over Schweinfurt. They followed a daylight attack, on the same day, by 266 bombers of the Eighth Air Force. The Combined Bomber Offensive had finally begun.\(^{18}\)

This emphasis upon the value of selective attack corresponded more closely to the aim which had inspired the efforts of the Eighth Air Force than to the policy which had generally and primarily governed the conduct of Bomber Command since the summer of 1941. Yet it was undoubtedly the apparent failure of the Eighth Air Force,

\(^{18}\)Ibid.
culminating in the Schweinfurt disaster of October 1943, which had produced this shift. The continuing growth of the German fighter force and the evident failure of the Eighth Air Force to check it coupled with the approach of Overlord and the overwhelming need for air superiority, had virtually forced the Air Staff into what amounted to a policy of desperation. In this situation, Sir Arthur Harris' argument for the general area assault had appeared to be not only extravagant but also irrelevant. 19

After this harrowing year (1943), the fortunes of both forces improved. Bomber Command acquired the techniques that permitted it to carry-out precision night bombing, and the Eighth Air Force began to receive in quantity the long-range fighters so vitally needed for escort duty. Additionally, the American forces were strengthened by the creation, on 1 January 1944, of the United States Strategic Air Forces in Europe, a command comprising the Eighth Air Force and the newly constituted Fifteenth Air Force in Italy. The Combined Bomber Offensive, vitalized by new and explicit directives, began to achieve the results that had eluded its planners since its formation. But with the approach of OVERLORD, an organizational problem of great magnitude appeared.

Whether or not the personal opinions of Sir Arthur Harris (now joined by the Commanding General, United States Strategic Air Forces in Europe, General Carl A. Spaatz) were correct—that the right kind of an air offensive could stave off the need for invasion—the course of the war now depended upon the successful conduct of OVERLORD. It was with this imperative before them that the Combined Chiefs of Staff weighed every decision. And whether or not there was complete accord among the principals, the decision had been made to use the strategic air elements in support of the invasion. This had the concomitant effect of suspending

Ibid.
the original bombing program of the Combined Bomber Offensive, at least until a secure foothold had been gained by the invasion forces. The question of who was going to command the bombers under this new concept became an issue charged with considerable emotion. 20.

Prior to this time the control of Bomber Command and the United States Strategic Air Forces in Europe was vested in the Combined Chiefs of Staff through the Royal Air Force Chief of Air Staff as their agent. General Dwight D. Eisenhower, Supreme Commander, Allied Expeditionary Forces, was similarly responsible only to the Combined Chiefs of Staff, and since he was to employ the strategic air forces in OVERLORD he believed strongly that he should command them.

My insistence upon commanding these air forces at that time was further influenced by the lesson so conclusively demonstrated at Salerno; when a battle needs the last ounce of available force, the commander must not be in the position of depending upon request and negotiation to get it. It was vital that the entire sum of our assault power, including the two Strategic Air Forces, be available for use during the critical stages of the attack. I stated unequivocally that so long as I was in command I would accept no other solution, although I agreed that the two commanders of the heavy bombing forces would not be subordinated to my Tactical Air commander in chief but would receive orders directly from me. 21

The American Chiefs of Staff did not object to Eisenhower’s demand because the proposal was in line with their ideas of achieving command of the entire opera-


tion. The British, however, were virtually unanimous in their opposition to the agreement. Aside from perhaps purely national considerations, the primary fear was that Bomber Command’s attack upon German industry would be compromised and that the whole weight of the force would be frittered away on unworthy targets in support of the land battle. 22

Both the British and Americans were opposed to the alternate plan whereby the elements of the United States Strategic Air Forces in Europe and Bomber Command detached for the support of OVERLORD would come under Air Marshal Sir Trafford Leigh-Mallory, the newly appointed Commander-in-Chief, Allied Expeditionary Air Force, and a subordinate of Eisenhower. Leigh-Mallory was a distinguished fighter pilot who had led the Fighter Command, but to Harris and Spaatz, the idea of placing bomber units under a tactical commander was unthinkable. 23

Eisenhower was not to be put off. After fruitful discussions with Sir Charles Portal and Prime Minister Churchill, he evolved a compromise solution to the problem that seemed both logical and fair. The tactical forces would remain under Leigh-Mallory, but the strategic forces would come under Eisenhower through his Deputy Supreme Commander, Air Chief Marshall Sir Arthur Tedder. This would avoid placing Harris and Spaatz under an equal and would merely substitute Eisenhower for Portal as agent for the Combined Chiefs of Staff. In effect, Tedder would become the Supreme Air Commander. As a pragmatic solution the arrangement was excellent,

22 Ibid.
23 Webster and Frankland, III, 10-41.
but in translating the agreed policy into directive form, a protracted semantic battle arose over the nature of Eisenhower's authority. The British chose "supervision," but the Americans insisted upon "command." The Supreme Commander lost patience and demanded clarification from the Combined Chiefs of Staff, saying that "...unless the matter is settled at once I will request relief from this command." At this point the word "direction" was introduced and accepted. On 14 April 1944 the authority was passed from Portal to Eisenhower. 24

The successes of the strategic air forces in their support of OVERLORD need no elaboration. The working arrangement proved to be eminently practical. In fact, neither Supreme Headquarters Allied Expeditionary Forces nor either of the two bomber forces sought to terminate the structure after the affairs on the Continent were well in hand. The British Air Staff, however, desired a return to the original arrangement wherein the power of direction resided with the Combined Chiefs of Staff. The motivation was clear. Portal wanted to again exercise control over Bomber Command. The maverick Harris needed, in the eyes of his superiors, the restraints achievable through direct lines of command. 25

Although Eisenhower thought the reversion to be awkward and inefficient, he diplomatically raised no objection after the Combined Chiefs of Staff inserted a clause in the implementing directive "...which gave the demands of the supreme commander in Europe priority over anything else that the strategic bombers might be

24 Pogue, loc. cit.

25 Craven and Cate, III, 320-322.
required to do. 26

With the formal approval of the Combined Chiefs of Staff on 14 September 1944 the control of the Combined Bomber Offensive again passed to Portal. Instead of solving the internal Royal Air Force problems, the transfer only made things worse. The differences between Portal and Harris persisted until the end of the war, growing progressively worse as time passed. There was a time when it appeared that either Portal would have to change his ideas or enforce them—which would mean dismissing Harris. The matter was never resolved, probably because the cure would have been more distasteful than the sickness. Thus the war came to its final stages with scarcely more cohesion in the strategic bombing policies than was present at the start. In British circles there is strong sentiment that the post-invasion phase of the war was avoidably prolonged by this tragic failure of accommodation. 27


27 Webster and Frankland, III, 75-94.
CHAPTER V
BOMBING STRATEGY AND ETHICS

Not until near the end of the war did British and American views on general bombing approach any degree of convergence, and then only fleetingly. Both governments, from the beginning of the war, decried wanton attacks upon civilians, but they differed in the practical application of their common sensitivity. The Americans adhered to daylight attacks with a rigidity that, for a long period of time, was almost self-defeating. Rather than compromise their unwillingness to strike other than military targets (in a strict sense), they grimly accepted loss rates that were nothing short of catastrophic. The British, on the other hand, held to a broader understanding of what constituted a military target and accepted the realization that some civilian casualties would inevitably be sustained by the enemy if the war were to be brought to an end at the earliest possible time.

That there should have been less reluctance in England to area bombing than in the United States is not at all surprising. The blows struck against London during the last half of 1940 were ample proof that the Germans had abandoned any pretense of limiting their attacks to purely military objectives. The desire for retaliation was widespread, including among its advocates the Prime Minister himself. In a minute to General Ismay on 19 November 1940 he said:

I wish to know...what is the worst form of proportionate retaliation, i.e., equal retaliation, that we can inflict upon ordinary German cities for what they are now doing to us by means of the parachute mine. Today we were informed that thirty-six had been dropped, but by tomorrow it
may be a hundred. Well, let it be a hundred and make the best possible plan on that scale for action within, say, a week or ten days. If we have to wait longer, so be it, but make sure there is no obstruction.

Nevertheless, even with the backing of Churchill, there was resistance to the action. As he commented in his account of the period: "A month later, I was still pressing for retaliation; but one objection after another, moral and technical, obstructed it."\(^1\)

Not having had the trying experiences of England to serve as a policy influence, the Americans, when they entered the war, followed a bombing philosophy similar to one expressed in a book written in 1941 by Arnold and Eaker.\(^2\) In what was a curious mixture of naivete and hard-headed realism the author said:

A large air force will not require all of its bombers for operations against the air force of the enemy. Persistent attacks will be launched immediately on those manufacturing establishments, power plants, and lines of communication which are vital to an enemy in its attempt to gird itself for war. Every factory in an enemy territory which is producing a vital war material or an essential item of equipment, can expect enemy air raids.

There has been much discussion about attacks on centers of population. It is generally accepted that bombing attacks on civil populace are uneconomical and unwise. Many of the reports in the present war in Europe of attacks on civil populations either are propaganda or due to mistaken identity, or inaccuracy on the part of the bombardier in the plane. Dense populations which reside in the vicinity of industrial areas, air-dromes, navy yards and docks will undoubtedly feel the effects of poor bombing on those docks. If either of the com-


\(^2\)Ibid.

\(^3\)Then major general and colonel, respectively.
batants has engaged in attacks on people, such missions cannot be classified other than as decided tactical errors. The most economical way of reducing a large city to the point of surrender, of breaking its will to resistance, is not to drop bombs in its streets, but to destroy the power plants which supply light, the water supply, the sewer lines. Never, to date, and perhaps in no time, will any nation have a sufficient air force to be able to use it on other than priority targets. Human beings are not priority targets except in certain special situations. Bombers in far larger numbers than are available today will be required for wiping out people in sufficient numbers to break the will of a whole nation.  

Earlier in the book, two important reasons were cited for the failure of the United States to be prepared for offensive bombing operations. The first was that offense contravened national policy, which centered upon defense. The second was that there were unpleasant characteristics associated with bomber operations. The possibilities of the involvement of non-combatants and non-military objectives was repugnant to the United States.  

Throughout most of the war the Americans and the British retained their differing attitudes toward bombing, although in practice the American operations were often indistinguishable in results from those of the British. Despite their opposite views, each was restrained to a degree by ethical considerations, some more genuine than others. But there is no doubt that the winning of the war was, for each, the end objective to which all other considerations were secondary.  

During the twenty years that have gone by since the collapse of Germany,

\[ \text{References:} \]


\[5 \text{Ibid., pp. 8-9.} \]
one of the most persistently nagging questions that has bedeviled the military analyst has been that of the rightness or wrongness of the general bombing of German cities. A review of this question is of interest today because the issue is centrally involved in contemporary debate over military strategy—and now, as then, the moral issue is highly relevant. But before turning to a specific case history to aid in understanding the problem, three preliminary observations should be made.

The first is that, disregarding the fact that the Germans started the war, the culpability for unrestricted bombing can be equally attached to three of the five major combatants—Germany, Great Britain and the United States. All three engaged in area bombing when it suited their interests, in spite of official policy statements to the contrary. And it is assuredly true that had Japan and Russia been equipped with aircraft suitable for long-range operations, they too would have done so. The fact seems to have been that abstract or moral considerations were definitely less of a restraint than were operational circumstances. In brief, when it was operationally infeasible to do precision bombing, area bombing was the only alternative short of no bombing at all.

The second point deserving of mention is that the Allied bombing policy was not a policy laid down by military men, but by their governments. At the Casablanca conference of 1943 it had been stipulated that the two strategic air forces, working together, should achieve "the progressive destruction and dislocation of the German military, industrial and economic system and the undermining of the morale of the German people to the point where their capacity for armed resistance is fatally
This statement required and received the approval of President Roosevelt and Prime Minister Churchill. With guidance of this kind, the leaders of Bomber Command and the United States Strategic Air Forces had explicit strategic direction and, at the same time, wide latitude within which to choose both their targets and tactics.

The last factor to be brought to fore is the often shadowy distinction between area and precision bombing. Certainly one useful criterion to sharpen this distinction could be that of intent. Taken alone, however, dependence upon this one criterion could be misleading. While the aiming point of a given striking force may have been associated with an identifiable and precise point of geography, the results of the mission could in no real sense be predicated upon the character of the objective, and this for three reasons. (1) The probability of adverse weather obscuring the target, totally or partially, decreased the assurance of precision bombing by a factor directly proportional to the extent of the cloud cover. (2) Bombing accuracy under combat conditions did not approach the accuracy inherent in the bombing equipment and attainable in a training environment. (3) The location of the target was important. If, for instance, an aiming point was a marshalling yard in the middle of a built-up residential area, the selection of that particular aiming point could, without undue

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6 Quoted in Webster and Frankland, II, 23.

7 Ibid.

8 The Eighth Air Force used a planning circular error of 1000 feet for combat bombing altitudes over 20,000 feet and under visual sighting conditions. (The Army Air Forces, Tab C to Air War Planning Document 42, 9 Sep 42, on file in the USAF Historical Archives, Maxwell AFB, Alabama.) The average circular error for blind bombing was approximately two miles. (Craven and Cate, III, 723.) Compare these figures with the results of a simulated combat mission flown by the author during training. (See Appendix 2.) The circular error for that particular mission—152 feet—was generally representative of the accuracy achieved by student bombardiers during training and prior to joining operational units.
cynicism, be considered a euphemism for somewhat broader objectives.

With these ideas serving as an introduction, a greater appreciation of the issue can be gained by examining one particular operation that has aroused feelings and expressions of unusual depth.

On 13 February 1945 three raids—two British and one American—destroyed the ancient city of Dresden. The most reliable estimates have placed the number of fatalities resulting from the attack at 135,000—almost twice as many deaths as have been attributed to the atomic attack on Hiroshima.9

While slaughter of such magnitude defies imagination, the estimate of casualties is in a sense statistical and of lesser importance than the question of whether or not the deaths, whatever their number, were necessary at all. In the opinion of David Irving, they were not. In a highly interpretive book that is, nevertheless, based upon meticulous research, he concluded that, at the time of the attack, the strategic importance of Dresden was "scarcely marginal." Not only was the city undefended (a fact not easily ascertainable by the Allies) and free of major industry, but the war had progressed to a point in time where any city that had not, by then, acquired strategic significance was unlikely to do so in the future.10


10 Ibid., pp. 69-77.
Such speculation, heavily weighted with the wisdom of hindsight, can do no more than to throw a reminding glare upon the tragic nature of war itself—nor is it suggested here that Irving has intended to do more than that. If the holocaust of Dresden is cast as a ghastly mistake, the lesson is for today and tomorrow. No just purpose would be served by trying to find a scapegoat. (Exercises of that nature are often welcome because they provide a subconscious avenue for the shedding of one’s own share of the collective guilt.) Things known today could not have been known then, and decisions made in the time of war cannot be analyzed today except within an understanding of the psychological matrix that surrounded their making.

The reasons for Dresden are not to be found in crass insensitivity to human suffering, nor, most certainly, in calculated savagery. Instead, if historical records reflect the truth, the attack was an event whose occurrence can be traced to legitimate military objectives.

Early in 1945 a sense of discouragement pervaded the headquarters of the United States Strategic Air Forces in Europe. The strategic offensive had been interrupted for a month starting in the middle of December, 1944, so that the bombers could render tactical assistance to the beleaguered ground forces in the Ardennes. Even though that operation, the Battle of the Bulge, had had a favorable conclusion, freeing the bombers for return to their primary duties, the end of the war was not yet in sight. The month of respite had allowed the German oil industry to produce sufficient fuel for the Luftwaffe to operate its deadly jet fighters with considerable
effectiveness. And of no solace was a letter sent from General Arnold to General Spaatz which echoed from the homefront the same pessimism that was building within the theater. The letter read in part:

We have a superiority of at least 5 to 1 now against Germany and yet, in spite of all our hopes, anticipations, dreams and plans, we have as yet not been able to capitalize to the extent which we should. We may not be able to force capitulation of the Germans by air attacks, but on the other hand, with this tremendous striking power, it would seem to me that we should get much better and much more decisive results than we are getting now. I am not criticizing, because frankly I don't know the answer and what I am now doing is letting my thoughts run wild with the hope that out of this you may get a glimmer, a light, a new thought, or something which will help us to bring this war to a close sooner.

Faced with this situation, a reappraisal of the strategic target system had to be undertaken. A revised set of priorities was developed by General Spaatz and Air Marshal Bottomley in January, 1945, but there was little more to the revision than minor changes in emphasis. Oil still headed the list, followed by lines of communication, and, for the Royal Air Force, blind attacks against industrial areas.

A significant development came at the end of the month when the Combined Chiefs of Staff met at Malta prior to the Yalta conference. There the military chiefs decided to shift the strategic attack to the east in order to prevent German reinforcement of the rapidly deteriorating front. Additionally, they probably anticipated that the Russians would solicit such support at the February conference. The offen-

11 Craven and Cate, III, 715.

12 Ibid., p. 716.

13 Ibid., pp. 717-722.
sive was to be launched against those transportation centers that lay athwart the western approaches to the Eastern Front. A corollary benefit to be gained was the creation of panic and confusion in the cities that would hopefully put strong pressure upon Hitler to end the war. Dresden was one of the appointed cities. 14

Reaction within Germany to the Dresden attack was stridently bitter. Goebbels's propaganda machine dragged out of the disaster every conceivable advantage. The common theme in all of the broadcasts to the outside world, both from the stations inside Germany and from those clandestine stations outside of the country, was the accusation of terror tactics.

Soon the presses of the neutral countries were reporting detailed versions of what had happened in Dresden. 15 But of greater importance were the reactions within the United States and Great Britain. In the United States the Secretary of War had to be briefed concerning the strategic significance of Dresden and of the desire of the Russians to have it neutralized. And a great flurry of telegrams went back and forth between Washington and the headquarters of the United States Strategic Air Forces asking for and receiving assurance that only approved bombing tactics were being employed. 16

In Great Britain the reaction, though delayed, was severe. The days following Dresden saw an upswing in the fortunes of the Allies. The pessimism

14 ibid., pp. 724-731.
15 Irving, op. cit., p. 222.
16 Craven and Cate, III, 731.
that had appeared after the Battle of the Bulge turned to quiet optimism. The oil
offensive conducted by the United States Strategic Air Forces and, reluctantly, by
Sir Arthur Harris began to produce the desired results, and the land forces swept on
toward Berlin and the east. All of these things combined to raise doubts in the mind
of the Prime Minister as to the need for further strategic air operations, and in
particular, heavy general bombing. Accordingly, on 28 March 1945 he prepared
the following minute for the Chiefs of Staff Committee and the Chief of Air Staffs:

It seems to me that the moment has come when the question of bombing
of German cities simply for the sake of increasing the terror, though under
other pretexts, should be reviewed. Otherwise we shall come into control
of an utterly ruined land. We shall not, for instance, be able to get hous-
ing materials out of Germany for our own needs because some temporary
provision would have to be made for the Germans themselves. The destruc-
tion of Dresden remains a serious query against the conduct of Allied bomb-
ing. I am of the opinion that military objectives must henceforth be more
strictly studied in our own interests rather than that of the enemy.

The Foreign Secretary has spoken to me on this subject, and I feel the
need for more precise concentration upon military objectives, such as oil
and communications behind the immediate battle-zone, rather than on
mere acts of terror and wanton destruction, however impressive. 17

Although the underlying motive of the communication was without doubt
proper, the manner of its phrasing was a cruel and unwarranted thrust at the Royal
Air Force. In his unveiled criticism of Dresden, Churchill totally ignored the fact
that on 26 January 1945 he had dispatched an unusually curt minute to the Secretary
of State for Air, Sir Archibald Sinclair, demanding to know when Berlin and "other
large cities in East Germany" were to be brought under attack. Not only was the
attribution of blame for the Dresden attack unfair, but it constituted a broad in-
dictment of the bombing policy which the government had consistently approved for

17 Webster and Frankland, III, 112.
the many years of Bomber Command’s operations over Germany. When the Prime
Minister received word of the distress his minute had occasioned within Bomber
Command, it is to his credit that he caused it to be withdrawn in favor of one more
felicitously worded. 18

Of the many attitudes and opinions concerned with the ethical aspects of
general bombardment, each of the official histories of the Strategic Air Offensive
contains a passage that seems, for its own service, to capture what was both the
essence and the reality of its country’s beliefs. These bear repetition.

First, from the American history:

In General Spaatz’s mind, “beating up the insides of Germany” meant
no more than the intensification of a well-conceived program of strategic
bombardment, but there was no shortage of proposals from other sources for
special employment of the overwhelming air power at the disposal of the
Allied command. Some of the proposals were British in origin and some
were American, and some of them tended to become an issue between the
AAF and the RAF. Especially was this true of proposals to bomb Germany
so terrifyingly that it would sue for peace. . . . All proposals frankly aimed
at breaking the morale of the German people met the consistent opposition
of General Spaatz, who repeatedly raised the moral issue involved, and
AAF Headquarters in Washington strongly supported him on the grounds
that such operations were contrary to air force policy and national ideals.
On more than one occasion Eisenhower backed Spaatz’s insistence that
his own forces be sent only against what he considered legitimate military
targets. At times, SHAEF yielded to other pressures. 19

Second, from the British history:

The conduct of the strategic air offensive had long been regarded with
suspicion by sections of public opinion in Britain. It was generally regarded
as morally legitimate to bomb strategic objectives such as factories, oil

18 Ibid., pp. 95-119.
19 Craven and Cate, III, 638.
plants, dockyards and railway centres, even if this did incidently cause severe destruction of residential areas and of civilian life and limb. On the other hand, the view that it was morally legitimate to bomb residential area, even if the object was to reduce military or industrial activity, was frequently challenged, and the more apparent it became that in the majority of its major area attacks, Bomber Command was, in fact, aiming at the centres of the residential areas, the more pronounced the protests became. In dealing with these challenges and with the many anxious enquiries which he received, the Secretary of State for Air was naturally placed in a somewhat delicate and difficult position. It was unfortunate that he had to contend with such a widespread and deep-rooted ignorance of the operational problems involved. All the same, many of those who expressed anxiety about the objects of strategic bombing were highly responsible people whose motives could not be in doubt.

As a balance to these views, a strange but sobering suggestion is to be found in a post-war book written by a man who was the Inspector General of Fire Prevention in Germany. Quoting a French military writer, he marks a relationship between the Nuremberg trials and the bombing of Germany:

The basis of the process was settle in advance: the enemy had to be wrong. The sight of the vast ruins had thrown the victors into a panic, and they were afraid. The enemy had to be wrong—think of what the world would look like if he were not! How intolerably heavy the leaden weight of conscience would rest on us for all those towns we razed to the ground.

Apart from forcing a realization of the utter uselessness of modern warfare, the Dresden episode tells another story, one that speaks more to the future than to the past. It is simply this. When one regards the terrible devastation of Dresden, the thought immediately occurs that the pattern could have been repeated through-

20 Webster and Frankland, III, 114.

out Germany. If the American and British forces had combined—early in the war—to systematically destroy each German city of over 100,000 inhabitants, there is little evidence to suggest that it could not have been done. Whether or not that course of action would have led to an earlier victory is open to conjecture. What is supremely important, beyond sterile speculation about what might have happened, is that the Allies deliberately chose not to fulfill their potential of destruction. Their choice was a boon to humanity.
CHAPTER VI
MEN AND MACHINES

During the period between the end of World War I and the beginning of World War II, the application of technology to the science of warfare was not a popular occupation. Stultified by their obsession with the doctrines of the past, the military leaders of the period failed to put to use the techniques and advances made by their scientific contemporaries.¹ The war began with weapons that were, relatively speaking, hardly advanced at all from the concluding days of World War I.

In Great Britain, despite the knowledge that Hitler was rearming at an alarming pace, there was widespread and dream-like unconcern. Late in July, 1936, Winston Churchill felt obliged to warn the government that an emergency existed. He estimated that at least two years would elapse before the production of armaments could reach minimally acceptable figures—and even then the stocks would be hopelessly short of war-time needs.²

Across the ocean the situation was worse. When Franklin D. Roosevelt took office in 1933, the United States Army ranked seventeenth among those of the world. Isolationist sentiment dominated the national mood and the security of the

¹When Sir Arthur Harris attended the Royal Army Staff College in 1927 he was appalled by its conservatism. "...The motto of the place was 'be orthodox or perish' and being orthodox appeared to mean holding on to every tenet of warfare that had turned out to be a busted flush between 1914 and 1918 and ignoring all subsequent technical development." (Harris, op. cit., pp. 24-25.)

²Churchill, I, 681-687.
land was entrusted to the long guns of the navy.³

Each country had, however, profitted to a degree from the experiences of World War I and had given some attention to the place of air power in future wars. Understandably, the interest was greatest among those military men who had been directly associated with the formative period of military aviation.

In the United States the proponents of air power had charted a well-ordered course. Three objectives were of major significance: an independent air force; acceptance of the doctrine of strategic bombardment; and an aircraft capable of the strategic role.⁴ These ambitions were continually frustrated by the subordination of the Air Corps to the Army. Because of this arrangement the assigned roles of the Air Corps were direct support of the Army and coastal defense of the nation.⁵ Neither of these was regarded by the air leaders as being of primary importance, although the latter task had within it the seeds of a bomber program of unheralded size.

In January, 1931, an agreement had been made between General Douglas MacArthur, Army Chief of Staff, and Admiral William V. Pratt, Chief of Naval Operations, which called a truce to the dispute over the role of air power in coastal defense. The terms of the agreement gave the Air Corps specific responsibilities


⁴Craven and Cate, I, 17.

⁵Ibid., p. 68.
to defend against hostile naval elements. In order to fulfill this role a suitable aircraft had to be provided—a requirement that ultimately bore fruit in the B-17 long-range bomber. Thus, when the United States entered the war, the production lines for a first-class bomber were in operation.  

The early problems of the Army Air Forces can be summarized in one word—shortages. Even though President Roosevelt began the expansion of the Air Corps in 1939, the weeks and months after Pearl Harbor were filled with the frustrations that arose from not having what was needed to do the job at hand. The plea of the President for initial production of 50,000 planes a year was more rhetorical than it was a goal that could be met by the aircraft industry, even under optimum conditions.

A most vexing problem was the development of a program to synchronize the production of aircraft with airfield construction and aircrew training. At no time was there a static plan. News from the theaters stimulated expanded requirements; combat experience dictated urgent modifications and specifications were in constant flux. To keep up with the frenetic pace of events the entire methodology of procurement had to be changed. Departing from painfully meticulous paper routines, harried officials adopted "judicious shortcuts" and the telephone became an instrument of life-saving effectiveness. Perhaps the quality of production declined, but quantity in time of need was adequate compensation.

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6 Craven and Cate, 1, 30, 61-67.
7 The Army air establishment was so designated on 20 June 1941 (Craven and Cate, 1, 115).
8 Craven and Cate, 1, 104-110.
Even had the aircraft rolled out of the factories onto prepared airfields and into the hands of trained air and ground crews, two other problems had to be faced. First, the desperate requirements of the Royal Air Force demanded an apportionment of the resources. This, of course, meant that certain American units were deprived of their equipment, which in turn delayed their entry into combat operations. Second, apart from being used in training units, the bombers were ineffective until they had been flown overseas to theater locations. For inexperienced youths only weeks out of flying schools, the prospect of long hours over the unfriendly Atlantic in an unfamiliar aircraft was a challenging assignment. But for those who landed safe in England, their real ordeal had just begun.

Austere peacetime budgets had equipped the Royal Air Force Bomber Command with what Sir Arthur Harris called a "shop window" force. It was a force utterly lacking in depth, which, when war came, found itself faced with the dilemma of being, on the one hand, unable to field operational units without taking crews and equipment away from the sorely needed training program, or on the other hand, to reduce front-line strength by withdrawing crews for training cadres. Had not the period of the "phony war" allowed time for the build-up of Bomber Command, the subsequent years of operations against Germany would have been vastly different. Even then, the months of respite were all too short.  

Contrary to early expectations, the few bombers available for attacks on German forces were unable to operate effectively in the daytime. Aside from their

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9Harris, op. cit., pp. 34-35.
short range, the bombers were handicapped by defensive armament systems that had limited fields of coverage—a deficiency soon recognized by the Luftwaffe whose pilots shifted their attacks to sectors that avoided the defensive firepower of the bombers. 10 Equally discouraging was lack of self-sealing fuel tanks. Without these tanks, one bullet could send a bomber down in flames. It was not until all of the fighter units had been equipped with the tanks that a retrofit program was undertaken to benefit the bomber squadrons. 11

Progressively higher losses, coupled with indignation at the German bombing of Coventry and London, led to a shift in strategy. Daylight precision attacks were abandoned and Bomber Command turned to night action. Emphasis upon specific aiming points dropped off, and by November 1941 area targets were regularly selected. 12

With the shift in strategy to night operations a new problem was introduced—the very great difficulty in navigating from England to a point over Germany where the bombs could be released with a degree of certainty that they would fall upon their target. Lord Cherwell, the Prime Minister's scientific advisor, determined

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10 When he commanded No. 5 Group, Harris remedied this problem by contracting for improved turrets from a nearby manufacturer without going through normal supply channels. Bureaucratic indignation was high, but the results were impressive (Harris, op. cit., pp. 39-40).

11 Soundby, op. cit., p. 76.

12 Soundby, op. cit., pp. 110-111.
that two-thirds of the crews failed to drop their bombs within five miles of the assigned target. The technical difficulties of the navigator had not received the same attention from the scientific community as had the problem of the fighter pilot, for the very obvious reason of "putting first things first." 13

The early failure to gain air supremacy over the Luftwaffe resulted in heavy attrition of crews and aircraft. This one failure was, in point of fact, the key inadequacy of both Bomber Command and the Eighth Air Force.

In order to secure the protection afforded by evasion and ruse, Bomber Command was denied the ability to achieve the necessary concentration and accuracy, and in order to achieve the necessary concentration and accuracy, the Eighth Air Force was denied the protection given by evasion and ruse. 14

Sir Arthur Harris believed sincerely that massive assaults against major cities, if pursued without diversion would bring the Germans to heel. No invasion would be required; only occupation. 15 The Americans were not so sanguine. They believed that invasion was a precondition of success. Consequently the bombing operations should be directed against the Luftwaffe and its supporting industry on a "round-the-clock" basis. The British Air Staff had not the same optimism as Harris. Its senior officers were of the opinion that unless German aircraft production were curtailed, the build-up of night fighters might, in the end, defeat Bomber


14 Webster and Frankland, III, 294.

15 Harris, op. cit., p. 263.
Command. Hence the Air Staff sided with the Americans and directed Harris to lend weight to the effort against the aircraft industry.\(^\text{16}\)

For many months the results were unrewarding. The Royal Air Force had not yet developed its night bombing techniques to the point where high accuracy could be expected. The United States Army Air Forces were committed to daylight bombing, and their sorties against deep targets proved too costly to be repeated with any consistency, thereby minimizing the overall effects because the Germans were able to make those repairs critical to sustained production.

The real reason for the succession of failures (American in particular) was the lack of long-range escort fighters. Knowing the vulnerability of the bombers without escort, the Luftwaffe held off engaging the formations until the escort fighters were forced by fuel shortage to break off and return to their bases. The German pilots then pressed home savage and well-coordinated attacks against the bombers all the way to the target area and thence back again to the pick-up point where rendezvous was to be made with the escorts dispatched to guard the bombers' return.\(^\text{17}\) Not until long-range escort fighters were made available did the situation change. When this happened, and as the blows to the German oil industry caused critical shortages in aviation fuel, the power of the Luftwaffe declined.\(^\text{18}\)

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\(^\text{16}\) Webster and Frankland, II, 5-6.


\(^\text{18}\) Ibid., pp. 204-210.
The offensive against German industry failed dismally during darkness and during daylight when visibility was obscured by clouds. Then both Bomber Command and the Eighth Air Force had to depend, for any sort of precision, upon radar. Although by 1944 ninety per cent of the British heavy bombers were equipped with a type of radar known as H2S, the state of the technology was such that accurate results could not be expected. The American equipment (H2X—a modified H2S) was a little more accurate but in very short supply. The results, after a full year of operation, were disappointing. The blind bombing raids accomplished little more than to keep pressure on the enemy—itself a goal of the POINTBLANK plan—but without the precise attacks upon the subobjectives that would have meant success.

There were other less important problems that hindered the Combined Bomber Offensive, but their effects were in large measure overcome by the sheer weight and persistency of the bombing operations. Numbered among these problems were aircraft shortages in the joint reconnaissance program, early technical difficulties in photo-interpretation that resulted in inaccurate damage assessment, and

19 Webster and Frankland, IV, 14.

20 In February 1944 only fifteen aircraft were fitted with the equipment. Consequently one bomber served as leader for sixty others without radar, whose bombardiers released upon signal from the leader (Craven and Cate, III, 14-20).

21 Craven and Cate, III, 14-20.


23 Webster and Frankland, III, 211.
and poor ordnance (about fourteen per cent of the American bombs were defective). In addition to the aforementioned, there was the problem of communication between the military and the civilian scientists whose talents has been drawn into the total war effort.

World War II was without doubt the most crucial and complex cooperative venture ever undertaken by human beings. Because of the total nature of the war, many individuals were involved, some directly and others indirectly, who in earlier periods would have observed from the fringes of the arena. In the first group were the civilians who were affected by bombing attacks; in the second group were the scientists. These, said Sir Henry Tizard, only just before the war "...were called in to study the needs of the Services, as distinct from their wants...and then only as a last resort...".

The problems of the air services demanded a proportionately large share of scientific talent—then, as now, a valuable commodity. Nowhere was the need greater than in conjunction with the Combined Bomber Offensive. Apart from the pure engineering problems associated with improvement of aircraft and equipment, an entirely new discipline was born from the need to predict and assess bombing results—a specialty roughly described as "operations analysis." Although the connotation is one of an "after-the-fact" appraisal, such was far from the case. Oftentimes

24 Craven and Cate, III, 795.

the judgments of the analysts (who would, for instance, suggest target categories and priorities) derived from theoretical calculations, there being no empirical standards to go by.

Into such determinations went the combined wisdom of statisticians, economists, geographers, photogrammetrists, and scores of other specialists. The products of their deliberations were fundamentally abstract and had to be integrated with both military expediency and military capability to then become valid war objectives.

Untrained as they were in the somewhat rigid patterns of military thought, the scientists often differed among themselves and with their military associates. These were not altogether peevish bickerings; in some instances they became substantive issues of high policy.

One of the most noteworthy examples of this division of thought raised grave doubt about the entire strategic bombing effort. It was the clash in England between Lord Cherwell and Sir Henry Tizard over the issue of area bombing.26

Cherwell held that halving the bombing error would have the net effect of doubling the size of the bomber force.27 Applying this reasoning to German populations and production centers, he postulated a damage index that could be used in estimating the results to be achieved by any given attack. Tizard disagreed,


claiming that the index was five times too high, which, if true, would have discredited the entire bomber offensive. 28

The view of Cherwell prevailed. (And it is arguable that even had Tizard been demonstrably correct, the mood of the British people would not have sanctioned a reversal of the bombing policy.) The point of the debate that is instructive to the historian, however, is that this difference in scientific interpretation became a frenzy of emotion and provided both the battleground and the ammunition for the proponents and opponents of air power to wage a private battle separate from, and damaging to, the prosecution of the main strife. "The persisting lesson is that, even when we try to be objective and detached, emotion and self-interest frequently enter into our decisions, be they political, military, or scientific." 29

To say that the technological problems of the Combined Bomber Offensive had no effect upon the outcome of the war would be inaccurate. But likewise to say that their effect was ever of a magnitude to cast doubt upon the ultimate victory of the Allies would be similarly in error. Some would perhaps suggest that the end of the war was delayed appreciably by the technical difficulties that caused inaccurate, and therefore ineffective, bombing. Others might advance the more extreme view that the air situation was in a sense immaterial because the central issue was decided by the great struggle between the land armies. The truth probably lies somewhere in between.

28 Snow, op. cit., p. 49.

CHAPTER VII

SUMMARY

In the decade preceding the onset of World War II the advance of aviation technology had made possible the development of aircraft suitable, for heavy bombing operations, and the military doctrines of the day were sufficiently advanced to give more than lip service to the concept of strategic bombardment. But when the war started both the Royal Air Force Bomber Command and the United States Army Air Forces were unready for the roles they were fore-ordained to play. The failure of both governments to accurately assess the threats which faced them had had the direct effect of denying to their air services the offensive capabilities that could have, albeit with some sacrifice, been attained. Consequently, when the need arose for a force-in-being to send against Germany, there was only available that force sufficient to strike blows whose weight was little more than symbolic.

These efforts bolstered Allied morale but did little to interfere with the progress of Hitler's war. Not until late in the war did the balance shift from a desperate struggle for survival to a condition of unequivocal and unalterable superiority.

The austere beginnings, the ensuing years of uncertainty, and the almost apocalyptic finish which marked the bomber operations have provided the opponent and proponent of air power alike with a wide range of historical incident to support their various views (some extreme in their construction). This same wealth of evidence, examined in part in the course of this study, can be called upon to support the conclusion that, in general, the potential of the bomber effort was greater than
its achievement. This is not to suggest, however, that weighed against the scale of available evidence, the achievement can be judged to be less than one of the truly decisive factors in the victory over Germany.1

A fair appraisal of the Combined Bomber Offensive would include the following major points:

(1) The years that have passed since the preparation of the United States Strategic Bombing Survey (1945) have disclosed no new evidence to significantly alter its conclusion that "Allied air power was decisive in the war in Western Europe."2 The air supremacy of the Allies made possible the invasion of the Continent and keyed the door to final victory. However, overstatement of the contribution of air power must be avoided. Nowhere is this caution more appropriate than in evaluating the accomplishments of the Combined Bomber Offensive. Its successes and failures have to be considered within the larger framework of the total Allied war effort. Nor is this an after-the-fact judgment. It is not possible from the evidence available today to conclude that an attempt was made by the Allies "to win the war" by strategic bombing, even though there were those who believed such a course of action to be the wisest strategy to follow.

The success of any bombing campaign (of massive scale using conventional

1 But even this judgment must be tentative. Not until the vast store of information relating to the conflict between Germany and the USSR is made available for detailed scrutiny can a more positive assessment be made.

bombs) is dependent upon the tonnage of bombs dropped and the target system that receives them. But these are not the only two relevant factors. Additionally, the element of time must be introduced into the equation. Bearing all of these factors in mind, it should then be recalled that the full weight of the British and American bomber offensive did not materialize until late in the war. Of the total bomb tonnage dropped upon Germany, 72 per cent fell after 1 July 1944. The antecedent 28 per cent was spread over a five year period, and, moreover, the period was one during which, for the most part, the technological advancements and the defensive measures available toward the end of the war were absent from Allied arsenals. Consequently, the results achieved from the bombing campaign early in the war were neither mortal nor permanently damaging. In this latter respect, the remarkable ingenuity of the Germans in repairing war damage must be taken into account.

Furthermore, a rough analysis of the target system reveals a very close interrelation between the Combined Bomber Offensive and land and sea operations. The break-out of the total bomb tonnage (by per cent against specific target categories) indicates that the preponderance of the bombers' activities were "non-strategic".

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<tr>
<td>Transportation</td>
<td>32</td>
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<td>Military/Naval fac.</td>
<td>30</td>
</tr>
<tr>
<td>Cities</td>
<td>25</td>
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<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

3 Ibid., p. 71.  
4 Ibid.
All of these factors taken together lead to an overall judgment that the Combined Bomber Offensive was an integral part of, and not separable from, the Allied grand strategy, and that its successes can be identified as much with its "cooperative" role as with its independent objectives.

(2) Beyond the name "Combined Bomber Offensive," there is little to suggest that the British and American bomber operations were ever really combined. That they were complementary there is no doubt—but even in this respect the interaction could have been closer. What was lacking was unity of command. Had there been, first, unity, and second, firm exercise of unified command, obvious economies of force and greater concentration of effort would have been possible. As it was, there were too many lines of influence and too much push and pull from various pressure groups. This lack of direction from above served only to create a vacuum which was amply filled by the personal convictions of Harris and Spaatz, the leaders of the two operational commands, who, in turn, led their forces along the separate paths of their own choosing. Without precise aims, there was too much latitude for interpretive strategies to be formed, but without the assurance that their end-objects would be coincident.

(3) In a somewhat negative vein, even the severest critics of the Combined Bomber Offensive can be answered by questioning what would have happened had it not been carried out to the extent that it was. Granting that such speculation is perhaps extreme, there are, nevertheless, some obvious deductions to be drawn.

(a) With a relatively untouched industry (as in the United States), the Germans
would have been able to wage a war of logistics whose duration cannot be estimated. 5 (b) The destruction of the Luftwaffe and its supporting oil industry under-wrote the invasion of the Continent as a successful operation. Had the Luftwaffe been able to oppose OVERLORD in strength, an invasion route through Italy might have become a necessity. (c) The V-1 and V-2 rocket programs presented a threat of alarming proportions to the Allies. And of even greater seriousness was the work in progress on the atom bomb. The elimination of these two threats by air attack denied Germany her remaining hopes of victory.

(4) The effects of bombing upon German morale were probably over-estimated, and, if this is true, the quantity of bombs dropped on German cities (25 per cent of the total) may have been entirely disproportionate to the require-ment. While the surface conclusion to be drawn from this would be to speak aritically of Allied intelligence, there is a more fundamental, but less precise, inference. It can be suggested that the Allies lost sight of the fact that the war was not a thing of itself but was being fought for a political purpose outside of it. Thus the preoccupation with means was substituted for holding to the end. When the attainment of "victory" is the only real limit imposed upon the conduct of warfare, once begun, it is almost certain that it will not end until all of the counters have been played. Had this inevitability been understood by the people who started the war, they

5 As it was, the attacks against German industry were a "three steps forward, two steps back" affair. The combination of German resourcefulness in restoration or relocation of industry and the lack of Allied "follow-up" bombing was overcome in the end only by the sheer weight of the attacks themselves.
might have refrained. 6

(5) There is a peculiar angst connected with modern thinking about
the Combined Bomber Offensive. It is a persistent, if sometimes carefully disguised,
theme of guilt. The bomber offensive, so the thinking goes, did not win the war,
therefore, it was bad. No one wants to be associated with a strategy that produced
so much misery and yet did not bring victory. Curiously, this attitude does not
seem to attach to reflection upon the bombing (both fire raids and atom bombs) of
Japan because the war was won without invasion. Hence the bombing was good.
This is an odd twisting of values, because when the major bombings took place,
Japan was then desperately close to the end and would probably have succumbed
without either an invasion or the bombings. 7 What seems to be absent from the
thinking about these phenomena (the bombings of Germany and Japan) is the realiza-
tion that they were but a part of the whole spectrum of violence implicit in modern
warfare. Were this to be more clearly seen, there would be more attention given
to how wars can be avoided than how they should be waged.

6 Today there is recognition that the bombing of cities is objectionable—
hence the advocacy of a "counterforce" strategy directed toward the annihilation
of the enemy's military capability. But paradoxically, the people who today are
most likely to decry the bombing of German cities are the same people who would
have us possessed of only a handful of nuclear weapons to be used in vengeance
attacks upon the aggressor's cities.

7 How widespread this knowledge was at the time, if at all, is an entirely
different matter.
POSTSCRIPT

If war is as Clausewitz says it is—"an extension of politics by other means"—then we must perforce choose ways of war that bear some relationship to the character of our politics. Political aims that are grandiose and high-blown produce war policies that are equally inflated and insubstantial. Throughout history this relationship has not been particularly relevant because the static technology of warfare imposed an upper limit to the achievable degree of violence—regardless of the irresponsibility of political goals.

In World War II a breakthrough occurred and there existed an alteration of the old balance. It became possible for military might to run beyond political purpose. Since then the trend has steepened exponentially. Were our politics now to become so immoderate as to ascribe even a taint of legitimacy to genocide, we have the genie in the bottle to do our bidding.

Should we be able to retain a moderate and realistic political outlook, there remains hope that we can find some way back down the ladder toward military sanity. One way to do this is to devote as much attention to devising, and speculating upon, post-war scenarios as we do in developing ideas about how wars might start.

The basic problem is not really a difficult one. It is a matter of making means fit ends. The real difficulty is, of course, in finding a way by which two hostile, suspicious, and very different societies can be led to identify common and reasonable goals. If this can be done, the means then assume true relevance. If we cannot do this, the consequences of failure are apparent.
### BOMBING FLIGHT RECORD

**DATE** 10-17-42  
**STATION** A.A.F.B.S.  
**SQUADRON** 2-A1  
**PILOT**  
**INSTRUCTOR**  
**MISSION** NoJ.507 Dual Solo Qualification Combat Other  
**DAY** Night  
**ALTITUDE** 12,000  
**CALIBRATED INDICATED AIRSPEED** 120  
**AIRPLANE** Type AT-11  
**A/C NO** 95464  
**SINGLE FORMATION**  
**FLIGHT-TIME**  
**BOMBS** Type M-38 A-2  
**SIZE** 100  
**NUMBER** 10  
**TOTAL BOMBS DROPPED TO DATE** 103

### ERRORS IN FEET

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**Totals**  
**C.F. = 0**  
**T.E.C. = 1520**  
**Average Circular Error** 152  

### BOMBING RANGE  
**A.A.F.B.S.**

**TARGET NO.**  
**ELEVATION**  
**FIXED LIGHTS E.T.O. MOVING**

**METHOD OF SCORING:** PHOTO  
**TRIANGULATION**  
**ESTIMATION**

**CERTIFIED BY:**

---

### REMARKS

**CE = 152**

**COMBAT = 10**

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**DIRECTION OF FLIGHT AT INSTANT OF RELEASE**

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**500 FEET**
APPENDIX I

AIR ESTIMATE OF THE SITUATION FOR THE AIR OFFENSIVE

First: What is the end condition sought? What is the purpose to be achieved?

Second: What are the things—of any nature whatsoever—whose destruction would achieve that purpose? List them in the order of desirability.

Third: Which of those things—those target systems—are beyond our capability to destroy, considering their location, their number, their nature, the time and effort required to restore or repair them? Eliminate the impossible ones.

Fourth: What will it cost to do each job which remains? How well are the targets defended? What will our casualties be?

Fifth: Considering all these factors—what is the best selection among the possible targets? Finally, what is the best scheme of operations?

*Air Corps Tactical School doctrine, according to Major General H.S. Hansell, USAF Ret., 1 December 1964.
BIBLIOGRAPHY

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An autobiographical account, with emphasis upon the years of World War II, by the Commanding General of the United States Army Air Forces.

An early exposition of the theory of air power by two officers who were to play dominant roles in the United States Army Air Forces in World War II.

A British view of the war years based upon the diaries of Field-Marshal Lord Alanbrooke, Chief of the Imperial General Staff. These diaries fully reveal Alanbrooke’s biases, but contain a wealth of illuminating detail.

The concluding volume based upon the Alanbrooke diaries.

An interesting survey of military technology by the wartime head of the American Office of Scientific Research and Development. Written shortly after the war, the book loses much of its impact upon today’s reader because of some glaringly inaccurate predictions (such as the total infeasibility of ballistic missiles).

The apex of personal narrative of World War II.

Although privately published, these volumes are, in fact, the official history of the AAF in World War II. Based upon careful screening of US archives, they represent the best available source material on the opera-
tions of the AAF. As historical documents, their value is depreciated in the volumes relating to the European Theater by insufficient treatment of the British contribution to strategic bombing operations.


Douhet, Giulio. The Command of the Air. Translated by Dino Ferrari. New York: Coward-McCann, Inc., 1942. The first clear exposition of the doctrine of strategic bombardment by an Italian general writing shortly after the end of World War I.

Eisenhower, Dwight D. Crusade in Europe. New York: Doubleday & Company, Inc., 1948. The autobiographical account of his wartime experiences by the Supreme Commander, Allied Expeditionary Forces. Apart from their general military significance, these memoirs reveal the appraisal of the value of air power in the highest of Allied military circles.


Galland, Adolf. The First and the Last: The Rise and Fall of the German Fighter Forces, 1938-1945. Translated by Mervyn Savill. New York: Henry Holt and Company, 1954. A highly personal and revealing narrative by one of Germany's leading aces and wartime commander of the German Fighter Command. Of particular value to this study were his descriptions of the tactics used against Allied bombers.

A reappraisal of American wartime strategy containing, among others, an essay on air power as a revolutionary weapon of strategy. Originally delivered as lectures, these essays suffer from slipshod editing.

An account of the bombing of Germany by a Marshal of the RAF who was Commander-in-Chief, Bomber Command. Denied the opportunity of presenting an official report of his command's operations to the British public, this privately published narrative contains no documentation and must therefore be taken at face value. It is of great value, however, when used in conjunction with published official histories cited later in this bibliography.

A fascinating account of the war years by the officer who served as Chief of Staff to the Prime Minister in his additional role as Minister of Defense.

The American counterpart of Douhet. A controversial book by an even more controversial general whose brash dedication to his beliefs cost him his career but paved the way for the rise of modern air power.

A single-volume condensation of Admiral Morison's masterful multi-volume series on U.S. Naval operations in World War II. Though a condensation, he manages to reveal the Navy's less-than-total support for the strategic bombing campaign.

A brilliant analysis of Nazi corruption and intellectual poverty by a German social scientist who was for a time Hitler's chief political officer in Danzig.
An often superficial but sometime starkly revealing account of the bombing of Germany by the official charged with Germany's civil defense program.

As he so effectively served as Deputy to Sir Arthur Harris, so does Air Marshal Saundby's account of the strategic bombing effort serve as an admirable complement to Harris' Bomber Offensive.

A somewhat polemical analysis of the past, present and future roles of air power by an accomplished aeronautical engineer and amateur geopolitician.

A solid, workmanlike autobiography that supplies valuable information about the development of the Royal Air Force and its many major contributions to the victory over Germany. Slessor is one of the most lucid thinkers on modern military problems, a quality demonstrated in several books and articles published subsequent to this one.

This small volume contains a recollection of the Tizard-Cherwell dispute. The reconstruction of the events does not, however, agree with the treatment of the same dispute found in the official life of Lord Cherwell written by the Earl of Birkenhead.

A valuable complement to Crusade in Europe, for as Eisenhower's Deputy Supreme Commander, Marshal of the RAF Sir Arthur Tedder was in effect the superior officer of all Allied air units committed to the support of the invasion of the Continent.

B. Books - Secondary Works

A scholarly analysis of the major conflicts of the Twentieth Century which illuminates the critical trend toward "totality" in modern conflict.

A careful and sympathetic portrait of Cherwell and his works. The author offers a rebuttal to the characterization of Cherwell in Science and Government, by C.P. Snow.

Perhaps over-long, but certainly the definitive biography of Hugh Montague, Lord Trenchard, central figure of the RAF from its beginning until the onset of World War II.

A popular account of the massive attack upon Hamburg which suffers from hyper-emotionalism and lack of documentation. It cannot be compared with the cold, intellectual fury of David Irving in The Destruction of Dresden.

A competent and detailed review of one of the most controversial bombing operations in World War II.

An excellent survey that adds stature to General Fuller as a leading military historian.

Perhaps the best volume in existence dealing with the career of General Mitchell. Written by a serving Air Force officer, formerly Assistant Professor of History at the USAF Academy.

Relaying primarily on official sources, meticulously researched, Irving has documented one of the most heart-rending episodes of World War II.
The value of the work is enhanced by the Introduction by Lt. Gen. (Ret.) Ira C. Eaker and the Forward by Air Marshal Sir Robert Saundby.

A complex but powerful plea for understanding of strategic air power. Written shortly after the war, it deals heavily with World War II tactics and conventional munitions. In the light of today's nuclear stalemate, the work may, and should, receive recognition anew.

An interpretive study of the Douhet theories, with emphasis upon their relevance in modern strategy.

A now classical study of the inter-personal relationships of the figures who directed World War II on the Allied side.

An objective survey of the Korean War sufficiently detailed to be of special value to students of military affairs.

A valuable book that treats of the Battle of Britain in unusual depth with particular emphasis upon leadership, science and technology.

C. Publications of Governments

An official report later expanded into the author's personal memoirs.

Great Britain, Prime Minister's Committee on Air Organization and Home Defense Against Air Raids. Second Report dated 17 August 1917, reproduced in

Places the command problems associated with Allied air power into the broader context of the entirety of Allied command arrangements Europe.


Employment of Strategic Bombers in a Tactical Role, 1941-51. Air University: Research Studies Institute, 1953.


All of the documents listed under the source "United States Air Force Historical Archives" were used in the preparation of, and cited in, Craven and Cate (eds.), The Army Air Forces in World War II. They represent the efforts of military research specialists and were developed from original source material (except AWPD-42, itself an original document). These studies contain more detail and less polish than the Craven and Cate series.

Although a meticulous work of research and compilation, this survey should be used with a degree of caution because of its haste in preparation and the tentative nature of much of its statistical material. Of greater worth are
its generalizations and conclusions, which seem today to have as much validity as when they were first offered.

This volume provides excellent material on the distribution of resources to the various Army elements (including the Air Corps) during the period between the wars.

These volumes are the definitive work on the strategic air war against Germany. Those volumes of Craven and Cate concerned with the European theater must be considered as only complementary to the British work in that they were written almost a decade earlier and had not the Royal Air Force documents to draw upon. Conversely, however, Webster and Frankland drew liberally upon the American work in reporting the overall effort against the common enemy.

D. Periodicals


E. Manuscript