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Volume I

**IDEAS, CONCEPTS,  
DOCTRINE**

Basic Thinking in the  
United States Air Force  
1907-1960

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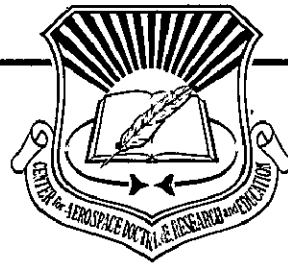
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Volume I

RETURN TO HQ USAF/CS MAXWELL AFB AL 36112-5538	
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**IDEAS, CONCEPTS, DOCTRINE:**  
**Basic Thinking in the**  
**United States Air Force**  
**1907-1960**

*by*

Robert Frank Futrell

Air University Press  
 Maxwell Air Force Base, Alabama 36112-5532

December 1989

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*To the memory of*

*Brig Gen Kenneth N. Walker*

1898-1943

*who taught the credo*

*A well-organized, well-planned, and  
well-flown air force attack will constitute an  
offensive that cannot be stopped*

## CONTENTS

<i>Chapter</i>	<i>Page</i>
DISCLAIMER.....	ii
FOREWORD.....	xi
ABOUT THE AUTHOR.....	xv
ACKNOWLEDGMENTS.....	xvii
1 EMERGING PATTERNS OF AIR FORCE THOUGHT .....	1
Notes.....	12
2 EARLY DAYS THROUGH WORLD WAR I, 1907-26.....	15
The Beginning of Army Aviation.....	16
European Adversaries Speed Aviation Development.....	17
US Military Preparations .....	19
The American Air Service in World War I.....	19
Thoughts on Strategic Bombing .....	24
America's Wartime Aviation Accomplishments.....	26
The Mitchell Era: From Air Service to Air Corps .....	27
Mitchell's Early Thinking on Air Power.....	31
Aviation Is Integrated into Army and Navy .....	34
General Patrick and the Air Service .....	39
Establishment of the Army Air Corps.. .	44
The Mitchell Era Reexamined.....	51
Notes....	53
3 GROWTH OF THE AIR FORCE IDEA, 1926-41 .....	61
The Air Corps Wins a Foothold ..	62
Beginnings of the GHQ Air Force .....	66
Toward a Long-Range Bombardment Mission.....	68
Baker Board Influences Air Organization .	70
Organization of the General Headquarters Air Force .....	73

<i>Chapter</i>	<i>Page</i>
Development of Doctrine in the Air Corps and GHQ	
Air Force .....	75
Beliefs in Bomber Invincibility.....	78
Thoughts on Air Support Aviation.....	83
War Department General Staff Reorients Air Programs .....	84
Efforts to Describe Air Doctrine .....	88
Aviation in Support of the Monroe Doctrine .....	89
Mobilization for Western Hemisphere Defense.....	90
An Air Power Mission for the Air Corps .....	92
Battle Experience from Europe .....	96
Mobilizing the Army Air Forces for War .....	101
Organization of the Army Air Forces .....	102
Early AAF Organization for Basic Thinking.....	105
AWPD-1: Air Planning for War .....	108
Notes .....	114
4 AIR FORCE THINKING AND WORLD WAR II.....	127
Planning and Analysis in the Army Air Forces.....	127
Many Procedures for Developing Air Doctrine....	132
New Conceptions of Tactical Air Power. . .	135
Wartime Work of the AAF Board.....	138
Official Evaluations of Air Operations.....	142
Wartime Air Doctrine Development Phases Down.....	146
Examination of the Strategic Air War.....	147
Thoughts on Air Organization for War.....	149
Battling for Air Superiority .....	151
Effect of Flak and Fighters.....	155
Problems of Strategic Air Targets .....	156
Early Strategic Bombing in the Pacific-Far East .....	158
Strategic Air against Japan .....	162
Atomic Attack at Hiroshima and Nagasaki .....	165
Thoughts on Air Power and Air Force .....	167
Lessons on Air Superiority.....	171
Development of Tactical Air Power .....	173
Importance of Airlift.....	178
General Arnold's Final Word .....	180
Notes .....	180
5 THE AIR FORCE IN NATIONAL DEFENSE: ORGANIZATION AND STRATEGY, 1944-49 .....	191

<i>Chapter</i>	<i>Page</i>
Armed Service Unification and the Air Force.....	191
Key West Agreements on Roles and Missions.....	196
Unified and Specified Commands .....	200
Building the Air Force's Internal Structure .....	201
Postwar Air Organization Plans .....	203
Recognition of Research and Development .....	205
General Spaatz's Air Force Reorganization .....	206
Continuing Thinking about Research and Development .....	208
Organization of USAF Headquarters .....	212
The Air Force in the Developing Cold War Strategy.....	214
Problems of Aircraft Procurement .....	216
First Policies on Missiles and Rockets.....	219
Emerging Soviet Threats .....	221
The Finletter Commission.....	224
Air Power and the Berlin Airlift.....	231
Strategic Bombing and the B-36 Controversy .....	237
Fiscal Limits Affected the Military .....	240
A Collective Defense and Air Power Strategy.....	245
Investigations of the B-36 and Defense Unification... .	251
Notes.....	259
6 RESPONSES TO SOVIET NUCLEAR WEAPONS AND LIMITED WAR, 1949-53 ..	273
Evolving Patterns of Defense Organization .....	273
Toward the Air Research and Development Command ..	275
Military Support for Foreign Policy ...	278
Soviet Nuclear Weapons and Technological Challenge.....	282
Developments in Nuclear Weapons..	282
Thoughts on Nuclear Air Power..	285
NSC-68: Call for US Rearmament .....	288
Strategic Implications of Limited War in Korea.....	291
Bases of American Action in Korea.....	294
Tactical Air Operations .....	296
General Vandenberg on Air Power... ..	298
Air Power Stalemates the Communists ...	302
Rebuilding the Worldwide Air Force.....	304
Establishment of the Air Force Council. ....	305
Army-Air Force Accommodations on Air-Ground Doctrine..	306
Air Force Organization Act of 1951....	314
Air Buildup: 95-Wing Program. ....	316

<i>Chapter</i>	<i>Page</i>
Added Requirements for Air Power .....	320
Air Objectives Expand to 143 Wings .....	323
Tactical Air and Air Defense Studies .....	327
Secretary Finletter's Assessments .....	334
Global Air Power and the Korean Armistice .....	335
Air Power and Armistice Negotiations.....	336
Air Pressure as a Strategy.....	340
Evaluations of Air Power's Effects in Korea.....	345
Notes .....	352
<b>7 THE AIR FORCE WRITES ITS DOCTRINE, 1947-55 .....</b>	<b>365</b>
Early Efforts to Identify Air Force Doctrine .....	365
Air Force Activities in the Field of Joint Doctrine.....	373
The Air University as a Doctrinal Center .....	379
Successful Preparation of Air Doctrine Manuals.....	384
Continuing Air Doctrinal Activity.....	396
Failing Efforts to Produce Interservice Doctrine .....	401
Interservice Disagreements on Doctrine.....	406
Notes.....	408
<b>8 STRATEGIC IMPLICATIONS OF THE</b>	
<b>NEW LOOK, 1953-57.....</b>	<b>419</b>
Statements of Defense Policy: The New Look and Massive	
Retaliation .....	419
Department of Defense Reorganization .....	423
New Look Military Force Objectives.....	424
Massive Retaliation as a Strategy .....	428
Air Force Views on Massive Retaliation .....	432
Air Force Thinking on Counterforce and Air Power.....	433
Efforts to Define Air Power .....	437
Air Force Positions on Nuclear Stalemate and Limited War .....	443
Air Thinking on Nuclear Stalemate .....	445
Limited Wars Are a Problem .....	447
Emergence of Flexible Response as a Strategy .....	452
A "New" New Look Strategy.....	458
Nuclear Weapons and Limited Wars .....	461
Increased Acceptance of Flexible Response .....	465
Notes .....	467



<i>Chapter</i>	<i>Page</i>
9 MISSILE TECHNOLOGY AND THE AIR FORCE, 1945-60.....	477
Guided Missiles: The Research and Development Phase.....	477
Starts and Stops in Early Missile Programs .....	477
Technological Breakthrough in Ballistic Missiles.....	485
Soviet Threats Speed Missile Development.....	493
Decisions for Production and Deployment.....	496
Interservice Disputes about Antimissile Defense .....	500
Integrating Missiles into the Air Force.....	504
Integrating Missiles into the Strategic Air Command .....	506
Missiles for Air Defense and Air-Ground Support .....	520
Aircraft and Missile Projection in Tactical Air Command.....	523
Development in Continental Air Defense.....	528
Origins of Aerospace Doctrine in the Air Force.....	541
Visualizations of Satellites and Space Stations .....	545
A Concept of Space Superiority.....	549
Notes.....	555
10 IMPACT OF MISSILES AND SPACE ON NATIONAL ORGANIZATION AND STRATEGY.....	573
The Defense Reorganization Act of 1958.....	573
Drives for Closer Defense Unification .....	574
Air Force Demands for a Single Service .....	584
New Authority for United Commands .....	586
Organization of Military and National Space Programs .....	589
Establishment of the National Aeronautics and Space Administration.....	594
Strategic Dialogue: Minimum Deterrence or Counterforce.....	606
Meeting Crises in Lebanon and the Taiwan Straits.....	610
Minimum Deterrence or Counterforce? .....	618
Notes.....	629
INDEX.....	639

## FOREWORD

This history seeks to discover and record the mainstream of thought within the United States Air Force (and its predecessors) concerning the role to be played by air and aerospace power in a deadly struggle for national survival. It seeks to trace the development of a theme of institutional thought, describe the organizational framework in which the thinking took place, and identify individual thinkers and their ideas. In great measure this chronology is the story of dedicated professional men who were attempting to discover the capabilities and limitations of new forms of air and aerospace power and to relate these new characteristics of military power to the defense of the United States and its national interests. The story begins with the first heavier-than-air flight in 1903 and closes at the end of 1984. This ending date permits a coverage of Air Force thinking about counterinsurgency warfare and the military operations in Southeast Asia.

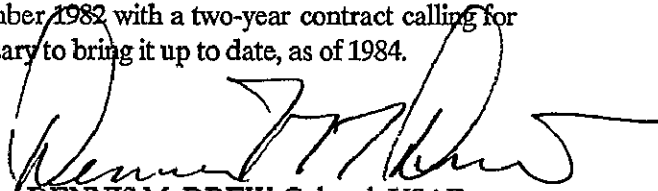
The existing state of professional historical art does not provide much guidance as to the way a history of military ideas ought to be approached. Edward Mead Earle's *Makers of Modern Strategy, Military Thought from Machiavelli to Hitler* is a monumental study of military thinking that is worthy of emulation, but Earle's volume is a series of case studies of the ideas of the Great Captains drawn from their formal writings. The authors in Earle's book focus attention upon a relatively few individuals and assess their specific contributions to the art and science of warfare. A study of Air Force thought, on the other hand, involves a consideration of the views of a substantially large number of men, most of whom did little formal writing. Although air officers have not been prolific writers, they have expressed their beliefs freely, especially before congressional committees and commissions. In fact, one may almost say that the Air Force has developed an oral rather than a written tradition. Speeches, lectures, and testimony of Air Force leaders have provided the richest source of data for this study of the ideas, concepts, and doctrine of the Air Force. Since such lectures are considered privileged, quotations from or citations to a National War College, Army War College, or Air War College lecture have been cleared with the lecturer, even though they may have been unclassified as to military security. To a man these lecturers have been generous and enthusiastic in granting approval to quote or cite their work.

A constant concern in developing the narrative has been the problem of how to present the matters under consideration in the most meaningful manner. Since ideas and concepts are frequently interpretations of facts and not facts themselves, a

thinker may predict meanings before events transpire or, even more likely, continue over a period of years to draw interpretative meanings from the factual happenings of the past. Fundamentally, ideas often lack a temporal quality, hence a history of ideas lacks the neatness of a history of past events. It is possible that this history of ideas, concepts, and doctrine of air power should have been presented as an anthology of pertinent discourse with accompanying commentary. This technique, however, would have obscured a proper recognition of the circumstance wherein the developing Air Force was itself an excellent manifestation of air ideas. The notion of an anthology was, nevertheless, so persuasive that the author, as often as possible, has allowed the thinkers to speak for themselves and to work their dialogue into the narrative. This practice frequently makes for tedious progress when citations are lengthy, and short quotations run the danger of lifting thoughts out of context. Still, summarization of a man's words in contemporary language can easily distort original meanings. The record will show, for example, that air superiority had different meanings to different thinkers during the course of Air Force history. As a matter of practice, the author has sought to present the story of the way things were and what men were thinking in a developing time frame, without attempting a high-gloss interpretation of either the events or the thoughts.

In the course of the unfolding story, the reader will perceive that Air Force thinkers have seldom addressed themselves to purely theoretical matters but usually have tended to respond to specific situations. Since the United States has always been a defense-minded nation, the nature of the hostile threat has been the greatest stimulant to military thinking. Air Force thinking also has been reactive to the activities and ideas of other defense services. Thus, it is frequently necessary that Departments of Defense, Army, and Navy positions and actions be noted in order that readers may better understand Air Force thinking. The focus of the narrative on the Air Force dictated that the views of others be presented, but in shorter compass. Since this procedure inevitably oversimplified the views of the Office of Secretary of Defense (OSD) and the other services, an informed reader ought to consult the works of such military thinkers as Generals Matthew B. Ridgway, Maxwell D. Taylor, and James M. Gavin, and, certainly, Robert S. McNamara's *The Essence of Security, Reflections in Office*.

This revised two-volume history is an extended version of *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907-1964*, which the author completed during 1961-64. This original book was first published in 1971 by the Aerospace Studies Institute, Air University, in a two-volume format; it was reprinted in 1974 as a single volume in the numbered-text series of the Air University as AU-19. In view of a continuing demand for the book, the author was brought back from retirement at the end of September 1982 with a two-year contract calling for revision of the original book as necessary to bring it up to date, as of 1984.



DENNIS M. DREW, Colonel, USAF  
Director, Airpower Research Institute  
Center for Aerospace Doctrine,  
Research, and Education

## *ABOUT THE AUTHOR*



Dr Robert Frank Futrell

Robert Frank Futrell was a senior historian at the Albert F. Simpson Historical Research Center. He holds bachelor of arts and master of arts degrees from the University of Mississippi and a PhD from Vanderbilt University (1950). During World War II, he served as historical officer of the AAF Tactical Center, Orlando, Florida, and assistant historical officer of Headquarters Far East Air Forces in the Philippines.

After World War II, Doctor Futrell joined the new Army Air Forces/United States Air Force Historical Office, which was moved from Washington, D.C., to the Air University, Maxwell AFB, Alabama, in 1949. At the Air University he was professor of military history and became emeritus professor at his retirement from the US Civil Service in 1974. He also retired as a lieutenant colonel from the Air Force Reserve.

Doctor Futrell is author of *The United States Air Force in the Korean War, 1950-1953*; *The United States Air Force in Southeast Asia, The Advisory Years to 1965*; and has authored and coauthored many other air history books and articles. Recently under contract with the Airpower Research Institute, he revised and updated one of his former works—*Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force*. Volume I covers the period through 1960; volume II picks up with 1961 and goes through 1984.

## *ACKNOWLEDGMENTS*

This project was first recommended by Robert B. Lane, director, Air University Library, and was accepted by Lt Gen Charles G. Cleveland, then Air University commander, as one of the initiatives in his Project FLAME (Fresh Look at Military Education). The author extends his thanks to Col Dennis Drew for his support of this project and to the many people in the Air University Press who helped turn the manuscript into a polished book.

Although many persons have provided information and assistance toward the writing of this history, the author assumes the responsibility for the errors of fact or interpretation that doubtless have escaped into print.

## CHAPTER 1

### EMERGING PATTERNS OF AIR FORCE THOUGHT

"A very knowledgeable reporter stated recently that in the early 1950s he felt he knew what the Air Force stood for, but today he doesn't. His statement puzzled me. It also alarmed me because understanding our doctrine and concepts is basic and important to our very existence."<sup>1</sup> In these words on 21 September 1961, Gen Curtis E. LeMay, chief of staff, US Air Force, called attention to a matter that had concerned Air Force officers for many years. In December 1957 Gen Thomas D. White, who was then Air Force chief of staff, had stated: "The Air Force has so recently achieved its full stature as to be something of a doctrinal mystery in comparison with the older, more familiar services."<sup>2</sup>

Unlike the US Navy, which appeared to operate in accordance with a seemingly complete set of sea power principles recorded by Adm Alfred Thayer Mahan, or the United States Army, which drew its principles from generations of American and foreign military scholars, an Air Force officer speaking in 1955 could only conclude that "the Air Force as a service does not have a set of ideas against which it is operating, at least not a complete set of ideas."<sup>3</sup> Moreover, according to a 1948 Air University staff study, "the Air Force has never maintained a complete and current compilation of those concepts, principles, policies, tactics, techniques, practices, and procedures which are essential to efficiency in organizing, training, equipping, and employing its tactical and service units."<sup>4</sup> Provoked by an Army officer's magazine article entitled, "Air Power Needs Its Mahan," Maj Gen John DeForest Barker, deputy commander of the Air University, observed in 1953: "We definitely need a body of air principles backed by the historical evidence of air employment."<sup>5</sup>

Such testimony clearly indicated that these and other Air Force authorities believed that the Air Force required a recording of its fundamental beliefs. In the midst of World War II, an Army Air Forces staff officer had pointed out:

In any field of endeavor, private or public, the first essential is a body of working principles and the next is a clear concept of the manner of following those principles with the means at hand. Without such principles and concepts being clearly expressed, at least in the minds of the users, it is not at all possible to attain coordination and efficiency, and it is not reasonable to expect, as is desirable, that all workers to the common end will have in mind the same possibilities and objectives. In military matters, especially those of the magnitude of the operations of the present war, where mistakes and inconsistencies cost thousands of lives and millions of man-hours, it is all the more important that there be clearly expressed guiding principles which are clearly

IDEAS, CONCEPTS, DOCTRINE

understood by all planners, as well as by all who are charged with the handling of forces in the field.<sup>6</sup>

Moreover, a study conducted by an Air War College seminar in 1951 concluded that the US Air Force had a vital requirement for a codification of its doctrine. "Without a well-established doctrine," the seminar concluded, "the efforts of all but a few key personnel, who can remain sensitive to the changes as they occur, are to a very considerable extent negated."<sup>7</sup>

Prior to World War II virtually all of the senior Air Corps officers and many of the lesser ranking officers had been able to pass through the Office of the Chief of Air Corps, exchange views with the division heads, and draw from their conversations "the essence of air doctrine." During and after World War II, however, the Army Air Forces (AAF) and the US Air Force had grown into a large and very complicated organization, with many thousands of officers. But if an officer in the field were to point his efforts along constructive lines, he had to know "the overall policies and objectives of the Air Force."<sup>8</sup>

The reasons why the Air Force has been hesitant to engross its fundamental beliefs demand some explanation. "Air activities have most often attracted men of active rather than literary leanings. . . . The Air Force has never boasted a high percentage of scholars," as Col Noel F. Parrish observed in 1947.<sup>9</sup> In fact this spate of writings by senior commanders led W. Barton Leach to describe the Air Force as "the Silent Service."<sup>10</sup> But this line of endeavor has not always received a sympathetic hearing in the air arm. "As you know," wrote General Barker in reference to the provocative article regarding the Air Force's need to develop a Mahan, "the scholarly life is not particularly respected in the profession of arms." And he continued,

I don't believe, however, that we can ever detail an officer to do a work of this sort. Mahan, as with all great thinkers, was inspired. Of course he had to spring from an environment which allowed him to study long and deeply the problems of sea power. His many years on shipboard were devoted to these exhaustive studies — but he would have been playing poker . . . and reading fiction if he hadn't been inspired to learn all he could of naval history and give it pattern and meaning.<sup>11</sup>

Other factors worked against the expression of fundamental Air Force beliefs. Prior to World War II the subordinate position of the Air Force to the Army is said to have hampered air publications, as did the fact that the Army's system of field manuals was unsuited to the need of the Air Force. Moreover, some Air Force leaders felt that because of the lessons learned in World War II, the Air Force should not try to develop a doctrine based just on air power. Maj Gen Follett Bradley opined that

we do not need a Mahan of air power so much as an oracle of combined operations — triphibious, if you like. The true expositor of military things to come must . . . know thoroughly the changes in sea power as taught by Mahan, and in land warfare as taught by Clausewitz, which have been wrought not only by new weapons but by air power itself. He must evaluate correctly the effect of air power in combination with land and sea



EMERGING PATTERNS

power on a battle, a campaign and a war, and he must know something of the technique by which that effect is produced<sup>12</sup>

Still further, an Air University study in 1948 stated that the major "obstacle to writing air force doctrine in the past was the rapidity of the development of air power . . . from a limited supporting role to its present position of pre-eminence in warfare."<sup>13</sup> A 1951 Air War College study observed that, in some cases, senior Air Force officers were said to have discouraged the preparation of air doctrine because they felt that air doctrines were too short-lived to warrant publication. Word of mouth generally sufficed to keep senior air commanders well abreast of Air Force policy, and it was much easier "to scrap the worn out doctrine that remains unpublished than it is to drop a doctrine that has been published." But the basic shortcoming of "verbal doctrine" was that it remained vague. "It is this reluctance to publish as official anything imperfect that restrains our commanders from the dissemination of current doctrine. Until we accept the fact that all doctrine is imperfect . . . and that it is highly changeable we cannot hope for the issuance of doctrine." The same Air War College study noted that, as of 1951, "the air leaders of today are not so old that they can easily forget the punishment meted out to the doctrinaires of the past."<sup>14</sup>

Air Force thinkers not only have found it difficult to face the task of codifying the Air Force's fundamental beliefs, but, as the foregoing quotations reveal, they also have employed a diversity of discourse to categorize these fundamental beliefs. Indeed, the above mentioned Air War College study concluded that "there appears to be a fine line of demarcation between concepts and doctrine on the one hand, and doctrines and principles on the other hand." They added: "It is difficult to differentiate between concepts which existed in the minds of some farsighted individuals in the Air Force and the doctrine which was accepted as official by the War Department. Also doctrine is easily confused with strategy."<sup>15</sup> Adding additional complexity to any attempt to analyze basic Air Force thought patterns is the fact that the terms used to categorize fundamental Air Force beliefs apparently varied with the persons using them and certainly varied with the time period in which the terms were employed. It is not too hard to imagine why early Air Force thinkers began to refer to their fundamental ideas as doctrines. The term *doctrine* had an old meaning in military establishments as a teaching, or, in a collective sense, a body of teachings.

In teaching the art of war, however, Marshal Ferdinand Foch laid great emphasis upon doctrine: The writings of this hero of the Marne and Yser strongly influenced the post-World War I US Army. Where commanders in the past had preferred to remain mysterious (to handle armies like pawns on a chess board) Foch had taught at the École de Guerre that commanders should instead make their intentions known to their subordinates. "We have, then, a doctrine," he explained. "All the brains have been limbered up and regard all questions from an identical point of view. The fundamental idea of the problem being known, each one will solve the problem in his own fashion, and these thousand fashions, we may

IDEAS, CONCEPTS, DOCTRINE

be very sure, will act to direct all their efforts to a common objective."<sup>16</sup> In his introduction in *The Principles of War*, Foch promised: "In the course of the practical applications our strategical studies will lead us to, you will also arrive at what we call the *doctrine* or *mental discipline*, which consists first in a common way of objectively approaching the subject; second, in a common way of handling it, by adapting without reserve the means to the goal aimed at, to the object." Teachings derived from history, Foch emphasized, would come "out in the shape of a *theory* of war which can be taught . . . and in the shape of a *doctrine*, which you will be taught to practice."<sup>17</sup>

In spite of the newness of aviation and its subsequent lack of history on which to base doctrine, Brig Gen William Mitchell referred to "our doctrine of aviation."<sup>18</sup> Moreover, in the draft of what could well be called the Air Force's first doctrinal manual, which was prepared for instructional purposes at the Air Service Field Officers School in 1921, Maj William C. Sherman wrote: "In deriving the doctrine that must underlie all principles of employment of the air force, we must not be guided by conditions surrounding the use of ground troops, but must seek out our doctrine . . . in the element in which the air force operates."<sup>19</sup> Although the Air Service and Air Corps were unable to make much of an impact upon the War Department's official field service and training regulations, the chief of the Army's air arm, in common with the chiefs of other Army arms and services, enjoyed certain liberties in issuing the doctrinal literature for the Air Service and its successor, the Air Corps. The War Department General Staff emphasized, however, that doctrine should be formulated only by the chief of an Army arm or service.<sup>20</sup> "Doctrinal literature," said an Army Air Forces staff officer in 1944, "originates with the highest authority and states in general the overall policy to be followed."<sup>21</sup>

Given agreement on the proposition that air doctrine derived from the highest authority, there was less agreement as to its precise nature. In 1938 the Air Corps Board stated:

Principles change not at all, or but slightly, over considerable periods. Doctrines generally change slowly, but will change as different applications of principles bring forth different beliefs and teachings. Methods are influenced both by doctrine and technical improvement and will change more rapidly than doctrines. The most satisfactory Field Service regulation would be one dealing only with principles and expressed in terms that would never change. However, air warfare is relatively new and there is much difference of opinion as regards principles of employment.<sup>22</sup>

In 1943 an AAF staff officer defined doctrine as

a body of fundamental principles expressing the logical possibilities and objectives of air warfare, as well as its general limitations. Like any other doctrine, especially one for a weapon so new as the air arm still is, it is only natural that the AAF doctrine should include speculative as well as proven truths, but they are all necessary to provide a basis for initial decisions in the design of airplanes and in the training of personnel to accomplish the desired end.

EMERGING PATTERNS

This same officer defined policies as "derivatives of doctrine and the expressions of decisions based upon doctrine."<sup>23</sup>

By 1948 the growth of the Army Air Forces during World War II and the achievement of a separate status by the United States Air Force led Air University thinkers to suggest that the time was opportune to undertake that part of their mission which charged the institution to prepare, review, and revise all Air Force publications pertaining to basic doctrine.<sup>24</sup> As this work progressed, the Air University acknowledged the definition of doctrine provided by the Joint Chiefs of Staff:

A compilation of principles and policies, applicable to a subject, which have been developed through experience or by theory, that represent the best available thought, and indicate and guide but do not bind in practice. Its purpose is to provide that understanding within a force which generates mutual confidence between the commander and his subordinates in order that timely and effective action will be taken by all concerned in the absence of instruction.<sup>25</sup>

Looking backward at Air Force experience, these Air University students of doctrine noted that there had been an implication that doctrine represented an official view and that once stated some general efforts had been made to follow it. These students recognized, however, that the Air Corps and Army Air Forces had not always been guided by the "prevailing existing doctrines," which had been influenced by the War Department General Staff. The students accordingly undertook to find Air Force doctrine through "a logical analysis of historical fact" rather than through official statements, organizational designs, or other apparent factors that might appear to contradict the actual doctrine that was practiced.<sup>26</sup>

The vigorous efforts of the Air University to define basic Air Force doctrine in the early 1950s did much to clarify the semantic thought patterns of the Air Force. "In this attempt to strike out on our own," said Col William W. Momyer, Air War College deputy commandant for evaluation, "we have encountered many obstacles that were certainly anticipated, and others that could not be foreseen. Of course, we have encountered . . . prejudice in respect to what constitutes doctrine."<sup>27</sup> In the foreword to the final product, published on 1 April 1953 as Air Force Manual (AFM) 1-2, *United States Air Force Basic Doctrine*, Gen Hoyt S. Vandenberg, Air Force chief of staff, noted: "Basic air doctrine evolves from experience gained in war and from analysis of the continuing impact of new weapons systems on warfare." The purpose of the basic doctrine manual was to provide and impart to all Air Force personnel a basis for understanding the use of air forces in peace and in war and to serve as a background for the preparation of succeeding operational doctrine manuals that would cover the tactics and techniques of employing air forces.<sup>28</sup> In preparing the contents of the basic doctrinal manual, Air University evaluators found that they had to relate doctrine to the hoary principles of war, to the roles and missions of the US armed forces, to tactics and strategy, and to a relatively new Air Force term called *concepts*.

## IDEAS, CONCEPTS, DOCTRINE

As a part of its Army heritage, the Air Force received the age-old principles of war that were derived from the writings of Napoleon, Clausewitz, and Jomini and which had been best summarized in modern times by Great Britain's Maj Gen J. F. C. Fuller. The American version of the principles of war had first appeared in War Department Training Regulation 10-5 in 1921. When Maj William C. Sherman published his personal opinions on aviation in a book entitled *Air Warfare* in 1926, he included a chapter that applied the principles of war to air warfare. These principles also were discussed in the Air Corps Tactical School text, *Air Warfare*, dated 1 March 1936. In September 1943 Col Ralph F. Stearley wrote a paper on the applicability of the principles of war to air power; it was published as AAF Memorandum 200-7, October 1943. Colonel Stearley stated that the nine fundamental principles of war (which applied to all forms of military power) were: cooperation, objective, offensive, mass, movement, economy of force, surprise, security, and simplicity. Colonel Stearley also stated that the application of principles of war to the preparation for war and the direction of war constituted strategy, whereas their application to specific operations comprised tactics. In an article entitled "Air Power and Principles of War," published in 1948, Col Frederick E. Calhoun of the Air University suggested that air power had strengthened the validity of the first eight principles, but he argued that air warfare could not be simple and the ninth principle should be replaced by the term *capacity* or *constant combat readiness*.<sup>29</sup>

In the early 1950s these principles of war were accepted and taught by both the Army and the Air Force. The Navy's attitude, however, was that these principles were permissible as maxims, precepts, factors, guides, or even basic considerations, but it questioned whether they were to be accepted as principles. The Navy did not list these principles in its US fleet publications, but the basic thoughts of the principles were taken cognizance of in these doctrinal publications.<sup>30</sup> The Royal Air Force (RAF) distinguished between the principles of war, which it considered not to be principles but guides or aides-mémoire, and the doctrines that were derived from them.<sup>31</sup> Like the Navy and the RAF, the Air University did not include a specific discussion of the principles of war in its proposed manual, "Air Force Basic Doctrine."<sup>32</sup> In Washington, however, an Air Force committee revised the draft manual and inserted a section, Air Forces and the Principles of War; it then published the revised draft as AFM 1-2, *United States Air Force Basic Doctrine*, on 1 April 1953.<sup>33</sup> An Air War College officer protested that the consideration of the principles of war was a "dissertation" that was hardly doctrinal, while Gen Otto P. Weyland, the commander of the Far East Air Forces, stated that this section was too brief and ought to be developed and elaborated.<sup>34</sup> Still, even though later editions of AFM 1-2 prepared at the Air University did not include specific discussions of the principles of war, there was a continuing recognition that these principles applied to air power as well as to the other forms of military power.<sup>35</sup>

In drawing up the statement of Air Force basic doctrine, the Air University preferred to relate the role of the Air Force to the national objectives and policies of the United States rather than to what was thought to be a possibly transitory

## EMERGING PATTERNS

statement of armed forces organization, roles, and missions that was included in the National Security Act of 1947. Lt Gen Idwal H. Edwards, the commander of Air University, insisted in June 1952 that "current decisions on matters of organization and roles and missions . . . are not basic doctrine."<sup>36</sup> Meanwhile, the Air University included a list of national objectives and policies that was much too precise to be acceptable to the Air Staff in Washington. Accordingly, the basic air doctrine manual, published on 1 April 1953, accepted the broad proposition that the Air Force supported the nation's objectives and policies, but without attempting to say what they were.<sup>37</sup> As a matter of fact the Air University believed that the nature of modern war and the national objectives and policies worked closely together to determine the correct use of military aviation.<sup>38</sup> In a speech on 4 December 1957, however, Gen Thomas D. White strongly asserted a contrary view, when he said: "Air Force doctrine is not a thing apart nor a code sufficient unto itself. The Air Force is a national instrument and evolves no doctrine, makes no preparation other than those clearly and unmistakably called for or anticipated by the national policy."<sup>39</sup> The requirement that Air Force doctrine must support national objectives and policies necessarily marked it as distinct from pure air power doctrine, which would enunciate through theory and logic immutable principles that characterize air power as different from land power and sea power.<sup>40</sup>

A 1951 Air War College study noted that doctrine was easily confused with strategy on the one hand and with tactics and techniques on the other hand. Air University found little difficulty in distinguishing doctrine from tactics and technique: the latter depended quite manifestly upon specific equipment and special situations and were designed to implement specific actions within the broad framework of basic doctrine. Strategy also was judged to be concerned with specific situations, although on a tremendously broader scale than tactics. Brig Gen Alfred R. Maxwell, an Air Force author on the subject, stated that the tools of strategy were a sound plan, adequate forces, appropriate execution, and guidance by proper principles. "Strategy," wrote Maxwell, "is the act of infusing into a plan and/or applying a central idea, design, or timing which will give the greatest possible advantage in a campaign or situation. The strategy is the specific design used."<sup>41</sup>

Prior to World War II, the Air Corps Tactical School's teachings frequently had gone beyond the somewhat narrow confines of officially approved doctrine.<sup>42</sup> But, probably because it held that the principal characteristics of doctrine that would be reasonable and progressive, the Air Corps Tactical School did not differentiate between the doctrinal and the nondoctrinal in its teachings.<sup>43</sup> As early as March 1943, however, AAF officers were referring to ideas that did not have the proven validity of doctrine as concepts. "No concept, particularly one pertaining to a new weapon," wrote Col Charles G. Williamson on 3 March 1943, "can reasonably be stated as a fixed and permanently inviolable rule, but must be accepted as a guide until actualities justify, in the mind of the proper authority, a change in concept."<sup>44</sup> Writing in the winter of 1948, Maj Gen Robert W. Harper, deputy commander of

## IDEAS, CONCEPTS, DOCTRINE

Air University, described Gen Billy Mitchell as being among the "visionaries and missionaries" of the Air Force. "For atomic warfare," Harper wrote, "new concepts of Air Power will have to be formulated."<sup>45</sup> Early in 1951 Air Force regulations charged Air University with the responsibility for developing doctrine. But in its charge to the Air War College, Air University specified that the Air War College's mission consisted not of developing doctrine but of "the conduct of special studies and evaluation which will provide sound air power concepts" and "the preparation . . . of doctrinal manuals." The first objective of the Air War College Evaluation Division was "to develop doctrines and concepts for the employment of air power."<sup>46</sup> In September 1951, General Edwards stated that the Air War College had the mission of "promoting sound concepts on the broad aspects of air power in order to assure the most effective development and employment of the air arm."<sup>47</sup>

By the autumn of 1951, Air Force usage already suggested that the term *concept* was more visionary, more dynamic, and more comprehensive than the term *doctrine*. An Air War College study of Air Force ideas proposed to establish concept at an orderly position in Air Force thought. "In the field of ideas," according to this study, "there is evidently a degree of general acceptance ranging from the first nebulous ideas of an individual, up successively through concepts, doctrines, and principles. The point at which an idea becomes a concept, a concept a doctrine, and a doctrine a principle is not always clear. Thus at any one time our Air Force doctrine may be said to be partly concept, partly doctrine, and partly principle."<sup>48</sup> In his pioneering book *US Military Doctrine*, Brig Gen Dale O. Smith, who had worked with the Air War College students in the preparation of their study, accepted the proposition that Air Force thought progressed from ideas to concepts to doctrines, the last having gained enough official support to be taught at service schools or to be accepted at the highest military staff levels. General Smith additionally proposed that a service doctrine which was accepted by the president, the Congress, or the people of the United States became an executive, a legislative, or a national "policy."<sup>49</sup>

General usage thus accepted the proposition that a concept was a hypothesis that had not received the acceptance required by doctrine, but there was less agreement as to whether doctrine was confined to the service level of the armed forces.<sup>50</sup> In 1957, for example, Col Wendell E. Carter contemplated a national doctrine that would grow out of the deliberations of the Joint Chiefs of Staff and would dictate how wars would be fought.<sup>51</sup> In this same year, Prof Henry A. Kissinger visualized that strategic doctrine enabled society "to act purposefully as a unit . . . by reducing most problems to a standard of average performance which enables the other members of the group to take certain actions accordingly." "By explaining the significance of events *in advance* of their occurrence," Kissinger asserted that strategic doctrine "enables society to deal with most problems as a matter of routine and reserves *creative* thought for unusual or unexpected situations."<sup>52</sup> Kissinger thought that this strategic doctrine should desirably issue from the Joint Chiefs of Staff and the National Security Council.<sup>53</sup> Apparently

## EMERGING PATTERNS

willing to broaden the definition of doctrine, an Air War College study completed in 1958 identified a need for a US military doctrine that would represent "some substantial consensus of the whole body politic, and particularly among all military personnel, as to objects of military enterprise."<sup>54</sup>

Early in the 1950s Air University had maintained the proposition that "USAF doctrine, developed within the parameters of the more valid concepts of air power, is intended for practical purposes to be used as a guide for organization, development, equipment, and employment of the United States Air Force."<sup>55</sup> Some Air Force officers, however, were more skeptical of the role of doctrine in Air Force development. "The Air Force," Gen Nathan F. Twining, acting Air Force chief of staff, had stated in 1952, "is not bound to any fixed doctrine or concept. It grew out of scientific achievement."<sup>56</sup> When he approved AFM 1-2 on 1 April 1953, General Vandenberg thought it necessary to warn that "the dynamic and constant changes in new weapons make periodic review of this doctrine necessary."<sup>57</sup> Looking backward at past events, Gen Laurence S. Kuter admitted that he could not suggest that doctrine had ever been the controlling factor in setting the rate of development of air power. Instead, he recognized a "mutual interdependence of doctrinal technological, political, and other elements."<sup>58</sup> Even though there was general agreement that Air Force doctrine ought to be forward-looking, Maj Gen Lloyd P. Hopwood, a former commandant of the Air Command and Staff College, expressed dismay at the idea that doctrine could not be anything more than descriptive of an existing state of the military art. "We try to make our doctrine and strategy conform to glamorous hardware," Hopwood wrote, "instead of studying modern conflict to find acceptable solutions from which to establish the hardware requirements we need."<sup>59</sup>

Arguments about the parameters of doctrine did not slack up after the "perfection" of AFM 1-2 in mid-1955. In retrospect this manual reflected strategic air lessons drawn from World War II. The main emphasis stressed offensive air actions as providing the ultimate prospect of victory by reducing an enemy's will to fight, chiefly through selective destruction of population centers. There was some acknowledgment of a need for defense against hostile air attack, but the subject of defense was less emphasized than that of offense. The manual noted that air power should support national objectives, but said nothing authoritative on the subject, perhaps because the authors were vague about what our national objectives might be.<sup>60</sup>

After the issuance of a revised AFM 1-2 in April 1955, there did not appear to be an immediate need for more considerations of the subject of air doctrine — this despite changes in national policies and the maturity of intercontinental ballistic missiles.<sup>61</sup> Since the Air University was charged to maintain currency of the basic air doctrine manual, a suggested revision of AFM 1-2 was prepared and forwarded to the Pentagon in 1958. The Air Staff refused to accept the revision, expressing a general satisfaction with the currently approved statement of doctrine. Another reason behind the Air Staff's action was a fatalistic assumption that technology was developing so fast that it was useless to try to capture doctrine in printed pamphlets

## IDEAS, CONCEPTS, DOCTRINE

that became out of date overnight. Some argued that after the reorganization of the Department of Defense in 1958 a new unified doctrine would flow downward from the Joint Chiefs of Staff and energize the activities of the armed services. Finally there was some divergence of opinion in high places as to whether the manual on basic doctrine should be limited to historical doctrine or whether it could attempt to project doctrine into the future.<sup>62</sup> About this same time, an Air Force research and development community study urged that doctrine should be replaced by a new field that could be called "militology." Doctrine it was said had never adequately guided research and development. Militology, on the other hand, would examine the basic tenets of military success and would weld together the bits and pieces of military thought that had been described up until then as objectives, principles, strategy, tactics and techniques, long-range plans, general operational requirements, doctrines, and concepts. This intensive study would produce models or theoretical projections of military concepts and principles of military influence.<sup>63</sup>

As a part of the reorganization of US Air Force headquarters necessitated by the Defense Reorganization Act of 1958, the Air Force thought it necessary to transfer the responsibility of preparing basic air doctrine to the Air Staff. In July 1958 an Air Doctrine Branch was established under the Air Policy Division of the Directorate of Plans. This branch was to advise the Air Force chief of staff on possible doctrinal inputs that might be required by the Joint Chiefs of Staff, which was now vested with responsibility for making joint doctrine. For several months the Air Doctrine Branch served in this advisory role. But on 6 March 1959 responsibility for preparing basic air doctrine and for monitoring the preparation of operational doctrine manuals was transferred back to Headquarters USAF and to the Air Doctrine Branch from the Joint Staff.<sup>64</sup> At this time Air Staff told Air University to revitalize its research activities and to fulfill its function as a doctrinal center for developing sound concepts concerning elements of military influence and aerospace power.<sup>65</sup>

When the responsibilities for developing Air Force doctrine were transferred to Washington, it was expected that air doctrines could be kept more current. But Lt Gen W. E. Todd, commander, Air University, protested that AFM 1-2 was "so far out of date that it has practically become archaic"; the existing manual failed to recognize the impact of missiles and space technology. General Todd's protest apparently sparked action. The Air Staff coordinated the revision and on 1 December 1959 General White signed a new printing of AFM 1-2. The new printing substituted the term *aerospace* in each instance where the word *air* had appeared in the earlier editions, but made virtually no other changes in the old manual. Aerospace was defined as an "operationally indivisible medium consisting of the total expanse beyond the earth's surface."<sup>66</sup> In explaining why the new manual was issued, General White wrote: "The predominant characteristics of air forces (now aerospace forces) have changed only in degree. Range, mobility, flexibility, speed, penetration capability and firepower delivery—the characteristics that continue to make aerospace forces unique among military



## EMERGING PATTERNS

forces—must be developed to the maximum to guarantee national security.<sup>67</sup> General LeMay, White's successor as chief of staff, also appeared to be happy with the old presentation of air doctrine. In an address on 21 September 1959, he told his audience that Air Force concepts and doctrine had not changed through the years, at least since the establishment of General Headquarters Air Force in 1935. "The purpose of aerospace power," LeMay said, "is to deter attack against us and, if we are attacked, to destroy the enemy's means to wage war."<sup>68</sup> Since there seemed to be some misunderstanding about what the Air Force stood for, General LeMay called for more attention to air concepts and doctrine. New means were soon mobilized to spread Air Force thinking. The Aerospace Policy Division provided "positions" on subjects of defense interest, many of which began to appear as speeches and statements of air leaders. The Secretary of Air Force, Office of Information, already published the *Air Force Information Policy Letter for Commanders* and the monthly *Supplement to the Information Policy Letter for Commanders*. In September 1961, the secretary specified that the *Air Force Policy Letter* would "provide concepts, doctrine, facts, references, and suggestions for all Air Force commanders and their staffs in meeting their responsibility to advance understanding inside and outside the Air Force."<sup>69</sup> At this juncture, Maj Gen Dale O. Smith observed that printed doctrinal manuals apparently could not keep pace with technological advances. For this reason he suggested that true Air Force doctrine—definable as military thought on how to conduct war—might well be the unspoken and sometimes unconscious beliefs that truly guided Air Force actions. "Actions, not pronouncements," he said, "are the real indicators of doctrine."<sup>70</sup>

By 1960 the Air Force had laboriously assembled a body of thinking that was described as doctrine. It was essentially simplistic—concerned with the employment of air power in a World War II-type scenario. The feeling in high places in the Air Force was that these principles of air power were enduring. This first volume traces the development of Air Force rationale from the first thoughts of the employment of military aviation in 1904 to the year 1960. It records the emergence of the Air Force as a manifestation of Air Force thought, and will, insofar as possible, record the way in which the Air Force attempted to manage the exploration of ideas about what air power could and should do.

After 1960, however, the administration of President John F. Kennedy changed the military strategy of the United States from a primary reliance on an air strategy to one of flexible response to a broad spectrum of hostile threats. Thus, it soon became evident from policy trends that aerospace doctrine would be subject to reasoned change caused by shifting circumstances arising from analyses of: (1) the principles and aims of US society and government; (2) the threats to the American system and way of life, both internally and externally; (3) the advances in technology and weaponry; (4) the impact of many levels of leadership, both friendly and enemy; (5) assessments of proper courses for the United States to pursue; and (6) the place of aerospace power in these systems of values and predictions.<sup>71</sup> The second volume tells how these factors have influenced the emergence of the Air Force as a manifestation of Air Force thought and how the Air Force has tried to

IDEAS, CONCEPTS, DOCTRINE

manage the discussion of ideas about what air power can or should do during the period of 1960 to 1984.

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EMERGING PATTERNS

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IDEAS, CONCEPTS, DOCTRINE

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## CHAPTER 2

EARLY DAYS THROUGH WORLD WAR I  
1907-26

Without military expenditures for its development, it is quite likely that the airplane would not have become a safe and usable vehicle. "Had it not been for the support of the military for military purposes," Dr Clifford C. Furnas, chancellor of the University of Buffalo and a knowledgeable scientist, would conclude in April 1958, "we would even now I am sure not have safe commercial aviation."<sup>1</sup> In 1898, while the Spanish-American War was in progress and well before the Wright brothers made their first flight, the War Department's Board of Ordnance and Fortification secretly had allocated \$50,000 to Dr Samuel P. Langley, who subsequently was unable to produce a promised flying machine. When this information became generally known, both Congress and the press had been extremely critical of this so-called wastage of public funds.<sup>2</sup> In reminiscences about their epic controlled- power flight at Kitty Hawk, North Carolina, on 17 December 1903, Orville and Wilbur Wright always contended that they meant the airplane to be a contribution to international communications, trade, and goodwill. When they made their first efforts to sell a plane, however, the Wright brothers looked to the US War Department. "The series of aeronautical experiments upon which we have been engaged for the past five years," Orville Wright wrote on 18 January 1905, "have ended in the production of a flying machine of a type fitted for practical use. . . . The numerous flights . . . have made it quite certain that flying has been brought to a point where it can be made of great practical use in various ways, one of which is that of scouting and carrying messages in time of war."<sup>3</sup>

Writing directly to the secretary of war on 9 October 1905, Orville Wright renewed this earlier informal offer "to furnish to the War Department practical flying machines suitable for scouting purposes."<sup>4</sup> Still again, on 15 June 1907, he wrote: "We believe that the principal use of a flyer at present is for military purposes; that the demand in commerce will not be great for some time."<sup>5</sup> Possibly as a result of the experience with Langley, the Board of Ordnance and Fortification declined to enter into negotiations with the Wrights in October 1905 "until a machine is produced which by actual operation is shown to be able to produce horizontal flight and to carry an operator."<sup>6</sup>

IDEAS, CONCEPTS, DOCTRINE

### The Beginning of Army Aviation

Because of interest expressed by President Theodore Roosevelt, aviation matters received added emphasis in the War Department in 1907. On 1 August Brig Gen James Allen, the Army's chief signal officer, established an Aeronautical Division within the Signal Corps, and the Board of Ordnance and Fortification reopened negotiations with the Wright brothers. In a letter to the board on 10 October, Allen was skeptical of the value of the Wright plane. "The military uses of a flying machine of any type," he thought, "will be only for purposes of observation and reconnaissance, or, as an offensive weapon, to drop explosives on the enemy." For either purpose, he believed that the airplane would be less efficient than the dirigible balloons that were already being used by France, Germany, and England. "For the purpose of dropping explosives on an enemy," he asserted, "a high speed aeroplane is hardly suitable. . . . In passing over the enemy's works a flying machine should travel at least 4,000 feet above the earth. . . . Traveling at the rate of thirty miles an hour at this altitude, even after considerable practice, it is not thought a projectile could be dropped nearer than half a mile from the target."<sup>7</sup> Even though the airplane lacked range, load-carrying capability, and came out second best in an effectiveness comparison with the dirigible, the Board of Ordnance and Fortification nevertheless instructed General Allen on 5 December 1907 to solicit bids for the delivery of a heavier-than-air flying machine designed to carry two persons and sufficient fuel for a flight of 125 miles and capable of a speed of at least 40 miles an hour.<sup>8</sup>

The Signal Corps specifications for its first airplane did not include an operational requirement that it would be expected to satisfy. Hence, when the first Wright plane was eventually accepted on 2 August 1909, the Army had a new item of experimental equipment that was in need of a mission. Several minds went to work to bridge this gap. In his student thesis at the Army Service School, Fort Leavenworth, Kansas, in 1907, Lt Benjamin D. Foulois had predicted that large fleets in the air would operate well in advance of ground troops and that these opposing air fleets would be the first military forces to engage at the outbreak of a war.<sup>9</sup> In 1911 Lt Thomas DeWitt Milling tested an experimental aircraft bombsight, and in the following year Milling and Capt Charles DeForest Chandler first fired a Lewis machine gun from an airplane. Even these early aviation enthusiasts, however, recognized that "the very limited flight performance of aircraft in 1912 had not demonstrated any military value other than reconnaissance."<sup>10</sup> US Army field service regulations of 1910 merely noted that for purposes of reconnaissance: "The dirigible balloon or flying machine is used as the commander directs."<sup>11</sup>

During hearings in the spring of 1913 held by the House Military Affairs Committee on a bill to create a separate air corps as one of the line components of the Army, Assistant Secretary of War Henry S. Breckinridge explained the War Department position that military aviation was "merely an added means of communication, observation and reconnaissance" that "ought to be coordinated

## THROUGH WORLD WAR I

with and subordinated to the general service of information and not erected into an independent and uncoordinated service." Significantly enough, Lieutenant Foulois agreed that it was too early for a separate air corps; Lt Henry H. Arnold was sure that the Signal Corps was doing all it could to advance aviation; Lieutenant Milling considered the proposed change premature. "The offensive value of this thing has yet to be proved," argued Capt William Mitchell. "It is being experimented with—bomb dropping and machines carrying guns . . . but there is nothing to it so far except in an experimental way."<sup>12</sup> Nevertheless, during a period of strained relations with Mexico, Army aviators were ordered to Texas City, Texas, in February 1913 to work with the 2d Division. Early in March, this detachment was provisionally organized as the 1st Aero Squadron.<sup>13</sup>

A new edition of US Army field service regulations, issued on 19 March 1914, addressed the subject of the use of combined arms and of aviation. These regulations, which would continue to be in effect when the United States entered World War I, assigned the predominant combat role to the infantry: "The infantry is the principal and most important arm, which is charged with the main work on the field of battle and decides the final issue of combat. The role of the infantry, whether offensive or defensive, is the role of the entire force, and the utilization of that arm gives the entire battle its character. The success of the infantry is essential to the success of the combined arms." Aircraft—captive balloons, dirigible balloons, and aeroplanes—served to provide information. For strategical reconnaissance, the dirigible had the greatest practical value, but aeroplanes were said to be more dependable for field service with a mobile army since dirigibles required substantial shelter from winds while they were on the ground. "In forces of the strength of a division, or larger," the regulations stated, "the aero squadron will operate in advance of the independent cavalry in order to locate the enemy and to keep track of his movements."<sup>14</sup>

#### European Adversaries Speed Aviation Development

Feeling the threat of hostile neighbors, European nations accelerated the development of aeronautics during the 1900s. At the Hague Conference in 1899 the European nations had been willing to accept a US proposal and impose a five-year prohibition against "the discharge of projectiles or explosives from balloons or by other new methods of similar nature." The US delegate had rationalized: "The balloon . . . can carry but little; it is capable of hurling . . . indecisive quantities of explosives, which would fall, like useless hailstones, on both combatants and noncombatants alike."<sup>15</sup> But in 1907, when the Second Hague Conference declaration extended this moratorium on aerial bombing, no major powers except the United States and Great Britain proved willing to ratify it. There were ominous predictions that a future war would begin with air bombardments of belligerent capitals. For the most part, the opposing powers hurriedly developed aviation as an added means of reconnaissance.

## IDEAS, CONCEPTS, DOCTRINE

As the war approached, however, a new strategic concept began to take hold: military commanders in Germany, France, and Russia began to discount the prospect that any means of reconnaissance could dispel the fog of war in an all-out modern conflict. First Germany and then France and Russia accepted the strategic concept of *offense à l'outrance*—a headlong offensive that would attain victory before an enemy could maneuver or react and before battlefield reconnaissance would be worthwhile.<sup>16</sup>

Reflecting popular fears of aerial bombing, the first days of World War I were marked by many false alarms of hostile air raids. The Germans in their declaration of war handed to France on 3 August 1914, apparently were sincere in alleging that French aircraft had bombed the railroad near the German city of Nuremberg on the day before. As hostilities began on the Western Front, the air orders of battle were fairly evenly matched: each side had about 180 airplanes, the Germans had 12 Zeppelins, and France and Britain together had 13 dirigibles. The much feared Zeppelin did not perform well in early fighting; the Germans lost one Zeppelin when it was attempting to bomb the forts at Liège on 6 August and two others were shot down on 21 August when they attempted to reconnoiter under low clouds in the Belfort area. In the confusion of the active field campaign, neither the attacking German armies nor the Anglo-French defense forces made effective use of reconnaissance aircraft.<sup>17</sup>

The employment of reconnaissance aircraft became more effective as the German attack continued. When the exhausted opposing armies entrenched late in 1914, aerial vehicles became virtually the sole source of intelligence. In some measure, aircraft reconnaissance added to the stalemate of trench warfare since neither opposing army could make large local buildups of munitions and reserves without being detected and countered. Both the Allies and the Central Powers exploited fixed balloons for frontline observation and aircraft for deeper-in reconnaissance. Success of local campaigns depended on blinding the opposing intelligence service; thus, both sides developed fighter aircraft and employed them over active sectors in barrage patrols designed to sweep enemy aircraft from the skies. The appearance of a technologically superior Fokker fighter aircraft over the front lines in June 1915 gave a working air superiority to the Central Powers and demanded extreme efforts on the part of the Allies to develop higher performance pursuit aircraft and better tactics. By 1917 the Germans also developed an armed Junkers strafing aircraft that was especially designed for attacks against troops and equipment. As the ground war stalemated, German Zeppelins began bombing attacks against England in January 1915 to weaken the British psychologically. On the Allied side in 1916, the Italian aircraft manufacturer, Gianni Caproni Count di Taliedo, prepared a memorandum for Allied headquarters that proposed to destroy German and Austrian naval vessels by bomber attack against fleet bases. In January 1917, Caproni argued that his large triplane bombers, if built in sufficient numbers, could destroy Austria's factories, thus ending the war with Italy's main opponent.<sup>18</sup>



THROUGH WORLD WAR I

### US Military Preparations

Recognizing that the United States was lagging in aeronautics, Congress approved a measure on 3 March 1915 that established the National Advisory Committee for Aeronautics (NACA) as an independent agency for the "scientific study of the problems of flight with a view to their practical solution." This action was hardly taken, however, before the new evidence emerged to show the low state of readiness of Army aviation. On the Mexican border in March and April 1916, the 1st Aero Squadron valiantly attempted to support Brig Gen John J. Pershing's punitive expedition against the Mexican outlaw Pancho Villa. However, a combination of poor flying machines and severe operational weather made it impossible for the squadron to provide desired observation to the ground forces.<sup>19</sup>

As the United States reluctantly began to arm itself, the National Defense Act of June 1916 included a modest expansion of personnel in the Signal Corps, Aviation Section; large appropriations for Army aviation were included in the fiscal year 1917 appropriation. Looking toward industrial mobilization, Congress authorized establishment of the Council of National Defense on 29 August 1916. One of the groups comprising the council was the nucleus for the creation of the Aircraft Production Board on 16 May 1917. The Aircraft Production Board worked in conjunction with the Joint Army-Navy Technical Board in the selection and procurement of the aircraft chosen for large-scale production.<sup>20</sup>

### The American Air Service in World War I

When the United States entered World War I on 6 April 1917, the US Army did not possess a single modern combat aircraft; but the beginnings of an industrial mobilization had been made. As a nonbelligerent, the United States had not shared Allied war secrets and badly needed information on which to base its war plans. In the first place, the hard-pressed Allies wanted rapid support from US industry. In a cable to President Woodrow Wilson on 26 May, Premier Alexandre Ribot of France asked that an American flying corps of 4,500 planes, 5,000 pilots, and 50,000 mechanics be sent to France during 1918 to "enable the Allies to win the supremacy of the air." If it were to meet this requirement, the United States would have to produce 16,000 planes and 30,000 engines by 1 July 1918. Congress immediately appropriated funds for the requisite production, but, for some reason, Ribot had not specified what type planes ought to be produced.<sup>21</sup>

To determine specific US aircraft requirements and to coordinate Allied patent problems, Secretary of War Newton D. Baker sent an aeronautical commission, headed by newly commissioned Maj Raynal C. Bolling, a leader in civil aeronautics, to Europe in June 1917. Earlier in 1917, Bolling had worked closely with Foulois, now a major, to justify the \$640-million congressional appropriation for the production of aircraft and expansion of the Air Service. Secretary Baker apparently believed that Bolling's background in business would enable him to deal with Allied war producers.<sup>22</sup> The report filed by Bolling on 15 August 1917

## IDEAS, CONCEPTS, DOCTRINE

provided the doctrinal and technical bases for building the Air Service, American Expeditionary Forces (AEF). Bolling reported general agreement that the United States would immediately require aircraft for use in training, aircraft for use strictly in connection with the operation of US ground forces in the field, and after these immediate requirements were met, fighting airplanes and bombers that would be "in excess of the tactical requirements of its Army in France." Since he did not know how large the US Army field force would be, Bolling was unable to suggest the extent of the air force component of the field force, but he recommended that an air force which could be used "independently of United States military forces" should be about 37.5 percent fighting airplanes, about 25 percent day bombers, and about 37.5 percent night bombers. The composition of the bomber force would actually vary according to the number of fast fighting machines that the enemy operated on a given portion of the front at a given time. In an extended discussion of the bomber force he desired to put into action in 1918, Bolling explained that day bombardment required faster aircraft, which desirably would be employed freely "if it should be possible to drive from the air practically all the enemy fighting machines." By bombing at night, however, large and slow airplanes could carry large numbers of bombs. In response to the question, "Could night bombing be conducted on a sufficiently great scale and kept up continuously for a sufficient time?" Bolling replied, "there seems good reason to believe that it might determine the whole outcome of military operations. Up until the present time, the trouble seems to have been that all bombing has been carried on intermittently and sporadically because of a lack of attention to the subject and provision for large enough numbers of the right kinds of airplanes."<sup>23</sup>

Even though American aviation pioneers had thought of aviation as a combat arm, the idea of a massive independent bombing force, which was so readily accepted by the aeronautical commission, was relatively new, even in Europe. Shortly after arriving in Europe, Bolling had conversations with Gen Sir David Henderson of the British air board, who divided aviation into three categories: service aviation allocated to ground forces, fighter aviation in requisite quantities (preferably a three-to-one numerical superiority) to drive the enemy out of the air, and bomber aviation in the greatest amounts that a country was able to produce "to use against the enemy in bombarding him out of his position and cutting off his communications and destroying his sources of supply."<sup>24</sup> As a result of a visit to Italy, the Bolling commission was evidently favorably impressed with Italian bombing raids against Austria, and the commission recommended that the United States should purchase Caproni biplanes and the license to manufacture Caproni triplanes.<sup>25</sup> The strongest influence on the Bolling commission, however, was undoubtedly Lt Col William Mitchell. While on the War Department General Staff in 1915, Mitchell made a directed survey of US aviation needs. In 1916, Mitchell, now a member of the Signal Corps, Aviation Section, took flight instruction at his own expense and became an aviation enthusiast. Sent to Europe as an observer, Mitchell arrived in Paris four days after the United States entered the war. In May 1917, Mitchell spent several days visiting the headquarters of Maj Gen Hugh

## THROUGH WORLD WAR I

Trenchard, the Royal Air Force (RAF) commander in France. Mitchell learned that Trenchard's policy was to unify all aviation under one commander, to place the minimum number of airplanes necessary for the use of ground troops in action with each army, and to concentrate the bulk of bombardment and pursuit so that he could "hurl a mass of aviation at any one locality needing attack." When Gen John J. Pershing arrived in Paris to take command of the American Expeditionary Forces on 13 June, Mitchell assumed the duty of chief of air service, American Expeditionary Forces. In this position, Mitchell worked intimately with the Bolling commission while it was preparing its recommendations to Washington.<sup>26</sup>

Back in Washington, the Joint Army-Navy Technical Board accepted the Bolling commission recommendations as being essentially sound; and the idea of conducting an air war against the Germans apparently caught the fancy of the American people. However, fanciful statements made by Secretary Baker and other people in authority as to the tremendous numbers of American planes that would deluge the Western Front caused the Germans to redouble their air production effort in what they called their *Amerikaprogramm*, but these statements did very little to mobilize the American productive effort.<sup>27</sup> According to the War Department organization, the Signal Corps, Aviation Section (which was variously redesignated as the Aeronautical Division, the Airplane Division, the Air Division, and the Air Service Division), was responsible for the recruitment and training of aviators and aviation personnel.

Separately responsible to the secretary of war, the Aircraft Production Board, which was enlarged and redesignated as the Aircraft Board by congressional authority in October 1917, was in charge of aircraft requirements and the placing of contracts for aircraft and air materiel production. The Joint Army-Navy Technical Board was responsible for making final decisions as to the types of aircraft to be procured. But, in August 1917, General Pershing demanded and received final authority to determine aircraft types. After this decision, the role of the Joint Army-Navy Technical Board speedily deteriorated.<sup>28</sup> When it was evident early in 1918 that extravagant fighting-plane programs could not be met, the Aircraft Production Board and the Aviation Section of the Signal Corps became the targets of bitter public criticism and congressional investigation. After preliminary War Department steps had been taken during April, President Wilson on 21 May 1918 transferred aviation matters from the Signal Corps to the Division of Military Aeronautics, which was to be headed by Brig Gen William L. Kenly, and to the Bureau of Aircraft Production, headed by John D. Ryan, who continued to be chairman of the Aircraft Production Board.<sup>29</sup>

In Europe much of the same confusion as was occurring in Washington marked the organization of the Air Service, American Expeditionary Forces. Promoted to colonel, Mitchell served as air officer, AEF, until 3 September 1917, when Pershing installed General Kenly as chief of air service, AEF, and made Mitchell air service commander, Zone of Advance. On 27 November, General Foulois, accompanied by a headquarters staff, arrived in Paris with orders to relieve General Kenly, who returned to the United States. Mitchell had respected General Kenly, but he

## IDEAS, CONCEPTS, DOCTRINE

referred to the Foulois staff as "carpetbaggers." General Pershing described the officers who came to France with Foulois as "good men running around in circles." In an effort to restore order, Pershing, on 29 May 1918, finally installed an engineer officer and West Point classmate, Brig Gen Mason M. Patrick, as chief of air service, AEF. At this time, Foulois was appointed chief of air service, First Army, but he instead asked to serve as assistant to Patrick and recommended Mitchell for the combat position, to which Mitchell was assigned on 27 July 1918. Thereafter, new combat air posts were formed as new Army organizations reached France. In October 1918, Col Frank P. Lahm became chief of air service, Second Army. Relieved by Col Thomas D. Milling at First Army in October, Mitchell was promoted to brigadier general and appointed chief of air service, Army Group.<sup>30</sup>

The priority task of the Air Service, AEF, was to provide the trained air units that were assigned to US divisions, corps, and armies as they arrived in France. As an integral combat arm of the ground forces, the air units assigned to the front were commanded, in the full sense of the word, by the commanding generals of the armies, corps, and divisions to which they were assigned. "The Air Service," stated General Patrick, "originates and suggests employment for its units but the final decision is vested in the commanding general of the larger units, of which the Air Service forms a part." In most instances, however, Patrick acknowledged that ground commanders lacked experience with aviation and depended heavily on their Air Service officers.<sup>31</sup> To guide the air effort in the autumn of 1917, Colonel Mitchell drew up what was probably the Air Service's first formal statement of doctrine in a paper entitled "General Principles Underlying the Use of the Air Service in the Zone of Advance A.E.F." In the preface, Mitchell stated that the outcome of war depended primarily on the destruction of an enemy's military forces in the field; no one of the Army's offensive arms alone could bring about complete victory. Hence the mission of the Air Service was to help other arms in their appointed missions.

Mitchell divided aviation into two general classes: tactical aviation, which operated in the immediate vicinity of troops of all arms, and strategical aviation, which acted far in advance of troops of other arms and had an independent mission. According to Mitchell, tactical aviation consisted of observation, pursuit, and tactical bombardment. Observation squadrons performed visual and photographic reconnaissance, adjusted artillery fire, and provided liaison services. Pursuit aviation attained mastery of the air in air battles and, when necessary, created diversions by attacking enemy personnel on the ground. Tactical bombardment operated within 25,000 yards of the front lines. Its objectives were to assist in the destruction of enemy materiel, to undermine the morale of enemy personnel, and to force hostile aircraft to arise and accept combat by attacking enemy airdromes. Mitchell considered that strategical aviation included pursuit, day-bombardment, and night-bombardment squadrons. The radius of actions of strategical aviation units was usually more than 25,000 yards in advance of friendly troops. The object of strategical aviation was "to destroy the means of supply of an enemy army, thereby preventing it from employing all of its means in combat." Such would be

## THROUGH WORLD WAR I

accomplished, Mitchell stated, by destroying enemy aircraft, air depots, and defensive air organization, as well as enemy depots, factories, lines of communications, and personnel.<sup>32</sup>

The issuance of Mitchell's "General Principles" apparently coincided both with his assumption of duty as air service commander, Zone of Advance, and with the first arrivals of US Air Service squadrons in France. The 1st Aero Squadron arrived overseas on 3 September 1917, where it was equipped with Salmson aircraft and trained as a corps observation squadron before it was assigned to the front on 8 April 1918. By the Armistice on 11 November 1918, the US Air Service in France would comprise 45 squadrons, including six army observation, 12 corps observation, 20 pursuit, one night-bombardment and six day-bombardment squadrons. Twelve of these squadrons were ultimately equipped with American-built DH-4 aircraft; the other squadrons flew Salmson, Spad, Breguet, or Sopwith Camel planes purchased from the French and British. After training in the inactive Toul sector of the Western Front, US Air Service units were employed in support of the US I Corps at the Marne and Vesel rivers in July and August 1918. The greatest American air action, however, came in support of the US First Army in the Saint-Mihiel and Argonne-Meuse offensives beginning in September 1918. For the Saint-Mihiel offensive, Mitchell had the services of British and French as well as US squadrons; altogether he had the use of 701 pursuit, 323 day-bomber, 91 night-bomber, and 366 observation aircraft — a total of 1,481 planes of which about one-third were American.

The air action in these battles illustrated the value of concentrated air forces, but the employment of aviation continued to be planned in terms of the ground mission. Although Air Service officers spoke of the desirability of attaining aerial supremacy, they considered that this was possible only in certain selected sectors for limited periods of time. The major mission of pursuit aviation was described as being "to keep clear of enemy airplanes an area about 10,000 yards deep in front of the line of battle." This zone was the area in which corps and division observation aircraft flew and, thus, the objective of pursuit aviation was defined as "the destruction of the enemy air service and the protection of our own observation aircraft." The primary object of day-bombing attacks was said to be "the destruction of the enemy's morale, materiel and personnel." In this effort, "the ratio of the effect of lowering the enemy's morale over that of destruction was estimated as about 20 to 1." Bombing and strafing of ground targets proved advisable only when air supremacy was attained, a lesson learned by hard experience. According to Colonel Milling, the US Air Service's day-bombing force sustained about 60 percent losses during the Battle of Saint-Mihiel when it was closely escorted by pursuit aircraft. Being tied to the bombardment planes, the pursuit aircraft always had to fight on the defensive. The solution, which cut losses to 8 percent, was a double offensive wherein the bombardment planes carried out their attacks against ground targets and the pursuit aircraft aimed their attacks against the enemy fighters that always arose to meet the bombardment planes. Even bombardment missions were thought of in terms of the high-priority observation function, since

IDEAS, CONCEPTS, DOCTRINE

these missions "invariably drew enemy pursuit from the rest of the front, rendering it safe for our corps observation."<sup>33</sup>

In the battles of France the employment of tactical aviation by the Air Service officers was generally in accordance with the plan of the ground battle. At the end of World War I, General Patrick believed that experience had "clearly demonstrated the fact that the work of the observer and observation pilot is the most important and far-reaching which an Air Service operating with an Army is called upon to perform."<sup>34</sup> Colonel Lahm agreed that "the main function of aviation is observation and that all hinges on that Program." And Colonel Milling emphasized that "the Air Service is of value to the military establishment only insofar as it is correlated to the other arms."<sup>35</sup>

**Thoughts on Strategic Bombing**

In the summer of 1917, the members of the Bolling aeronautical commission had enthusiastically supported a plan whereby US strategical bombers and fighters would be employed against Germany. When the Bolling commission broke up on 15 August 1917, Bolling was promoted to the rank of colonel and given the title of assistant chief of air service, line of communication. Maj Edgar S. Gorrell, a young aeronautical engineer who had come to France with Bolling, was detailed in charge of the Air Service, Technical Section, in Paris. Gorrell was in charge of initiating purchases of air materiel in Europe. His studies led him to believe that the United States should purchase or build a sufficiently large number of night bombers to carry out a systematic bombardment of Germany. Gorrell believed that a force of from 3,000 to 6,000 bombers would be adequate for this purpose. What the influence of Caproni had been on the original Bolling commission report may only be speculative, but in October 1917 both Bolling and Gorrell were in active correspondence with the Italian aircraft manufacturer. Sometime during October, Caproni collaborated with his friend Capt Giulio Douhet in the preparation of a "Memorandum on the 'Air War' for the US Air Service," which urged that mass attacks made at night by long-range Allied bombers against industrial targets deep within Germany and Austria definitely could overwhelm the enemy by substantially reducing his war production at the same time that Allied production was increasing. That same month, Caproni gave Gorrell a little book signed by Nino Salveneschi and entitled *Let Us Kill the War; Let Us Aim at the Heart of the Enemy*. Evidently written by a journalist to represent Caproni's views, this small, English-text book was a further exposition of the concept of strategic bombardment. In November 1917 Bolling personally advised Howard Coffin, the chairman of the Aircraft Production Board in Washington, that the United States ought to give a higher priority to the production and procurement of bomber aircraft than to observation and fighter aircraft.<sup>36</sup>

When General Foulois arrived in Paris in November 1917, he divided the Air Service, Zone of Advance, into Tactical Aviation and Strategical Aviation and placed Colonel Gorrell in charge of the latter organization, which was to be a

## THROUGH WORLD WAR I

planning staff pending the arrival of bombardment squadrons. For staff support, Gorrell obtained Majors Harold Fowler and Millard F. Harmon and borrowed Wing Comdr Spencer Gray, a British Royal Navy Air Service officer. These men drew up a proposal for a bombing campaign, which they submitted to Foulois on 28 November 1917. This paper pointed out that the Germans were reported to be building great numbers of large Gotha bombers in preparation for a bombing campaign. The Gorrell plan, therefore, stated that it was "of paramount importance that we adopt at once a bombing project . . . at the quickest possible moment, in order that we may not only wreck Germany's manufacturing centers but wreck them more completely than she will wreck ours next year." The plan proposed that the bombing attacks would be mounted by day and night from airfields in the Toul-Verdun area against industrial plants around Dusseldorf, Cologne, Mannheim, and in the Saar Valley. Up to 100 squadrons should be directed against each of these targets in turn, the idea being to keep a given target under a sustained bombardment up to five hours at a time. Such an assault would overwhelm target defenses, wreck manufacturing works, and shatter the morale of workmen.<sup>37</sup>

In Great Britain popular dissatisfaction with the ability of the the air defenses to deal with Zeppelin and Gotha attacks against London forced a reorganization of aviation affairs. On the advice of a board headed by Lt Gen Jan Christian Smuts (with strong support from Winston Churchill), the British government set up a separate Air Ministry in December 1917. In the culmination of this reform in April 1918, the Royal Flying Corps and the Royal Naval Service were recombined into the Royal Air Force, but, as a more immediate action, General Trenchard was directed to concentrate a bomber force at Nancy and begin attacks against German industrial centers. Since the British were already operating from Nancy, the US Air Service agreed with Trenchard's suggestion in December 1917 that American bomber squadrons arriving in France initially operate with British units. Here matters stood on 5 February 1918 when Colonel Gorrell was transferred to the AEF General Staff. On 26 March Colonel Bolling was killed by German soldiers while reconnoitering the ground front.<sup>38</sup>

Although Gorrell's successor in Strategic Aviation busied himself making plans for the eventual reception of US bombardment squadrons, the establishment of the British Independent Air Force at Nancy under command of General Trenchard on 5 June 1918 forced a reconsideration of American planning. Since the British Independent Air Force received its orders from the Air Ministry rather than from the Allied commander in chief Marshal Ferdinand Foch, the American Expeditionary Forces ruled that US bomber squadrons could not operate integrally with it. General Pershing's chief of staff also notified General Patrick that all Air Service officers "must be warned against any idea of independence and . . . that every force must be closely coalescent with those of the remainder of the Air Service and with those of the Grand Army." Believing that the use of the term *strategical aviation* had led persons to think that this activity was independent, General Patrick directed in June 1918 that the activity would be known as the General Headquarters Air Service Reserve.<sup>39</sup> Marshal Foch believed that the

## IDEAS, CONCEPTS, DOCTRINE

enemy's army was the enemy's strength; he maintained that bombers should attack the enemy's economy only as a secondary function. The military representatives of the Allied Supreme War Council on 3 August 1918 accordingly established an Inter-Allied Bombing Force that was to operate against the German economy only after requirements of the armies in the field had been met or in lulls between ground battles.<sup>40</sup>

Although the Allies moved toward acceptance of strategic bombing, the amount of effort that could be devoted to attacks against Germany's economy was not large. From 6 June 1918 to the Armistice, the British Independent Air Force consisted of only nine squadrons, some of which were equipped with planes that had been obsolete for several years. In these months, the Independent Air Force dropped some 550 tons of bombs on about 50 targets. Trenchard recognized that his effort was spread very thinly, but his major hope was to disrupt enemy morale.<sup>41</sup> Had the war continued, the US Air Service would have joined the strategic bombing effort. Back in the United States, however, indecision as to which bombers would be produced and then slowness in production denied the Air Service a bomber force. In line with the original Bolling recommendations, the United States initially undertook to manufacture Caproni bombers; it also decided to produce British-designed Handley-Page bombers. Since it would be difficult to ship the bombers across the ocean, Handley-Page parts would be manufactured in the United States and the planes would be assembled in Great Britain. On 28 June 1918 an Air Service, Night Bombardment Section, was opened in England to superintend the equipment and training of a night-bomber force, but none of the expected Handley-Page aircraft became available before the Armistice. A single US night-bomber squadron, equipped with improvised DH-4B and old Farman FE-2B aircraft, was committed to the front on 9 November 1918. Looking backward at the failure of the strategical aviation program, Colonel Gorrell observed that "entirely too much optimism was felt for the American Production Program" and that "the Air Service failed to secure the approval of the General Staff of its plans for the employment of this aviation and consequently suffered from the fact that its plans for the use of the Strategical Air Service were not synchronized properly . . . with the ideas of GHQ."<sup>42</sup>

#### America's Wartime Aviation Accomplishments

In view of the divided War Department authority for training and operations and for aircraft production, it was not remarkable that US air unit programs were subject to frequent revision during the course of World War I. In August 1917 the Aviation Section secured approval for a program including 345 combat squadrons, of which 263 were intended for use in Europe by June 1918. Because of lagging aircraft production early in 1918, however, the War Department approved a program of 120 combat squadrons to be at the Western Front by January 1919. In August 1918 the War Department and General Pershing finally agreed on a program calling for 202 squadrons to be at the front by July 1919. This force would



## THROUGH WORLD WAR I

have included 60 pursuit, 49 corps observation, 52 army observation, 14 day-bombing, and 27 night-bombing squadrons, plus 133 balloon observation companies. Since aircraft production was beginning to achieve success late in 1918, it appeared probable that this program objective could have been met had the war continued.<sup>43</sup> When hostilities ended on 11 November 1918, however, just 45 American air squadrons—with 740 airplanes, 767 pilots, 481 observers, and 23 aerial gunners—were actually assigned to the Air Service, AEF. On the Marne, at Saint-Mihiel, and in the Argonne, US pilots shot down 781 enemy aircraft and destroyed 73 enemy observation balloons. US losses in air battles included 289 airplanes and 48 balloons brought down by the enemy. The US squadrons participated in 150 bombing raids, during which they dropped more than 275,000 pounds of explosives.<sup>44</sup> During the war the United States manufactured 11,760 airplanes, and, as of 11 November 1918, the Air Service, AEF, had received 6,284 planes—4,791 from the French, 261 from the British, 19 from the Italians, and 1,213 from the United States.<sup>45</sup>

Viewed in themselves, the statistics of US Air Service activities in World War I were somewhat less than impressive. According to his memoirs, Gen William Mitchell was not entirely happy that the Armistice had come before aviation had proven itself. Mitchell would recall that by the spring of 1919 he had expected to see great bombardment attacks against Germany's economy and even a paratroop employment of the 1st Infantry Division behind German lines. "I was sure that if the war lasted," Mitchell recollected, "air power would decide it."<sup>46</sup>

### The Mitchell Era: From Air Service to Air Corps

"It is important for the winning of the war," stated the report of Field Marshal Jan Christian Smuts's committee on air organization and home defense to the British prime minister on 17 August 1917, "that we should not only secure air predominance, but secure it on a very large scale; and having secured it in this war we should make every effort and sacrifice to maintain it for the future. Air supremacy may in the long run become as important a factor in the defense of the Empire as sea supremacy."<sup>47</sup> In the United Kingdom, the finding of the Smuts committee that the Royal Flying Corps and the Royal Navy Air Service had been bitterly struggling over limited supplies of planes, engines, and personnel available led to the establishment of the Air Ministry in December 1917 and the Royal Air Force in April 1918. Word of the British action reached the United States without delay and caused a renewed congressional and popular demand for a US Air Service altogether separate from the War and Navy departments.

Within the War Department, it was evident that the separation of responsibilities between the Division of Military Aeronautics and Bureau of Aircraft Production presented an inherent organizational defect. In a memorandum written on 6 June 1918, Col Henry H. "Hap" Arnold, assistant director of the Division of Military Aeronautics, stated that the division must control the design of the equipment with which it was to operate. Arnold did not

## IDEAS, CONCEPTS, DOCTRINE

care who handled supply, but he argued that the Division of Military Aeronautics could not properly be held accountable for operational and military efficiency as long as the Bureau of Aircraft Production was responsible for the quality, design, and production of military aircraft. To alleviate some of the criticism of military aeronautics organization, Secretary Baker on 28 August 1918 appointed John D. Ryan as second assistant secretary of war and director of air service. Since Ryan continued to head the Bureau of Aircraft Production, all Army aviation affairs were in theory under one civilian head. This reorganization, however, had hardly taken effect before the Armistice brought Ryan's resignation, leaving all the offices he had held vacant. In January 1919 Maj Gen Charles T. Menoher, a nonflying officer who had commanded the 42d (Rainbow) Division and the VI Army Corps in France, was appointed director of air service. On 19 March 1919 President Woodrow Wilson signed an executive order that dissolved the old Aircraft Production Board and placed the Bureau of Aircraft Production immediately under the director of air service. This executive action finally united all Army aviation functions in the Air Service, but President Wilson had acted under wartime reorganizational authority and the final status of the Air Service would have to be enacted into law by Congress.<sup>48</sup>

Desiring that the lessons of World War I should be recorded promptly by the leaders who had participated in field operations, General Pershing on 19 April 1919 convened a superior board in Paris under the presidency of Maj Gen Joseph T. Dickman to review the findings of boards of senior officers to be appointed from each branch of the American Expeditionary Forces, including the Air Service. The report of the Air Service Board headed by General Foulois was generally conservative and recommended that most of the Air Service should be assigned to armies, corps, and divisions. The report, nevertheless, proposed that a separate general headquarters (GHQ) reserve be created. This air reserve would be no smaller than an aerial division, comprised of a bombing brigade (a night-bombing wing and a day-bombing wing) and a pursuit brigade (two day wings) plus a 10-percent reserve of all units assigned to armies, corps, and divisions. But General Patrick took exception with the Foulois board's insisting that the prime function of the Air Service was to obtain and transmit information, that the prime function of pursuit was to prevent enemy observation and protect friendly observation planes, and that aircraft intended for bombing distant objectives or industrial centers were a "luxury." "It follows," Patrick wrote, "that when it is possible to place such a bombing force in the field, its size should be limited only by the nation's ability to provide it and by the number and importance of the enemy activities which are to be attacked."<sup>49</sup>

The Dickman board's report noted that the Air Service, AEF, had developed along four general lines: observation, distant reconnaissance and bombing operations, aerial combat, and combat against ground troops. The board stated that air combat against ground troops was not well developed and predicted that this type of aerial work could be made more effective and decisive than distant bombing operations. The Dickman board concluded,

## THROUGH WORLD WAR I

Nothing so far brought out in the war, shows that aerial activities can be carried on independently of ground troops, to such an extent as to materially affect the conduct of the war as a whole. It is possible, perhaps, that future wars may develop aerial forces of far greater extent than those provided in this war. It is safe to assume that Air Forces will not be developed for war purposes to such an extent as to largely supplant ground and water forces, until such a proportion of the people become airfaring people as are now known as seafaring people.

The board added that "so long as present conditions prevail . . . aviation must continue to be one of the auxiliaries of the principal arm, the Infantry."<sup>50</sup>

Other reports, manuals, and histories prepared at the Headquarters Air Service, AEF, in Paris and elsewhere in Europe during the immediate posthostilities period reflected the overriding importance of observation in the Air Service mission. Written in March 1919, but not published until later, General Patrick's *Final Report of the Chief of Air Service, AEF* stated that to regard air forces as separate and distinct from other component parts of the Army would be "to sacrifice the cohesion and unity of effort which alone distinguishes an army from a mob."<sup>51</sup> Two tentative manuals prepared under the direction of Colonel Gorrell—entitled "Notes on the Employment of the Air Service from the General Staff Viewpoints" (February 1919) and "Tentative Manual for the Employment of Air Service" (April 1919)—represented the belief "that in the future, as in the past, the final decision in war must be made by men on the ground, willing to come hand-to-hand with the enemy. When the Infantry loses the Army loses. It is therefore the role of the Air Service, as well as that of the other arms, to aid the chief combatant, the Infantry."<sup>52</sup> The latter manual also noted that "the greatest value of the Air Service to date has been in gathering information of the enemy and of our own troops." As a final basic consideration relative to air attack, the manual observed that "the morale effect on ground troops is out of all proportion to the material destruction wrought."<sup>53</sup> The manual of operations for Air Service units which General Mitchell issued at Koblenz as Air Service commander, US Third Army, on 23 December 1918 portrayed aviation as a supporting arm for the infantry rather than as a decisive force.<sup>54</sup>

Meanwhile back in Washington during 1919 and 1920, eight separate bills proposing the creation of a separate military aviation establishment were introduced in the US Congress. The leading measures were the New and Curry bills, each of which sought to create an executive department of aeronautics.<sup>55</sup> On 8 August 1919, the secretary of war appointed a board of general officers headed by General Menoher to report on these bills. After study, the Menoher board reported general agreement on several fundamental considerations: aeronautics would play an increasingly important role in a future war in proportion to the capacity of a nation to produce aircraft and train personnel for aircraft maintenance and operation; no nation could afford to maintain military air fleets required for war in time of peace; the nation that first mobilized a superior air fleet after a war began would have an undoubted advantage; and a nation desirably

## IDEAS, CONCEPTS, DOCTRINE

should have a full development of commercial aviation in order to provide military potential in time of war. The board stated that a single government agency ought to be established for research and development and for procurement of military, naval, and commercial aircraft. It recommended that the government also should develop and operate air route facilities and that it might provide direct subsidies to airline companies but that it should not undertake the production of aircraft. Whether or not a single separate governmental agency for research and development, procurement, and subsidization of the civil air fleet could be established, however, would depend on the magnitude of federal expenditures that Congress would be willing to vote for national aeronautics.<sup>56</sup>

The Menoher board revealed an understanding of the nation's requirement for a progressive development of aviation potential, but it could see no need for a separate Army-Navy aeronautical service. It stated: "An air force acting independently cannot win a war against a civilized nation, nor by itself, accomplish a decision against forces on the ground." On the other hand, military forces could not be efficiently trained nor could they operate effectively without air force support. With respect to an army, an air force was an essential combat branch, and it had to be an integral part of an army command "not only during battle but also during its entire period of its doctrinal training." The Menoher panel stated that the outstanding defect of the Air Service, AEF, had been its lack of cooperative training with the Army, and it quoted extensively from the Dickman board's findings to substantiate the air mission as being one of support for ground operations. The creation of the Royal Air Force in Great Britain was said to have been motivated "for political rather than military reasons." In regard to the exact organization of the air component of the Army, the Menoher board recommended that the military air force was an essential combat branch and ought to be placed on an equal footing with the infantry, cavalry, and artillery. "Whatever may be the decision as to a separate Aeronautical Department," the board concluded, "the military air force must remain under the complete control of the Army and form an integral part thereof both in peace and war."<sup>57</sup>

In the late spring of 1919 the case for a separate air force drew support from the report of a mission headed by Assistant Secretary of War Benedict Crowell. Including American industrialists as well as Army and Navy officers, the Crowell mission visited France, Italy, and England, and conferred with civil and military leaders. The report noted a general agreement in Europe that "any future war will inevitably open with great aerial activity far in advance of contact either upon land or sea, and that victory cannot but incline to that belligerent able to first achieve and later maintain its supremacy in the air." Italy and France were said to realize the military-naval and civil-commercial aspects of aircraft, and Great Britain was reported "to consider the dominance of the air as at least of equal importance with that of the seas, and is frankly and avowedly planning a definite policy of aerial development to that end." Presented to the secretary of war on 19 July 1919, the Crowell mission report recommended the establishment of a single department of air that would be coequal to the departments of War, Navy, and Commerce, and

## THROUGH WORLD WAR I

would have subdepartments including civil aeronautics, military aeronautics, naval aeronautics, and supply and research. Apparently because the Crowell report did not follow accepted viewpoints, Secretary Baker allegedly made efforts to suppress it. The general contents of the report were soon known to aviation enthusiasts; but Secretary Baker did not release it until December 1919, when he made the observation that the mission had "gone too far in suggesting a single centralized Air Service." Military pilots, Baker stated, had to be trained "to fight singly or in formation, and to operate in coordination with other branches of the military service."<sup>58</sup>

**Mitchell's Early Thinking on Air Power**

In his combat command in Europe, Gen Billy Mitchell had become America's hero and "prince of the air." While he would later rewrite and add explanatory notes to his "diary of war-time experiences" that would indicate his early support for the concept of strategic bombardment, Mitchell's wartime activities and writings indicated that he cooperated with the desires of his Army superiors with little real question.<sup>59</sup> In January 1919, however, Mitchell was ordered to return to the United States to become director of military aeronautics. He may well have recognized that he was returning to the United States at a time when the nation lacked an air policy. Instead of looking backward at World War I, he began to look ahead to logical projections of air power capabilities. One thing was clear, the Air Service needed a definite mission of a distinctive nature. In 1915, when he had been assigned to the War Department General Staff, Mitchell had prepared a survey of America's aviation needs in which he had theorized that Army aviation would be a valuable "second line of defense" if the Navy's "first line of defense" should fail to stop an invasion of the United States. He had made the point that aviation attached to harbor and coastal defenses would be useful both for reconnaissance and for preventing similar enemy activity. Aircraft could destroy an invader's airplanes, attack his submarines, and disrupt the operations of his minelayers.<sup>60</sup> Something of these earlier thoughts may have been in Mitchell's mind while he was returning to the United States; a naval officer with him aboard the westbound *Aquitania* duly reported that Mitchell was "fully prepared, with evidence, plans, data, propaganda, posters and articles, to break things wide open" for air power.<sup>61</sup>

When Mitchell assumed office as director of military aeronautics on 6 March 1919, the duties of this position had already been superseded in large measure by the appointment of General Menoher as director of air service. Menoher, however, assigned Mitchell as the chief of the Air Service's Training and Operations Group, the headquarters agency charged with the preparation of tactical manuals and war plans.<sup>62</sup> In the Training and Operations Group, Mitchell gathered a team of veteran airmen, including Colonel Milling and Lt Cols William C. Sherman, Leslie MacDill, and Lewis H. Brereton. Obviously stimulating each other's thinking, these men developed many of the ideas that eventually would be recognized as Air Force doctrine. The activities of the Training and Operations Group were so clearly

IDEAS, CONCEPTS, DOCTRINE

contrary to the official positions of the War Department and of General Menoher that Lt Col Oscar Westover, who was Menoher's executive officer, recommended on 5 May 1919 that Menoher ought either to get a statement of loyalty from Mitchell or to relieve all of the division heads of the Training and Operations Group.<sup>63</sup>

As Mitchell and his associates assessed the situation confronting the Air Service, they recognized, first of all, that normalcy was wrecking the nation's armed forces and particularly its air forces. In the rapid demobilization, the number of Air Service officers dropped from 20,000 to a little more than a nucleus of 200 regular officers in 1919, and these regulars were only on detail from other branches of the Army. While Mitchell maintained his rank by occupying a statutory assignment, most Air Service officers returned to their regular ranks, mostly in company grades, when they reached the United States. General Foulois would later recall the sheer shock that he felt when he walked down the gangplank in New York as a wartime brigadier general and became a captain when he stepped on the dock; within a few months, however, he was promoted to major.<sup>64</sup> Even more important was the affect of the return to peace on the development of the airplane. "The airplane," Sherman wrote,

is in its infancy. Many of its features today show the crudity characteristic of all early efforts. But as we compare the airplane of 1918 with that of 1914, it is apparent that progress during that period was unbelievably rapid. This was due, of course, to the urgent demand of war. Now the acceleration of war has been lost; nor does there appear to be any great stimulus to advancement in commercial demand. We may expect, therefore, that progress will be materially slowed down, either until development makes the airplane widely useful to commerce, or until we encounter again the insistent demand of war.<sup>65</sup>

In their assessment of the impact of the airplane on the art of war, the Mitchell group drew an important distinction between the effect of air action on land warfare and sea warfare. "On land," Sherman reasoned, "battle is determined by morale: The aim therefore is to destroy morale by methods that are based on unchanging human nature." Naval warfare, on the other hand, was a product of industrial and inventive genius and firepower. Aircraft, together with submarines, had the ability to destroy naval vessels, and it was obvious that the airplane had altered the means by which sea power was to be attained.<sup>66</sup> At a meeting of the Navy's General Board on 3 April 1919, Mitchell urged that aircraft could successfully attack naval warships, stated that the aerial defense of the nation's coasts should be assigned to land-based aircraft, and urged that the United States should organize a ministry of defense, combining army, navy, and air forces under one direction.<sup>67</sup> Mitchell was not again invited to appear before the Navy's General Board, but he presented a steady flow of aviation ideas to the congressional committees that sat almost continuously during 1919. He advocated a single department of aviation with military, naval, and civil divisions. "The principal mission of aviation is fighting hostile aviation," he said, "and it does not make any difference where it is found, whether over the water or over the land, the mission

THROUGH WORLD WAR I

of aviation is to destroy that force." "We believe if we are allowed to expand," he continued, "we can put the navy under the water in a comparatively few years as an offensive force against us. We believe we can have a great effect on land operations, although not to the same extent that we can against a navy, because an army can hide itself too well."<sup>68</sup> "If we give up the air to a foreign power," Mitchell testified on 5 December 1919, "it has been proved during the war that they can cause incalculable damage with their air service alone by hitting our industrial and other centers of organization for war, and in all probability they could bring about a decision by their air service alone." Mitchell also emphasized a need for unity of air command:

The principal mission . . . of aviation is the destruction of the hostile aviation, in the same way that the principal mission of the navy is the destruction of the hostile navy, or the principal mission of an army is destruction of the hostile army. Therefore, in order to unite and bring your greatest effect to bear in any one place it is necessary to unite all the elements of your aviation at the place where the decision is called for, no matter whether it is war on the sea or war on land.<sup>69</sup>

In the same months that Mitchell was carrying on the fight for a separate department of aviation, he and other officers were also defining a role for an expanded Air Service within the Army. Major Foulois, who was assigned to the director of air service's office, bitterly attacked the shortsighted policies of Army General Staff officers in testimony before a congressional committee on 16 October 1919. These officers, Foulois said, were interested only in a "defensive use" of aircraft and had neglected "the fighting side of aircraft." Although Foulois presented an elaborate justification of the materiel and logistical advantages to be obtained from a Department of Aeronautics and although he was far more critical of the General Staff than was Mitchell at this early date, he was somewhat less positive about the relationship of aeronautics to the national defense. "The use of aircraft during the recent war," he said, "has fully demonstrated the fact that in future wars aircraft will play a part second only to the infantry." He added: "In time of war there is no question but that, in order to get the maximum efficiency of all elements of a military command, air service units as well as any other units, must come under the command of the supreme military commander in the field."<sup>70</sup>

In a paper entitled "Tactical Application of Military Aeronautics," apparently prepared in January 1920, Mitchell defined the principal mission and the secondary employment of aeronautics. "The principal mission of Aeronautics," he stated, "is to destroy the aeronautical force of the enemy, and, after this, to attack his formations, both tactical and strategical, on the ground or on the water. The secondary employment of Aeronautics pertains to their use as an auxiliary to troops on the ground for enhancing their effect against the hostile troops." In this paper, Mitchell divided combat aviation into four branches (which would be classic for many years): pursuit, bombardment, attack, and observation aviation. Pursuit aviation was "designed to take and hold the offensive in the air against all hostile aircraft" and it was to be the branch with which "air supremacy is sought and

IDEAS, CONCEPTS, DOCTRINE

obtained." Bombardment aviation was "organized for the purpose of attacking enemy concentration points of all sorts at a distance from their front lines. Probably its greatest value is in hitting an enemy's great nerve centers at the very beginning of the war so as to paralyze them to the greatest extent possible." Attack aviation was a specialized branch that had only begun coming into being when the war ended in Europe. Attack planes would be heavily armed and armored "flying tanks" that would prosecute low-level attacks against hostile troops, tanks, artillery, motor vehicles, railway trains, or anything of that sort. Observation aviation was the branch "concerned more with the troops on the ground than any other." In the conduct of combat air operations, Mitchell envisioned that the superior command would outline the broad plan of operation and that the Air Service commander would prepare detailed air plans in conjunction with the Army G-3 operations and G-2 information branches. When approved by the superior commander, these plans would become orders.<sup>71</sup>

**Aviation Is Integrated into Army and Navy**

Despite the ardent pleadings of aviation enthusiasts, the War and Navy departments acted in unison during 1919 and 1920 to integrate aeronautics into the existing establishment. One of Mitchell's most telling arguments in favor of a separate air force had to do with its potential effectiveness for the coastal defenses of the United States. Allegedly to meet this line of argumentation, Secretary Baker in July 1919 sponsored a reconstitution of the Joint Army and Navy Board, which had been organized in 1903 but had ceased to function. Baker expressed confidence that the Joint Board would produce cooperation in developing the air services of the Army and Navy.<sup>72</sup> Late in December 1919 the Joint Board recommended a statement of Army-Navy functions in war that was immediately accepted by the secretaries of war and Navy. The policy statement directed that Army aircraft would operate from bases on shore as an arm of the mobile army; against enemy aircraft in defense of all shore establishments; or alone, in cooperation with other arms of the Army, or with the Navy against enemy vessels engaged in attacks on the coast, such as bombardment of the coast, operations preparatory to or during the landing of troops, and operations such as laying mines or attacks on shipping in the vicinity of defended ports. Navy aircraft would operate from mobile floating bases or from naval air stations on shore as an arm of the fleet; for overseas scouting; against enemy shore establishments when such operations were conducted in cooperation with other types of naval forces or when their mission was primarily naval; to protect coastal sea communications by reconnaissance and patrol of coastal sea areas, to defend convoy operations, and to attack enemy submarines, aircraft, or surface vessels through the sea area; and alone or in cooperation with other arms of the Navy or with the Army against enemy vessels engaged in attacks on the coast. Marine aircraft would perform the functions normally assigned to Army aircraft when the operations were in connection with an advance base in which operations of the Army were not



## THROUGH WORLD WAR I

represented. The name of the old Joint Army and Navy Board on Aeronautics was changed to the Aeronautical Board, and it was agreed that to prevent duplication and secure coordination of effort for new projects for the construction of aircraft, experimental stations, coastal air stations, and stations to be used jointly by the Army and Navy would be submitted to the Aeronautical Board for study and recommendations.<sup>73</sup>

When General Pershing returned from Europe in the autumn of 1919, Air Service partisans had great hope that he might support their stand for a separate aviation department. Pershing had organized the Air Service, AEF, as a separate component, and in an appearance before a joint meeting of the Senate and House Committees on Military Affairs he indicated a belief that cooperation and coordination between the different departments of the government that used airships would be essential to the development of aviation. In a letter to General Menoher on 12 January 1920, however, Pershing explained that his testimony had been misunderstood. He unequivocally asserted: "An air force, acting independently, can of its own account neither win a war at the present time nor, so far as we can tell, at any time in the future. An air force by itself cannot obtain a decision against forces on the ground." He stressed that a military air force was an essential combat branch and should form an integral part of the Army not only during battle but during the entire period in which troops received doctrinal training. He hoped that the Air Service would be established as a separate arm of the Army, coordinate in status with the Infantry, Cavalry, and Artillery.<sup>74</sup>

Despite indications of a considerable sentiment among its members for a separate department of aeronautics, Congress finally voted to preserve the status of organization already existing as a result of wartime changes. As a part of the Army Reorganization Act of 1920, which became law on 4 June 1920, the Air Service was made a part of the combat line of the Army and no changes were made in its existing relations with the War Department General Staff.<sup>75</sup> Still far from beaten by the course events were taking, General Mitchell urged the House Committee on Military Affairs to add a clause to the Army appropriation bill for fiscal year 1921 to provide that the Army Air Service should control all aerial operations from land bases and that the Navy should control all aerial operations attached to a fleet. This clause was opposed by the secretaries of war and Navy, but, as approved on 5 June 1920, the Army Appropriation Act provided: "That hereafter the Army Air Service shall control all aerial operations from land bases, and Naval Aviation shall have control of all aerial operations attached to a fleet, including shore stations whose maintenance is necessary for operation connected with the fleet, for construction and experimentation and for the training of personnel."<sup>76</sup>

Reportedly under pressure from the War Department General Staff to bring Mitchell into line, General Menoher made a number of changes within the Office of the Chief of Air Service following its legal establishment on 4 June 1920. Since the position of director of military aeronautics was abolished, Menoher named Mitchell as assistant chief of the Air Service and gave him no specific duties in the

## IDEAS, CONCEPTS, DOCTRINE

new position other than to advise upon Air Service matters.<sup>77</sup> Mitchell was also relieved as chief of the Training and Operations Group. Majors Milling and Sherman, having lost their wartime ranks, were transferred to the new Air Service Field Officers School, which the War Department had authorized at Langley Field, Virginia, on 25 March 1920. The Training and Operations Group continued to be responsible for prescribing tactical methods and enunciating tactical doctrine. But, hampered by a serious loss of personnel, the group tended to retrogress in its doctrinal thinking. Prepared by the old regime and printed in April 1920, the Air Service's *Aerial Bombardment Manual* looked to the future. "Bombardment from occupying a practically nonexistent and unimportant part in the war," it asserted, "has become a very important branch of the Air Service, and it is believed by many that if carried out in sufficient numbers it will win a war." But no such forward-looking thoughts appeared in the next edition of this same manual, which was issued in September 1920 after the reassignments and cutbacks of personnel. This latter edition of *Aerial Bombardment* was, in fact, little more than a reprint of the manual that had been prepared by the Air Service, AEF.<sup>78</sup>

Since he now lacked formal duties in the Air Service, Mitchell spent much of his time presenting the argument for a separate aeronautical department to the public and continuing the aircraft versus naval vessels controversy.<sup>79</sup> During the winter of 1920-21 he wrote *Our Air Force*, which summarized his views on aviation. He predicted that future wars would include the destruction of entire cities by airborne gas attacks. "As a prelude to any engagement of military or naval forces," he predicted, "a contest must take place for control of the air. The first battles of any future war will be air battles. The nation winning them is practically certain to win the whole war, because the victorious air service will be able to operate and increase without hindrances." He called for the development of a metal-skin aircraft, which would replace fabric-covered planes, and stated that the United States should possess about 5,000 modern airplanes, with twice that number in reserve. Fifteen hundred of the active aircraft should be assigned to the Army and Navy for observation and the remaining 3,500 planes should be held in an air striking force that would be about 60 percent pursuit, 20 percent bombardment, and 20 percent attack planes. He asserted that the Navy should possess 20 aircraft carriers, but no battleships, cruisers, or similar warships. Reductions in the Navy's surface fleet would sustain the added cost of aeronautical development.<sup>80</sup>

Seeking to secure some evidence with which to refute Mitchell's charges that capital ships were vulnerable to air attack, the Navy secretly exploded a 900-pound bomb on the deck of the obsolete battleship *Indiana* in October 1920. It subsequently announced that the tests demonstrated that aircraft could not sink a battleship, but publication of photographs of the battered vessel led Mitchell to comment that "neither coast defense guns nor a defending fleet of battleships need fire a gun in repelling the attack of a foreign fleet if we have a properly organized Air Force."<sup>81</sup> In testifying on the Army appropriation bill in January 1921, Mitchell pointedly challenged the Navy to permit a live bombing test. "Aviation," he said, "must be ready when the war starts, because that is when aviation will be called on.

## THROUGH WORLD WAR I

That is when it will have its greatest effect, and we want to keep the organizations we have in service equipped with modern equipment and have enough in storage to last for two or three months of an ordinary war." As for the role of an air force in a land war, Mitchell saw its chief employment against hostile lines of communication. "I want it to be distinctly understood," he said, "that I do not consider that the air force is to be considered as in any sense supplanting the Army. You have always got to come to man power as the ultimate thing, but we do believe that the air force will control all the communications, and that it will have a very great effect on the land troops, and a decisive one against a navy."<sup>82</sup>

Spurred on by congressional demands, the Navy agreed to stage aerial-bombing tests against captured German warships off the Atlantic coast during the summer of 1921. Based at Langley Field, the 1st Provisional Air Brigade—with Mitchell in command and Milling as chief of staff—practiced bombing for several weeks, and on 18 and 21 July the brigade successfully attacked and sank the cruiser *Frankfort* and the battleship *Ostfriesland*.<sup>83</sup> In his report to General Menoher (which was leaked to the press when Menoher would not make it public), Mitchell claimed that "the problem of the destruction of seacraft by Air Forces had been solved and is finished." He concluded his statement by calling for the organization of a department of national defense, with a staff common to all services and with subsecretaries of army, navy, and air forces; only with such an organization would the United States be able to make correct decisions in choosing weapons for the future defense of the nation.<sup>84</sup> As early as June 1921, Menoher had asked that Mitchell be transferred away from Washington; and following the illicit publication of the bombing report, Menoher told Secretary of War John W. Weeks that either he or Mitchell had to go.

Allegedly because he had failed "to handle and discipline" Mitchell, Menoher was relieved as chief of the Air Service. Selected by Secretary Weeks because of his reputation for having straightened out "a tangled mess" in the Air Service, AEF, General Patrick was appointed chief of the Air Service and undertook the duty on 5 October 1921.<sup>85</sup> As a nonflyer, Patrick told Mitchell that he would consult him on major decisions including general Air Service doctrine and policies, but that he would be the chief in fact as well as in name and would make all final decisions. Patrick said that Mitchell talked of resignation from the Army, but that on a little reflection he saw fit to continue as assistant chief of the Air Service.<sup>86</sup>

In the winter of 1921-22, allegedly to get him off the scene while the delicate negotiations attending the Washington conference of the limitation of naval armaments were in progress, Patrick sent Mitchell, accompanied by Lt Clayton Bissell and aeronautical engineer Alfred Verville, on an inspection trip to France, Italy, Germany, Holland, and England. In each of these countries, Mitchell attempted to determine "the national policy of the country and the way in which it was applied from an aeronautical standpoint." Mitchell professed to have found a great emphasis upon aviation: "It is well known by all European nations," he reported, "that an air force can be ready to strike at least two weeks before any armies join battle. . . . If an air force is sufficiently well organized, equipped, and

## IDEAS, CONCEPTS, DOCTRINE

instructed, these armies probably never will come into contact as the air force will settle the matter itself." Applying what he had observed in Europe to the strategic problem of the United States — namely, "the ability to attack at a distance and the ability to attack possible debarkations, other troops on the ground, and to cover landings" — Mitchell advocated a unity of air command. The air force commander not only should control the air force and army observation planes (in the beginning of hostilities before ground combat was joined), but also all antiaircraft weapons, searchlights, and barrage balloons. Since aviation's primary mission was to destroy hostile air forces, Mitchell urged that bombardment wings should be formed out of two groups of high-speed, diving-type pursuit and one group of high-level bombardment aircraft. Attack wings should comprise two groups of fast-climbing, maneuverable pursuit and one group of armored attack aircraft. Mitchell specifically recommended that the minimum air force for the United States should be one brigade of 600 planes behind the East Coast, one division of 1,200 planes on the Pacific Coast. This force should be roughly one-fifth active air force and four-fifths reserve, which could be mobilized in two days. Mitchell ended his report by pointing out:

The organization along our coasts is so complicated between the corps area, the coast artillery, the naval districts, the coast guard, the air forces, the meteorological service which is under the Department of Agriculture, and the radio service which is partly under the navy and partly under the army that we would be terribly handicapped and our hands almost tied in case we were attacked by a first-class power.<sup>87</sup>

In commenting upon his visit to Europe, Mitchell reported that he had met "more men of exceptional ability in Italy than . . . in any other country." Ten years would pass before Mitchell would mention that he had had "frequent conversations: with the Italian air strategist Giulio Douhet, whose career paralleled Mitchell's own in many ways. Douhet had begun to write about military aviation in 1909; he had been imprisoned for a year in 1916–17 for having criticized Italy's wartime military policy; the court-martial had been expunged in 1920. Promoted to general officer rank in 1921, Douhet completed his first serious treatise on military aviation—*Il Dominio dell' Aria* [the command of the air]—in October 1921. In this essay on the art of aerial warfare, Douhet demonstrated that two new instruments of war—the aerial arm and poison gases—had been introduced in World War I. For the future, he predicted: "Not only explosives, but also chemical and bacteriological poisons can be carried by the aerial arm to any point of the enemy's territory, scattering death and destruction over the entire country of the foe." Douhet argued that ground warfare would be progressively stalemated by improvements in guns but that aircraft were instruments of incomparable potentialities against which no effective defense except for the establishment of command of the air could be foreseen. "To prevent the enemy from harming us by means of his air forces," he wrote, "there is no other practical method than to destroy his air forces. . . . Command of the air means to be in a position to prevent the enemy from flying, while at the same time retaining this right for one's self."

## THROUGH WORLD WAR I

Believing that "it is easier to destroy the potentiality of the enemy in the air by destroying the nests and eggs of the flyers rather than to seek the flyers in the air for the purpose of bringing them down," Douhet thought that an independent air force should be an air fleet of bombers and combat planes—the latter to be a bomber-type plane that would be equipped with many guns and used to convoy bombers and fight off hostile pursuit planes. Following establishment of command of the air, the independent air force would be able to destroy an enemy nation by attacking transportation lines and population centers. Conversely, if two opposing air fleets began operations simultaneously and command of the air could not be established, Douhet reasoned that it would be necessary "to resign one's self to suffer offensives which the enemy is capable of inflicting upon us, so that all the means we possess may be utilized for the purpose of inflicting on the enemy more powerful offensives."<sup>88</sup>

In his writings, Mitchell never attributed any special influence on his thought to Douhet—US air officers would not publicly cite Douhet for several years.<sup>89</sup> Even though Douhet's works would not be generally available in a published translation until 1942, a five-page extract of *The Command of the Air* was prepared by the War Department Military Intelligence Division on 23 March 1922 and found its way into the files of the Air Service Plans Division.<sup>90</sup> A typescript translation of the first 100 pages of the book (the substantive portion) was received by the Air Service Field Officers School on 3 May 1923.<sup>91</sup> Moreover, during 1922 Lt Col A. Guidoni, the Italian air attaché in Washington, sent a summary of the book to Air Service headquarters and to Lester Gardner, editor of *Aviation* magazine. Guidoni reported that Gardner had discussed the summary with Mitchell and had said that Mitchell was greatly impressed with Douhet's ideas.<sup>92</sup>

Air Service officers, thus, certainly knew of Douhet's ideas, but probably recognized that these concepts were politically unacceptable in the United States. As Secretary Baker had reported in November 1919,

Air raids upon great unfortified cities like London and Paris brought into the war a new element and constituted an abandonment of the time-honored practice among civilized peoples of restricting bombardment to fortified places or to places from which the civil population had an opportunity to be removed . . . The actual loss of life caused by these bombardments was relatively small and the destruction of property, while large, had no appreciable effect upon the war-making power of either nation. Indeed it may rather be said that the willingness of the enemy casually to slaughter women and children, and to destroy property of no military value or use, demonstrated to England and France the necessity of beating so brutal a foe, and it is most likely that history will record these manifestations of inhumanity as the most powerful aids to recruitment in the nations against which they were made.<sup>93</sup>

#### General Patrick and the Air Service

When he took charge of the Air Service in October 1921, General Patrick faced the challenge of bringing order to the Air Service. The Air Service as a whole, Patrick observed, "was in about as chaotic a condition as [what he] had found . . .

## IDEAS, CONCEPTS, DOCTRINE

when some three years before [he] had been placed in charge of it in France."<sup>94</sup> Much of the confusion grew out of the absence of a unified body of thought among Air Service officers. As Patrick believed, thinking about military aviation tended toward the extremes and he preferred a middle way. "There are, on the one hand," he stated, "enthusiasts who believe that the coming into being of aircraft have practically scrapped all other combat agencies; and, on the other hand, conservatives who consider aircraft as merely auxiliaries to previously existing combat branches. The truth, of course, lies somewhere between those two views."<sup>95</sup> As an able but conservative administrator, he favored evolutionary rather than revolutionary changes in the national military organization.<sup>96</sup> Unlike many of the Army-indoctrinated officers of his generation, Patrick had an open mind as to the future of aviation. After months of practice, he passed a normal test and was recognized as a qualified junior airplane pilot. While he had no hope of becoming a skillful pilot, Patrick believed that his ability to fly helped him win the confidence of many younger men whom he was trying to contact, direct, and guide "in an effort to make of the Air Service a united body of men all working toward one end."<sup>97</sup>

A part of the chaos also stemmed from the vast mass of material that had been issued in the Army during World War I for instructional purposes. In the autumn of 1920, the War Department had issued instructions to each of its branches that all training data would be prepared in a new training regulation series. Looking toward the accomplishment of this and other tasks, General Patrick, during the reorganization of the Office of Chief of Air Service on 1 December 1921, replaced the Training and Operations Group with a Training and War Plans Division, which was made responsible for conducting service tests of new equipment and for preparing training literature. In the other branches of the Army, general boards representing the chief of the service handled test and training literature projects, but the Air Service did not have an Air Service board. In the absence of such an agency, the Air Service Training and War Plans Division assigned training literature projects to the various schools and units best qualified for each particular project.<sup>98</sup>

Maj William Sherman attempted to deal with many of these issues during 1921 while writing a text on air tactics for the Air Service Field Officers School. In this text, Sherman accepted the prevailing belief that the success or the failure of the infantry determined the success or failure of an army, but he maintained that this had not always been true in the past and might not be true in the future. He also believed that the Army aviation was comprised of two portions: air-service aviation was an auxiliary of the ground forces, while air-force aviation (pursuit, bombardment, and attack aircraft) constituted a true arm. Sherman suggested that the air force portion of army aviation would support the infantry in the same manner that the Navy did—by seeking out its doctrine in the element in which it operated. The first duty of the air force was "to gain and hold control of the air, by seeking out and destroying the hostile air force, wherever it may be found." Although he did not believe that control of the air could ever be completed, Sherman believed that "the backbone of the air forces on which the whole plan of

## THROUGH WORLD WAR I

employment must be hung is pursuit." Having established control of the air, the mission of the air force was "to destroy the most important enemy forces on the surface of the land or sea."<sup>99</sup> During 1922 Sherman's manuscript on air tactics was revised into manual form; early in 1923 it was issued in preliminary form for use in the Air Service as Training Regulation No. 440-15, *Fundamental Principles for the Employment of the Air Service*.<sup>100</sup>

While the doctrinal project was in progress, General Patrick gave close attention to the pitiful plight of aircraft procurement and the poor state of health of the nation's aircraft manufacturers. While the development of experimental aircraft had made substantial progress since 1918, the quantity procurement of new aircraft and accessories had been penalized by the tremendous stock of equipment still on hand from World War I. Some new planes — such as the Martin MB-2, which could carry 2,000-pound bombs — had been procured, but the Air Service had been able to purchase only a few of the many prototype planes that it wished to see developed to meet specific requirements.<sup>101</sup> In his report for fiscal year 1922, Patrick pointed out: "No nation can afford to support, in times of peace, an air force capable of meeting the requirements of war, and because of the rapid deterioration of aeronautical equipment in storage the proposition to maintain a sufficient war reserve of aircraft is equally untenable." In effect, the Air Service had to plan to use viable aircraft manufacturing companies for the production of its mobilization requirements in a war emergency. Aircraft production in the United States, however, was at such a low ebb that it would not be able to meet the Army's plans to mobilize six armies for a war emergency. General Patrick recommended that a program for the production and purchase of modern aircraft be considered and that a definite amount of aircraft purchase funds should be provided by Congress from year to year. He also stated that a properly balanced Army aviation force ought to have about 20 percent of its strength in air service units and the remaining 80 percent in air force or combat aviation. Because of reductions in Air Service strength and the requirement to keep enough observation units to conduct training with ground forces, 38 percent of the Air Service strength was in air service units. Patrick called for a restoration of a proper balance by the organization of additional air force combat units.<sup>102</sup>

Attentive to General Patrick's criticisms, the secretary of war on 18 December 1922 directed the Air Service to present a study on necessary remedial actions. Patrick accepted the project but he maintained that the study could not be made until the War Department had accepted the concept that Army aviation should be divided into air service and air force units. In addition, he argued that all air service observation units should be withdrawn from divisions and consolidated under the command of corps and armies, and that an "adequate well-balanced Air Force" ought to be built to serve as the GHQ Reserve. "Very often," Patrick wrote, "there is as distinct and definite a mission for the Air Force independent of the ground troops as there is for the Army and Navy independent of each other." For this reason he opposed the assignment of air force units to field armies, and he urged that the Air Service should be authorized to maintain a minimum of six

## IDEAS, CONCEPTS, DOCTRINE

bombardment groups instead of the existing authorization for only one bombardment group.<sup>103</sup> Possibly to emphasize Patrick's point, General Mitchell wrote a long pamphlet in the winter of 1922-23 entitled "Notes on the Multi-Motored Bombardment Group, Day and Night." This elaborate treatise on the tactical employment of bombardment aviation was prefaced by the observation: "Offensive aviation is employed most effectively at the beginning of hostilities during the period of ground and water mobilization and concentration. . . . Against an enemy not in possession of an adequate air force, offensive aviation, if employed effectively, can force a decision before the ground troops or sea force could join in battle."<sup>104</sup>

The secretary of war appointed a board of General Staff officers, headed by Maj Gen William Lassiter, to hear Patrick's plan and make recommendations on it. When the Lassiter board convened in daily sessions beginning on 22 March 1923, General Patrick argued the Air Service plan that he had outlined earlier. He wished to reduce the auxiliary services of aviation (mainly observation) and increase the primary services needed to secure control of the air (pursuit) and destroy hostile targets behind enemy lines (bombardment). "The principle of concentration of air forces becomes a maxim," he said. And again he urged: "I am . . . convinced that the concentration of all air force under one GHQ Reserve Commander is the most effective way of assuring aerial supremacy." But Patrick ran headlong into the opposition of Brig Gen Hugh A. Drum, of the War Department General Staff. General Drum insisted that the board should first determine what aviation would be needed to support the ground armies and then decide how large the air force ought to be. Under this formula, the board proved unwilling to divest divisions of their observation squadrons and to concentrate all air force units in a GHQ Reserve. Instead, the Lassiter board recommended that the observation air service should be an integral part of divisions, corps, and armies; that an air force of attack and pursuit should be an integral part of each field army; and that an air force of bombardment and pursuit aircraft and airships should be directly under the General Headquarters Reserve for assignment to special and strategical missions, the accomplishment of which might be either in connection with the operation of ground troops or entirely independent of them. This force should be organized into large units to ensure great mobility and independence of action. The Lassiter group, nevertheless, agreed that the Air Service ought to be augmented mainly because it recognized that "for lack of business our aircraft industry is languishing and may disappear." In place of the single bombardment group in the GHQ Reserve, the board recommended that there should be two bombardment groups and four pursuit groups. It also recommended that Congress be asked to make annual appropriations of \$25 million for the Air Service each year for 10 years and that approximately \$15 million each year should be used for the purchase of aircraft.<sup>105</sup>

The secretary of war approved the Lassiter board report on 24 April 1923, but the recommendations for buying aircraft subsequently went unimplemented after the War Department's attempt to coordinate a planned purchasing program with



THROUGH WORLD WAR I

the Navy through the agency of the Joint Army-Navy Board proved unsuccessful.<sup>106</sup> Nonetheless, the War Department accepted the Lassiter report as the basis for the internal conceptual organization of the Air Service. The official Army field service regulations, 1923, declared that "the coordinating principle which underlies the employment of the combined arms is that the mission of the infantry is the general mission of the entire force," but the manual now recognized that "no one arm wins battles." Since pursuit aviation created "the conditions which enable the other elements to operate with the greatest degree of effectiveness," the regulations considered pursuit to constitute "the most vital element of the air service." Although the assignment of aviation elements to particular commands was said to be flexible, the regulations followed the assignment recommended by the Lassiter board — observation units to divisions, corps, and armies; pursuit and attack units to armies; and bombardment units and airships to the GHQ Reserve.<sup>107</sup>

Appreciation of the fact that the Air Service was "a growing factor in national defense," together with the year and a half that had elapsed without positive action on the Lassiter recommendations, led General Patrick on 19 December 1924 to propose a reorganization of the air forces to the War Department. Patrick wrote,

I am convinced that the ultimate solution of the air defense problem of this country is a united air force, that is the placing of all the component air units, and possibly all aeronautical development under one responsible and directing head . . . The great mobility of the Air Service and the missions it is capable of performing have created a problem in command, the solution of which is still far from satisfactory. . . . Future emergencies will require at the very outset, before the ground armies can get under way, and in many cases before the Navy can make its power effective, the maximum use of air power on strategic missions . . . We should gather our air forces together under one air commander and strike at the strategic points of our enemy — cripple him even before the ground forces can come in contact . . . Air power is coordinate with land and sea power and the air commander should sit in councils of war on an equal footing with the commanders of the land and sea forces.<sup>108</sup>

"I personally believe," Patrick told the Army War College on 21 February 1925, "that the results desired can be best brought about by a Minister of Defense, under whom would be the Land Force, the Sea Force, and the Air Force."<sup>109</sup>

While he conceived that a department of defense with army, navy, and air force branches would be the ultimate organizational solution to national defense problems, General Patrick was not in favor of hasty action to separate the Air Service from the War Department.<sup>110</sup> Instead, he called upon the War Department on 19 December 1924 to secure legislation that would give the Air Service a status within the War Department analogous to that of the Marine Corps within the Navy Department and that would authorize the Air Service expansion recommended by the Lassiter board. He also recommended that the Army Air Service should be positively charged with all air operations conducted from shore bases, thus ending the overlap of functions of the Army and Navy air forces. He asked that the chief of the Air Service be made responsible for procurement, storage, and issue of Air

## IDEAS, CONCEPTS, DOCTRINE

Service equipment; for the transportation by air of personnel and supplies; for management of Air Service personnel policies; and "for the tactical training and efficiency of all Air Service units with a doctrine first of offensive action." He further recommended that war plans should establish "one air commander who, in at least the initial stages of an emergency, should control all operations of the air forces, both in the performance of distant strategic missions and in joint action with the land and sea forces."<sup>111</sup>

## Establishment of the Army Air Corps

Finally, on 24 March 1924, the House of Representatives, sensitive to growing demands for a thorough review of national air policy, established a Select Committee of Inquiry into Operations of the United States Air Services headed by Representative Florian Lampert and directed it to make a sweeping investigation of the United States Army Air Service, the Naval Bureau of Aeronautics, the United States contract air mail service, and "any corporations, firms, or individuals or agencies having any transactions with or being in any manner associated with or controlled or regulated by the said air services." The Lampert committee began its hearings in October 1924 and examined more than 150 witnesses over an 11-month period.<sup>112</sup>

When they appeared before the Lampert committee during the winter of 1924-25, Air Service officers demonstrated a growing recognition of a phenomenon they began to refer to as air power. In his testimony on 17 December 1924, General Mitchell spoke of the military and civil potentialities of air power. In an article appearing in the *Saturday Evening Post* on 20 December, he defined air power as "the ability to do something in or through the air."<sup>113</sup> In an elaboration of his testimony, Mitchell stated that military air power, civil air power, and commercial aeronautics were the three elements of national air power.<sup>114</sup> Another Air Service officer Maj Raycroft Walsh defined air power "as being the power of a country to wage war through aerial forces."<sup>115</sup> Maj Delos C. Emmons and Carl Spaatz spoke of the general agreement among airmen that the next war would start in the air and that the United States lacked preparedness for such a war. Spaatz stated his opinion that the service doctrines laid down by the Army made it impossible to develop a well-defined policy of independent operation by an air force.<sup>116</sup> Major Milling asserted that the Air Service had to be constantly ready for combat, even more so than the Navy. He also argued that the principal doctrinal problem for the Air Service, and one that defied solution, was the overlapping jurisdiction between the Army and Navy for coastal defense.<sup>117</sup>

General Patrick stated a concept that a nucleus of aircraft manufacturers had to be kept in readiness to expand in time of emergency to meet the requirements of war. Emmons called the aircraft industry "a war reserve and a most important one."<sup>118</sup> General Patrick stated to the Lampert committee on 5 January 1925,

## THROUGH WORLD WAR I

I believe, that as time goes on the importance of aircraft in national defense will greatly increase I try to look ahead and to visualize what would take place if we should be so unfortunate as to engage in another war I am satisfied that one of the first warlike acts would be an effort on the part of the belligerents each to obtain air supremacy; to sweep the enemy out of the air, in order that he might be free to operate his fleets, his armies, and his own aircraft. It is quite possible that such a move would take place very soon after or almost immediately upon the declaration of war. It would be necessary for every nation to have in being an air force that could be used thus offensively, or if attacked by air that could be used in order to defend itself.<sup>119</sup>

As a step in the direction of forming an independent air service, Patrick recommended the creation of an Air Corps under the secretary of war; the new air component would be "charged specifically with the development and utilization of air power as an arm for national defense." This move, Patrick argued, would have the benefit of eliminating the duplication of effort wherein both the Army and the Navy, because of different interpretations of the Army Appropriations Act of 5 June 1920, were both apparently charged with the air defense of sea frontiers of the United States. He stated that "the assignment to the air corps of all air coast defense functions which can be performed from land bases (the limit to be taken at about 200 miles under the present state of aircraft development) will be one of the most important and immediate economies, and one of the greatest gains to efficient national defense which will result from the formation of the air corps."<sup>120</sup>

The general tenor of Air Service testimony before the Lampert committee reflected the evolutionary program desired by General Patrick. Only General Mitchell, in repeated appearances before the committee and in his series of articles that appeared at almost the same time in the *Saturday Evening Post*, deviated from the Air Service position. Mitchell asserted that the national organizational pattern that divided aviation among the Army and Navy, the air mail service of the Post Office Department, and the National Advisory Committee for Aeronautics was designed to protect vested interests rather than to foster a national air power doctrine. "Air power claims that it is an entirely different element than either sea power or land power," Mitchell said, "and that unless you allow air power to have a coordinate voice in the councils of the Nations with sea power and land power, that you cannot organize an adequate defense." Mitchell sponsored two different plans for organizing aviation. First, he visualized establishing a department of aeronautics coequal with the Army and the Navy and with a division of fabrications, a division for civil aviation, and a division for military aviation. Second, he advocated a department of national defense with subsecretaries to control the air, the water, and the land. Many of Mitchell's statements were hardly calculated to endear him to either the Army or the Navy. He said, for example, that the Air Service could get control of the air in two years if it could get half the cost of a battleship as an appropriation each year. "It is a very serious question," he stated, "whether air power is auxiliary to the Army and the Navy, or whether armies and navies are not actually auxiliary to air power."<sup>121</sup> As late as December 1924, Patrick had considered that Mitchell had cooperated with Air Service policies and he had

## IDEAS, CONCEPTS, DOCTRINE

recommended that Mitchell be reappointed as assistant chief of the Air Service. Because of the controversy that he stirred up during January and February 1925, however, Secretary Weeks told Patrick to recommend another officer for Mitchell's position. Patrick chose Lt Col James E. Fechet, a veteran pilot and commander of the Advanced Flying School at Kelly Field, to replace Mitchell. On 26 April 1925, Mitchell accordingly reverted to his permanent rank of colonel and was transferred to San Antonio to serve as air officer of the VIII Corps Area.<sup>122</sup>

In the early autumn of 1925, before the Lampert committee was able to make its report, the secretary of war and the secretary of the Navy jointly requested that President Calvin Coolidge appoint a board to study the best means of developing and applying aircraft in national defense. Agreeing with the request, Coolidge appointed a board headed by Dwight W. Morrow, lawyer and banker, on 12 September 1925. In an appearance before the President's Aircraft Board, which would be better known as the Morrow board, Patrick, on the first day of its hearings, again emphasized the poor state of preparedness of the Air Service and again requested that an Air Corps be created. He spoke out against a department of aeronautics, stating that the United States would continue to require a Navy for sea operations beyond the range of land-based aircraft. Patrick conceded that the United States was not in immediate danger of hostile air attacks, but he maintained that without an adequate air force the nation would soon be jeopardized by the aircraft carrier forces that foreign powers were constructing.<sup>123</sup> Now the Air Service's chief engineer at McCook Field, Major MacDill agreed that a department of aeronautics would be no more logical than a department of automobiles or a department of shipping, and he predicted that within five years it would be technologically possible to build an airplane that could fly across the Atlantic and drop up to 4,000 pounds of bombs.<sup>124</sup> Nearly all of the Air Service officers who testified, including Colonel Foulois and Majors Arnold, Milling, and Horace M. Hickam, supported Patrick's plan to establish an air corps and eventually a department of defense. Milling additionally pointed out that the commander in chief of US armed forces in future wars would inevitably have to exercise his authority through subordinate army, navy, and air commanders.<sup>125</sup>

Once again the only Air Service officer who presented strongly divergent viewpoints was Col William Mitchell. On 5 September, Mitchell had made a public statement that the loss of the Navy dirigible *Shenandoah* in stormy weather over the Ohio River Valley was the direct result "of incompetency, criminal negligence and almost treasonable administration of the national defense by the war and navy departments."<sup>126</sup> Before the Morrow board, Mitchell asserted that the United States was strategically vulnerable to an aircraft carrier invasion force that could be mounted by Great Britain in the Atlantic and by Japan in the Pacific. The answer to this strategic problem was an army to hold the land, a navy with a good force of submarines to patrol the seas, and, above all, an air force to protect the seaboard and insular possessions of the United States. "There need to be little or no change in the organization of the Army or Navy," he said, "but beside them there should be the department of the air." After he had given this "constructive" testimony,

## THROUGH WORLD WAR I

Mitchell recalled the long-standing opposition of Army and Navy officers to the development of aviation. He repeated many of these same grievances at his court-martial when he was brought to trial on 28 October on charges of conduct prejudicial to military discipline and of a nature to bring discredit upon the military service. Mitchell was convicted of these charges on 17 December 1925 and resigned from the Army on 1 February 1926.<sup>127</sup>

The hearings before the Lampert committee and the Morrow board found Army and Navy officials solidly arrayed in opposition to the Air Service position—even the moderate official position of General Patrick. "I regard the statement that the next war will be in the air as an absurdity, partaking of the Jules Verne type of literature," Secretary of the Navy Curtis D. Wilbur told the Lampert committee.<sup>128</sup> "Aviation as an independent force cannot operate across the sea," said Rear Adm William A. Moffett, chief of the Bureau of Aeronautics. "The thing to do is to put aviation on something," he continued, "and carry it to the enemy, and the only way to carry it is on board something that will float—on board a ship, in other words."<sup>129</sup> "I believe," testified Lt Ralph A. Ofstie of the Navy Bureau of Aeronautics, "that air power does not exist, absolutely; that it exists only in conjunction with other forces which can cooperate with it or which can transport it."<sup>130</sup> Leading the Navy witnesses before the Morrow board, Secretary Wilbur stated that the mission of the naval air force was to serve as an arm of the fleet. "Its mission is to aid the surface units in gaining and maintaining command of the sea. It may best carry out this mission by gaining and maintaining control of the air in the theater of naval operations."<sup>131</sup> Admiral Moffett saw no difficulty in maintaining coordination for coastal defense through the agency of the Joint Army and Navy Board and he regarded the "Joint Army and Navy Action in Coast Defense" agreement to be a clear definition of aerial responsibilities.<sup>132</sup> The Navy also held to the official position that the establishment of a central procurement agency for military aircraft was undesirable. "There is very little duplication of effort on the part of the services and such duplication as exists is not only justifiable but, I believe," noted Admiral Moffett, "decidedly necessary, in order that there may be competition, that there may be rivalry, that there may be initiative; otherwise there is bound to be stagnation."<sup>133</sup>

The high-ranking Army officials appearing before the Morrow board also opposed changes in the Air Service. Secretary of War Dwight F. Davis stated that the War Department was "convinced that a strong airplane industry is vital to the national defense." However, he asserted that the subordination of civil aviation to a military department would be an economically unsound and basically unwise practice. Davis admitted that the nation's aircraft industry had been starving and that the amount of equipment in the Air Service was inadequate, but these situations were caused by the scarcity of funds appropriated by Congress.<sup>134</sup> Maj Gen John L. Hines, who had succeeded Pershing as chief of staff on 14 September 1924, stated that the combat readiness of the Air Service should perhaps excel that of the other branches of the Army, but he could see no reason for a separate air service or a separate air corps within the Army. "I am of the opinion," he said, "that

## IDEAS, CONCEPTS, DOCTRINE

the Air Service, because of the limitations imposed by natural laws on the operation of aircraft as well as the necessity for unity of action, will always be an auxiliary arm or service. It can never by itself defeat an enemy."<sup>135</sup> The principal Air Service opponent before both the Lampert committee and the Morrow board was General Drum, now the assistant chief of staff for operations on the War Department General Staff. In the Lampert hearings, Drum argued that the United States had little to fear from hostile air attack because of the inherent range limitations on land-based aircraft and the tonnage restrictions that had been placed on the construction of aircraft carriers by the Washington treaty of 1922.<sup>136</sup> Both in his initial statement and in his rebuttal testimony before the Morrow board, Drum insisted that "the air power principle and its application as recently proposed by the Chief of Air Service . . . is unsound from a national defense viewpoint, as well as from purely Army considerations. At the present and so far as the future of aviation can be foreseen, air power has no function independent of the Army and Navy." Possibly one of his most telling points—and Drum repeated it several times—was the opinion of the august General Pershing. "The Infantry," Pershing had said on the eve of his retirement, "still remains the backbone of the attack, and the role of the other arms is to help it reach the enemy. . . . The idea that principles of warfare have changed and that armed contests will be settled in any other way have nothing substantial in our experience to warrant serious consideration."<sup>137</sup>

What circumstances lay behind the Morrow board's speed in acting were never definitely known, but it presented its report on 30 November 1925, exactly two weeks before the Lampert committee could report. "We do not consider," stated the Morrow board, "that air power, as an arm of the national defense, has yet demonstrated its value—certainly not in a country situated as ours—for independent operations of such a character as to justify the organization of a separate department. We believe that such independent missions as it is capable of can be better carried out under the high command of the Army and Navy." The board concluded that the United States was in no danger from air attack, and it further stated that "the belief that new and deadlier weapons will shorten future wars and prevent vast expenditures of lives and resources is a dangerous one which, if accepted, might well lead to a readier acceptance of war as the solution of international difficulties." The board, nevertheless, recommended that the name of the Air Service be changed to that of the Air Corps, that an assistant secretary of war be established to give special attention to aviation matters, that aviation be given special representation in the General Staff sections, and that a five-year program of aircraft procurement be initiated with a lesser magnitude than had been recommended by the Lassiter board.<sup>138</sup> In its report on 14 December 1925 the Lampert committee stated that aircraft would be "the first resort of our country in case of a war emergency" and would comprise "one of the most essential arms of our military defense." The committee accordingly recommended the establishment of a department of national defense, representation of Army and Navy aviation on the General Staff of the Army and the General Board of the Navy, and that not

THROUGH WORLD WAR I

less than \$10 million should be appropriated and expended annually by both the Army and the Navy on the procurement of new flying equipment.<sup>139</sup>

Far from being daunted by what he called the "time-worn, threadbare, reactionary plea" of those who resisted change, General Patrick told Army War College students on 9 November 1925 that he considered it his duty, when done in a proper way, to suggest improvements in national defense. In this lecture, Patrick repeated many of the statements he had presented to the Lampert committee and the Morrow board, but he also revealed that he had "recently been quite impressed by a little book written by an Englishman, Capt Basil H. Liddell Hart." The book, published earlier that year, was *Paris: Or the Future of War*. Patrick was impressed with Liddell Hart's thesis that the main military objective in war should be the will of the enemy to fight rather than the defeat of his armed forces in the field. He agreed with Liddell Hart's conclusion that the German army still had had a lot of fight left in the fall of 1918 and that the war had ended because the will of the German people to fight had been shattered. While the use of gas was now prohibited by treaty, Patrick doubted that such a prohibition would hold in war. "Assume," he suggested, "that aircraft are able to fly at will over enemy territory, in other words, assume air supremacy. Imagine, in consequence, the enemy's industrial establishments, his munitions factories, his means of communication, destroyed; add to this drenching with gas, which even though not deadly, would cause great discomfort, and then estimate how long such a harassed enemy would fight." The waging of such "air pressure" against an enemy nation, Patrick said, "can best be done by an organization which is developed and directed by those who know thoroughly its achievements, its possibilities, and its limitations."<sup>140</sup>

During the winter of 1925--26, William Mitchell continued to wage a strong fight for an air power concept and the emotional responses engendered by his court-martial ensured him a wide audience. Published in August 1925 as a summarization of some of his articles, Mitchell's *Winged Defense* was extensively quoted during his trial. Before the House Committee on Military Affairs on 5 February 1926, Mitchell made a statement that represented the culmination of his thinking on the nature of war and of air power:

There has never been anything that has come which has changed war the way the advent of air power has. The method of prosecuting a war in the old days always was to get at the vital centers of the country in order to paralyze the resistance. This meant the centers of production, the centers of population, the agricultural districts, the animal industry, communications--anything that tended to keep up war. Now, in order to keep the enemy out of that, armies were spread in front of those places and protected them by their flesh and blood. You had mass killings there, sometimes for years before these vital centers were reached. It led to the theory that the hostile army in the field was the main objective, which it was. Once having been conquered, the vital centers would be gotten at. . . Now we can get today to these vital centers by air power . . . So that, in the future, we will strike, in case of armed conflict, when all other means of settling disputes have failed, to go straight to the vital centers, the industrial centers, through the use of an air force and hit them. That is the modern theory of making war.<sup>141</sup>

## IDEAS, CONCEPTS, DOCTRINE

Four years later in *Skyways*, the last of his three books, Mitchell would again emphasize this theory of war.

Although the Morrow board report dampened any general reorganization of the armed services, the War Department was prepared to grant some concessions, but not much independence, to the Air Service. On 26 January 1926 the War Department officially issued Training Regulation No. 440-15, *Fundamental Principles for the Employment of the Air Service* — the same pamphlet that had been drafted by Major Sherman in 1921 and that had been revised and accepted as a policy statement by the Office of Chief of Air Service. Subsequently, it had been reviewed by the Army's Command and General Staff School and War College, and the General Staff's G-3 division had stamped final approval on it. The pamphlet noted that the primary objective of the whole Army was to destroy hostile armed forces and that the mission of the Air Service was "to assist the ground forces to gain strategical and tactical successes by destroying enemy aviation, attacking enemy ground forces and other enemy objectives on land or sea, and in conjunction with other agencies to protect ground forces from hostile aerial observation and attack. In addition it furnishes aerial observation for information and for artillery fire, and also provides messenger service and transportation for special personnel." It stated further: "The organization and training of all air units is based on the fundamental doctrine that their mission is to aid the ground forces to gain decisive success." The regulation recognized the distinction between observation (which was an integral part of divisions, corps, and armies) and the GHQ air force (which was to be self-contained and capable of rapidly shifting its activities from one theater of operations to another). Obviously pleased with the training regulations, General Drum described it as "the most advanced thought in the world today on aviation."<sup>142</sup>

In September 1925, less than a week after Patrick testified before the Morrow board, the War Department directed him to submit within five days a complete plan to implement his Air Corps idea. The heads of the Army branches that would support the Air Service were given a similar brief period to comment on Patrick's plan. Each objected that the organization of the Air Service on the model of the Marine Corps would upset coordination between the branches of the Army. Secretary of War Dwight F. Davis, nevertheless, insisted that it was very important to pass an air bill through Congress in the spring of 1926 because it was necessary to increase the efficiency of the air force and because, in his opinion, the country demanded it. In the end, the War Department proved willing to accept the findings of the Morrow board and the Air Corps Act of 2 July 1926 constituted a legislative enactment of the Morrow recommendations. The name of the Air Service was changed to the Air Corps, the implication being that the Air Corps was capable of independent as well as auxiliary operations. An additional assistant secretary of war was authorized to perform duties delegated to him by the secretary, and air sections were authorized in the General Staff divisions. A five-year program for expansion of Air Corps personnel and aircraft was to be initiated. The Air Corps attained little autonomy within the War Department by these actions; and no



THROUGH WORLD WAR I

decision was made to delineate the coast defense responsibilities of the Army and Navy, as air officers had desired. In hearings on the legislation, Patrick suggested that it would be economical and practical to combine Army and Navy flying training under one agency, but he noted that "naval officers . . . feared they would lose a certain measure of control over their air component, and . . . insisted also that all of the flyers with the Navy should be trained in naval tactic and should understand all of the tactics employed in naval battles." Thus Patrick's suggestion was not accepted.<sup>143</sup>

For the time being, the Air Corps Act of 1926 ended the struggle for an autonomous air force. General Patrick continued to insist that a department of defense with army, naval, and air components would be the ultimate solution to the defense problems of the United States, but he privately expressed the opinion that the best that the Air Corps could hope for in a span of years in which nations were reducing their armaments was some expansion and considerable modernization. Patrick accordingly hailed the Air Corps Act as "a long step in the right direction."<sup>144</sup> Viewed in retrospect, the Air Corps Act of 1926 was only one of several pieces of legislation that manifested a belief within Congress that the pioneering years of aviation were ending. On 24 June Congress had enacted the Morrow board recommendations relevant to the Navy: the appointment of an assistant secretary of the Navy to assist in furthering naval aeronautics and a five-year naval aviation expansion program. The Air Mail Act of February 1925 had already turned the Post Office Department's federal air mail system over to private contractors, and the Air Commerce Act of 21 May 1926 had created the post of assistant secretary of commerce for air and authorized the Department of Commerce to license pilots, map and operate airways, provide flight information, and develop new air navigation facilities.<sup>145</sup> In its infancy, aviation had been nurtured by military expenditures; now military aviation would begin to share the technological advances that would come from rapidly developing commercial aviation.

### The Mitchell Era Reexamined

"The former isolation of the United States is a thing of the past," William Mitchell wrote in 1925. "The coming of aircraft has greatly modified this isolation on account of the great range and speed which these agents of communications are developing."<sup>146</sup> Believing that "changes in military systems come about only through the pressure of public opinion or disaster in war," Mitchell hoped that he could modify the military policy of the United States by laying "aeronautical facts" before Congress and the people.<sup>147</sup> Though he counted himself a close personal friend of Mitchell, General Arnold looked backward many years later and observed that Mitchell's agitation for air power had a considerable effect upon the development of naval aviation but that it had made Army officers "set their mouths together, draw more into their shell, and if anything, take even a narrower point of view of aviation as an offensive power in warfare." As Arnold remembered the early

## IDEAS, CONCEPTS, DOCTRINE

1920s, the American people were fascinated with flying and loved Billy Mitchell, but no one was willing to think that the United States required a military policy—let alone an air power policy.<sup>148</sup>

It was General Arnold's theory that a growth of air power of a marked magnitude depended on a combination of a critical state of international relations and a favorable state of aviation technology. To his way of thinking, such a coincidence of national military requirements and air technology had been near at hand just before the Armistice in 1918 but would not again occur for more than a decade.<sup>149</sup> The successful conclusion of World War I and the Washington Disarmament Treaty of 1922 stunted the development of military aviation. Early in 1925, General Patrick predicted that the Locarno agreements, which marked a relaxation of tension in Europe, would lessen the amount that the American people would be willing to pay for national defense.<sup>150</sup>

The Baker board stated an unequivocal opinion that the United States was in no danger of air attack from any potential enemy of menacing strength. Even Army and Navy war planners—who made it their business to provide against all contingencies—found it difficult to determine which enemy or enemies might threaten the United States. Although the Washington Disarmament Treaty had terminated the Anglo-Japanese alliance, the logical opponents of the United States continued to be Great Britain (Red) and Japan (Orange). General Patrick thought in terms of the employment of a mobile GHQ air force in a war with Red and Orange forces in which the British would debark at Halifax and Japanese troops would land at Vancouver.<sup>151</sup> Mitchell visualized a requirement for defensive air forces to be stationed in Hawaii, Panama, and Alaska, but he opposed the establishment of a strong air force in the remote Philippine Islands lest it be easily destroyed. Patrick believed, however, that "our only salvation" in the Philippines "is to have an air force there that is competent and qualified to oppose an enemy air force."<sup>152</sup> Oddly enough, the more conservative Patrick believed that there was no question but that the time was coming when "we can bomb trans-sea countries."<sup>153</sup> Mitchell, on the other hand, visualized that strings of islands would be seized so that aircraft based on them might fly from one island to another. He pointed out on numerous occasions in 1924 and 1925 that there was no stretch of water in the northern hemisphere between the United States and Europe or Asia greater than the cruising range of the modern aircraft of the day.<sup>154</sup>

Despite their impatience with military conservatism, Air Corps officers of the Mitchell era frequently talked and thought in terms of the strategic situation of World War I. In 1924 these air officers formally introduced the concept that air power was different from land and sea power; but Patrick, Milling, and Mitchell all agreed that air power could be divided into air force and air service (auxiliary) aviation. By 1926, moreover, Mitchell stated that the air service of the Navy could "stay just the way it is . . . for work on the high seas."<sup>155</sup> The Air Service accepted the doctrine that control of the air was necessary for effective air, ground, or naval operations, and Milling stated that "the main role—almost the only role, properly speaking—of Pursuit aviation is to seek out and destroy the hostile air force."<sup>156</sup>

THROUGH WORLD WAR I

Thinking in terms of World War I, however, Patrick described "control of the air" as the condition in which "we get the upper hand of our adversary, make life miserable for him every time he comes on our side of the lines, and even endeavor to meet him on his own side of the lines, and finally his morale is shaken to such an extent that he would rather stay at home. We then have control of the air."<sup>157</sup> Patrick thought of air supremacy as a condition wherein one adversary practically wiped out another's air force and thus went virtually unchallenged in the air.<sup>158</sup>

Air Service leaders agreed that an air force had to be an effective D-day force and that it had to be supported by a healthy domestic aircraft industry. In their thoughts on strategic air warfare, the air leaders did not seem to be entirely certain whether air bombardment could win a war without army and navy action. Patrick drew upon Liddell Hart's concept of a future war under conditions similar to the ground-siege situation of World War I and visualized aerial pressure as breaking the morale and capabilities of an enemy nation that was presumably first brought to bay by air and naval action.<sup>159</sup> Even Mitchell hesitated to say that air power could be decisive without ground and naval action. "I believe," he told congressmen on 5 February 1926, that "air power in the future will have a great influence in determining any conflict, so I believe if you figure your whole national defense as 100 percent, air power would make approximately 50 percent, the land forces 30 percent, and the sea forces 20 percent."<sup>160</sup>

Writing in 1948, an Air Force leader evaluated the significance of William Mitchell as being that of a "visionary and missionary."<sup>161</sup> Certainly Mitchell saw beyond his times but, because of the close-knit fellowship of air leaders in the early 1920s, one may wonder how many of the basic ideas attributed to Mitchell actually may have originated with his associates. Mitchell, Patrick, Milling, and other air officers did not differ markedly in their essential thinking except for the impetuosity manifested by Mitchell. It is significant that Mitchell's last book on aviation, *Skyways*, published in 1930 after the author had been out of touch with his fellow air officers for some four years, continued few thoughts that he had not presented before 1926.<sup>162</sup> In his early writings, however, Mitchell had publicized the ideas which would be continued, expanded, and refined to become the doctrine of the Air Force.

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IDEAS, CONCEPTS, DOCTRINE

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THROUGH WORLD WAR I

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IDEAS, CONCEPTS, DOCTRINE

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THROUGH WORLD WAR I

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IDEAS, CONCEPTS, DOCTRINE

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119. *Ibid.*, 519-20, 528
120. *Ibid.*, 522-23
121. *Ibid.*, 291-93, 296, 300, 1676-77, 1689-90, 1912, 1915, 2032-39, 2240, 2758-59.
122. Patrick, *The United States in the Air*, 179-80, Levine, *Mitchell: Pioneer of Air Power*, 318.
123. "Verbatim Report of Morrow Commission of Inquiry," in *Army and Navy Journal*, 26 September 1925, 8-10.
124. *Ibid.*, 16
125. *Ibid*, 4, 8-9, 17, 21-24.
126. Levine, *Mitchell: Pioneer of Air Power*, 327-29.
127. *Ibid.*, 342-70; "Verbatim Report of Morrow Commission of Inquiry," 9-16
128. House, *Inquiry into Operations of the United States Air Service*, 366
129. *Ibid*, 380.
130. *Ibid.*, 2177.
131. "Verbatim Report of Morrow Commission of Inquiry," 10.
132. *Ibid.*, 15.
133. House, *Department of Defense and Unification of Air Service. Hearings before the Committee on Military Affairs*, 69th Cong., 1st sess., 1925, 719-21.
134. "Verbatim Report of Morrow Commission of Inquiry," 1-3
135. *Ibid*, 3-4.
136. House, *Inquiry into Operations of the United States Air Service*, 1758.
137. *Ibid*, 1833, "Verbatim Report of Morrow Commission of Inquiry," 4-7, 15-19.
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142. House, *Department of Defense and Unification of Air Service*, 638-50, War Department Training Regulation 440-15, *Fundamental Principles for the Employment of the Air Service*, 26 January 1926
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THROUGH WORLD WAR I

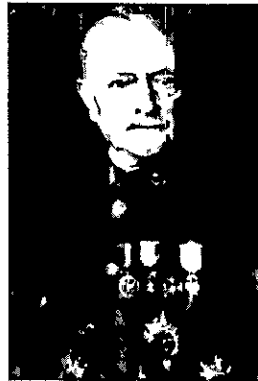
149. Ibid , 158.
- 150 Maj Gen Mason M Patrick, "Future of the Air Service," lecture, Army War College, Carlisle Barracks, Pa , 17 February 1925, Patrick, "The Army Air Service," 9 November 1925
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155. House, *Department of Defense and Unification of Air Service*, 436.
- 156 Maj Thomas D Milling, "Tactics of the Air Forces in War," lecture, Army War College, Carlisle Barracks, Pa , 27 November 1923.
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- 159 Patrick, "The Army Air Service," 9 November 1925.
- 160 House, *Department of Defense and Unification of Air Service*, 398.
161. Maj Gen Robert W. Harper, editorial in *Air University Quarterly Review* 2, no 3 (Winter 1948)
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162. William Mitchell, *Skyways* (Philadelphia: Lippincott, 1930)



Orville Wright



Wilbur Wright



Gen John J. Pershing, Army  
chief of staff, 1921-24.



Col Frank P. Lahm, chief of Air Service, Second  
Army



Maj Gen Benjamin O. Foulois,  
chief, Air Corps, 1931-35



Brig Gen William Mitchell,  
assistant chief, Air Service,  
1921-25



Col William C. Sherman



Maj Gen Mason Patrick, chief,  
Air Service and Air Corps,  
1921-27

## CHAPTER 3

GROWTH OF THE AIR FORCE IDEA  
1926-41

"Despite popular legend," reminisced Gen Henry H. Arnold, "we could not have had any real air power much sooner than we got it."<sup>1</sup> Arnold reasoned that in the early 1920s the state of the technological art of aeronautics was not far enough advanced to support air power doctrines. In the field of national aviation policy and military aviation technology, the early developmental period clearly ended in 1926. In that year the World War I stocks of such items as Liberty engines were used up or declared obsolete, as were many of the war stocks of aircraft. The ten aircraft production companies that had survived the stringent years of the early 1920s were getting on sound footing and were receiving some orders for commercial aircraft. Research and development in aeronautics was making headway in the National Advisory Committee for Aeronautics (NACA), at the Air Corps Materiel Division at Wright Field, Ohio, and in Guggenheim Foundation laboratories. The Air Corps Act of 1926 stated the policy that the government should encourage aircraft production companies to develop design and engineering staffs by following a rather liberal policy of placing experimental orders for prototype aircraft. It also provided that the government ought not to enter into competition with private industry by manufacturing aircraft in government arsenals.<sup>2</sup>

In the early years, the Air Service had considered it logical that the military services should bear the brunt of the burden of developing aeronautics until such time as the utility of air transportation could be established. In 1922 the Air Service had opened a model airway connecting New York, Norfolk, Washington, and Dayton; by 1925 the airway was extended to St. Louis, Kansas City, Dallas, and Fort Worth. Lighted beacons guided night flying, and radio-meteorological stations were established along the routes. The Air Mail Act of 1925 and the Air Commerce Act of 1926 took the Post Office Department and the military services out of commercial aviation, and the acts served as legislative cornerstones for the development of commercial aviation in the United States. After competitive bidding, the Post Office Department negotiated 12 airmail contracts; these initial contracts provided the eventual base upon which the nation's great trunk airlines were built. The real breakthrough in aviation, however, occurred in 1927 when Charles A. Lindbergh's pioneer trans-Atlantic solo flight on 20-21 May galvanized the imagination of the people. After May 1927 the public suddenly wanted to fly. During 1927 the new airline companies carried only 8,679 passengers, but the

## IDEAS, CONCEPTS, DOCTRINE

number of passengers transported reached 48,312 in 1928, 161,933 in 1929, and 384,506 in 1930. In 1926 US aircraft production totaled 1,186 planes and in 1929 the total was 6,193—5,516 of which were civil aircraft.<sup>3</sup>

### The Air Corps Wins a Foothold

Both Maj Gen Mason Patrick and Maj Gen James E. Fechet, who became chief of the Air Corps on 14 November 1927, considered the Air Corps Act of 1926 to have been farsighted legislation. F. Trubee Davison was appointed to the newly created position of assistant secretary of war for air on 16 July 1926 and Air Corps officers were assigned to the War Department general staff divisions. After a year's delay while studies were made, the Air Corps was authorized a five-year expansion program in which it was expected to attain a strength of 1,650 officers, 15,000 enlisted men, and 1,800 serviceable airplanes. The only difficulty with the Air Corps Act—according to Secretary Davison—was that it was never fully implemented. The legislation was never popular with other agencies of the War Department who lost funds and personnel spaces to the Air Corps expansion, and there was jealousy that the Air Corps was permitted special representation at the secretary and General Staff level. "Those in higher places . . .," Davison noted, "were looking more for an alibi rather than a means of carrying out this program." Davison also noticed that Congress did not appropriate authorized funds in full amounts and the Bureau of the Budget impounded some of the Air Corps funds that were appropriated.<sup>4</sup>

As the Air Corps expansion got under way, the chief of the Air Corps continued to be responsible for the preparation and issuance, through the War Department General Staff, of training doctrine for all Air Corps organizations. Because of the small number of officers in his office, the chief of the Air Service had required the Air Service Field Officers' School to prepare basic drafts of doctrinal manuals. Subsequently redesignated as the Air Service Tactical School in 1922 and the Air Corps Tactical School in 1926, the institution at Langley proved to be the only common location of experienced Air Corps officers who had enough time for creative thinking. Following the practice of other arms and services, an Air Service Board was established at Langley in 1922 and was redesignated as the Air Corps Board in 1926. But the Air Corps did not have enough senior personnel to assign to this board; thus, the commandant of the Tactical School and several of its staff members doubled as members of the Air Corps Board.<sup>5</sup> The chief of the Air Corps also took advantage of the experienced men at Langley by referring problems originating in the War Department to the Air Corps Tactical School for study and comment.<sup>6</sup>

Early in the 1920s the manuals of the Air Corps Tactical School closely followed the ideas expressed in statements of air leaders in Washington. Published early in 1926 when Maj Oscar Westover was commandant, the instructional manual *Employment of Combined Air Force* envisioned the air arm as coordinate with land and sea forces and having as its aim the destruction of the enemy's morale and will

GROWTH OF THE AF IDEA

to resist, preferably by means of attacks against targets in the enemy's interior. Pursuit aviation was designed to establish localized aerial supremacy; command of the air was held to be temporary and fleeting. Bombardment was said to cooperate with air and ground forces by giving direct support in tactical operations or by giving indirect support to them through strategical operations.<sup>7</sup> In the spring of 1928, the Air Corps Tactical School undertook a general revision of its texts; on 30 April Lt Col C. C. Culver, now the school's commandant, forwarded to Washington a paper entitled "The Doctrine of Air Force," which was proposed as a basis for all texts. This draft doctrine obviously followed the letter of the law set forth in War Department Training Regulation 440-15 and concluded: "In the final analysis, the army is the principal component of the nation's militia, both the air and the naval forces being used to further its interest. . . . The Air component . . . always supports the ground forces, no matter how decisive its . . . operations may be, or how indirect its support."<sup>8</sup> When efforts to revise this statement were not accomplished to his satisfaction, General Fechet stated his own idea on 1 September:

The objective of war is to overcome the enemy's will to resist, and the defeat of his army, his fleet or the occupation of his territory is merely a means to this end and none of them is the true objective. If the true objective can be reached without the necessity of defeating or brushing aside the enemy force on the ground or water and the proper means furnished to subdue the enemy's will and bring the war to a close, the object of war can be obtained with less destruction and lasting after effects than has heretofore been the case. At present the Air Force provides the only means for such an accomplishment.<sup>9</sup>

The procurement of aircraft under its expansion program was indicative of Air Corps ideas and concepts; and the performance of the new equipment had a substantial impact upon Air Corps doctrine. In 1924 the Air Service Tactical School had stated that a combat air force could not depend upon surface transportation but required air transport aircraft. The Air Corps began to buy such planes, although in very small numbers since civilian airliners would be available for military service in a war emergency.<sup>10</sup> In the first year of the expansion, the Air Corps gave emphasis to the purchase of new observation and pursuit aircraft. Because of alarming experiences with flutter in experimental monoplanes, the standard Air Corps pursuit aircraft of the 1920s were predominately biplanes. In the several years following initial purchases in 1925, the Air Corps bought a total of 150 Curtiss Hawks series planes. However, in 1928 the Air Corps began to buy Boeing P-12F biplanes—which had a top speed of 194 miles an hour—as the standard pursuit planes.<sup>11</sup>

Since observation planes had higher priority, the Air Corps was not permitted to purchase any new bombers in the first year of its augmentation. In May 1928 Maj Hugh J. Knerr, the commander of the 2d Bombardment Group (who was additionally named as chairman of a special Air Corps Bombardment Board), recommended the development of a light and fast day bomber and a heavier and

## IDEAS, CONCEPTS, DOCTRINE

longer range night bomber. This proposal was soon rejected when the War Department insisted that a twin-engine observation plane be developed and that provision be made for its modification as a bomber. In March 1930 the Air Corps Tactical School recommended that night bombing was inefficient and proposed that light and heavy bombers should be built solely for day operations. The school believed that speed and armament could protect a day bomber. As a result of circular design proposals in 1930, the Air Corps issued procurement orders for both Boeing B-9 and Martin B-10 aircraft. Built in 1931, the Boeing B-9 was a twin-engine monoplane that bore a superficial resemblance to the later B-17. However, the B-9 subsequently developed a fuselage vibration that made it unacceptable to buy in quantity. The Martin B-10, on the other hand, was to be the first of the modern bombers. First flown in early 1932, this all metal monoplane had front and rear machine-gun turrets, a top speed of 212 miles an hour, and a service ceiling of 21,000 feet.<sup>12</sup>

At the Air Corps Tactical School the increasing capabilities of military aircraft opened new vistas of air power that visionary instructors desired to exploit. After completing the school in 1928 and 1929, Capt Robert Olds and Lt Kenneth N. Walker remained on the faculty as instructors in bombardment aviation. Olds had assisted Mitchell in his appearances before the Morrow board; Walker was an experienced bombardment officer who had been a member of the Air Service Board in 1925. What these two men doubtlessly already believed was confirmed in May 1929 during the annual Air Corps maneuvers held in Ohio. Maj Walter H. Frank, assistant commandant of the Air Corps Tactical School, served as chief umpire. At the close of the maneuvers he reported: "There is considerable doubt among the umpires as to the ability of any air organization to stop a well organized, well flown air force attack. . . . The difficulty that pursuit had, not only in attacking, but in finding some of the missions that were sent into hostile territory during these maneuvers, would make it appear that a well planned air force attack is going to be successful most of the time." Major Frank obviously had studied Douhet's writings, since he observed: "Douhet, a well known Italian writer, says that 'now that aviation has entered the ranks as a means of carrying on war, more than ever war is going to be a question of give and take.' It emphasizes the fact that air force is principally an offensive weapon rather than a defensive one."<sup>13</sup>

Back in the classroom at Langley, Lieutenant Walker saw the major significance of the theorem that "a well organized, well planned, and well flown air force attack will constitute an offensive that cannot be stopped." In fact, his students subsequently would credit him with originating the whole idea.<sup>14</sup> The revised Air Corps Tactical School text *The Air Force*, issued in April 1930, boldly stated: "a defensive formation of bombardment airplanes properly flown, can accomplish its mission unsupported by friendly pursuit, when opposed by no more than twice its number of hostile pursuit" and that "defensive formations of attack can accomplish their missions, unsupported by friendly pursuit, when opposed by no more than their own number of hostile pursuit."<sup>15</sup> Bombers would rely upon superior speed and firepower for protection in deep penetrations into enemy territory; the only

GROWTH OF THE AF IDEA

pursuit support they would require would be in cutting through the crust of enemy air opposition along the front lines.<sup>16</sup>

To Olds and Walker the supremacy of the bomber held important significance. Under the older air doctrines, air superiority, air supremacy, or control of the air had been considered to be fleeting and attainable only by the concentration of a predominant number of pursuit aircraft in a local area. And although the April 1930 version of *The Air Force* continued to mention the old doctrine, it marked a shift in air force thinking by suggesting that bomber attacks against enemy airdromes would be the best method of destroying enemy aircraft.<sup>17</sup> The next revision of *The Air Force* (February 1931) went even further, boldly predicting that control of the air, air superiority, or air supremacy (the terms were said to be synonymous) would be attainable throughout a combat theater by destroying the hostile air force in the air, on its airdromes, and in the enemy's depots and factories. "Victory is practically assured to the commander whose air force has gained and can maintain, control of the air," the text stated, "even if his ground forces are merely equal or somewhat inferior to those of his enemy."<sup>18</sup> "Pursuit alone," the text continued, "cannot ensure protection from air attack, but . . . bombardment and attack must participate to a degree undreamed of in the World War in the contest for control of the air, but attacks against the hostile air force on the ground."<sup>19</sup> What friendly control of the air would mean in the course of a war had already been suggested in the April 1930 text:

An army with an air force strong in bombardment and attack should be able to defeat its opponent, as when its air force has reduced the bombardment and attack of enemy to a negligible quantity, its ground operations will progress without important hostile air interference, and its air force will then be able to assist these operations directly by attack on terrestrial objectives. An air force preponderately pursuit, cannot materially affect the ground situation except through the indirect method of destroying hostile aircraft.<sup>20</sup>

At the same time that the concept of the primacy of bombardment aviation was becoming firmly established at the Tactical School, the War Department also appeared to have gotten a clear mandate to develop aviation for the performance of its traditional mission of coast defense. Unwilling to accept General Patrick's demands for legislation defining the exact division of Army-Navy responsibilities for aerial operations at the nation's sea coasts, the War Department had preferred in 1926 to rely upon the Joint Army-Navy Board for such decisions. As a portion of the *Joint Board's Joint Action of the Army and the Navy*, approved in December 1926, the secretary of war and the secretary of the Navy had agreed that the Navy's peacetime purchases of land-based aircraft would be "limited to those primarily designed and ordinarily used for scouting and patrolling over the sea." In time of war, however, the Navy would be authorized to conduct "operations from shore bases for overseas scouting, and for the observation and patrol of sea communications and their defense against raids."<sup>21</sup>

IDEAS, CONCEPTS, DOCTRINE

Notwithstanding this agreement, both Patrick and Fechet continued to fear that the Navy intended to take over coastal air defense. The matter came to a head in August 1930 when Secretary of War Patrick J. Hurley received a copy of a Navy letter to President Herbert Hoover containing severe criticism of the Army program for coastal air defense. In an effort to clarify the apparent confusion, Army chief of staff General Douglas MacArthur and chief of naval operations Adm W. V. Pratt reached an agreement between themselves on 9 January 1931, which General MacArthur described in these terms:

Under it the naval air forces will be based on the fleet and move with it as an important element in performing the essential missions of the fleet afloat. The Army air forces will be land based and employed as an element of the Army in carrying out its mission of defending the coasts, both in the homeland and in overseas possessions. Through this arrangement the fleet is assured absolute freedom of action with no responsibility for coast defense.

Admiral Pratt apparently entered into this agreement because he wished to develop the Navy's fleet as an offensive rather than a defensive force. The Navy's General Board, however, strongly disapproved of the agreement since it feared that the Air Corps might lay claim to the Navy's air stations ashore. After a detailed study had been made by the War Plans Division, General MacArthur issued an order on 3 January 1933 specifically requiring the Air Corps "to conduct the land-based air operations in defense of the United States and its overseas possessions."<sup>22</sup>

### Beginnings of the GHQ Air Force

When Maj Gen Benjamin D. Foulois moved up from assistant chief to become chief of the Air Corps on 22 December 1931, he brought with him a long record of experience that went back to the earliest days of Army aviation and a new assessment of the international situation. From 1920 to 1924, Foulois had served as the assistant military observer with the American commission and as assistant military attaché at the American embassy in Berlin. He had had intimate talks with many of the German airmen who smarted from defeat: they had insisted that Germany would rise again and would use aviation to conquer Europe. "The first phase of the next war," Foulois reasoned, "is going to be the conquest of Europe, and the second phase is going to be the conquest of the United States. They're going to use short range aircraft to do the conquest of Europe job, but they'll need long range stuff to lick us." Anticipating that the United States could well be isolated in the Western Hemisphere, Foulois had returned home as an active advocate of long-range bombers.<sup>23</sup>

As the Air Corps five-year expansion program approached a delayed completion in 1933, the added War Department responsibilities for coastal defense and the increasing technological capabilities of bombardment aircraft led General Foulois to suggest that an air power strategy was appropriate for the United States.



## GROWTH OF THE AF IDEA

At the completion of the five-year program, the Air Corps would possess 13 squadrons of observation, 12 squadrons of bombardment, 4 squadrons of attack, and 21 squadrons of pursuit aviation. Instead of the 1,800 aircraft authorized to it, however, the Air Corps had only 1,619 planes, of which 442 were either obsolescent or nonstandard.<sup>24</sup> The Air Corps based its new defense strategy on the assumption that the United States would be attacked by a coalition of two or more naval powers who would muster a superior force of carrier-based aviation and upon the fact that the War Department was responsible for coastal air defense. Based upon this appreciation of the situation, Brig Gen Oscar Westover, the assistant chief of the Air Corps, requested that the War Department on 15 March 1933 strengthen the air garrisons of the Panama Canal department, the Hawaiian Islands, and the Philippines, and that it authorize the organization of bombardment and coast defense patrol units in the six critical defense areas along the Atlantic and Pacific coasts of the United States. Noting that Air Corps operational doctrine varied according to the various Air Corps tactical commanders, General Westover asked authority to establish a center for tactical research at the Air Corps Tactical School, which had moved from Langley to Maxwell Field, Montgomery, Alabama, on 1 July 1931.<sup>25</sup>

The timing of the Air Corps plan was appropriate since General MacArthur was considering a reorganization of the Army into four continental armies, but the War Department General Staff viewed the Air Corps submission with skepticism. Like the rest of the world, the United States was in the throes of an economic depression. The five-year Air Corps expansion plan that was just concluding, moreover, had worked hardships upon the Army's ground arms, which had been compelled to give up personnel spaces to the Air Corps since ceilings on overall Army strength had been curtailed while Air Corps authorizations had increased.<sup>26</sup> On 3 June 1933 the War Department directed the chief of the Air Corps to submit a new plan, staying within his approved ceiling of 1,800 aircraft, that would recommend the manner in which a general headquarters air force would be employed under war plans Red, Red-Orange, and Green. War plan Red visualized conflict with Great Britain, Orange with Japan, and Green visualized certain operations against a hostile force in Mexico. The Air Corps submitted these plans on 13 July; on 11 August a special committee of the Army General Council chaired by Maj Gen Hugh A. Drum, who was now deputy chief of staff, was designated to review the Air Corps plan. General Foulois was a member of this special committee, usually known as the Drum board.<sup>27</sup>

When it reported in October 1933, the Drum board was concerned chiefly about the worst possible strategic alignment that could confront the United States: a two-front coalition attack by Great Britain and Japan, who would capitalize on the inferiority of US Navy forces and mount probable surface invasions of the northeastern and northwestern United States from beachheads established in the vicinity of Halifax and Vancouver. Such a war would also be accompanied by attacks against Alaska, Hawaii, the Philippines, and the Canal Zone. Because of the elaborate logistical requirements and the rather slow progress of the flight of

IDEAS, CONCEPTS, DOCTRINE

Italian bombers under Gen Italo Balbo to the opening of the Chicago World Fair, the Drum board did not fear attacks by land-based bombers against the United States; but it was apprehensive about carrier-based air that would support landings of British and Japanese forces in Canada. Both Army and Navy air forces would have to oppose this two-front operation, and the strategic problem posed a distinct requirement for the organization of a mobile GHQ air force that could be concentrated in the peripheral areas of the United States to oppose the landings of hostile forces and to support subsequent ground operations against the invaders. The Drum board recommended that the GHQ air force should be organized, and it stated that the Air Corps had a requirement for 2,320 aircraft to be organized into 27 bombardment, 17 pursuit, 11 attack, and 20 observation squadrons. The Drum board, however, was unwilling to recommend an immediate increase in Air Corps personnel or aircraft strength until other Army requirements needed to augment ground forces were met. Secretary of War George H. Dern approved the Drum board report on 11 October 1933.<sup>28</sup>

**Toward a Long-Range Bombardment Mission**

While the War Department was examining its strategic planning, additional information became available from the concentration of a GHQ Air Force (Provisional) on the Pacific coast for a maneuver defense against a simulated hostile fleet and accompanying aircraft. In his July 1933 report on this maneuver, General Westover called attention to the wide disparity between the speed of new bombers and of pursuit and observation planes. "The modern trend of thought," Westover wrote,

is that high speed and otherwise high performing bombardment aircraft, together with observation aviation of superior speed and range and communications characteristics, will suffice for the adequate air defense of this country. The ability of bombardment aviation to fly in close formation and thus to insure greater defense against air attack warrants the belief that no known agency can frustrate the accomplishment of a bombardment mission.

Lt Col Henry H. "Hap" Arnold, who served as Westover's chief of staff during the maneuver, called for the development of air task forces (including transport planes) built around the modern bombers. He also recommended that the time had come to establish an Air Corps board with experienced membership, which could study and recommend policy for the ultimate development of the air force.<sup>29</sup>

On 12 September, General Foulis, in an appearance before the Army War College, defined air power "as the strength of a nation in its ability to strike offensively in the air" and stated that the size of the air force should "be determined as that which can operate successfully against that amount of hostile aviation to which it may be opposed on our frontiers." He stated that "the real effective air defense will consist of our ability to attack and destroy the hostile aviation on the ground before it takes to the air." In response to a question put to him on this same

## GROWTH OF THE AF IDEA

occasion at the Army War College, General Westover explained: "Within the Army Air Corps, there has been a growing conviction that we have got to come down to practically two types of aircraft. One type designed in general for the patrol missions, and the other designed for the high-powered, bombing offensive missions with sufficient machine gun fire power to protect itself."<sup>30</sup>

Although it is impossible to assess the exact degree of influence the ideas of Giulio Douhet had upon the development of American air power doctrine, there is no doubt that Air Corps thinkers were familiar with Douhet's writings. Copies of Douhet's "The War of 19 . . .," which appeared in *Revista Aeronautica* in March 1930 were in the Air Corps Tactical School library as early as November 1931.<sup>31</sup> In 1933 Capt George C. Kenney, who had been an instructor at the Air Corps Tactical School from 1927 to 1929 and was assigned as chief of the Air Corps Plans Division between 1933 and 1935, made a translation of an epitome of Douhet's ideas, which appeared in the French magazine *Les Ailes*. This translation seems to have provided the basis for an article published by retired Col Charles DeF. Chandler entitled "Air Warfare Doctrine of General Douhet" in *U.S. Air Services* in May 1933.<sup>32</sup> At the very least, Douhet's arguments for building "battle cruiser" aircraft that would not require fighter escort and in favor of the decisiveness of air attack as a means of winning a war, for establishing command of the air by air attacks against an enemy's airdromes, and for developing commercial air transport aviation as an adjunct to military aviation proved useful as a corroboration of Air Corps ideas. Thus, on 9 May 1933 General Foulois sent 30 mimeographed copies of Chandler's article to the chairman of the House Committee on Military Affairs with the notation that the paper "presents an excellent exposition of certain principles of air warfare."<sup>33</sup>

Although the War Department was unwilling to permit any immediate Air Corps expansion, General MacArthur was sympathetic with Air Corps proposals for the development of experimental long-range bombers. Completed in July 1932, a study by the Air Corps Materiel Division indicated that a bomber with a speed of 200 miles per hour, a range of 5,000 miles, and a 2,000-pound bomb load was technically possible. In December 1933 the Air Corps suggested and the War Department approved the commitment of funds for Project A: the development of a long-range bomber that not only would be able to "reinforce either coast line . . . but would definitely enable . . . reinforcement of . . . Panama and Hawaii." The single XB-15 that the Boeing Company would deliver under this contract in 1937 would be too large for existing engines (someone once humorously remarked that if the engines on the XB-15 had ever looked back to see what they were pulling, all four of them would have quit simultaneously). But technology was catching up with requirements, and the Air Corps was learning to write military characteristics for planes that would be good yet attainable. In 1933 the Air Corps distributed proposals to manufacturers specifying a design competition for a multiengine bomber with a range of 2,000 miles and a speed of 250 miles per hour. In the design competition the following year, Douglas offered the DB-1 (an extrapolation from its DC-3 transport that would be the prototype for the twin-engine B-18); Martin

## IDEAS, CONCEPTS, DOCTRINE

proposed a modification of its already successful B-10; and Boeing offered a four-engine Model 299, which would be the prototype of the B-17 Flying Fortress.<sup>34</sup>

**Baker Board Influences Air Organization**

While making plans to implement the recommendations of the Drum board in the winter of 1933-34, the Air Corps was suddenly launched into a tragic undertaking that would center public attention and criticism upon it. Convinced that there was evidence of collusion and fraud in airmail contracts with commercial air transport companies, President Franklin D. Roosevelt ordered the Air Corps to start flying the airmail effective on 19 February 1934. Undertaking this mission without proper equipment, with inadequate ground organization, in the face of extremely bad winter flying weather, and with only ten days' preparation, the Air Corps experienced 57 accidents and suffered 12 fatalities while flying 1,590,155 miles with 777,389 pounds of mail. Alarmed by the loss of life, President Roosevelt, on 10 March, directed the Air Corps to operate only in favorable weather conditions. On 8 May new contracts with private companies went into effect and the Army Air Corps flew its last scheduled mail flight on 1 June 1934. General Foulois remembered the airmail episode as a dramatic illustration to the American people that the Air Corps had been neglected. "In the blaze of editorial and Congressional reaction to the deaths of Army flyers," Foulois recalled, "the President and the Congress were, in my opinion, forced to release funds for immediate use in Air Corps experimental and research work, for the immediate procurement of advanced types of aircraft and aircraft materiel and for the immediate advanced training of Army Air Corps personnel."<sup>35</sup>

Even before the Air Corps completed its airmail duty, the secretary of war on 17 April 1934 named Newton D. Baker to head a special committee of civilian and military members to make a constructive study and report of the adequacy and efficiency of the Army Air Corps for the performance of its missions in peace and war. In 25 days, the Baker board heard 105 witnesses, but, possibly because General Drum was its executive vice-chairman, the report released on 18 July 1934 accepted virtually all of the conclusions of the Drum board report (which had been approved the previous October). "Our national defense policy," stated the report of the Baker board, "contemplates aggressive action against no nation; it is based entirely upon the defense of our homeland and overseas possessions, including protection of our sea and air-borne commerce." The board found that the purpose of the Army was "to hold an invader while the citizen forces are being mobilized." Aviation was advantageous to the national defense, but the board stated: "The idea that aviation can replace any of the other elements of our armed forces is found, on analysis to be erroneous. . . . Since ground forces alone are capable of occupying territory, or with certainty, preventing occupation of our own territory, the Army with its own air forces remains the ultimate decisive factor in war." Citing the Drum board report as evidence that the United States was in no danger of land-based transoceanic air attack, the Baker board stated that "the ideas that aviation, acting

## GROWTH OF THE AF IDEA

alone, can control the sea lanes, or defend the coast, or produce decisive results in any other general mission contemplated under our policy are all visionary, as is the idea that a very large and independent air force is necessary to defend our country against air attack.<sup>36</sup>

As was to be expected from its concept of national military policy, the Baker board recommended that the existing Army and Navy organizations be continued, with air forces an integral part of each. The board found the only potential area of Army-Navy disagreement to be the use of aircraft in coastal defense and recommended that the Joint Board should continue to resolve any such controversy in accordance with the old formula expressed in the Army Appropriation Act of 5 June 1920. The board thought that the position of assistant secretary of war for air should be abolished and that the Air Corps should "become in all respects a homogenous part of the Army, under General Staff control, and be subject to military coordination, study, influence, and operation." Following and elaborating on the Drum board recommendations, the Baker board recommended that a headquarters air force be established outside of Washington to supervise the training and operations of combat air units, that an Air Corps board be created to formulate uniform tactical doctrines, and that a model Air Corps unit be created at the Air Corps Tactical School for employment in tactical testing and experimentation. The board recognized that the Air Corps had a requirement for 2,320 airplanes, but it proposed that any Air Corps expansion ought to be a part of a comprehensive Army augmentation plan.<sup>37</sup>

Of the several members of the Baker board—including General Foulois and Edgar S. Gorrell—only James H. Doolittle filed a minority report. "I believe," stated Doolittle, "that the future security of our Nation is dependent upon an adequate air force. This is true at the present time and will become increasingly important as the science of aviation advances and the airplane lends itself more and more to the Art of Warfare." Doolittle insisted that the air force could be most rapidly developed if it were separated from the Army. If this were impossible, the Air Corps should have a separate budget and promotion list and should be removed from the control of the General Staff.<sup>38</sup> There is no indication that these remarks by Doolittle, an experienced Army aviator who had resigned from the service to take an engineering job with the Shell Oil Company, were ever considered by the secretary of war. In fact, Secretary Dern, who was in Panama when the Baker board completed its report, immediately messaged Baker that he had "no hesitancy in approving in principle your conclusions."<sup>39</sup>

In June 1934 President Roosevelt created the Federal Aviation Commission under the chairmanship of newspaper editor Clark Howell to make recommendations concerning all phases of aviation. When the commission began its hearings, Secretary Dern informed it that the War Department endorsed the report of the Baker board. Brig Gen C. E. Kilbourne, assistant chief of staff, War Plans Division, moreover, instructed all officers summoned to testify to familiarize themselves with the approved policy and not to express personal opinions unless they were so identified.<sup>40</sup> William Mitchell seized the opportunity before the

## IDEAS, CONCEPTS, DOCTRINE

Howell commission and denounced the Baker board report. The testimony of Air Corps officers was marked by restraint. Colonel Arnold stated his personal opinion that an independent air force would be desirable, but he evidently stated off the record that a GHQ air force ought to be organized and given a two-year trial. Other Air Corps officers favored no immediate change in defense organization until a GHQ air force had been tested.<sup>41</sup> In spite of a general reticence to talk, Maj Donald Wilson, Captains Harold Lee George and Robert Olds, and Lt Kenneth Walker freely expressed many of the ideas that were being taught at the Air Corps Tactical School.

When he appeared before the Howell commission, Captain George emphasized that "the object of war is now, and always has been, the overcoming of the hostile will to resist. . . . When that will is broken down, when that will disintegrates, then capitulation results." Reasoning that the strength of opposing air forces would never permit a nation to utilize its potential to build air power after a war began, George defined air power as "the immediate ability of a nation to engage effectively in air warfare." "Future wars," he predicted, "will be fought by the air forces which are in existence when the war breaks out and not by air forces which are created after the war commences." George argued that in a future war air forces would be in action for weeks or months before land forces got into action and that an air force, therefore, required independent organization.<sup>42</sup>

Emphasizing that he was expressing personal opinion, Maj Donald Wilson pointed out that world conditions were leading toward war, that the basic principles of war applied by an intelligent enemy portended that the principal hostile effort against the United States would be through the air, that the defense problem of the United States with planes of limited range was particularly disadvantageous, and that an air force organized, equipped, and trained to defend the United States was an essential element in providing the national defense.<sup>43</sup>

Lieutenant Walker prefaced his testimony by reading the statement of primacy of the ground force mission as it appeared in the field service regulations of 1923, and he charged that Army leaders refused "to consider that an Air Force is of real value, other than to cover the mobilization of the Army." "We insist," said Walker, "that the defeat of the enemy results from breaking his will to resist and that this is most quickly accomplished, in the scheme of modern war, by disruption, by direct action, of his means for prosecuting the war. . . . An Air Force is an arm which, without the necessity of defeating the armed forces of the enemy, can strike directly and destroy those industrial and communications facilities, without which no nations can wage modern war." Walker believed that the Army should control observation aviation and that the Navy should have aircraft carriers to protect its fleets, but he urged that a separate air force had to be created for the air defense of the United States — the air defense mission being defined as seeking out and destroying the enemy air force on its home bases. "Gentlemen," Walker concluded, "unless we create an adequate and separate Air Force, this next war 'will begin in the air and end in the mud' — in the mud and debris of the demolished industries that have brought us to our knees."<sup>44</sup>

GROWTH OF THE AF IDEA

At the outset of his testimony, Captain Olds expressed opposition to the creation of a unified air force that would amalgamate all of the aviation components of the Army and Navy, because he held that the Army mission required observation aviation and balloons while the Navy mission necessitated sea-based aircraft. Olds, nevertheless, pointed out that the waging of air warfare was of equal importance to the waging of ground and sea warfare. "We simply cannot predict a limit," he said, "nor is it safe to predict the definite role aircraft will fill in a future war. . . . A determined air armada loaded with modern agencies of destruction, in readiness within range of our great centers of population and industry, may eventually prove to be a more convincing argument against war than all the Hague and Geneva Conventions put together." Olds called for the establishment of a department of national defense, with subordinate departments of army, navy, air, and procurement and with a supreme general staff headed by a single chief. He urged that a national air force should be organized and should have subordinate air forces in the North Atlantic, South Atlantic, Gulf, and Pacific states and in Alaska. He proposed no changes for the defensive air garrisons assigned to the Army commands in Hawaii, the Panama Canal Zone, and in the Philippines.<sup>45</sup>

The members of the Federal Aviation Commission had a splendid opportunity to make a fresh approach to aviation problems. However, on 31 January 1935, the Howell commission reported to Congress that "the present degree of mutual understanding between the Army and Navy is less than might be desired, that the machinery for settling differences in matters of detail lacks something in effectiveness, and that the arrangements for keeping commanders in the field notified of their respective responsibilities in joint operations . . . are strikingly inadequate." Furthermore, the commission did not believe that it would be easier to coordinate three services than two. Since plans for the GHQ Air Force were already being issued, the Howell commission preferred to refrain from comment on the matter of an independent air force. "It must be noted, however," the report stated,

that there is ample reason to believe that aircraft have now passed far beyond their former position as useful auxiliaries, and must in the future be considered and utilized as an important means of exerting directly the will of the Commander in Chief. An adequate striking force for use against objectives both near and remote is a necessity for a modern army, and the projected G.H.Q. Air Force must be judged with reference to its effectiveness in this respect.<sup>46</sup>

**Organization of the General Headquarters Air Force**

Both in his first conceptual thinking and later in more exact planning, General Foulois urged the War Department General Staff to observe the principle of unity of command when it organized the GHQ Air Force. In March 1933 Foulois stated his belief that the Army chief of staff, in a time of war, should go into the field as the supreme military commander and leave his second in command in the zone of interior. Following the same pattern, Foulois believed that the chief of the Air

## IDEAS, CONCEPTS, DOCTRINE

Corps should accompany the supreme military commander into the field, and he accordingly made his assistant chief, General Westover, his executive officer so that Westover would be able to take over all incumbent zone of interior duties in time of war.<sup>47</sup> Actually, however, the younger Westover commanded the Provisional GHQ Air Force in the field maneuvers of 1933 and he headed the airmail operation. As a part of the planning for the organization of a GHQ air force under the Army's four-army plan, Foulois got War Department approval for a procedure whereby officers from the Office of Chief of Air Corps would additionally serve as the mobilization staff for a GHQ air force. Under this same type arrangement, Foulois intended that most of the officers of the Air Corps Plans Division would, in a war emergency, become the Aviation Section of the Army General Headquarters in the field.<sup>48</sup>

In this argument for unity of command within the Air Corps, Foulois expressed his conviction that it was wholly impracticable to divorce the authority for training and operations from the functions and responsibilities for research, experimentation, procurement, supply, and repair. In what was widely interpreted as a direct rebuff to Foulois for his advocacy of a separate air force, however,<sup>49</sup> the Baker board not only recommended increased General Staff supervision over the Air Corps, but it also insisted that the primary functions of the Air Corps were fighting and development, procurement, and supply of equipment and trained personnel. The first function should be assigned to the commanding general of a GHQ air force, who would be directly subordinate to the Army chief of staff. The second function should continue to be handled by the chief of the Air Corps as a staff officer of the War Department.<sup>50</sup>

The War Department required little time to effect the top-level change recommended by the Baker board. The position of assistant secretary of war for air had been left vacant when F. Trubee Davison resigned at the outset of the Roosevelt administration, and this post remained vacant.<sup>51</sup> On 24 August 1934 the War Department announced that four additional Air Corps officers were being detailed to General Staff divisions, bringing the number of Air Corps officers on the high staff level to nine, a proper quota in view of the relative size of the Air Corps.<sup>52</sup>

Because a GHQ air force represented a new concept, the War Department proceeded more cautiously with its organization. On 31 December 1934 the secretary directed that the GHQ Air Force be organized and begin operation at a headquarters at Langley Field on 1 March 1935. Headquarters of the Air Force's three wings would be at Langley Field, Virginia; March Field, California; and Barksdale Field, Louisiana. All Air Corps pursuit, bombardment, and attack groups were assigned to the GHQ Air Force.<sup>53</sup> Lt Col Frank M. Andrews, an experienced Air Corps officer who had been serving on the War Department General Staff, was announced as commanding general, GHQ Air Force, with a temporary rank of brigadier general. On 19 February 1935 the War Department provided Andrews with tables of organization for the new command, and he was



GROWTH OF THE AF IDEA

directed to service test the new organization and make a final report on its effectiveness before 1 February 1936.<sup>54</sup>

Along with its other organizational changes, the Baker board had recommended the creation of an Air Corps board to formulate uniform tactical doctrine. As has been seen, such a board had existed on paper since 1922 and had been moved with the Air Corps Tactical School from Langley to Maxwell in 1931. For more than two years, General Foulois resisted suggestions from within his own office that the Air Corps Board ought to be revitalized, both because he had a scarcity of senior officers and because he preferred to rely on the Air Corps Plans Division for policy recommendations. Although the Baker board forced him to act, Foulois continued to plead that the Air Corps did not have the five to eight senior officers needed to man the Air Corps Board. He accordingly received permission to name the commandant and assistant commandant of the Tactical School to serve on the board as an additional duty. Two officers already at Maxwell, Maj William O. Ryan and Lt Gordon P. Saville, were assigned to the board on full-time duty. In a statement of mission, the Air Corps Board was directed to consider such subjects as might be referred to it by the chief of the Air Corps and to originate and submit to the chief of the Air Corps recommendations looking toward the improvement of the Air Corps.<sup>55</sup>

**Development of Doctrine in the Air Corps and GHQ Air Force**

Looking backward with regret at his failure to have convinced "those earnest and conscientious men" of the Baker board of the urgent national need to unify our military forces and to form an independent air force, James H. Doolittle observed in 1945 that the report of the Baker board should have borne the subtitle: Pearl Harbor, Here We Come. "Basically," reminisced Doolittle, "the trouble was that we had to talk about air power in terms of promise and prophecy instead of in terms of demonstration and experience."<sup>56</sup> When the GHQ Air Force was organized and began to receive modern aircraft, the Air Corps was able to begin basing its doctrine on a lengthening record of demonstrations and experience.

Because of fundamental changes in the Air Corps mission resulting from the MacArthur-Pratt agreement and the Drum board report, the War Department directed the Air Corps on 27 December 1933 to review and revise its training regulations and manuals to ensure that the new principles and doctrines were disseminated. The project was assigned to the Air Corps Training and Operations Division, but it made little progress because of continuing changes in the Air Corps mission.<sup>57</sup> What the War Department General Staff judged the role and mission of the GHQ Air Force to be was demonstrated in a directive for a GHQ command post exercise prepared in the War Plans Division in June 1934. That directive indicated that the bombardment plane was to be the most important element of the GHQ Air Force. The mission of the GHQ Air Force included bombardment of enemy establishments and installations beyond the range of artillery, pursuit action to counter enemy air operations, long-range reconnaissance, and attacks

## IDEAS, CONCEPTS, DOCTRINE

against critical targets in the battle area. In addition to furnishing air protection to bombardment, pursuit aviation was to assist in preventing hostile aviation from operating over friendly territory. The most important point in the directive was the manner in which the GHQ Air Force would receive its targets. The preferred method would designate objectives to the GHQ Air Force commander to "insure the cooperation of the Air Force with the ground units and that it will be directed against those objectives which will further the operations of the ground forces and the general plan of campaign."<sup>58</sup> In commenting on this directive, General Westover stated that because of its limited range, pursuit aviation rarely would be able to protect bombardment or long-range observation aircraft. Instead of the Army General Headquarters assigning air objectives, General Westover recommended that the GHQ Air Force commander be informed about the campaign and its objectives and that he be charged to prepare and present an air plan to support the campaign. This air plan could be modified by General Headquarters or by the GHQ Air Force as a result of mutual consultation that would take place as the campaign progressed.<sup>59</sup>

One of the reasons for establishing the GHQ Air Force was that the MacArthur-Pratt agreement had given the coastal air defense mission to the Army. This agreement apparently was not popular within the Navy and the Navy Department promptly reopened the matter in Joint Board discussions following Admiral Pratt's retirement in June 1933. In these discussions, Navy spokesmen insisted that the Navy had a primary mission for "air operations in support of local naval defense forces operating for the protection of lines of sea communications and coastal zones against attacks by hostile submarines and surface raiders." Although the Baker board report of July 1934 called for a resolution of this matter in accordance with the act of Congress of 5 June 1920, the Joint Board agreement of 26 September 1934, entitled "Doctrine for the Employment of the GHQ Air Force," stated that the Navy would have "a paramount interest" in operations at sea when the fleet was present and free to act. Moreover, the agreement authorized the Navy to maintain "shore stations at strategical centers, where scouting and patrolling seaplanes may be concentrated to meet naval situations."<sup>60</sup> Air Corps officers protested that the agreement gave the mission of coastal frontier air patrol to the Navy and permitted it to maintain as many shore bases and patrol planes as it deemed necessary in peacetime as well as wartime. The Navy apparently wanted to circumscribe the Army air mission still further. In a presentation to the Federal Aviation Commission in November 1934, the Navy urged that

the Army should develop and build those types of airplanes required by the Army to fulfill its mission in land operations. The Navy should develop and build those types of airplanes required by the Navy in its operation over the sea or for operation from fleet air bases or naval stations. The Army should have paramount interest over the land and the Navy over the sea. Neither service should build or operate planes intended to duplicate the functions of the other.<sup>61</sup>

## GROWTH OF THE AF IDEA

At an assemblage of naval officers at San Diego on 14 June 1935, Adm W. H. Standley, chief of naval operations, stated that the Navy was going to build up a striking force of 1,000 aircraft.<sup>62</sup>

General MacArthur, convinced by the Baker and Howell hearings that the Army ought to arrive at a united front on the subject of aviation, directed that a statement of facts, principles, and doctrines relating to the Army Air Corps should be prepared. In the past the Air Service and the Air Corps had been permitted to initiate such work, but now the initial task was undertaken by the War Department General Staff. As a "sighting shot" the War Plans Division (WPD) drew up a draft revision of War Department Training Regulation 440-15, *Employment of the Air Forces of the Army*, and General Kilbourne circulated the draft paper for criticism. As written the WPD draft asserted that the "land campaign and battle" was "the decisive factor in war." While it noted that air force action would be intensive at the beginning of a war, it stated that the advantages of alluring air missions at such a time should be weighed against the requirement to keep superior air forces in being to support operations that would take place after the ground armies made contact. The greatest part of the draft dealt with the employment of air forces in continental defense. In fact, the revised training regulation defined air defense as "the means whereby a nation exerts Air Power." During the period of strategical development before ground contact, the GHQ Air Force commander would work from "a broad general mission." However, once the battle began, he would receive specific assignments from General Headquarters.<sup>63</sup>

A copy of the War Plans Division's proposed doctrinal statement was transmitted to Maxwell Field, where Col John F. Curry served both as commandant, Air Corps Tactical School, and president, Air Corps Board. Since the Air Corps Board had only two full-time officers, the study and commentary on the WPD draft was made by the staff of the Air Corps Tactical School. In the introduction to its critique, completed on 31 January 1935, the Tactical School pointed out that any doctrine which would receive more than lip service had to appeal to reason and to be acceptable in principle. The Tactical School was critical of the fact that the WPD draft was predicated upon the geographic isolation of the United States and that the mission of countering enemy air forces was narrowly conceived in terms of continental defense. "The principal and all important missions of air power, when its equipment permits," stated the Tactical School critique, "is the attack of those vital objectives in a nation's economic structure which will tend to paralyze that nation's ability to wage war and thus contribute to the attainment of the ultimate objective of war, namely, the disintegration of the will to resist." When employed from bases in the United States, the GHQ Air Force would have such a limited range that the only positive way in which it could ensure the success of the Army would be to defeat the hostile air force. The possibility of simultaneously defeating the hostile air force and of attacking the enemy army in support of friendly ground forces was described as an alluring but false doctrine. Only if the hostile air force were defeated would occasions arise when the GHQ Air Force would be able to attack targets in direct support of the ground battle.<sup>64</sup>

IDEAS, CONCEPTS, DOCTRINE

Very little of the thought contained in the Air Corps Tactical School critique appeared in the final draft of the War Plans Division paper that was officially published as the revised War Department Training Regulation 440-15 on 15 October 1935. This regulation defined air power as "the power which a nation is capable of exerting by means of its air forces." But, it stated, "Air forces further the mission of the territorial or tactical commands to which they are assigned." It contemplated that a phase of air operations would probably precede the contact of the surface forces and that the outcome of this phase would exert a potent influence upon subsequent operations. The functions of the GHQ Air Force included air operations beyond the sphere of influence of the ground forces, in immediate support of the ground forces, or in coastal defense and other Army-Navy operations. The regulation stated that the effect which air forces were capable of producing and the extent to which they would influence warfare was still undetermined. Complete control of the air was considered to be an unlikely prospect. But attacks were to be made against hostile air forces prior to ground army contact and the interdiction of enemy reconnaissance and hostile attacking aircraft was to be a continuing function during ground battles. In effect the new edition of Training Regulation 440-15 was a middle-ground compromise between extreme viewpoints of both air and ground officers. There were enough loopholes to permit continued air force development. The regulation, for example, respected the unity of the GHQ Air Force and allowed leeway for independent air operations that were to be conducted before ground armies made contact. For the first time, Maj Gen Follett Bradley later remarked, the regulation spelled out an air doctrine "to which most Air Force officers could subscribe."<sup>65</sup>

**Beliefs in Bomber Invincibility**

Much of the reorientation of the Air Corps that was required when the GHQ Air Force was being established fell to General Westover. This reorientation had to do with organization, the procurement of new aircraft, and the promulgation of a uniform tactical doctrine for the employment of all branches of aviation. General Westover relied heavily upon the Air Corps Tactical School and the Air Corps Board to prepare basic studies in each of these areas. The latter was, in effect, an arm of the Office of Chief of the Air Corps on detached location at Maxwell Field. While he was acting chief of air corps in the absence of Foulois (who was nearing retirement), Westover directed the Air Corps Board on 11 March 1935 to devote its efforts to preparing a uniform tactical doctrine for all types of Air Corps units. But he indicated that the board's mission would be expanded when more personnel could be assigned to it.<sup>66</sup>

As an immediate solution to the task, the Air Corps Board surveyed the Air Corps Tactical School's textbooks and, following some changes in bombardment and pursuit pamphlets, obtained authorization to make these books available to field units as doctrine.<sup>67</sup> In June 1935 Lt Col Jacob H. Rudolph was assigned as director, Air Corps Board, and the Office of Chief of the Air Corps reopened the

## GROWTH OF THE AF IDEA

question of the board's mission. There was general agreement that the board should be responsible for developing doctrine, making recommendations on air force organization, and making tactical evaluations of equipment. The Air Corps Materiel Division demanded that it continue to be responsible for preparing the specifications for and conducting service tests on new equipment, but it suggested that the Air Corps Board ought to function as a planning agency that would look several years ahead and visualize developmental objectives for air force equipment. All of these ideas were incorporated in the expanded mission of the Air Corps Board.<sup>68</sup>

Even though air officers considered the establishment of the GHQ Air Force to be a major psychological victory, they recognized that control of the Army's air force had been undesirably compartmented. On 2 November 1935 General Andrews decried the arrangement whereby the GHQ Air Force was responsible for combat efficiency while the Office of Chief of the Air Corps selected equipment and personnel, prescribed tactics and methods of employing combat units, and controlled funds. General Andrews recommended the creation of an air division within the War Department General Staff, to be headed by an assistant chief of staff who would be responsible for military aviation. Alarmed by the rumored possibility that the Navy might try to take control of continental air defense and organize a large shore-based air force—said to be favored by Rear Adm Ernest J. King, chief of the Navy's Bureau of Aeronautics—the Air Corps Tactical School forwarded a study to Westover on 13 January 1936 that proposed to establish a United States air force as a part of the War Department under a chief of air staff. Under this plan, the chief of the Air Corps would become the deputy staff. Westover was unwilling to accept either General Andrews's suggestion or the Tactical School proposal. He instead urged on 17 January 1936 that the GHQ Air Force be placed under the chief of the Air Corps. During the next two years, both Andrews and Westover continued to urge that unity of command was required in the Air Corps. However, Gen Malin Craig, who became Army chief of staff on 2 October 1935, was quite opposed to according preferential treatment to the Air Corps.<sup>69</sup>

With the secretary of war's approval of the Drum board report, the Air Corps had an approved requirement for an expansion to 2,320 aircraft that were to be organized into 27 bombardment, 17 pursuit, 11 attack, and 20 observation squadrons. Several of these squadrons were committed to overseas air garrisons in the Philippines, Hawaii, and Panama; most of the observation squadrons were to be in the National Guard. The War Department did not indicate a time schedule for achieving the limited Air Corps expansion. As a matter of fact, it was going to authorize personnel increases in the Air Corps only in conjunction with an ordered expansion of the basic ground forces.

At its organization in March 1935, the GHQ Air Force consisted of four bombardment, three pursuit, two attack groups, and four reconnaissance squadrons, with a total of approximately 1,000 airplanes.<sup>70</sup> Since this force could not be greatly expanded, General Andrews desired a continued modernization of

## IDEAS, CONCEPTS, DOCTRINE

its aircraft. Because of the limited funds available to the Air Corps during the middle 1930s, however, much thought had to be given to the planned tactical usage and the state of the art of aviation technology before awarding contracts for aircraft purchase. Any arm or service or individual could propose military characteristics of a required type of equipment; the Air Corps, like other arms, submitted its requests, after approval by the Office of Chief of the Air Corps, to The Adjutant General for General Staff study. Approval of the military characteristics by the War Department constituted a requirement for the item. Thereafter an aircraft went through a design phase, the letting of contracts for an experimental model, the testing and evaluation of the experimental model, the procurement of a small quantity of aircraft for service testing, and finally the procurement and delivery of standardized aircraft in numbers. So much time was involved in this process that when standard aircraft were put in service they were already obsolescent in the sense that newer ideas for tactical employment and subsequent advances in aeronautical science had already created a demand for improved types of planes.<sup>71</sup>

During the early and middle 1930s, the state of aeronautical technology, the strategic requirements of the Red-Orange war plans, and the industrial fabric theory of war, which was being put together at the Tactical School, melded together to produce an emphasis on the development of long-range bombers. Using the latest model P-26 pursuit aircraft and B-12 bombers in tests flown at March Field, California, in 1934, Colonel Arnold—who would become assistant chief of the Air Corps in January 1936—concluded that the speeds of bombers and fighters were so evenly matched that "pursuit or fighter airplanes operating from front line airdromes will rarely intercept modern bombers except accidentally."<sup>72</sup> Arnold suggested that the Air Corps ought to develop a two-place, long-range pursuit aircraft that would be able to provide escort for bombers. During 1935 the Air Corps Materiel Division experimented with the design of such a pursuit plane, which basically turned out to be a heavily armed B-10 type. When the matter was referred to the Air Corps Board, the board reasoned that a large pursuit plane with pursuit safety factors, with at least 25 percent greater speed than bombers, with at least the range of bombers, with a higher ceiling capability than bombers, and with an extremely high rate of climb would probably not be technologically possible. The board recommended that experiments to develop such a plane should be continued, but every conceivable means of self-defense for bombardment aircraft should be exhausted before such long-range fighters were provided.<sup>73</sup>

The principal concern of the Air Corps continued to be developing long-range bombers. From data developed in the Project A bomber program, the Air Corps Materiel Division reported early in 1936 that an 8,000-mile range, 230-mile-per-hour bomber could be built. Ignoring some protest that such an intercontinental bomber would be a weapon of aggression not required for defense, the War Department authorized General Westover in April 1936 to secure a prototype plane from the Douglas Aircraft Company. Given the name Project D and, when it was completed in 1941, the XB-19, this intercontinental bomber would provide a great quantity of technological information needed for

## GROWTH OF THE AF IDEA

the development of long-range bombers. But, like the B-15, the XB-19 would be underpowered for its size and weight and would never be placed in quantity procurement.<sup>74</sup>

Already, as a result of design competitions announced in 1934, the Boeing Company offered a prototype XB-17 and the Douglas Company provided an XB-18. In its initial tests during 1935, the four-engine XB-17 flew nonstop at 232 miles per hour for a distance of 2,100 miles. The Air Corps was so favorably impressed that it wished to purchase 65 of these aircraft, but an unfortunate crash on 30 October 1935 destroyed the original XB-17 before it could be formally evaluated. As a result, the War Department awarded the 1935 bomber competition contract to Douglas for the purchase of 133 twin-engine B-18s. In February 1936 the Air Corps obtained permission to order 13 YB-17s for service testing. One justification used at this time was that a limited purchase order would assist Boeing in developing a commercial transport aircraft. Delivery of these 13 planes was completed in August 1937.<sup>75</sup>

During May 1937 GHQ Air Force tested the first seven of the B-17s delivered in an Army-Navy maneuver off the Pacific coast. Because it had greater range and speed than the B-10s that also participated, the B-17s showed important advantages both in sea search and in bombing operations against the battleship *Utah*, which was deployed for maneuver purposes under a fog bank 385 miles off the California coast. Using new Norden bombsights, the crews of the B-17s were able to score many hits with water-filled bombs with as little as five-second bomb runs over the battleship.<sup>76</sup> After nearly a year of service testing the B-17 in the 2d Bombardment Group, Lt Col Robert Olds recommended that the B-17 be classified as standard and that the GHQ Air Force's three bombardment groups be equipped with them. Col Hugh J. Knerr, chief of staff of the GHQ Air Force, positively stated that his headquarters was convinced that the B-17 airplane "is the best bombardment aircraft in existence; particularly for coastal defense purposes."<sup>77</sup>

At the Air Corps Tactical School, news of the superb performance of the YB-17 and the hope that the intercontinental XB-15 might prove practical strengthened proponents of strategic bombing. As demonstrated by its critique of the draft of Training Regulation 440-15, the Tactical School as early as January 1935 had rejected the idea that Air Corps doctrine be solely linked to continental defense and had argued that the mission of air power was to paralyze a hostile nation's will and ability to wage war. The Air Corps Tactical School text *The Air Force*, issued on 1 March 1936, stated that a hostile air force was a primary strategic air objective. But, it argued, the defeat of an enemy air force might entail difficult and time-consuming operations that might not prevent the enemy from quickly attaining his purpose by direct attack. "In selecting the hostile air forces as the objective," the text stated, "it is intended to remove the only force that can successfully oppose the attainment of the ultimate objectives and thus achieve a status that will permit unhampered application of pressure against the nation"<sup>78</sup> By 1938 the school was teaching:

## IDEAS, CONCEPTS, DOCTRINE

Air warfare may be waged against hostile land forces, sea forces, and air forces, or it may be waged directly against the enemy nation. The possibility for the application of military force against the vital structure of a nation directly and immediately upon the outbreak of hostilities is the most important and far reaching development of modern times<sup>79</sup>

The concept of bombardment invincibility and of the defensive character of air battles was not implicitly accepted through the Air Corps. Even at Maxwell Field, in the five years that he served as an instructor and post officer prior to his retirement in 1937, Maj Claire L. Chennault argued that pursuit aviation was a weapon of opportunity that might be employed either offensively or defensively. To support his contention, Chennault devised and advocated a workable plan for aircraft warning and pursuit control services based upon visual aircraft observers and radio and telephone communications nets.<sup>80</sup> Lt Col Millard F. Harmon subscribed wholeheartedly to the requirement for the development of bombardment, but he was "irked [to] no end" at the lack of prestige accorded to pursuit. Named to head a board of GHQ Air Force officers at Barksdale Field to review the Air Force text in 1935, Harmon suggested that it was entirely possible that a hostile air force could be defeated by air combat and other activities. His board also argued that defense of the United States was the established national policy—not the destruction of vital elements within enemy nations.<sup>81</sup> Maj O. S. Ferson, a member of the board at Barksdale, argued that improved interplane radio communications would enable an air commander to control large airborne forces and thus to fight major coordinated air battles.<sup>82</sup> Lt Col A. H. Gilkeson, commander of the 8th Pursuit Group, stated bluntly that "this recent academic tendency to minimize, if not entirely dismiss, the consideration of the fighting force as a powerful and extremely necessary adjunct of the air force has led to the teaching of doctrines which have not been established as being true and might even be fatally dangerous to our aims in the event of armed conflict." Gilkeson urged that "a superior fighting force will always gain control of the air in at least a restricted sense."<sup>83</sup>

In an effort to develop facts on pursuit aviation, General Westover directed the Air Corps Board in 1935 to determine whether the Air Corps had a requirement for developing an interceptor. In February 1937 the board reported that the most efficient means of neutralizing an enemy air offensive was to attack operation against the bases that supported the offensive. The board recommended that friendly defenses against hostile aircraft would be necessary, and it recommended an immediate development of an interceptor that would have aircraft cannon and at least 20 percent greater speed than proposed bombardment planes. The board also recommended that immediate steps be taken to provide ground observer posts and aircraft reporting nets in the United States and its overseas possessions. Without having waited for the delayed Air Corps Board report, the Air Corps Technical Committee in November 1936 had already identified military characteristics for an interceptor aircraft. During fiscal year 1937 the Air Corps



## GROWTH OF THE AF IDEA

ordered an XP-37, which would be the progenitor of the P-40, and an XP-38, which would become standard as the P-38 Lightning. Like the XP-39, which was ordered in fiscal year 1938, the Lightning would be a short-range, cannon-equipped interceptor.<sup>84</sup>

**Thoughts on Air Support Aviation**

During the 1920s, possibly because of Mitchell's enthusiasm for such an aircraft, the Air Corps had been interested in developing and employing heavily armored attack planes that could seek out and destroy enemy personnel and materiel in low-level strikes. The Lassiter board of 1923 recommended that both observation squadrons and a force of attack and pursuit aviation should be an integral part of field armies. The assumption was that attack aircraft would be designed for strafing and fragmentation bombing. In the late 1920s, however, the Air Corps did not have a standard attack aircraft; thus, in Air Corps maneuvers pursuit squadrons frequently were employed to simulate attack missions. In 1932 tests of the all metal, low-wing Curtiss XA-8 aircraft led to the procurement the following year of 46 of these planes, which were redesigned with radial engines and designated A-12s. Following development from a commercial aircraft model, the Air Corps secured delivery of 110 Northrop A-17s in 1936. These two-place monoplanes carried five .30-caliber machine guns and stowed fragmentation and demolition bombs internally.<sup>85</sup>

When the Army began looking toward a reorganization of its basic ground forces, the Air Corps initiated serious studies of ground support aviation. In a report on the modernization of the Army completed on 9 January 1936, the Air Corps Board recommended that there should be no change in the existing assignment of an observation group and a balloon observation group as organic parts of each corps and an observation group as an organic part of each field army. The board, however, displayed misgivings about the proposed assignment of attack aviation as an organic part of an army. It noted that attack aviation would appear to be "an ideal weapon in the hands of an Army commander." But, the board argued, because of its expense, relative scarcity, and capability to penetrate, attack aviation ought to be assigned to the GHQ Air Force, in order that it could be used anywhere in a theater of operations as directed by General Headquarters. "A weapon capable of giving direct support to more than one subordinate unit," the board reasoned, "should be assigned to a superior headquarters." The board also indicated that one of the principal missions of attack aviation would be to disrupt the railways that supported an enemy's front; highways were thought to be much less vulnerable to air attack.<sup>86</sup>

At a 13 April 1936 meeting of the General Staff committee that was studying the reorganization of the Army, General Westover reported his approval of the Air Corps Board report. In some cases, Westover said he would be willing to attach aviation to armies or corps, but he emphasized that aviation supporting an army normally ought to operate under the control of the GHQ Air Force. Westover

## IDEAS, CONCEPTS, DOCTRINE

further stated that because of the relative invulnerability of dispersed ground troops, aviation should not be used against frontline troops except in vital situations.<sup>87</sup> In commenting on one of the Army reorganization planning papers sent to him, General Andrews took strong exceptions to the term *air-ground military team*. He could understand how observation aviation could be a part of the air-ground team, but he argued that pursuit, attack, and bombardment received no assistance from the ground forces in their combat operations. The War Department General Staff did not agree with these independent ideas. It insisted that "even independent air operations are carried out as part of the general plan of the Commander-in-Chief . . . and must be designed to support the general strategic purpose which he desires to attain."<sup>88</sup>

**War Department General Staff Reorients Air Programs**

Early in the 1930s the War Department had been willing to permit the development of experimental long-range bombers, apparently because General MacArthur held a permissive attitude toward such an endeavor. The attitude of the War Department General Staff switched abruptly after October 1935 when General Craig became Army chief of staff. Beginning in 1936 General Craig and his deputy chief of staff, Maj Gen Stanley D. Embick, pressed the entire Army to reduce expenditures for research and development.<sup>89</sup> In June 1936 the War Department turned down Westover's request for authority to buy a test quantity of XB-15s and enough B-17s to equip at least two groups. At a General Staff conference on bombardment held on 28 August, both Westover and Andrews argued that the four-engine bomber would be the most effective weapon that the Air Corps could procure, but the General Staff held that the "bulk of bombardment aviation operating with a mobile Army should be the size and capacity of the standard B-18 medium bomber." Alleging that no action could be taken until the YB-17s were thoroughly service tested, the War Department cut B-17 procurement out of the Air Corps budget requests for fiscal years 1937 and 1938 and added twin-engine bombers. Because of the successful service tests of the YB-17s in the summer of 1937, however, the War Department later authorized the Air Corps to procure 26 B-17Bs from fiscal year 1938 carryover funds and 13 B-17Bs from current funds in fiscal year 1939.<sup>90</sup>

Although the Air Corps was not obtaining the type of aircraft that it felt necessary for its missions, the War Department procurement actions of the middle 1930s pushed the Air Corps toward its authorized strength of 2,320 aircraft, which would be attained with fiscal year 1939 purchases. Looking toward stabilizing and modernizing Air Corps strength at this figure by the annual purchase of newer replacement aircraft, Secretary of War Harry H. Woodring directed the General Staff to provide him with a five-year aircraft replacement program that would take effect beginning in fiscal year 1940.<sup>91</sup> After it had been drawn up in conferences between Westover and Andrews and had been modified by the General Staff, Secretary Woodring on 18 March 1938 approved the Balanced Air Force Program

## GROWTH OF THE AF IDEA

(better known as the Woodring program), which authorized the Air Corps to maintain a combat strength of 144 four-engine bombers, 266 twin-engine bombers, 259 attack aircraft, and 425 pursuit aircraft. Although the Air Corps had also asked to purchase a modest number of transport planes, Woodring instead directed that obsolete bombers would be used for transport purposes. The Air Corps was specifically authorized to purchase 67 four-engine bombers in fiscal year 1940 and 48 in fiscal year 1941.<sup>92</sup>

Although the Woodring program was said to manifest "an excellent spirit of cooperation with the ultimate objective of the Army," events were brewing that would cause the War Department to suspend heavy bomber procurement. In April 1937, the chairman of the House Appropriations Subcommittee that handled War Department estimates recorded his protest against the unwise tendency to build larger and more expensive bombers such as the B-17. On 23 September, however, Andrews forwarded an elaborate defense of the planned four-engine bomber procurement under the Woodring program. He argued that: (1) the heavy-load, long-endurance multiengine bomber was a powerful instrument of defense and, in view of the nation's fortunate strategic position and defensive policy, such an airplane as the basic element of the GHQ Air Force was essential to accomplishing the GHQ Air Force mission; (2) such an airplane, with bomb and fuel loads interchangeable to a high degree, offered the most economical and efficient means of performing the functions of reconnaissance and bombardment (though not on the same mission); (3) based on per ton load of bombs carried or per square mile of area reconnoitered, a multiengine aircraft was actually cheaper to operate than medium bombers such as the B-10 or the B-18; and (4) in view of these factors the process of experimental aircraft and engine development had to continue so that bombers of longer range and superior performance could be made available.<sup>93</sup> On 9 October 1937 Andrews told an audience at the Army War College that "from some sources comes the statement that the modern development of large bombers is for the purpose of aggressive action on the part of the United States. Often we hear of our large bombers spoken of as 'Weapons of Offense,' 'Superbombers,' and similar appellations. These terms are unfortunate and misleading."<sup>94</sup>

At the same time that General Andrews was pleading the cause of the multiengine bomber, Army officers were drawing different lessons as a result of reports received from the Italian campaign in Ethiopia and the Spanish Civil War. An Army War College course conducted during September 1937 taught that air power had limited value when employed independently and was chiefly useful as a support for surface operations. The course text *Air Forces and War* cited military attaché reports received from Spain, which said that high-altitude bombing was ineffectual, that the Flying Fortress concept had "died in Spain," and that small bombers and fighters, which could operate from cow-pasture facilities, were of the utmost utility.<sup>95</sup> What made the text seem more authoritative was the fact that Col B. Q. Jones, a long-time Air Corps officer who had served as a sector commander in the airmail episode and was now an instructor at the Army War College, completely endorsed it in a summary lecture. Colonel Jones, who would transfer

## IDEAS, CONCEPTS, DOCTRINE

to the cavalry in 1939, stated that the Spanish Civil War had demonstrated that the capabilities of air power had not progressed markedly from those displayed in World War I. He advocated using bombardment aviation as long-range artillery, attaching attack and bombardment aircraft to lower echelons of the Army for use in the same manner as artillery, and employing GHQ aviation in close support of ground forces. Seeking to counteract the influence of the Jones lecture in War Department General Staff, Lt Cols Ralph H. Wooten and Walter F. Kraus, the Air Corps officers assigned to the G-3 division, drew up a paper which pointed out that Jones was inconsistent with approved Army doctrine incorporated in Training Regulation 440-15. General Embick, however, refused to accept this finding. "Aviation," he wrote on 23 October 1937, "is a new arm. Our present War Department doctrine has had to be based necessarily on theory and assumption rather than on factual evidence. Now we are getting evidence of that character. No doctrine is sacro-sanct, and of all military doctrines that of our Air Corps should be the last to be so regarded."<sup>96</sup>

Even though the Woodring program authorized the procurement of four-engine bombers for the Air Corps, the War Department General Staff apparently had approved the program with severe misgivings. The whole matter was thrust back into controversy in May 1938, when General Westover, mindful of the fact that the B-17s were already four years old, requested the War Department to authorize the Air Corps to undertake the development of a new high-altitude, 4,000-mile-range bomber, that could carry two tons of bombs. General Embick exploded into action. "Our national policy," he wrote on 9 May, "contemplates preparation for defense, not aggression. Defense of sea areas, other than within the coastal zone, is a function of the Navy. The military superiority of a plane the size of even the B-17 over the two or three smaller ships that can be procured with the same funds, remains to be established, in view of the vulnerability, air base limitations, and complexity, of the former type. . . . If the equipment to be provided for the Army Air Corps be that best adapted to carry out the specific functions appropriately assigned it under Joint Action as an integral part of the national defense team, there would appear to be no need for a plane larger than the B-17, and only the relatively small number of the latter desirable as potential reinforcing units for Oahu or Panama."<sup>97</sup>

At General Embick's instigation, the War Department referred Westover's request for the development of a high-altitude, long-range bomber to the Joint Army-Navy Board for review. On 29 June the Joint Board reported that it visualized no likelihood that the Army Air Corps would be called upon in time of war to perform missions requiring the use of bombers with greater capabilities than those of the B-17. It believed that the Air Corps would be called upon to perform many missions with less expensive medium bombers. It recommended, therefore, that the largest proportion of Army bombardment and reconnaissance planes ought to be aircraft smaller than the B-17.<sup>98</sup> The assistant chief of staff G-4 estimated that the funds required to buy 67 B-17s in the first year of the Woodring program could otherwise be used to purchase nearly 300 attack bombers. He

## GROWTH OF THE AF IDEA

recommended that such a change in procurement should be made. General Craig approved the recommended change, noting: "This is O.K. and solves the problem of 17-Bs vs. medium bombers." On 29 July the War Department informed Westover that the approval given to the Woodring program was withdrawn and that estimates for bombardment planes to be procured in fiscal year 1940 would be restricted to light, medium, and attack types.<sup>99</sup> On 6 August Westover was additionally informed that the developmental expenditures for fiscal years 1939 and 1940 would be "restricted to that class of aviation designed for the close support of ground troops and the protection of that type of aircraft."<sup>100</sup>

In the same season, General Craig gave indications that he wished to transfer Army responsibilities for coastal defense to the Navy. As a part of the Navy expansion program submitted to Congress in January 1938 by President Franklin D. Roosevelt, the Navy not only requested funds to purchase a large number of patrol aircraft, but also asked relief from the proviso that had been incorporated in all naval appropriation bills since 1920, which limited it to not more than six air bases on the coasts of the United States.<sup>101</sup> In the opening phase of the GHQ Air Force war games in the northeastern United States, however, General Andrews employed B-17 and B-18 bombers in sea search and simulated attack missions against vessels bound toward the United States. In one mission, on 12 May, three B-17s successfully located and simulated attacks against the ocean liner *Rex* at a distance of 725 miles out of New York.<sup>102</sup> To the Air Corps, the interception of the *Rex* proved the value of the B-17 for coastal defense, but the demonstration of effectiveness apparently displeased either the Navy or the War Department General Staff.

What happened next has never been exactly documented. General Arnold later suggested that the Navy protested the flight of the B-17s so far out to sea and that the War Department agreed to limit Air Corps patrol activities. Ira C. Eaker, who was then a major, recalled that he was in General Andrews's office when General Craig telephoned and verbally instructed him to limit Army flights to a 100-mile zone off the nation's coasts. According to Arnold, the War Department would not put this order in writing; nonetheless, it was binding and evidently represented a coordinated Army-Navy policy.<sup>103</sup> Indicating that old policies had somehow changed, a revision of the manual *Joint Action of the Army and the Navy*, issued on 8 August 1938, authorized shore-based naval aircraft "to operate effectively over the sea to the maximum distance within the capacity of aircraft development."<sup>104</sup> Army aircraft, on the other hand, had to operate at a reduced range. As the report on the annual tactical inspection of the GHQ Air Force made on 28 July 1939 protested, "navigation training in the GHQ Air Force has suffered because of the 100-mile restriction, except by special permission, placed by the War Department on the distance to which airplanes may fly to sea."<sup>105</sup>

Westover protested that disapproval of the Woodring program had set the development of the Air Corps back by at least five years and would restore hit-or-miss procurement. He formally requested that the original Woodring program be reestablished and that the Air Corps be authorized to develop a

## IDEAS, CONCEPTS, DOCTRINE

successor aircraft to the B-17.<sup>106</sup> The War Department General Staff deliberated Westover's réclame at great length. In the end the G-4 Division provided General Craig with what he described as "a very able study," which was used as the basis for the carefully weighed War Department decision rendered on 5 October 1938. In this decision the War Department professed to recognize the increased potential of aircraft, but it still proclaimed that "none of this progress . . . has changed the conception that the Infantry Division continues to be the basic combat element by which battles are won, the enemy field forces destroyed and captured territory held." Moreover, the War Department held to the position that all combat arms ought to be brought up to nearly equal preparedness status and that the Air Corps could not be maintained "in a higher state of immediate war readiness than the other arms." It enjoined the Air Corps "to obtain and develop aircraft suitable for the close support of ground troops to the same extent that now pertains with respect to types suitable for strategic and more distant missions." Only one concession was made. In order to provide a replacement for the B-17 at some future date the restriction previously imposed on the development of four-engine bombing planes was rescinded.<sup>107</sup>

## Efforts to Describe Air Doctrine

At least in theory the chief of air corps was responsible for preparing Air Corps doctrine. In June 1935 General Westover had first directed the Air Corps Board to formulate a uniform tactical doctrine for the Air Corps. But with never more than five full-time members, the Air Corps Board had found it difficult to complete the doctrinal manuals project. At the top level in Washington—as Colonel Kraus pointed out—the War Department General Staff exerted "an important influence on the tactical doctrine" of the Air Corps since "such doctrines obviously must be governed to a large extent by the characteristics of the weapons made available."<sup>108</sup> Located as it was at Maxwell Field, the Air Corps Tactical School was far from sympathetic toward official Army doctrine. As a matter of fact, the Tactical School frankly questioned and invited academic disagreement with all doctrine. "Battles have been won too often," stated Capt Laurence S. Kuter, in a lecture on 2 March 1938, "by the judicious violation of doctrine. . . . Disagree with doctrine in the conference room—be familiar enough with it to violate it in the conference room—but know it well enough to know what it is and why you are violating it."<sup>109</sup> The school was able to think and teach about absolutes in war that were not necessarily related to current war plans. "Even though air warfare may be waged simultaneously against both the enemy armed forces and the enemy national structure," the school argued in 1938, "the main purpose of the air offensive will be to nullify the former so as to permit breaking down or conclusively threatening the latter."<sup>110</sup>

While the Air Corps Board was mindful of the mandate requiring it to provide a uniform tactical doctrine for the Air Corps, work on this project could not get under way prior to the final publication of War Department Training Regulation

## GROWTH OF THE AF IDEA

440-15 in October 1935. Even when this regulation appeared, Colonel Rudolph, the Air Corps Board's director, pointed out that it did not contain the fundamental principles that were needed to guide Air Corps development. For one thing, the Army was not definitely committed to provide aviation for coastal defense. Rudolph pointed out these facts to General Westover in May 1936. Consequently, Westover instructed the board to prepare a study on the functions of the Army air force. This study recommended that the War Department commit itself to develop air forces for continental defense, immediate support of ground combat, and conduct of strategic offensive operations. In April 1937 Brig Gen Henry C. Pratt, commandant of the Tactical School and ex officio as president of the Air Corps Board, requested that the War Department approve these functions as a guide for both the board and the school. The War Department refused to do so, noting that such strategic questions had no place in an Air Corps field manual.<sup>111</sup>

In response the Air Corps Board reduced the scope of its field manuals project to two volumes: the first to deal with tactics, technique, and training, and the second to deal with maintenance, base functions, logistics, and staff data. Giving priority to the first volume, the board forwarded a complete draft to the Office of the Chief of the Air Corps on 11 March 1938. General Pratt pointed out that the manual represented "an enormous amount of work, thought, and study . . . and constitutes the best available thought on the use of a D-day air force."<sup>112</sup> After making some suggested changes in wording, the Office of the Chief of the Air Corps submitted the draft manual to the War Department on 14 September 1938. The General Staff reviewed the draft and returned it to the chief of the Air Corps on 29 March 1939. Maj Gen R. M. Beck, assistant chief of staff G-3, suggested an outline for its revision. Beck stated that the manual ought not to make any mention of independent air operations or of air attacks that were designed to destroy the morale of the enemy's population. He also said that discussion of air action against naval forces should be avoided since this was within the province of Joint Board papers. Beck provided a statement of basic Air Corps doctrine that had been drawn up in his division and which he directed would become the first chapter of the Air Corps manual. The basic tenor of this G-3 doctrinal statement, which was not to be changed without coordination with G-3, left little doubt that it was the intention of the War Department General Staff to develop and employ aviation in support of ground operations. "The mission of the air component of the Army," the statement read, "is to perform effectively the air operations devolving upon the Army in its assigned functions in the National Defense. . . . Air operations beyond the sphere of action of the surface forces are undertaken in furtherance of the strategical plan of the commander of the field force."<sup>113</sup>

#### Aviation in Support of the Monroe Doctrine

Meanwhile, General Arnold, the assistant chief of the Air Corps, expressed doubts that the roles and missions of the Air Corps could be justified on an abstract basis. Early in June, Arnold expressed concern that the forces of aggression

## IDEAS, CONCEPTS, DOCTRINE

building up in Europe could well threaten the Western Hemisphere. He, therefore, saw the need to study the employment of the Air Corps in support of national policy as represented by the Monroe Doctrine. He thought it best that the study remain unknown to the War Department until the Air Corps had "crystallized its own thought." Among its other undertakings, the Air Corps Board was already working on a study to determine the most effective methods of using aircraft in defense of the continental United States. Arnold accordingly assigned the secret Monroe Doctrine project to the Air Corps Board on 6 June. When General Pratt protested that neither the Tactical School nor the Air Corps Board was equipped for making war plans, General Westover told him that the board would undertake the study with such assistance as it could get from the Tactical School faculty.<sup>114</sup>

But because of a shortage of personnel during the summer vacation season at Maxwell Field, the Air Corps Board made little progress on the Monroe Doctrine until August 1938, when Col J. H. Pirie and Maj Orvil A. Anderson reported as the board's director and recorder. As Anderson later recalled, the Air Corps Board had never before addressed a specific situation that so clearly demanded long-range bombers and quasi-independent air actions as did the requirement for air defense of the hemisphere under the Monroe Doctrine. After an analysis of the potential military requirements for support of the Monroe Doctrine, Anderson, who drew up the logistical requirements for the study, was able to demonstrate the inherent efficiency of long-range aircraft in terms of planes, personnel, and bases required, to defend the North American continent and the South American continent down to the 36th parallel against seaborne threat or invasion. The study was not developed in full detail because Arnold, who became chief of the Air Corps on 22 September 1938 following Westover's death in an air accident, demanded that it be put in his hands not later than 18 October. Nevertheless, the study recommended in some detail the development and procurement of bombardment and reconnaissance aircraft with a radius of action of at least 1,500 miles, a surface ceiling of 35,000 feet or more, and the highest speed consistent with its range and altitude.<sup>115</sup> General Arnold immediately approved the Air Corps Board report. And believing that the appeasement manifested at Munich at the end of September portended an almost certainty that Germany would regain her former African colonies and use them as a springboard to establish points of strength in South America, Arnold argued that the Air Corps needed seven heavy bombardment groups and an equal number of heavy reconnaissance squadrons for stationing in the United States, Alaska, Panama, and Hawaii to close the aerial doors to the United States.<sup>116</sup>

### Mobilization for Western Hemisphere Defense

Despite Adolf Hitler's ability to gain concessions in Europe partly because of the Luftwaffe's superiority, the US War Department continued to advocate a phased augmentation of all of its basic forces, including the Air Corps. In October and early November, General Arnold submitted several proposals to the War



## GROWTH OF THE AF IDEA

Department looking toward an increase in Air Corps strength and an immediate expansion of aircraft production industries, but General Craig could not see how these actions could be taken without upsetting the orderly balance of Army forces.<sup>117</sup> Whether any of the Air Corps proposals got through the General Staff to the White House appears in doubt.

But President Roosevelt had his own sources of information and he was going to make decisions independently of the recommendations of the War Department. For instance, in a confidential letter dated 11 July 1938, Ambassador Hugh Wilson in Berlin was emphatic in his discussion of the German air potential either for war or political blackmail. Likewise, in a long conversation with Roosevelt on 13 October, William C. Bullitt, the ambassador to France, brought out the belief of the French military chiefs that Hitler's power rested upon an already large air force that could be expanded rapidly. Both the British and French wanted the United States to increase aircraft production drastically in order that they could buy planes to build up aerial fleets that would either overawe Hitler or, if war came, could help to defeat the Axis without American armed intervention.<sup>118</sup>

At a meeting of civilian and military leaders at his White House office on 14 November 1938, President Roosevelt issued instructions that General Arnold later described as the Magna Carta of the Air Force. Roosevelt announced that airplanes—not ground forces—were the implements of war that would influence Hitler's actions. In view of the air orders of battle of the Axis nations, he continued, the United States had to prepare itself to resist assault on the Western Hemisphere "from the North to the South Pole." Roosevelt's desired objective was an Army air force of 20,000 planes and an annual productive capacity of 24,000 aircraft, but he did not think that Congress would approve more than 10,000 planes—2,500 trainers, 3,750 combat line, and 3,750 combat reserve—and this became the objective. Roosevelt's plan also called for the construction of seven government-financed aircraft plants, two of which would be put into operation, the remainder to be temporarily in reserve.<sup>119</sup> President Roosevelt's announcement that he would present an Air Corps expansion program to Congress in his State of the Union message early in January 1939 left little time for planning. The Office of the Chief of the Air Corps had no staff agency that was able to state immediately what the complexion of the Air Corps ought to be. Arnold quickly began to transfer into his office a roster of experienced Air Corps officers. This group included Lt Cols Carl Spaatz, Joseph T. McNarney, Ira C. Eaker, and Maj Muir S. Fairchild. When Captain Kuter stopped on a flight to Bolling Field to refuel, he found orders to report to the basement of the Munitions Building where Major Fairchild and Captain Kenney were attempting to determine how big an air force was needed and for what it was needed. Many of the answers came from an Air Corps Tactical School map problem that had focused on the defense of the Western Hemisphere against an Axis air threat from the direction of Dakar and Natal. Largely on the basis of this strategic concept, the Air Corps stated requirements for a 5,500 airplane program that promised to fall within the cost figure of \$500 million that Roosevelt had said he would request for airplanes. When the plan went to the War

## IDEAS, CONCEPTS, DOCTRINE

Department General Staff for review, however, the War Plans Division insisted that an augmentation of ground combat strength would have to accompany the Air Corps buildup to combat Axis intrigue in South America. When Roosevelt was briefed on the final plan, he complained that the War Department offered him everything except the airplanes he wanted. On 12 January 1939 he asked Congress for \$300 million—instead of \$500 million—for the Air Corps. In three months Congress passed the emergency Army air defense bill substantially as requested: the Air Corps was authorized a total strength of 5,500 aircraft and given authority to procure 3,251 new planes.<sup>120</sup>

As finally enacted, President Roosevelt's somewhat hastily managed Army air defense program promised a larger expansion of American aviation production facilities than it did an increase in the size of the active Army Air Corps. The War Department, however, inclined a more sympathetic ear to the Air Corps in part because of the personal influence of Brig Gen George C. Marshall, who replaced General Embick as deputy chief of staff. Employing arguments long used by Air Corps officers, General Marshall, on 29 November 1938, cited to General Craig numerous reasons why it was essential for the Air Corps to purchase maximum quantities of B-17B aircraft.<sup>121</sup> Yielding to Arnold's argument that unity of purpose and planning were necessary to attain the Air Corps mission, the War Department on 1 March 1939 placed the GHQ Air Force under the immediate responsibility of the chief of the Air Corps rather than the chief of staff.<sup>122</sup>

In view of General Craig's impending retirement on 1 September 1939, General Marshall was made acting chief of staff on 1 July. That same day he assembled 10 new Air Corps officers who were joining the General Staff and told them that they had a war assignment. On 4 August, Marshall also brought General Andrews to the General Staff as assistant chief of staff, G-3. Andrews immediately organized an Air Section in the G-3 Division, thereby causing lifted eyebrows all over the Munitions Building.<sup>123</sup> On 24 August the War Department's old restriction against Air Corps flights of more than 100 miles out to sea finally was rescinded by the issuance of an Air Corps circular that permitted air operations over the sea to the maximum range of multiengine aircraft.<sup>124</sup>

**An Air Power Mission for the Air Corps**

President Roosevelt's decision to emphasize air power touched off an expansion of the Army Air Corps, but it did not end the controversy as to what the mission of the Air Corps should be. Looking toward this end, Secretary of War Woodring appointed an Air Board on 23 March 1939 to consider and recommend the fundamental policies that would govern the tactical and strategical employment of the Army's air force under current national policies, including hemispheric defense. Woodring designated Arnold as president of the Air Board and named as members Generals Andrews and Beck and Brig Gen George V. Strong, the assistant chief of staff, War Plans Division.<sup>125</sup> Colonel Spaatz privately stated to General Arnold that the Air Board could not perform its tasks until it first

## GROWTH OF THE AF IDEA

determined the Air Corps' mission, the doctrines for its employment, and the characteristics of the forces it would require.<sup>126</sup> At its first meeting on 31 March, the Air Board agreed to study each of these matters.<sup>127</sup>

To provide an input to the War Department Air Board, the Air Corps Board at Maxwell Field was required to expedite the preparation of its study "Employment of Aircraft in Defense of the Continental United States." To hasten the work, the Air Corps Board found ideas in studies made at the Tactical School and in the answers to a questionnaire it sent out to the GHQ Air Force and its unit commanders. Completed on 7 May 1939, the Air Corps Board study visualized the primary purpose of the national defense as being to hold US territory inviolate, to discourage an enemy from attempting an invasion, and to defeat an invasion if it were attempted. The Air Corps Board assumed that an enemy nation would employ combined air, ground, and naval forces in a series of expeditionary operations designed to establish bases progressively closer to vital areas of the United States. It defined air power as "a measure of a nation's capacity to wage air warfare" and stated that air power would be effective only if it could strike an enemy decisively and simultaneously preserve its own integrity. Under this definition, the range of bombardment aircraft both increased the ability of a plane to apply pressure against the enemy and increased the security of the bombardment bases against enemy attack. Since air forces were said to lack the ability to control the air to a degree that would positively deny hostile air operations, an air force could be defeated only by attacks against its bases. The report asserted that the mission of air power was the offensive, and it accordingly argued that primary emphasis should be given to the development of a striking force (bombardment and attack aircraft) with secondary emphasis to security force aviation (pursuit aircraft and fighters) and to information aviation (reconnaissance and observation aircraft). Although it would be desirable to have fighter escort for bombardment missions, such was believed to be impractical. The Air Corps Board recommended that the main aircraft production capacity should be devoted to the production of the bombardment planes, which would be of greatest value in the initial phases of an attack against the United States. Although it was apparently valuable only for local air defense, pursuit aviation would be required and ought to be assisted by an aircraft warning service.<sup>128</sup>

The GHQ Air Force replies to the Air Corps Board questionnaire differed from the board's report in a few respects, principally in the characteristics of the aircraft desired for development. Where the board wished to standardize the air fleet chiefly upon bombers with a 1,500-mile range to meet the needs of hemisphere defense, GHQ Air Force wanted a family of bombers that included a heavy bomber with a 5,000-mile radius which could make reprisal attacks against an enemy's homeland, a medium-range bomber with a 2,500-mile radius for hemisphere defense, a short-range bomber with a 1,500-mile radius to attack hostile naval forces, and an attack bomber with a 500- to 750-mile radius to support ground forces. GHQ also wanted reconnaissance aircraft with ranges equal to bombers, a speedy 350-mile range interceptor, and a 1,500-mile range fighter. Like the Air

## IDEAS, CONCEPTS, DOCTRINE

Corps Board, the GHQ Air Force assumed that bombers would not require fighter escort; but the 8th Pursuit Group in a subjoined statement said that the Air Corps had a requirement for a fighter aircraft that could accompany bombers over enemy territory and render support in the vicinity of defended objectives. The 1st Pursuit Group, on the other hand, did not think that bombardment aviation would require pursuit protection unless a situation demanded prolonged bomber operations against a single objective or several objectives in a specific, limited area.<sup>129</sup>

As formally undertaken on 12 June 1939, the Aviation Expansion Program authorized an approximate threefold expansion of the combat strength of the Air Corps, and the construction of hemisphere defense bases in the northeastern and southeastern United States, Alaska, Puerto Rico, and Panama.<sup>130</sup> The Air Corps planned to attain within two years an overall strength of 24 groups—including five heavy bombardment, six medium bombardment, two light bombardment (formerly attack), seven pursuit interceptor, two pursuit fighter, one composite (for the Philippines), and one demonstration (for Maxwell Field). The program also included nine corps and division observation squadrons. Each of the heavy (four-engine) groups and medium (twin-engine) bombardment groups would have a reconnaissance squadron of the same basic type aircraft.<sup>131</sup> Of the 5,498 aircraft in the expansion program, 2,084 combat aircraft were to be assigned to tactical units, 1,341 combat aircraft were to be maintained in a rotating reserve, and 2,073 training aircraft were to be in service or in reserve. The purchase of aircraft for the rotating reserve apparently was authorized in order to expand US aircraft production capacity. But the Air Corps believed that these planes would permit units to maintain themselves at full strength and replace any combat losses incurred between M-day and the time that aircraft facilities could meet wartime demands.<sup>132</sup>

New aircraft for the Air Corps not already on order were quickly placed on order. In fiscal year 1939, even though heavy bomber purchases had not been authorized, the Air Corps issued procurement orders for 206 Douglas A-20 attack bombers and for 200 Curtiss P-40 pursuit interceptors. In fiscal year 1940 it ordered 70 B-17s and, in order to have a second source of production for four-engine bombers, it procured a test quantity of 16 new Consolidated B-24 aircraft. As replacements for the twin-engine B-18s, the Air Corps ordered 183 North American B-25s and 201 Martin B-26s; ordered as pursuit fighter planes were 66 Lockheed P-38s and as pursuit interceptors, 95 Bell P-39s. As a potential additional pursuit fighter aircraft, the Air Corps ordered a single experimental XP-47 from Republic Aircraft. Early in 1939 the Air Corps Materiel Division examined what had been learned from the design of the XB-15 and XB-19. In May 1940 the Air Corps circulated a request for bids for the production of prototype bombers that would have a tactical operating radius of 2,000 miles, a cruising speed of 200 miles per hour, and a normal bomb load of 2,000 pounds. In the autumn of 1940 the air arm ordered an XB-29 from Boeing and an XB-32 from Consolidated Aircraft.<sup>133</sup>

## GROWTH OF THE AF IDEA

After deliberating through a summer of sweeping changes, the War Department Air Board completed a report that was approved by General Marshall with a few changes on 1 September and by Secretary Woodring on 15 September 1939. The report declared: "Air Power is indispensable to our national defense, especially in the early stages of war. . . . Our aviation in peacetime, both its organization and its equipment, must be designed primarily for the application of Air Power in the early days of war. The basis of Air Power is the bombardment plane." Assuming that "a well led and determined air attack once launched may be interfered with, but it can rarely, if ever, be entirely stopped by local defense," the report stated that "the only reasonable hope of avoiding air attack is in the possession of such power of retaliation as to deter an enemy from initiating air warfare." Because of the vital relationship of air bases to air power, the report stated that such bases would be primary air objectives. For the defense of the United States and its possessions, aircraft with superior range were vital. The board recommended a heavy bomber with a range of 2,000 miles and a medium bomber with a 1,000-mile range; it judged that a pursuit fighter with a range of 500 miles would satisfactorily perform such support as bombers might require. The report functionally divided air power into Army aviation (to include training and special purpose aviation, observation and liaison, and overseas garrison aviation) and GHQ aviation (which included striking and defense forces). The major function of the GHQ aviation striking force was to attack and destroy enemy aviation at its bases, whether on land or sea; the GHQ aviation defense forces were intended only to provide reasonable protection to the most vulnerable and important areas. GHQ aviation was also to include a nucleus of aviation properly trained to support ground troops and capable of expanding to meet war requirements. In General Marshall's words, the Air Board report established "for the first time a specific mission to the Air Corps, and provides for its organization on functional lines."<sup>134</sup>

Given the approval of the Air Board report, Lt Col Carl Spaatz, chief of the Air Corps Plans Section, called for an early completion of the Air Corps basic doctrinal manual that had been held up for so many years. Early in October 1939 Spaatz called Col D. B. Netherwood, who was now the director of the Air Corps Board, to Washington. In conferences with the new G-3 Air Section, Netherwood not only received permission to junk the old statement of basic doctrine that had been prepared by the G-3, but also secured authority to prepare a small basic doctrinal manual that could be elaborated by several more detailed field manuals. A draft of the basic manual was put together while Netherwood was in Washington, and the completed project was published as Field Manual 1-5, *Employment of the Aviation of the Army*, on 15 April 1940.<sup>135</sup>

In approving the Air Corps basic field manual, which superseded Training Regulation 440-15, General Andrews remarked that the manual did not endorse radical theories of air employment. As a matter of fact, the portions of the manual dealing with mission, characteristics, and purposes of aviation were lifted bodily from the Air Board report. The manual continued to respect the old relationships between air and ground warfare: portions of GHQ aviation could be attached to

## IDEAS, CONCEPTS, DOCTRINE

armies or corps for the accomplishment of specific missions, but they were to revert to GHQ control as soon as the necessity for the attachment ended. Reconnaissance, observation, and liaison squadrons were to be assigned or attached to armies, corps, and divisions. Strategic air operations were to be undertaken by bombardment aviation "to nullify the enemy's war effort or to defeat important elements of the hostile military forces." Pursuit aviation was to be designed for the defense of important areas, installations, and forces and for the protection of other aircraft in flight. Since pursuit aircraft would have a shorter range than bombers, they would need to be based well forward of the aircraft they might be called upon to escort.<sup>136</sup>

**Battle Experience from Europe**

The report of the War Department Air Board and War Department Field Manual 1-5, *Employment of the Aviation of the Army*, were based upon theoretical air warfare. However, with the German invasion of Poland and the beginning of World War II on 1 September 1939, air warfare was no longer theoretical but had become an actuality. The announced policy of the War Department continued to be one of planning and building an adequate defense of the Western Hemisphere rather than preparing expeditionary forces. The War Department, nevertheless, anticipated that the war in Europe would indicate the desirability of many changes, particularly in reference to air forces, since this was the first time in history that powerful air forces had been available for use in a war between major powers.<sup>137</sup>

Although the initial Luftwaffe operations in Poland were mainly in support of German ground forces, American air officers generally agreed that their theoretical doctrines were being substantiated in combat. At the Air Corps Tactical School, Lt Col Donald Wilson wrote in September that Hitler's air force had "voluntarily undertaken the job of demonstrating our theories." The Luftwaffe had established control of the air by destroying the Polish air force on its airfields; it had conducted strong attacks against Poland's lines of communications; and then it had supported the invading ground armies in a blitzkrieg attack.<sup>138</sup> Operating under conditions of almost complete air superiority, the Ju-87 Stuka dive-bomber proved to be very effective for delivering firepower and inflicting terror. Air Corps officers, however, were quick to note that the Stuka was operating only against sparse, small caliber anti-aircraft fire. They predicted that it would not be able to defend itself against determined opposition in the air.<sup>139</sup>

As he looked at the German campaign in Poland, however, General Arnold was far from happy. On 14 November 1939 Arnold stated that the doctrine so widely propounded in Air Corps circles for so many years to the effect that fighter aircraft could not shoot down large bombardment aircraft flying in defensive formations had been "proven wholly untenable." Arnold blamed the problem on the teachings of the Air Corps Tactical School and the fact that older and higher ranking Air Corps officers had sought to avoid strenuous service in pursuit units. He called on Maj Gen Delos C. Emmons, commander of the GHQ Air Force, to submit a study

## GROWTH OF THE AF IDEA

looking toward the development of pursuit tactics, planes, and equipment. In the GHQ Air Force, Maj Harold L. George, commander of the 96th Bombardment Squadron, advised Emmons: "There is no question in my mind but that American bombardment units could not today defend themselves against American pursuit units." Pilots in the 8th Pursuit Group, as reported by Lt Col William E. Kepner, unanimously agreed that existing types of bombers would probably suffer a 50-percent loss from attacks by existing fighters unless the bombers operated at night. On the basis of these opinions, the GHQ Air Force stated: "Aerial operations of the present European conflict confirm the results of the World War; that is that the present bombardment airplane cannot defend itself adequately against pursuit attack."<sup>140</sup>

In the winter of 1939-40 the Air Corps considered the matter of pursuit and bombardment to be grave, but no one found any definite answers. Even though prevailing testimony indicated that existing pursuit aircraft were already superior to existing bombers, the GHQ Air Force recommended improving both pursuit aircraft and the caliber of pursuit personnel. Antedating what would later be called the weapon system concept, the GHQ Air Force suggested that a pursuit plane should be built around a previously determined armament rather than being built as an airframe and fitted with whatever armament possible.<sup>141</sup> Working through the Christmas holidays, the Air Corps Board completed its report on 3 January 1940. This report, "Fire Power of Bombardment Formations," noted that the firepower of American bombers was decidedly greater than that of European bombers. It recommended increased numbers of guns as practicable, better sighting systems, and increased gunnery training. It also recommended that consideration be given to developing a long-range fighter, a means whereby bombers could refuel accompanying fighters in flight, or a means by which bombers could carry, release, and recover high-performance pursuit aircraft. Despite the demonstrations of the vulnerability of bombardment aircraft, the Air Corps Board recommended that no thought should be given to reducing the importance attached to bombardment aviation in Air Corps doctrine. While pursuit escort was highly desirable for bomber penetrations into heavily defended areas in order to minimize losses of bombardment aircraft, the absence of such pursuit protection should not justify the abandoning of important missions.<sup>142</sup>

Even though he remained committed to heavy bombardment, General Arnold continued to be troubled about the ability of bombers to operate in the face of strong hostile fighter operation. Accordingly, on 2 March 1940, he instructed the Air Corps Board to obtain a consensus at Maxwell Field on the types of pursuit and fighter aircraft required and the steps that could be taken to develop them from existing aircraft types. Taking into consideration the existing defensive mission of the Air Corps, the board after seven days of study recommended that highest priorities be given to the development of a fighter-interceptor for local air defense. The only possible solution that the board could see for developing bomber escort aircraft was to adapt some bombers to defensive purposes. While the board was not entirely certain that such would be necessary if the bomber defenses were

## IDEAS, CONCEPTS, DOCTRINE

strengthened by additional machine guns, it suggested that some bombardment planes might be very heavily armed with extra guns and gun turrets. Three of these special aircraft could be employed as the rear element of a nine-plane bombardment flight to defend the vulnerable rear area of the formation from attacks by hostile fighters.<sup>143</sup> This solution apparently caught the attention of General Marshall, who asked Arnold on 13 June to consider the practicability of developing an air cruiser that would perform both air combat and bombardment missions. At this juncture, however, Arnold argued that the Air Corps had to emphasize production of existing equipment instead of research and development on an entirely new aircraft.<sup>144</sup>

During the spring of 1940 a steady stream of reports from France and England kept the War Department informed of the doctrinal lessons of the war in Europe. These reports noted that the Luftwaffe preserved the integrity of its air fleets and air corps, employing them as unified and flexible striking forces in support of the blitzkrieg. On 11 and 12 May, for example, two air fleets supported the German northern army group in Belgium and Holland, but on 13 and 14 May the whole air mass shifted southward to place a tremendous concentration of fire on French defenses at Sedan in support of a few armored divisions. In contrast, the British initially attached a Royal Air Force component to the British Expeditionary Force in France and maintained an independent advanced air striking force on the continent. On 15 January 1940, however, the British Air Ministry put all this aviation under the commander, British air forces in France, who was directed to use the whole force to the best possible effect in support of the allied armies as a whole. From Paris, Colonel Kenney reported that captive observation balloons were completely impracticable, as were slow and vulnerable observation planes.<sup>145</sup>

As time passed, the German victories over British and French forces in Holland, Belgium, and northern France caused American air leaders to increase rather than to diminish their requirements for heavy bombers. On 12 June 1940 General Emmons advised Arnold that Great Britain had made a serious mistake in building a defensive air force consisting largely of interceptor fighters and light reconnaissance bombers. Emmons suggested that if the Royal Air Force had a stronger bomber force it could have effected heavy destruction on the German troop and supply columns which had jammed the roadways leading toward Dunkirk. He recommended that the United States must materially increase its long-range bomber force.<sup>146</sup> On 4 June 1940 Brig Gen J. E. Chaney, commander of the new Air Defense Command at Mitchel Field, in a letter to General Marshall, argued that the United States must develop a long-range bomber force that could carry destruction to Germany. Chaney believed that a huge force of bombers, capable of taking the war to Berlin, would prove to be the only effective deterrent to German aggression and would permit operations against the Luftwaffe and any attempt Hitler might make to establish bases in or near the Western Hemisphere. Chaney's letter was endorsed by both Andrews and Arnold.<sup>147</sup>

These Air Corps assessments had hardly been put on paper before the Luftwaffe launched the Battle of Britain and began a phase of air combat that fostered still



## GROWTH OF THE AF IDEA

more thinking. As a special observer in London from May to September 1940, Colonel Spaatz had a firsthand view of some of the heaviest fighting of the Luftwaffe blitz. As shown by his diary and his reports, Spaatz quickly reached a conclusion that the Germans had developed "a mass of air geared to the Army" which was not going to be able to prevail against the "real air power" developed by the British. German bombers were inadequately armed and lacked capabilities for heavy bombing attacks. Held to close support of bombers, German pursuit forces were unable to gain a general control of the air. Spaatz noted that British airmen discredited the American concept that a hostile air force was easiest destroyed on the ground. They found a well-dispersed air force to be an exceptionally difficult bombing target, and they believed that it was more efficient to destroy hostile aircraft in the air by fighter attack. When enemy planes were shot down, both planes and crews were destroyed. "General opinion," Spaatz noted in his diary, "is that German fighters will not attack a well-closed-in day-bombing formation."<sup>148</sup> Visiting Great Britain in August and September 1940, Emmons reached much the same conclusion. He attributed the severe losses taken by the Luftwaffe to the large volume of fire that could be delivered by British fighters, the poor rear-hemisphere gun defenses of German bombers, the Germans' use of vulnerable dive-bombing tactics and large inflexible formations, and the Germans' poor air discipline. Emmons also reported that the British believed that six-plane formations of bombers with sufficient guns and armor could conduct daylight attacks without sustaining serious losses.<sup>149</sup> Early in 1941 Spaatz urged that every effort be made to expand American production of four-engine bombers. The British, he said, had committed themselves to short-range planes only to find that they urgently needed long-range bombers.<sup>150</sup>

In August and September General Emmons and Colonel Spaatz also learned the well-kept secret that the British had developed a system of electronic early warning and fighter control without which the RAF Fighter Command probably could not have defeated the Luftwaffe during the Battle of Britain.<sup>151</sup> Actually, the basic principle that very short radio waves produced echoes when reflected from targets had become known quite early by scientists in all nations of the world. In 1925 scientists of the Carnegie Institution and Naval Research Laboratory had devised and used radio pulse ranging to explore the ionosphere. Using these same principles, the Naval Research Laboratory and Army Signal Corps scientists had developed prototype radio ranging and detection equipment, which would later be called radar. On 18 and 19 May 1937 the experimental Signal Corps radar equipment and also an infrared aircraft detector were demonstrated to the secretary of war and a group of high-ranking Army officers, including General Arnold. On 21 March 1938 the *New York Herald Tribune* printed a very accurate and comprehensive description of radar. The Army had begun to develop a radar set to direct antiaircraft artillery guns and searchlights, and the Air Corps had stated a requirement for the development of an early warning radar that would have a range of 120 miles.<sup>152</sup> Electronic development in Germany had produced a prototype radar in 1938, but neither the Wehrmacht nor the Luftwaffe considered

## IDEAS, CONCEPTS, DOCTRINE

the production of radar equipment sufficiently important to divert available facilities to it. In 1939, however, Hermann Goering, the Luftwaffe commander, preempted some 100 warning radar sets that had been ordered by the German navy and sited them along Germany's coast and borders.<sup>153</sup>

But only the British had fully developed the potential of radar. Recognizing the vulnerability of the British Isles to German air attack, the British Air Ministry had established a special Committee for the Scientific Survey of Air Defense under the chairmanship of Henry T. Tizard in 1934. In a highly secret program, Robert Watson-Watt and other scientists had devised radio direction finding (RDF) equipment. A chain of these RDF stations was sited to guard Britain in a hurried program following Munich. As a result of expedited research, the British developed air-to-surface vessel (ASV) search radar by September 1938 and experimental airborne-intercept (AI) radar by June 1939. The demonstration of a working model of a new type of microwave radar tube in February 1940 portended an additional important breakthrough in the whole field of radar.<sup>154</sup> "Unless British science had proven superior to German," Winston S. Churchill subsequently wrote of the Battle of Britain, "and unless its strange sinister resources had been effectively brought to bear on the struggle for survival, we might well have been defeated, and being defeated, destroyed."<sup>155</sup>

In the United States during the 1930s the existence of radar was a heavy secret and the air warfare theorists at the Air Corps Tactical School were uninformed about its potential. As long as aircraft warning services depended upon visual reports of ground observers (who could not be stationed within enemy territory), the problem of massing fighter defense against a bombing attack was practically insurmountable, considering the great advantages the bomber force had in selecting the time, altitude, density, and place of attack. In 1938 Air Corps maneuvers, pursuit units had been unable to locate inward-bound bombers except on the occasions when the bomber crews intentionally revealed their positions by radio transmissions, thus allowing the pursuit pilots to get some intercept training. In short, the theorem that "a well planned and coordinated bombardment attack, once launched, cannot be stopped" was heavily based on the belief that pursuit aircraft would have great difficulty locating bombardment formations.<sup>156</sup> Looking backward at the air doctrine of the 1930s, Maj Gen Haywood S. Hansell later commented that the Air Corps Tactical School correctly had assumed that modern bombers could penetrate to their targets within enemy nations, but the edge of the offense over the defense had been much narrower than anyone had believed. As Hansell later remarked:

Our ignorance of radar development was probably a fortunate ignorance. Had this development been well known it is probable that theorists would also have reasoned that, through the aid of radar, defensive forces would be massed against incoming bomber attacks in a degree that would have been too expensive for the offensive. As it ultimately developed the School's basic concept that the offensive enjoyed a peculiar advantage in air warfare did later turn out to be substantially correct.<sup>157</sup>

GROWTH OF THE AF IDEA

In the winter of 1940-41, however, General Arnold was not inclined to be very philosophical. In view of reports from the Battle of Britain, he stated in September 1940 that the Air Corps might well have to conduct the bulk of its bombardment operations at night.<sup>158</sup> Based upon already completed development, the War Department placed production orders for SCR-268 anti-aircraft artillery radars and for a new SCR-270 early-warning radar. Early in September 1940 Sir Henry Tizard brought the secret of the improved microwave radar to Washington.<sup>159</sup> In February 1941 Arnold complained that air defense was getting "nowhere fast." Asked whether the United States should produce existing early warning radars or delay production in the expectation of getting improved microwave equipment, he stated that the Air Corps "was badly in need of detector equipment for tactical use" and required equipment without delay for training purposes, even if it was not the ultimate type that would be produced.<sup>160</sup> Arnold may well have been thinking about the new capabilities of electronic-directed pursuit when he wrote: "During daylight in good weather, when pursuit aviation is present in strength in an area, it can pretty nearly bar the air to the bomber."<sup>161</sup>

**Mobilizing the Army Air Forces for War**

To President Roosevelt the German victories in Europe in the spring of 1940 presaged increased aerial threats to the Western Hemisphere. Apparently selecting a good round number that would jolt the nation's thinking, Roosevelt asked Congress on 16 May to provide 50,000 planes for American defense and a productive capacity for at least that many more planes each year. In addition to building up the Army and Navy, Roosevelt had in mind an even-Stephen division of new bombers with the British.<sup>162</sup> Shortly after he took office, the new Secretary of War Henry L. Stimson declared on 9 August: "Air power has decided the fate of nations; Germany, with her powerful air armadas, has vanquished one people after another. On the ground, large armies had been mobilized to resist her, but each time it was additional power in the air that decided the fate of each individual nation."<sup>163</sup>

Despite the president's willingness to talk about large numbers of planes and an increasing awareness that the United States might be required to fight overseas, the expansion of the Army Air Corps was related to the defensive Rainbow War Plans, which originated in the General Staff's War Plans Division and were put into final shape by the Joint Army-Navy Board. With the approval of Secretary Stimson on 12 July 1940, the Air Corps was authorized to expand to 54 combat groups and six transport groups. Under this program—called the Army's First Aviation Objective—the Air Corps was authorized 4,006 combat aircraft, including 498 heavy, 453 medium, and 438 light bombardment aircraft; 1,540 pursuit interceptors and 220 pursuit fighters; 539 observation, liaison, and photographic-reconnaissance planes; 252 transports; and 66 amphibian aircraft. The group strength included 14 heavy, seven medium, and seven light bombardment groups; five fighter and 18 interceptor pursuit groups; and three composite groups. The

IDEAS, CONCEPTS, DOCTRINE

large increase in pursuit units over the number under the old 24-group program apparently required little justification, but both Congress and the National Defense Advisory Commission asked questions about the heavy bombers. Arnold defended the requirement for the heavy bombers by citing the strategic mobility they afforded.<sup>164</sup> Assistant Secretary of War Robert P. Patterson explained to the National Defense Advisory Commission that the range of four-engine aircraft was mandatory for the distances involved in hemispheric defense, and that, in the event of military operations in the Far East, long-range bombers would be the only weapons that could exert immediate pressure.<sup>165</sup>

Hardly before the First Aviation Objective was under way, General Marshall discussed the national need to expedite aircraft production in government-owned plants with representatives of the Air Corps Plans Division. On 24 October 1940 Marshall asked whether the Air Corps ought not to visualize expansion beyond the 54-group program. As a result of this conversation, the Air Corps planned a Second Aviation Objective, which was not so much designed to increase the number of air groups as to provide an internal augmentation of existing units. As far as possible, the Air Corps handled an additional number of aircraft by increasing the unit equipment of bombardment and transport groups, and by the addition of two squadrons (one designed to be a training squadron) in each interceptor and fighter pursuit group. In addition to these augmentations, the Air Corps expanded its overall force objective to 84 groups, including 24 heavy, 12 medium, and 13 light bombardment; five fighter and 18 interceptor pursuit; one photographic; and 11 observation groups. Not included in the 84-group strength were seven transport groups. Because General Marshall announced that he wanted to see significant numbers of Ju-87 Stuka-type aircraft in the program before he would approve it (and positively overruled the objection of air officers that dive-bombers would be very vulnerable), the 84-group program included 12 groups of dive-bombers in the light-bombardment category. On the basis of this planning, the War Department approved the plans for the Army's Second Aviation Objective on 14 March 1941, thus authorizing a combat strength of 7,799 planes—including 1,520 heavy bombers; 1,059 medium bombers; 770 light and dive-bombers; 2,500 pursuit interceptors; 525 pursuit fighters; 806 observation, liaison, and photo; 469 transport; and 150 amphibian aircraft.<sup>166</sup> The Second Aviation Objective was designed and justified as being necessary for hemispheric defense.

**Organization of the Army Air Forces**

Early in 1940 General Arnold opposed a suggested congressional reorganization of the armed forces that would provide air autonomy because he felt that the main requirement was to get on with the expansion of the Air Corps. With the expansion of the Army, however, General Marshall found it more and more difficult to get decisions through the War Department General Staff. In a move to decentralize the War Department, Marshall established General Headquarters US Army, under Brig Gen Leslie J. McNair at the Army War

## GROWTH OF THE AF IDEA

College on 26 July 1940. According to the plan, the decentralized GHQ field headquarters received command over the GHQ Air Force. The War Plans Division assured General Arnold that this development would cause no substantial change in the relationship between the chief of the Air Corps and the GHQ Air Force.<sup>167</sup> But neither this disclaimer nor the explanation that establishing the General Headquarters meant no more than an effort to take training out of the G-3 Division of the General Staff satisfied Arnold, who ordered his Plans Division to prepare a study showing why the GHQ Air Force should remain under the chief of the Air Corps. In lieu of the General Headquarters plan, Arnold formally proposed that three Army deputy chiefs of staff, one each for ground, air, and service forces, should be established and that each should have broad authority under the chief of staff to control the field activities of their respective forces. The War Department General Staff disapproved the plan, observing: "The Air Corps believes that its primary purpose is to defeat the enemy air force and execute independent missions against ground targets. Actually, its primary purpose is to assist the ground forces in reaching their objective." As an immediate compromise, however, Marshall appointed Arnold as acting deputy chief of staff for air on 30 October 1940; Maj Gen George H. Brett became acting chief of the Air Corps. On 19 November 1940 the GHQ Air Force was removed from the control of the Office of the Chief of the Air Corps and placed under General Headquarters.<sup>168</sup> In December 1940, General Brett further recommended that there ought to be three assistant secretaries of war to correspond to the three deputy chiefs of staff. Late in December, Secretary Stimson named Robert A. Lovett as his special assistant for all air matters; in April 1941 Lovett was named assistant secretary of war for air, a post which had been vacant since 1933.<sup>169</sup>

The Army's First Aviation Objective necessitated an expanded subordinate command organization within the GHQ Air Force. On 26 February 1940 the GHQ Air Force had established an Air Defense Command at Mitchel Field and planned to establish a bombing command, which, like the Air Defense Command, would be directly subordinate to the GHQ Air Force commander. Instead of moving in this functional direction, the First Aviation Objective outlined a geographical distribution of air units into the northeast, northwest, southeast, and southwest air districts, which were thought of as being defensive air theaters of operations within the United States. In the event of the establishment of theaters of operations outside the United States, Arnold suggested that the GHQ Air Force commander detail one of the air district commanders to command the air component of the theater. These districts were activated on 18 December 1940, with headquarters at Mitchel Field in New York, McChord Field in Washington State, MacDill Field in Florida, and March Field in California. The Air Defense Command at Mitchel Field was superseded and absorbed by the Northeast Air District.<sup>170</sup>

Meanwhile, Brig Gen Carl Spaatz added his voice in support of the need to reorganize the Army's air arm. "A numerically inferior air force has been phenomenally successful in stopping the unbroken chain of victories of the world's strongest air power," wrote Spaatz on 29 February 1941 in reporting his

## IDEAS, CONCEPTS, DOCTRINE

observations of the British victory over the Luftwaffe. "A great part of this British success has, undoubtedly," he continued, "been due to the realization for the necessity of a unified command which centralizes control of all military air matters under an air high command concerned solely with air matters." Having been promoted to higher rank and made chief of the Air Corps Plans Division, Spaatz recommended that a staff study be initiated at once "with a view to adopting the better features of the British Air Organization and providing an air organization and an air high command for the efficient control of the military aviation of the United States."<sup>171</sup>

Although the Air Corps had gained increased autonomy, General Brett continued to protest that too much vital time was lost in getting air matters cleared through the General Staff. After conferring with Brett and Arnold on 26 and 27 March 1941, Marshall issued orders that the chief of the Air Corps would prepare, for final action, all papers pertaining to purely Air Corps matters, except those pertaining to war plans and intelligence, and that the deputy chief of staff for air would be responsible for coordination in air matters. Secretary Stimson, moreover, directed that still further steps would be taken to place the air arm under one responsible head. By May 1941 the Air Corps Plans Division had prepared a reorganization that was put into effect by the publication of a new Army Regulation 95-5 on 20 June 1941. This regulation created the Army Air Forces, headed by Arnold, who continued to be Marshall's deputy chief of staff for air. The Army Air Forces was given authority to coordinate the Office of the Chief of the Air Corps, the Air Force Combat Command (the GHQ Air Force was so redesignated), and all other Army air elements. Direct responsibility for Army aviation matters was given to the chief of the Army Air Forces, who was to be assisted by the Air Staff. Arnold formed the Air Staff by removing most of the Plans Division from the Office of the Chief of the Air Corps and designating its sections as A-1 (Personnel), A-2 (Intelligence), A-3 (Operations and Training), A-4 (Supply and Maintenance), and Air War Plans. The Air War Plans Division was charged to prepare "over-all plans for the control of the activities of the Army Air Forces."<sup>172</sup>

Within the Air Force Combat Command, the beginning of the Army's Second Aviation Objective demanded further internal expansion. At its establishment, the Air Force Combat Command took command over the First, Second, Third, and Fourth Air Forces, as the former air districts had been redesignated on 17 March 1941. Placed under command of the similarly numbered air forces, the I, II, III, and IV Bomber Commands were constituted on 4 September 1941 and were quickly activated.<sup>173</sup> With the implementation of the Second Aviation Objective, the War Department also resolved to reform the organization of the corps and army observation squadrons, which had always been assigned to ground force commands. As a result of fiscal year 1938 expansions, 11 corps and army observation squadrons had been included in the Air Corps strength and 21 National Guard observation squadrons had been inducted into federal service during fiscal year 1941. Based upon the lesson that Luftwaffe fighters easily destroyed slow-flying Allied observation planes and captive observation balloons,

## GROWTH OF THE AAF IDEA

the War Department decided in the autumn of 1940 to abandon observation balloons and develop two types of observation planes: a short-range, slow-flying liaison type and a long-range, relatively high-performance observation aircraft. However, in the Army's spring maneuvers of 1941, General McNair concluded that observation equipment and tactics had not progressed since 1918. In Washington there was a growing appreciation of the fact that the observation squadrons were orphans that had been cut off for too long from the advancing air force. On 3 July 1941, General Emmons and General McNair accordingly agreed to establishing the Air Force Combat Command and to the plan that all observation squadrons would be gathered into groups and assigned to five air support commands under the Air Force Combat Command. The War Department directive for the reorganization was issued on 25 July; on 30 August the Air Force Combat Command issued orders establishing the 1st (Mitchel Field), 2d (Will Rogers Field, Oklahoma), 3d (Savannah, Georgia), 4th (Hamilton Field, California), and 5th (Bowman Field, Kentucky) air support commands. These commands were to support the four continental armies and the armored force. They were immediately charged to organize parent groups for all observation squadrons. While the groups would continue to be assigned to armies, corps, and armored forces, they would be detached from the ground forces for a considerable portion of each year in order that the air support commands might superintend their basic air training.<sup>174</sup>

**Early AAF Organization for Basic Thinking**

With the expansion of the Air Corps after 1939, the capabilities and functions of the Air Corps Board were progressively reduced and eventually dissipated. Following the successful completion of Field Manual 10-5, *Employment of the Aviation of the Army*, in the winter of 1939-40, the War Department and the Office of the Chief of the Air Corps charged the board to produce manuals on tactics and techniques concerned with air attack, air fighting, air reconnaissance and observation, air navigation, aerial photography, combat intelligence, and signal communications – the whole task to be completed not later than 1 June 1940. Since preparing of the manuals was only a part of the small Air Corps Board's mission of tactical testing and developing, it had depended heavily upon the Air Corps Tactical School for much of its pick-and-shovel work. During the school year 1939-40, however, the Tactical School ran four accelerated courses, each for 100 officers, and had little time to assist the board. In the winter of 1939-40, moreover, several officers of the board completed their tours at Maxwell and other experienced officers preferred command assignments to the often discouraging work on the board. Recognizing that Lt Col Edgar P. Sorenson, who took over as Air Corps Board director in January 1940, faced personnel difficulties, the Air Corps directed him to use Air Corps Tactical School people where possible and to call in experts from other air commands to perform needed research. Using temporary duty personnel, the board completed drafts of each of the required

## IDEAS, CONCEPTS, DOCTRINE

tactics and techniques manuals and forwarded them to Washington early in May 1940, where they were subsequently published with little or no revision.<sup>175</sup>

As a part of the Army's First Aviation Objective and in view of the establishment of the 23d Composite Group at Maxwell Field for test and demonstration purposes, Col Walter R. Weaver, commandant of the Air Corps Tactical School, proposed on 17 January 1940 that an Air Corps tactical center be established at Maxwell with academic, research, and test departments. Weaver also recommended that the Air Corps Board be reorganized to comprise the commander of the tactical center and three departmental directors. General Arnold was willing to commend the proposal, but he was unwilling to act on it. He specifically feared that the Air Corps Board might become a rubber stamp agency for academicians at Maxwell.<sup>176</sup>

Because nearly all regular air officers had completed the Tactical School as a result of the accelerated courses and because the Air Corps needed Maxwell as the site for a new southeast training center, effective 30 June 1940, the Tactical School was accordingly suspended and its faculty was reduced to seven caretaker officers. Looking at the new state of affairs in September 1940, Arnold asked his Plans Division why the Air Corps Board should not be brought to Washington and put to work evaluating information received from Europe. The Plans Division agreed that the board ought to evaluate these lessons but it considered that it was "vital that the Air Corps Board continue its present work at its present location and away from the turmoil of this office."<sup>177</sup>

In view of the many changes that were sweeping the War Department in 1941, it was remarkable that any doctrinal lessons were committed to paper that year. In the spring of 1941 Colonel Sorenson, who was now both the commandant of the inactive Tactical School and the director of the Air Corps Board, used available personnel to complete a revision of Field Manual 1-5 — to include matter on the aerial support for armored forces — and to prepare a new manual on weather. Pointing out that the responsibility of the Air Corps Board for preparing training literature was causing undesirable delay in its accomplishment of more important test and evaluation studies, Colonel Sorenson recommended that he be permitted to organize a small training literature unit with at least four qualified officers and five professional civilians and put it under the Tactical School. With approval from the Army Air Forces, this action was taken on 1 July 1941.<sup>178</sup> This decision was no sooner made when General Brett pointed out that Army Regulation 95-5 charged the Air Force Combat Command with "the development of doctrines of air tactics and technique of Air Force." Brig Gen Muir S. Fairchild, the executive of the Office of the Chief of the Air Corps, protested that the arrangement would be too awkward to work, but General Spaatz, now chief of air staff of the Army Air Forces, ruled that the Air Force Combat Command would develop doctrines and forward drafts of such literature to the chief of the Army Air Forces. The chief of the Air Corps would receive the drafts, prepare them for publication, and, following final approval of the Army Air Forces, submit them to the War Department adjutant general for publication.<sup>179</sup>



## GROWTH OF THE AF IDEA

In July 1941 Colonel Sorenson was summoned to Washington to serve as assistant chief of air staff, intelligence. Several acting directors now headed the Air Corps Board, which was physically transferred from Maxwell to the new Air Corps Proving Ground at Eglin Field, Florida, on 10 September 1941. During the summer of 1941, the Air Corps Tactical School with its Training Literature Unit was physically transferred to Washington, where it was made responsible to the Air Corps Training and Operations Division. Here the Training Literature Unit was greatly expanded by the assignment of reserve officers from colleges and universities, but its major work was the editorial production of technical manuals and extension courses. At Eglin Field the remnant of the Air Corps Board became moribund. According to the recollection of Col H. G. Montgomery, who was assigned to the board in the autumn of 1941, the board continued to do good work, but many of its reports were promptly filed and forgotten by Air Staff divisions that disagreed with the conclusions and recommendations. In a final effort to save the board, its director wrote personally to Arnold recommending that a whole new group of officers would be assigned to the board if the ones serving were not to be believed. This action went without result.<sup>180</sup>

As General Fairchild had protested, the divided responsibility for formulating and promulgating doctrine was indeed awkward and the contemplated cooperation was not going to materialize. Under the Air Force Combat Command, test and experimentation in air defense was centered at I Interceptor Command at Mitchel Field. Major Saville, now the executive officer of I Interceptor Command, visited Great Britain early in 1941. In the autumn of that same year following the nation's first large-scale air defense maneuvers, Saville prepared the draft of an air defense doctrine that integrated pursuit interceptors, antiaircraft artillery, barrage balloons, and signal air warning units into a coordinated air defense establishment. This draft manual distinguished, for the first time, between air defense (which was a direct defense against enemy air operations) and operations against enemy air forces (which were said not to be properly within the scope of air defense).<sup>181</sup> The draft of the manual provided a basis for air defense training and organization, but it would not be officially approved and published. Based upon the agreement between Emmons and McNair, the air support section of their respective commands was made responsible for the supervision of cooperative air-ground training and for the development of air support doctrine. With the passing of time, the air support section would produce a doctrine manual. However, during 1941 no one knew how an air support command was to support an army or what its composition would be. The only War Department letter touching on the subject on 7 October 1941 merely stated: "Air Support Command may be attached to army or armored force upon entry into Theater of Operations or as directed by the Theater Commander."<sup>182</sup>

With the Air Corps Board in a moribund state, the Army Air Forces turned to other devices for basic thinking. On 11 October 1941 the assistant chief of air staff for operations assembled a special board of knowledgeable officers headed by Col Earl L. Naiden to study and make recommendations on the future development of

## IDEAS, CONCEPTS, DOCTRINE

pursuit aviation. This ad hoc board assembled, studied the problem, and recommended on 27 October that the Army Air Forces should develop high- and low-altitude interceptors, night fighters, and long-range multiplace fighter escorts—with the lowest priority to be given to the escort fighters. Although it arrived at a decision, Naiden's ad hoc pursuit board protested that no group of men ought to be expected to plunge into the middle of a complex problem, assimilate background material, and formulate definitive answers. The pursuit board accordingly recommended that the Army Air Forces should establish an operational requirements agency that could maintain a current familiarity with developmental problems and recommend guidance to General Arnold.<sup>183</sup>

**AWPD-1: Air Planning for War**

Although War Department planning remained committed to the defense of the United States and its possessions, President Roosevelt grew increasingly aware that America's security required the defeat of the Axis powers. In May 1938 the Joint Army-Navy Board and its adjunct Joint Planning Committee addressed themselves to the preparation of a new series of Rainbow strategic war plans, of which Rainbow 5 visualized hemispheric defense coupled with concerted action between the United States, Great Britain, and France to effect the decisive defeat of either Germany or Italy, or both. The collapse of France and the adherence of Japan to the Axis on 27 September 1940 required that the scope of Rainbow 5 be expanded.<sup>184</sup>

In recognition of the growing peril that the Axis presented to the free world, Anglo-American military staff conferences began in Washington on 29 January 1941 with the purpose of laying down principles of cooperation "should the United States be compelled to resort to war." The three aviation experts at the conference were Air Vice-Marshal John C. Slessor of the Royal Air Force, Col J. T. McNarney (an Air Corps officer assigned to the War Plans Division), and Capt DeWitt C. Ramsey of the Navy. On 27 March the military experts formally approved a document subsequently cited as American-British Conversations-1 (more usually ABC-1), which visualized a basic Anglo-American war plan and a summary of strategic policies. Since Germany was the most powerful Axis partner, the main Allied effort would be conducted in the European theater. The United States was to depend largely upon its Pacific Fleet to maintain a defensive against Japan in the Far East. The Allied offensive in Europe was to include economic pressure through blockade, a sustained air offensive against German military power, early defeat of Italy, and the buildup of forces for an eventual land offensive against Germany. As rapidly as possible, the Allies were to achieve "superiority of air strength over that of the enemy, particularly in long-range striking forces." On the basis of ABC-1, the Joint Planning Committee rapidly completed war plan Rainbow 5, and the secretary of war and the secretary of the Navy approved both ABC-1 and Rainbow 5 and sent them to President Roosevelt on 2 June 1941. The

## GROWTH OF THE AF IDEA

president indicated his satisfaction with the plans, which he said should be returned for his formal approval in case of war.<sup>185</sup>

To provide some realistic guidance to the Office of Production Management (which had superseded the National Defense Advisory Commission), President Roosevelt requested the secretary of war and the secretary of the Navy on 9 July 1941 to explore "the over-all production requirements required to defeat our potential enemies."<sup>186</sup> In the War Department, the War Plans Division broadened the scope of the problem by undertaking to base the production program on a prior determination of strategic concepts. After some delay the Army Air Forces Air War Plans Division, headed by Lt Col Harold L. George, was brought into the problem. At this time the only other officers assigned to the Air War Plans Division were Lt Cols Orvil Anderson and Kenneth Walker and Maj Haywood S. Hansell; but George secured the temporary services of several other officers including Lt Cols Max F. Schneider (A-4) and Arthur W. Vanaman (A-2) and Majs Hoyt S. Vandenberg (A-3), Laurence S. Kuter (G-3), and Samuel E. Anderson (Combat Command). The War Plans Division had only asked to know the maximum number of air squadrons that the Army Air Forces might ultimately require to garrison a great number of geographic sites and to hold as "reserves of opportunity." But George and his associates, most of whom had been faculty members at the Air Corps Tactical School, undertook to prepare a comprehensive air plan for the defeat of the Axis. Beginning on 4 August, teams of two or three officers worked up separate subjects and supporting documents, and Air War Plans Division-1 (AWPD-1), "Munitions Requirements of the Army Air Force," was completed on 12 August 1941.<sup>187</sup> The completion of the first major strategic air war plan by the newly formed Army Air Forces staff in only nine days was a notable achievement, which marked both the apex of prewar air force doctrinal thought and a blueprint for the air war that would follow.

As conceived in AWPD-1 the military mission of the United States was the defeat of the nation's potential enemies—Germany and her allies. The air mission outlined followed ABC-1 in that it required a sustained air offensive against German military power, supplemented by air offensives against other regions under enemy control which contributed to that power. The air mission also required the air force "to support a final offensive, if it becomes necessary to invade the continent" and "to conduct effective air operations in connection with Hemisphere Defense and a strategic defensive in the Far East." The air planners thought it improbable that a land invasion could be mounted against Germany for at least three years. Moreover, they posited, if the air offensive were successful, a land offensive might not be necessary. Three lines of US air action were possible against a German economy and society that was already strained by the military campaign in Russia. The first line of air action—which would accomplish the air mission in Europe—required disruption of Germany's electric power system and transportation system, destruction of Germany's oil and petroleum resources, and undermining of Germany's morale by air attack against civilian concentrations. The second line of air action—representing intermediate objectives that might be

## IDEAS, CONCEPTS, DOCTRINE

essential to the principal effort—required neutralization of German air forces by attacks against their bases, aircraft factories, and aluminum and magnesium factories. A third line of action—to safeguard operating air bases—included attacks against submarine bases, surface seacraft, and invasion ports. The planners advocated a concentration of daylight, precision bombing attacks against the principal objectives. They did not favor attacks against cities unless the enemy people were known to be low in morale either because of sustained suffering and deprivation or because of a recognition that their armed forces could not win a favorable decision. The planners believed that heavy bombers—relying on speed, massed formations, high altitude, defensive firepower and armor, and simultaneous penetrations at many places—could make deep penetrations of German defenses in daylight hours. They, nevertheless, felt that it would be used to develop a large, heavily armed escort fighter that would have the range and speed slightly superior to the bombers it would escort.

Simultaneously with the strategic air campaign against Germany, other Army Air Forces units would be dispersed in Alaska, Hawaii, Iceland, and South America to maintain hemispheric defense. To maintain a strategic defensive in Asia, the planners visualized a buildup of bomber forces in the Philippines and shuttling B-29 and B-32 aircraft from Alaska and the Philippines to a refueling and staging area in Siberia. This concept was so persuasive in fact that the planners urged immediate efforts be made to deploy four groups of B-17s or B-24s to the Philippines to deter the Japanese from moving toward the Netherlands East Indies. It was assumed that the hemisphere and Asian defensive forces would provide the aircraft needed to control adjacent seas against the operation of hostile seacraft.

In establishing requirements for pursuit aircraft, the planners reasoned that the principal role of pursuit was defensive—the protection of bases and vital areas—and that air superiority would be won by bombers. Because of an anticipated shortage of air bases, especially in England, the air planners urged that pursuit complements should be kept at a minimum level consistent with safety so that the strength of the bombardment strike force would not be reduced. Much the same line of reasoning was applied to air support aviation. Ground operations were not to be mounted until strategic air campaigns had already attained a preponderant air superiority; in appropriate situations, available combat aviation would support theater operations of ground armies. Both for training with ground forces and for eventual overseas employment in air support forces, however, the air force required pursuit aircraft, light bombers, dive-bombers, observation aircraft, photomapping planes, and transports and gliders. In addition to the transport aircraft required for employment of airborne forces, the air planners placed a requirement for long- and medium-range transport aircraft that would provide quick delivery of essential aircraft and engine spares from air depots to worldwide operating units.

However, because they did not have any available valid production data based on historical experience, air planners could not project a definite schedule for fielding the air units visualized. The planners expected that by 1943 or 1944 the

## GROWTH OF THE AF IDEA

Army Air Forces would include 203 groups and 108 observation squadrons and a grand total of 59,727 airplanes. Of this force, 10 groups of B-25s and B-26s, 20 groups of B-17s and B-24s, 24 groups of B-29s, and 21 groups of pursuit would be committed to the air offensive against Germany. The smaller bombers would be used only because they were available. The planners specified that an ideal force from a standpoint of economy would consist entirely of B-29s. The major difficulty in mustering the air attacks against Germany appeared to be the scarcity of airfields in England and in the Middle East, the latter area being tentatively designated as the operating location for long-range B-29s. Based on intelligence estimates of 154 strategic targets in Germany, expected bombing accuracy, and a desire to complete the air campaign in a six-month period, the planners computed that 98 bombing groups would be required, of which only 54 could be based in England and the Middle East. For this reason, the planning staff stated an urgent requirement for developing 44 groups (3,740 aircraft) of bombers, which would have a 4,000-mile tactical operating radius. These planes would be able to operate against Germany from bases in Newfoundland, Greenland, Africa, India, or the northeastern United States. The use of these 4,000-mile-range bombers would permit some reductions in other types of units, with the result that the ultimate force—which could not be ready before 1945—would consist of 239 groups and 108 observation squadrons, for a grand total of 63,467 planes.

AWPD-1 was signed by General Arnold and its findings were immediately the subject of almost daily briefings to Air Corps and War Department officers. Comments were generally favorable, although Lt Col Clayton Bissell, an Air Corps officer in the War Plans Division, argued that the need for an escort fighter was just as great as the need for a 4,000-mile-range bomber. He thought it peculiar that the plan called for only 13 experimental escort fighters but called for 3,740 of the 4,000-mile-range bombers, when the latter would be just as much a developmental problem as the former.<sup>188</sup> Nevertheless, Secretary Lovett tacitly approved the study and General Marshall marked it "Okay, G. C. M." on 1 September. On the afternoon of 11 September and the morning of 12 September, George, Walker, and Kuter presented AWPD-1 to Secretary Stimson and Assistant Secretary John J. McCloy. Stimson apparently accepted the study as a matter-of-fact statement of the air forces required to defeat the Axis, but he mentioned that the expansion of aviation manufacturing facilities and Air Corps training establishments proposed in the plan depended entirely upon the nation being in a war spirit or at war. McCloy expressed pleasure that AWPD-1 was offensive instead of defensive in nature because, he said, ground and air plans were being stifled by the out-of-date conception of hemispheric defense. McCloy felt that both the ground and air forces had made a major error in failing to press for an early seizure of African air bases.<sup>189</sup> While the briefings were in progress, AWPD-1 also went forward to the War Plans Division and from there to the Joint Army-Navy Board. There was some reason for optimism that the plan might be acceptable to the Joint Board, since, in view of the increased importance being accorded to air operations, General Arnold and the chief of the Navy Bureau of Aeronautics had won seats on the Joint

IDEAS, CONCEPTS, DOCTRINE

Board on 2 July 1941. On the board, however, General Arnold had found that he was not a full-fledged member. "When air problems came up," he would recall, "I sat as a member of the Board; at other times I could sit in as a 'listener' but not as a member."<sup>190</sup>

When the Joint Board issued its report "Estimate of United States Over-All Production Requirements" on 11 September 1941, it accepted AWPD-1 as a statement of Army Air Forces requirements and incorporated its tabulations in the joint estimate. Like AWPD-1 the Joint Board estimate proposed that hemispheric defense was an insufficient national policy. The major national objectives of the United States, which were related to military policy, were believed to be preserving the territorial, economic, and ideological integrity of the United States and the Western Hemisphere; preventing the disruption of the British Empire; preventing further expansion of Japanese territorial dominion; eventually establishing in Europe and Asia balances of power that would most clearly ensure the political stability in those regions and the future security of the United States; and, as far as practicable, establishing regimes favorable to economic freedom and individual liberty. The fundamental military policy of the United States was hemispheric defense, but attaining the complete list of national policies could be effected "only through military victories outside this hemisphere, either by the armed forces of the United States, by the armed forces of friendly powers, or by both."<sup>191</sup>

Based upon its assessment of the strategic objectives of Germany and Japan, the Joint Board stated that "the principal strategic method employed in the immediate future should be the material support of present military operations against Germany, and their reinforcement by active participation in the war by the United States, while holding Japan in check pending future developments." In view of the impossibility of mounting an early land offensive against Germany, the board recommended continuing the economic blockade, conducting land offensives in distant regions where German troops were weak, prosecuting economic and industrial resources, and supporting subversive activities in conquered territories. The board warned: "Naval and air power may prevent wars from being lost, and by weakening enemy strength may greatly contribute to victory. By themselves, however, naval and air forces seldom, if ever, win important wars. It should be recognized as an almost invariable rule that only land armies can finally win wars."

The Joint Board's statement that "only land armies can finally win wars" indicated a polite disbelief of the contention in AWPD-1 that a strategic air offensive against Germany might preclude the need for a land campaign. In its annex to the Joint Board report, the Army insisted that the United States should have forces in being for a land offensive against Germany by 1 July 1943 and that prior to the undertaking of a land campaign against the continent of Europe, sea and air forces should have accomplished overwhelming air superiority, rendered the economic and industrial life of Germany ineffective, weakened the combat effectiveness of German air and ground units, and reduced the popular support of the German people for the continuation of the war.

## GROWTH OF THE AF IDEA

Although a summary with verbatim extracts of the Joint Board estimate was published in the *Chicago Daily Tribune* on 4 December 1941 as an exposure of Roosevelt's secret war plan, neither the Joint Board estimate nor AWPDP-1 was a war plan. They were, rather, efforts to provide the Office of Production Management with a good feel for what America's wartime military requirements might be. As a matter of fact, the visualization in AWPDP-1 to the effect that the Army Air Forces would require an ultimate force of 239 air groups and 108 observation squadrons turned out to be an estimate that was remarkably similar to the 269 tactical groups that the Army Air Forces would possess at its maximum strength during World War II.<sup>192</sup> Much of the strategic thought expressed in the two studies would turn up in one form or another during World War II. The studies produced at least two immediate actions. On 11 April 1941 the Air Corps initiated a design competition for a high-altitude, 10,000-mile-range intercontinental bomber. On 19 August General Arnold indicated that the project must be pushed. Both Douglas and Northrop submitted preliminary designs and on 15 December 1941 a contract for developing two experimental XB-36 aircraft was awarded to the Douglas Aircraft Company.<sup>193</sup> AWPDP-1 also provided new hope that Japanese aggression could be deterred and that the Philippines could be defended.

In November 1938, when he had stated that only long-range bomber aircraft could affect Hitler's mad course toward war, President Roosevelt had appeared to grasp the close relationship between effective military force and the national foreign policy objectives. On 26 July 1941, President Roosevelt issued an executive order freezing Japanese assets in the United States and halting all trade with the aggressor nation. Both General Marshall and Adm. Harold R. Stark recommended against this action, reasoning that an embargo on Japan's oil supplies would force Japan either to surrender its long-range aggressive aims or, much more likely, to strike for oil in the Netherlands Indies at the cost of war with the United States. Only belatedly, after the diplomatic move had been made, was attention given to strengthening the defense of the Philippines. To maintain the strategic defensive in the Far East, AWPDP-1 recommended, and the Joint Board estimate accepted, an immediate need for the movement of additional air units—principally four heavy bombardment groups—to the Philippines. On 18 August, Secretary Stimson approved a Philippine reinforcement plan including moving one B-17 group there without delay and sending three other groups there by February 1942. Whether or not the reinforcement could have been effected as scheduled—the Air Force Combat Command had difficulties getting together 35 B-17s for the first group and there was doubt that air facilities could have been readied by February—would remain academic, for the Japanese found themselves becoming weaker as a result of the economic embargo at the same time that the United States was strengthening its Pacific garrisons. On 6 September 1941 Japan made the fateful decision to preempt with military force if diplomatic negotiations could not end the embargo. When negotiations deadlocked, the Japanese began the war with an attack on Pearl Harbor on 7 December 1941, coinciding with a simultaneous assault on the

IDEAS, CONCEPTS, DOCTRINE

Philippines.<sup>194</sup> Military ideas, concepts, and doctrine would now be tested in global warfare.

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GROWTH OF THE AF IDEA

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GROWTH OF THE AF IDEA

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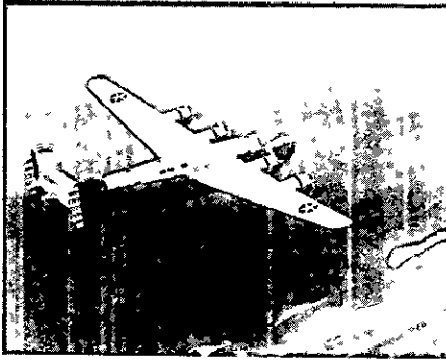
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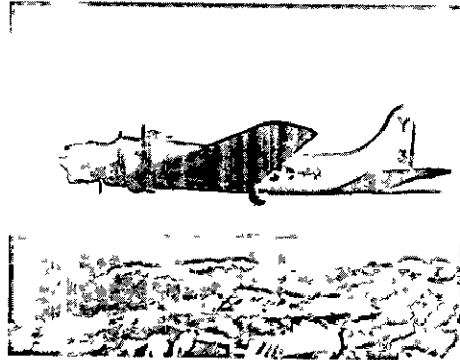


GROWTH OF THE AF IDEA

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B-24.



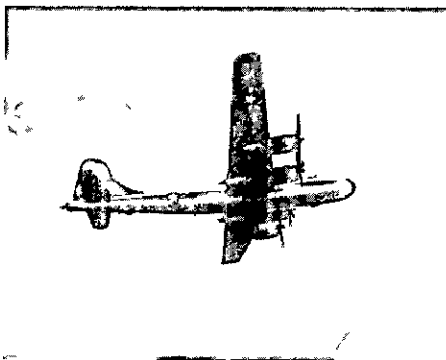
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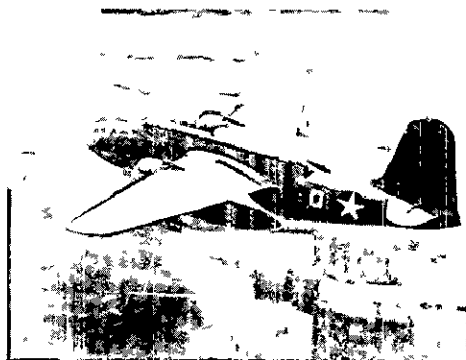
Norden bombsight



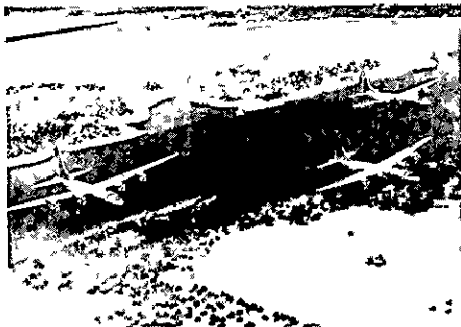
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B-29



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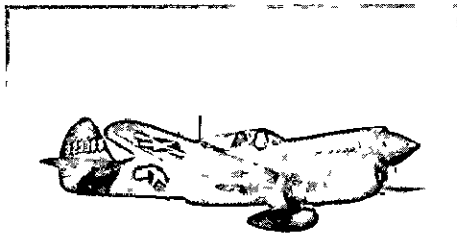
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Lt Gen George H. Brett, chief of Air Corps, 1941



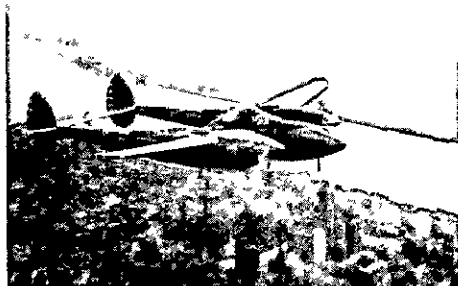
B-36



P-40 Warhawk pursuit aircraft



Maj Gen Delos C. Emmons, commanding general, Air Force Combat Command, 1939-41



P-38 pursuit interceptors



P-12F pursuit aircraft



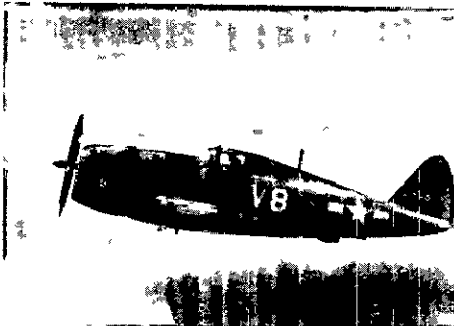
Maj Gen James E. Fechet, chief of Air Corps, 1927-31.



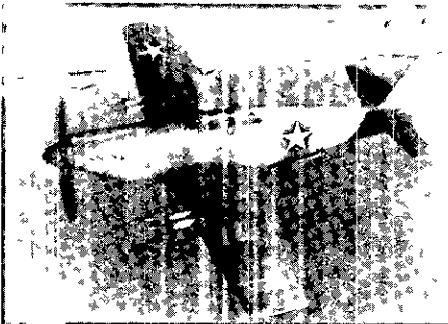
Lt Gen Frank M. Andrews, commanding general, General Headquarters Air Force, 1935-39, assistant chief of staff, Operations and Training, General Staff, 1939-40



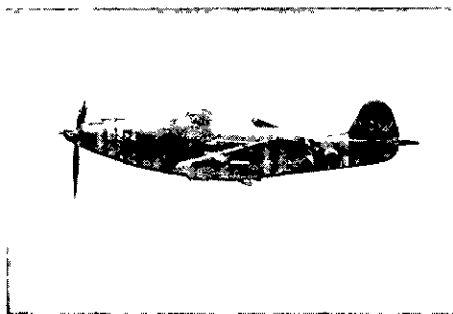
Maj Gen Oscar Westover, chief, Air Corps, 1935-39.



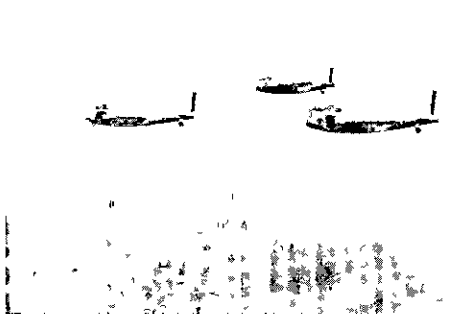
P-47 Thunderbolt.



P-51 Mustang long-range fighter escort



P-39 pursuit aircraft



B-17 Flying Fortress.

## CHAPTER 4

### AIR FORCE THINKING AND WORLD WAR II

"In the nineteen-thirties, when air power was the unseen guest at those grim conferences which marked the Nazi march to power," observed Gen Henry H. Arnold on 4 January 1944, "the Army Air Corps, which preceded the Army Air Forces, had drawn its blue-prints for war." The Air Corps Tactical School, Arnold noted, had developed the "strategic and tactical doctrines that would later guide our air campaigns in World War II."<sup>1</sup>

#### Planning and Analysis in the Army Air Forces

One week after the Japanese attack at Pearl Harbor, the Air War Plans Division (AWPD) sought to commit the United States and Great Britain to an air strategy against the Axis. AWPD-4, Air Estimate of the Situation and Recommendations for the Conduct of the War, which appeared on 15 December 1941, advocated that the United States give first concern to protecting the Western Hemisphere and Great Britain and to sustaining America's fighting men in the Philippines, and then bend every effort toward implementing an air offensive against the Axis powers in Europe. Since a successful air offensive would have to precede the launching of any land or sea offensive and inasmuch as a powerful air offensive might be decisive in itself, the air plans study recommended that first priorities in war production should be given to the Army Air Forces and that sea and ground force priorities should be allocated "in the light of their contribution to the Air Force mission"<sup>2</sup> AWPD-4 represented the thought of Harold George, Haywood Hansell, Kenneth Walker,\* and Orvil Anderson.

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\* This document was the last contribution of the 44-year-old Walker to Air Force doctrinal thought. Having been promoted to the rank of brigadier general, Walker was transferred to the Southwest Pacific in June 1942 where he assumed command of the V Bomber Command. He was killed in action on 15 January 1943 while on a B-17 mission over Rabaul. In 1943 he was posthumously awarded the Medal of Honor, and in 1948 Roswell Air Force Base, New Mexico, was renamed Walker Air Force Base in his honor.

## IDEAS, CONCEPTS, DOCTRINE

The plan of action recommended by AWPDP-4 included three phases of activity and three sets of subordinate tasks, many of which would be undertaken concurrently. The first phase was to safeguard the United States and Great Britain by defending existing possessions and extending those defenses to Natal, the Cape Verde Islands, and Dakar. The second phase was to wage a decisive air offensive against the Axis powers in Europe, to engage in a defensive effort in the Far East, and to conduct a land invasion of Europe "when and if it becomes necessary." After defeating the European enemies, the third phase was to be sustained air offensives against Japanese military and civil strength, the use of land forces when and if necessary, and the maintenance of sufficient flexibility to exploit opportune openings for decisive action against Japan. The plan recommended an air force of 90,000 airplanes, a production rate of 3,000 airplanes a month, and an Army of 3,000,000 men and women. The recommended air order of battle included a force of 13 medium bomber, 64 heavy bomber, 32 B-29 or B-32 bomber, 59 long-range (4,000-mile) bomber, 35 light and dive-bomber, 72 pursuit, and 82 transport groups, plus 159 observation and photographic reconnaissance squadrons. The plan posed a requirement for naval strength "capable of safe-guarding our essential sea lanes of communication" and for ground forces sufficient to maintain the security of Allied base areas and eventually to undertake a final surface invasion of Germany and then Japan, if such became necessary.<sup>3</sup>

In reply to a request for information, the Air War Plans Division on 9 January 1942 also sought a high degree of autonomy for the Air Force. On 24 October 1941 Brig Gen Carl A. Spaatz already had formally proposed that GHQ Air Force be eliminated, that overall command be returned to the Army chief of staff, that the General Staff be limited to considering broad policy, and that broad responsibilities be delegated to the chiefs of ground, service, and air forces (the last already in existence). The Air War Plans Division proposed that coordinate ground, air, and naval services be created, with unity of command to be secured by a common head of all armed services who would report directly to the president and would have a small staff of ground, air, naval, production and supply, and political and economic warfare representatives. The Air War Plans Division urged that such an organization would provide each service with a desired freedom of action and at the same time ensure unity of command.<sup>4</sup>

Although the Air War Plans Division had forcefully asserted prevalent air doctrines, the United States was not going to adopt an undiluted air strategy nor would the air force attain full-fledged autonomy. Meeting in Washington between 22 December 1941 and 14 January 1942, the Anglo-American Combined Chiefs of Staff Arcadia conference did not favor such an overriding priority as AWPDP-4 would have accorded to aircraft production but instead favored a victory program, calling for increases of air, land, and naval forces and for the allocation of resources for the manufacture of munitions in a sequence of limited schedules geared to successively approved operations. The combined staff planners accordingly accepted AWPDP-1 with some modifications rather than AWPDP-4. As a result of agreements with the British, Secretary of Defense Henry L. Stimson on 19 January

## AF THINKING AND WWII

1942 authorized the Army Air Forces to expand during 1942 to a total of 115 groups, including 34 heavy bomber, 12 medium bomber, 10 light bomber, 31 pursuit, 12 transport, and 16 observation groups.<sup>5</sup>

The Arcadia conference also established the mechanism for directing the Anglo-American war effort and a precedent looking toward unified command of combined forces in theaters of operations. From his experience in World War I in France, General George C. Marshall held a conviction that "there must be one man in command of the entire theater—air, ground, and ships." Despite a lack of enthusiasm among the other military chiefs, Marshall convinced President Roosevelt and Prime Minister Winston Churchill of the need to establish a unified American-British-Dutch-Australian Command (ABDACOM) in the Western Pacific-East Indies. From this time on the US War Department believed that the Allies were committed to a supreme commander in combined operations. As a matter of fact, ABDACOM was disestablished on 23 February 1942 and future Allied theater commanders would not be given "supreme" authority. The question of the manner in which an Allied theater commander would receive his directives was solved at Arcadia by the establishment of the Combined Chiefs of Staff, a composite organization of the British army, navy, and air force chiefs of staff and their American counterparts. The use of the British chiefs of staff committee as a model for the Combined Chiefs of Staff raised an awkward complexity in that the Army Air Forces was part of the US Army, whereas the Royal Air Force was a separate service. Arnold, nevertheless, was recognized as a member of both the Combined Chiefs of Staff and the Joint Chiefs of Staff. The Joint Chiefs of Staff, which replaced the Joint Army-Navy Board, informally came into being at Arcadia and held its first formal meeting on 9 February 1942.<sup>6</sup>

Sweeping changes in the organization of the War Department and the Army Air Forces (AAF) closely followed the Arcadia agreements. Effective on 9 March 1942, the War Department was consolidated into three coordinate forces each under a commanding general: the Army Air Forces, the Army Ground Forces, and the Services of Supply (later the Army Service Forces). General Headquarters, the Office of Chief of Air Corps, and the Air Force Combat Command were abolished. The War Department General Staff was shaken up; approximately 50 percent of its personnel was to be from the air arm. The War Plans Division, soon renamed the Operations Division (OPD), became a general command post and had planning authority for the War Department. Under the reorganization, the mission of the Army Air Forces, as specified, was "to produce and maintain equipment peculiar to the Army Air Forces, and to provide air force units properly organized, trained, and equipped for combat operations." Headquarters Army Air Forces thus became a supply and training agency, not primarily concerned with actual combat operations or strategic planning.<sup>7</sup>

As part of the changes in the War Department, Headquarters Army Air Forces was restructured effective on 9 March 1942 to include two levels of staff activity—policy and operating staff. At the policy level, the functions of planning and establishing policies were lodged in A-1 (Personnel), A-2 (Intelligence), A-3

## IDEAS, CONCEPTS, DOCTRINE

(Training), A-4 (Supply), and Plans. The Plans Division was viewed as a coordinating agency for the other four divisions since, in theory, it was not to be concerned with war planning. Three major directorates—Military Requirements, Technical Services, and Management Control—were the principal components of the operating staff. At this level, Maj Gen Muir S. Fairchild's Directorate of Military Requirements was described as a group of functional specialists whose research was to be the media through which combat lessons were to be reflected in training and procurement programs. General Fairchild had under him Air Defense, Bombardment, Ground Support, War Organization and Movement, Base Services, and Individual Training divisions. The directors of air defense, bombardment, and ground support, which were usually called "type" directorates because they were concerned with types of aviation, were to be experts in their respective classes of aviation and were charged with development of tactics and techniques for their specialties. The director of individual training was charged with directing, supervising, and giving final approval to Army Air Forces training literature.<sup>8</sup> Since so much experience was now concentrated in the Directorate of Military Requirements, the Air Corps Board at Eglin Field was inactivated when the Army regulation that authorized it was rescinded on 20 May 1942. The Air Corps Tactical School was suspended as an active unit on 24 June 1942, and the people in its Training Literature Unit were integrated into the Training Aids Section of the Individual Training Division.<sup>9</sup>

Although the War Department reorganization removed responsibility for operational planning from the Army Air Forces, President Franklin D. Roosevelt asked General Arnold on 24 August 1942 to submit his judgment as to which combat aircraft should be produced in 1943 in order to gain complete air ascendancy over the enemy. Such a judgment could not be divorced from operational planning, although it had to follow approved strategy and, thus, define the air mission in terms of cooperation with surface campaigns. Brig Gen Laurence S. Kuter, now deputy chief of air staff, Brig Gen Orvil A. Anderson, chief of air plans, and Brig Gen Haywood S. Hansell, who had been named deputy commander of the Eighth Air Force, undertook the study, which, when completed on 9 September 1942, was entitled AWPDP-42, Requirements for Air Ascendancy.<sup>10</sup> Requirements were based on air operations visualized for 1943 and early 1944 to include: an air offensive against Europe to deplete the Luftwaffe, destroy the sources of German submarine construction, and undermine the German war-making capacity; air support for a land offensive in northwest Africa; air support for land operations to retain the Middle East; air support for surface operations in the Pacific and Far East to regain base areas for a final offensive against Japan proper; and hemispheric defense, including antisubmarine patrol. To meet such a schedule of operations, the planners calculated that the Army Air Forces would require 281 combat groups by 1 January 1944—including 76 heavy bomber, 43 medium bomber, 26 light and dive-bomber, 70 fighter, 20 observation, 12 photographic reconnaissance, and 34 troop carrier groups. The study proposed



## AF THINKING AND WWII

that 130,906 aircraft should be produced in 1943 — 75,416 for the Army, 33,050 for the Navy, and 22,440 for the Allies.

While it was prepared by several of the same officers who had written AWPD-1, AWPD-42 revealed something of the change in doctrinal thinking that was taking place in 1942. The former study had posed large requirements for B-29 and B-36 aircraft, but AWPD-42 expected few B-29s and no B-36s to come from production in 1943. It was also evident that it would be possible to base more bombers in Great Britain than had been thought earlier. The strategic philosophy of the two studies was virtually the same, but a new study of Germany's target system was included in AWPD-42. The priority targets were stated to be airplane assembly and aircraft engine plants, submarine yards, transportation and power centers and networks, and oil, aluminum, and rubber manufacturing facilities. The air campaign, thus, was to prepare the way for surface attack. While the changed target priorities reflected a growing demand for establishing air superiority over Germany, AWPD-42 confidently predicted that "our current type bombers can penetrate German defenses to the limit of their radius of operation without excessive losses "

Both AWPD-1 and AWPD-42 visualized that a land invasion of Europe would probably follow the strategic bombing campaign, but the timing of the air offensive had been changed. AWPD-1 had projected six months of intensified bombing to begin in mid-1942, however, AWPD-42 necessarily postponed it until late 1944 because of the failure to receive the overriding priorities for aircraft production as recommended in AWPD-42, plus the diversion of heavy and medium bombers to the US Navy for patrol and antisubmarine warfare. Moreover, to conserve strategic bomber resources, AWPD-42 urged that no allocations of heavy or medium bombers be made to the Navy from 1943 production.<sup>11</sup> This provision, together with the competition that the proposed aircraft production program posed to the building of ships, aircraft carriers, and naval aircraft, caused the Navy to reject AWPD-42 out of hand. In a compromise on 26 November 1942, President Roosevelt finally approved a program of building 107,000 aircraft and substantial portions of the Navy shipbuilding program.<sup>12</sup>

The decisions made in the winter of 1942-43 as to the final force objectives of the United States marked great changes in the internal composition of the Army. In the summer of 1940 the US victory program had called for a ground army of 215 divisions and an air force of 84 groups, but in the winter of 1942-43 the US Army changed its force plans to include 89 divisions and 273 air force groups, the 273 groups being considered to be the saturation point in the development of Army air power. Toward that end the Army Air Forces activated a total of 269 combat groups by December 1943. Some of these groups were paper units, and not a few of them were pledged to hemispheric defense. An agreement between the Army and Navy on 10 June 1943 led the Navy to take charge of antisubmarine defense, thus reducing Army requirements for air groups for hemispheric defense. As air planners had earlier predicted, moreover, the acquisition of more efficient B-29 Superfortress bombers permitted reductions in the number of bomber units needed. In a readjustment of the Army Air Forces program, most of the paper

## IDEAS, CONCEPTS, DOCTRINE

units among the 269 combat groups were inactivated in the spring of 1944. Thereafter the Army Air Forces built upward toward the maximum combat strength of 243 groups it would attain in February 1945. This maximum combat strength included 25 very heavy bombardment, 27 heavy bombardment, 20 medium bombardment, 8 light bombardment, 71 fighter, 13 reconnaissance, 29 troop carrier, and 5 composite groups.<sup>13</sup> Neither the peak strength of 269 groups nor the maximum combat strength of 243 groups equaled the 281 combat groups that AWPD-42 had predicted would be required for air supremacy over the Axis. Reduced requirements for hemispheric defense and the arrival of the B-29 very heavy bombers in the combat inventory permitted reductions in total group requirements.

**Many Procedures for Developing Air Doctrine**

During the frantic months in which the Army Air Forces was mobilizing for war, General Arnold obviously considered it appropriate that the largest concentration of experienced air officers should be situated in Headquarters Army Air Forces. The organization of the headquarters also reflected Arnold's notions about how a staff should work. Arnold often remarked that laborious staff review procedures tended to emasculate bold air concepts and decisions: "termites" in a staff could eat up good ideas before they could get through to the top. Arnold accordingly saw nothing wrong in dividing his headquarters into a policy and operating staff wherein 31 individuals had direct access to him and authority to sign action papers by his authority.<sup>14</sup> Air Force field commanders, however, complained of conflicts in orders and directives. The same thing was true of doctrinal and policy statements. The director of military requirements was chiefly concerned with formulating doctrine and employment policies, but his status was essentially advisory. At the same time other directorates were issuing instructions in various forms. As a result of this decentralization, many miscellaneous publications, each containing specialized fragments of air force ideas, were sent out to field commanders. These collections were too voluminous for any commander to study and the whole collection did not form a consistent and complete statement of air doctrines and employment policies. Col Charles G. Williamson, chief of the bombardment division, pointed out these facts in a discussion of air policies and doctrines written on 3 March 1943. "In military matters, especially those of the magnitude of the operations of the present war, where mistakes and inconsistencies cost thousands of lives and millions of man-hours," he warned, "it is all the more important that there be clearly expressed guiding principles which are clearly understood by all planners, as well as by all who are charged with the handling of the forces in the field."<sup>15</sup>

Heavily concerned with day-to-day operations that allowed little time for reflective thought, the Air Defense, Bombardment, and Group Support divisions within the Directorate of Military Requirements began to employ different means for the evaluation and preparation of the doctrine that they were expected to

## AF THINKING AND WWII

provide. In the March 1942 reorganization of the Army Air Forces, the Ground Support Division, headed by Col David M. Schlatter, had superseded the Army Air Support Staff Section that had been jointly manned by the Army General Headquarters and the Air Force Combat Command. Colonel Schlatter inherited a virtually complete draft manual that had been drawn up on the basis of experience with the new air support commands in the Louisiana and Carolina maneuvers of 1941. It was published as War Department Field Manual 31-35, *Aviation in Support of Ground Forces*, on 9 April 1942. This manual was heavily concerned with organization and had little to say about operations. It provided that the air support commander would function under the Army commander: it stated that an air support command, as one of several air force commands in a theater of operations, was "habitually attached to or supports an army in the theater." Aviation units, moreover, could be "specifically allocated to the support of subordinate ground units." The commander of a supported unit was given the authority to make the final decision as to target priorities: "the most important target at a particular time," the manual stated, "will usually be that target which constitutes the most serious threat to the operations of the supported ground force." At best the air support command would provide a centralized control for observation groups, transport groups, or other combat air units assigned or attached to it. Both Colonel Schlatter and Col William E. Lynd, who had shared in drawing up the manual, considered FM 31-35 to be highly tentative and subject to change.<sup>16</sup> As a matter of fact, ground force officers did not like the centralized control of support aviation inherent in the air support command, for they frankly favored the attachment or assignment of air units directly to the ground units they would support. Beginning on 7 December 1942 a special Air Support Board with ground and air members met in Washington to revise the manual. Even though this board proposed no radical changes in the manual, the revised manuscript was not approved by either the Army Air Forces or the Army Ground Forces.<sup>17</sup>

Recognizing that the Army Air Forces had much to learn about air defense and directing fighter interceptor forces by radar and radio, the Air Force Combat Command (shortly before its demise) laid plans for the establishment of a special school to deal with these matters. On 26 March 1942 the Third Air Force accordingly established an Air Defense Operational Training Unit at Orlando, Florida. When the reorganization of the Army Air Forces was completed, the Orlando activity was designated as the Fighter Command School and placed directly under Headquarters Army Air Forces. In its mission statement, Col Gordon P. Saville, director of air defense, charged the school to train air defense personnel to develop doctrines, tactics, and techniques of air defense; to test air defense equipment and operational procedures; and to recommend the organization of air defense for the United States and overseas theaters. A pursuit group, an aircraft warning regiment, a searchlight battalion, and other necessary troops were assigned to the school. To accomplish its research missions the Fighter Command School established an Operational Requirements Department, a Tactics and Technique Development Department, and an Air Defense Board, with

## IDEAS, CONCEPTS, DOCTRINE

the directors of the school's academic and research departments serving as members. As a first project the Air Defense Board revised the draft air defense manual that Saville had prepared in the winter of 1941-42. It was published as War Department Field Manual 1-25, *Air Defense*, on 24 December 1942. By this time the Air Defense Board had either completed or had under test 74 other air defense projects.<sup>18</sup>

In the spring 1942 the Air Staff in Washington began to recognize that the closing of the Air Corps Tactical School—although doubtlessly necessary—had been essentially shortsighted. In June 1942 Col Don Z. Zimmerman, the director of weather, called attention to the great lack of tactical experience among new Air Force officers and recommended that the Army Air Forces reopen the Tactical School, using returned combat veterans as an instructional staff. General Fairchild enthusiastically received the proposal, and the Training Aids Division was charged to lay the groundwork for the new school. The decision was soon made to re-create an expanded tactical school at Orlando and to use the Fighter Command School as one of the departments of the new school.<sup>19</sup>

After a summer of planning, the Army Air Forces School of Applied Tactics was established at Orlando on 27 October 1942 and charged both to "train selected officers under simulated combat conditions" and to "develop, prepare, and standardize training literature and . . . other training material."<sup>20</sup> On 12 November the Army Air Forces established the Army Air Forces Board and the directorates of Academic Training, Tactical Development, Operations and Facilities, and Training Aids within the School of Applied Tactics. The Directorate of Academic Training consisted of the departments of Air Defense, Bombardment, Air Support, and Air Service. The AAF Board was to be comprised of a chairman, an executive, and additional members to be appointed by General Arnold as well as the commandants of each of the school's department. The board was charged to "determine major questions of policy and doctrine for all activities of the school and such other matters as may be assigned to it by competent authority." The director of tactical development was responsible for conducting test operations of aircraft and equipment and for improving the strategy, tactics, and techniques of air warfare. The Army Air Forces undertook to exercise control over the School of Applied Tactics through the director of military requirements; the directors of air defense, bombardment, air support, and base services were to approve the doctrines, tactics, and techniques taught in the department of the school.<sup>21</sup>

The terse language of Army Air Forces regulations gave the impression that the AAF Board was to be a school activity, but on 16 November 1942 General Fairchild instructed Brig Gen Hume Peabody, the commandant of the AAF School of Applied Tactics, that the board ought to be developed as an Army Air Forces activity. "The purpose of the Army Air Forces Board," Fairchild wrote, "is to study the over-all picture of Air Force matters with a view to making recommendations to the Commanding General, Army Air Forces, on such matters as Air Force strategy, technique, organization, equipment, training, etc., of all units making up an Air Force and of the Air Forces as a whole."<sup>22</sup> Since the Air Defense Board was

## AF THINKING AND WWII

agencies. In addition, Fairchild directed Peabody to form an equipment board. This board received directives for testing from the AAF Materiel Command and usually reassigned its projects to one of the other subboards, depending on the type of equipment to be tested.<sup>23</sup> When General Peabody assumed the duty as chairman of the AAF Board, he planned that it would function in a supervisory capacity. The AAF Board held its first recorded meeting on 2 February 1943, and it was soon meeting at regular intervals to review completed projects and to forward them, after approval, to Headquarters Army Air Forces.<sup>24</sup>

### New Conceptions of Tactical Air Power

The organization of the Headquarters Army Air Forces, adopted in March 1942, had been designed to build quickly the world's most powerful air force. An operating echelon had been established to perform typical functions found in an air task force, and the directors of the operating echelon had been authorized to act with broad discretion on behalf of General Arnold. By the winter of 1942-43, however, the expansion program was firmly in hand. Upon his return home from the meeting of the Combined Chiefs of Staff in Casablanca in January 1943, General Arnold stated that AAF headquarters "must stop operating" and spend its time thinking "in order that we can correctly tell our commanders what to do and maybe sometimes when to do it" but not how to do it. As a result of continuing study, Headquarters Army Air Forces was greatly consolidated on 29 March 1943. Most staff functions were concentrated in six assistant chiefs of air staff: personnel; intelligence; training; materiel, maintenance, and distribution (MM&D); operations, commitments, and requirements (OC&R); and plans. The old subdirectorates were abolished. The functions of the air defense, bombardment, and air support divisions were split between OC&R and training and individual training was transferred to training. Among the responsibilities assigned to OC&R were determining proper tactics and techniques of aerial warfare, maintaining observers in theaters of operations, and supervising the AAF School of Applied Tactics and the AAF Proving Ground Command. Within OC&R, the Requirements Division was made responsible for tactical development; the division was comprised of Air Defense, Bombardment, Air Support, and Tactical Service branches.<sup>25</sup>

Even though he stated that the Army Air Forces ought not to tell subordinate commands how to perform their jobs, General Arnold was sensitive to the charge that the air force had no compact body of doctrine to guide the thinking of its thousands of newly commissioned officers. Indeed, as Colonel Williamson had noted in his March 1943 staff study for the bombardment division, "the most important single adverse factor, the condition which is the greatest cause of general failure of the Air Forces to attain proper results, is the lack of an authoritative and concise statement of AAF doctrine and employment policies. A ready guide is not available, and each combat zone is improvising its own doctrine or interpreting older doctrines that have not been kept up to date." General Arnold, in early

## IDEAS, CONCEPTS, DOCTRINE

failure of the Air Forces to attain proper results, is the lack of an authoritative and concise statement of AAF doctrine and employment policies. A ready guide is not available, and each combat zone is improvising its own doctrine or interpreting older doctrines that have not been kept up to date." General Arnold, in early March, recognized that his "seasoned and experienced officers are spread far and wide" and that the AAF needed a "tool of instruction whereby every officer may acquaint himself with both an over-all and particularized view of Air Force structure and objectives." Consequently, Arnold charged Brig Gen Byron E. Gates, chief of AAF management control, to direct the preparation and publication of a volume that would "present . . . a comprehensive picture of the objectives of Air Forces in Theaters of Operations and of the organization available to attain those objectives." The completed volume was published on 1 June 1943 under the title *The Air Force in Theaters of Operations: Organization and Functions*. It included six booklets with a total of 27 chapters that completely described the organization and missions of the Air Force as they existed in the spring of 1943. "The volume," Arnold stated, "represents Air Force doctrine. It is not rigid doctrine. It is subject to change when change is indicated. It points out what can be done with the means at our disposal, but it must not prevent us from utilizing those means fully in other ways and for other purposes."<sup>26</sup>

In many ways *The Air Force in Theaters of Operations* was the most ambitious and comprehensive doctrinal publication ever issued by the Air Force, and it was conveniently organized as a series of looseleaf pamphlets that could, in theory, be revised and kept up to date. However, the publication appeared at the very moment when air organization and doctrine were changing profoundly and most of it was almost immediately out of date. Despite a statement in the introductory chapter, "Air Force Mission and Organization," that some air forces could be considered strategic and others tactical, the principal pamphlet of the book described an operational air force as comprising the traditional air defense, bombardment, air support, and air service commands. (This pamphlet was the product of the AAF Board and the four departments of the School of Applied Tactics in Orlando.) The chapter "The Air Support Command" was forward-looking in its implications. It noted, for example, that the new North American A-36 (P-51) aircraft would be a substantial advancement over dive-bombers since it could both deliver bombs and serve as either a fighter bomber or a fighter escort plane. Nonetheless, the chapter was completely conservative in its wording and conformed to the approved air-ground doctrine established in FM 31-35. Although one booklet that described the functions of squadrons in an air force was kept in print and another pamphlet that described the functions of air force groups was published, few AAF officers apparently ever knew that *The Air Force in Theaters of Operation* had been issued.<sup>27</sup>

While it was seeking a headquarters organization suitable to its mission and attempting to prepare a comprehensive doctrinal manual, the Army Air Forces began to take a searching look at the results of combat operations in North Africa—the first major American air-ground offensive of World War II. Organized into standard air defense, bombardment, air support, and air service commands,

## AF THINKING AND WWII

the Twelfth Air Force enjoyed very little flexibility in its operations in Northwest Africa. In February 1943 the XII Air Support Command failed to give good results when it was attached to the US II Corps for the support of its operations in Tunisia. While the Americans sought new ideas, Gen Bernard L. Montgomery, commander of the British Eighth Army, in January 1943, issued a small pamphlet entitled "Some Notes on High Command in War," which described his experience in war. As a result of his experience of cooperating with the British Western Desert Air Force, Montgomery emphasized that the greatest asset of air power was its flexibility. He maintained that this flexibility could be realized only when air power was controlled centrally by an air officer who maintained a close association with the ground commander. "Nothing could be more fatal to successful results," Montgomery wrote, "than to dissipate the air resources into small packets placed under command of army formation commanders, with each packet working on its own plan."<sup>28</sup> In February 1943 in North Africa, Maj Gen Carl Spaatz organized the Northwest Africa Allied Air Force and gave it command over a strategic, a coastal, and a tactical air force. In a letter to Arnold dated 7 March 1943, Spaatz emphasized that "the air battle must be won first. . . . Air units must be centralized and cannot be divided into small packets among several armies or corps. . . . When the battle situation requires it, all units, including medium and heavy bombardment must support ground operations."<sup>29</sup>

In the United States, General Marshall and other influential Army officers accepted General Montgomery's basic principles relative to the control of air power.<sup>30</sup> Air Force leaders liked Montgomery's basic thinking, but there was some feeling that the air striking force ought not to be divided into a strategic and a tactical air force. As assistant chief of air staff for plans, Brig Gen Orvil Anderson urged that offensive air power ought not to be divided, and he maintained that the same air weapon system which fought through the decisive phase of a war ought to be available for subsequent exploiting operations, including all-out support of land operations. Since General Arnold, on the other hand, wished to ensure a freedom of action for the strategic air force, he was willing to provide the tactical air force in order to free the strategic air force from a routine requirement to support ground forces.<sup>31</sup> Brig Gen Laurence Kuter, who returned from a tour of duty as deputy commander, Northwest African Tactical Air Force, and became assistant chief of air staff for plans on 15 May 1943, actively supported the concept of a tactical air force. "It is the pattern of the future," Kuter wrote, "the way in which air power in collaboration with armies in the field will beat the enemy and win the war."<sup>32</sup>

In response to an air force request, the War Department, on 9 June 1943, named Col Morton H. McKinnon (commandant of the Air Support Department of the School of Applied Tactics), Col Ralph F. Stearley (commander of the I Air Support Command), and Lt Col Orin H. Moore (armored force liaison officer at AAF Headquarters) as a board to revise official doctrine in the light of theater-proven operations. Working intimately with the General Staff G-3 Division, this board of officers produced, in three weeks' time, War Department Field Manual 100-20,

## IDEAS, CONCEPTS, DOCTRINE

*Command and Employment of Air Power*, which was published on 21 July 1943. The new manual advocated centralized control of air power. "The inherent flexibility of air power," stated the manual,

is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; such concentrated use of the air striking force is a battle-winning factor of the first importance. Control of available air power must be centralized and command must be exercised through the Air Force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited. Therefore, the command of air and ground forces in a theater of operations will be vested in the superior commander charged with the actual conduct of operations in the theater, who will exercise command of air forces through the air force commander and command of ground forces through the ground force commander.

The manual also stated that land power and air power were coequal and that the gaining of air superiority was the first requirement for the success of any major land operation. It described the mission and composition of a strategic air force, a tactical air force, an air defense command, and an air service command.<sup>33</sup>

As soon as FM 100-20 was published, General Arnold directed that a copy of it should be distributed to every Air Corps officer. In a letter to each AAF commander, he emphasized that "the interrelated role of air power must be constantly impressed upon all airmen through the medium of command."<sup>34</sup> But the Army Ground Forces viewed the manual with dismay and described it as the "Army Air Forces' 'Declaration of Independence."<sup>35</sup> Within the Air Force, moreover, Gen Orvil Anderson continued to deplore the division of air power represented by the tactical air force. At least one other old-line Air Corps officer, Brig Gen Robert C. Candee, suggested that the Air Force had "swallowed the RAF solution of a local situation in Africa hook, line and sinker, without stopping to analyze it or report it in 'Americaneese' instead of British speech." Candee agreed that air power should not have been divided into tactical and strategic forces.<sup>36</sup>

#### Wartime Work of the AAF Board

The reorganization of Headquarters Army Air Forces and the publication of Field Manual 100-20 caused substantial changes at the AAF Board, AAF School of Applied Tactics, and the AAF Proving Ground Command. The assistant chief of air staff for training took control over the Training Aids Division, which, in May 1943, was moved from Orlando to New York City, where it was closer to commercial publishing and motion picture resources.<sup>37</sup> On 17 April, Brig Gen Gordon P. Saville, who had been director of air defense, was assigned as director of tactical development at Orlando. With characteristic energy, Saville began reorganizing the AAF Board. His efforts led to the issuance of an AAF regulation on the subject on 2 July 1943. The assistant chief of air staff, OC&R, was named president of the board and the director of tactical development was made ex officio executive; the commandant of the School of Applied Tactics and the commander



## AF THINKING AND WWII

of the Proving Ground Command were named as members of the board; the board was expected to coordinate the activities of the school, the proving ground, and the director of tactical development; and the director of tactical development was made specifically responsible for preparing programs, reviewing standards, and recommending appropriate actions to the board. In its essentials, the new regulation made the AAF Board a review agency and held the directorate of tactical development responsible for much of the planning that had been formerly done in Washington by the directorate of military requirements. But in late July 1943, just as General Saville was beginning to secure personnel for the directorate of tactical development, he was ordered to North Africa to take command of the XII Fighter Command.<sup>38</sup>

The new strategic and tactical concept of the Army Air Forces made the four departments of the School of Applied Tactics obsolete. General Peabody, the school commandant, and Brig Gen Eugene L. Eubank, who reported to Orlando as director of tactical development in September 1943, faced this fact and began to reorganize the school and the AAF Board. Peabody's announced object was to achieve an organization that would accomplish deep thinking.<sup>39</sup> Earlier in the year, Dr Robert L. Stearns, the educational adviser at the School of Applied Tactics, had pointed out that the research (or tactical development) function ought to be separated from the academic function since both were full-time tasks.<sup>40</sup> The reorganization, which was authorized in revised AAF regulations dated 8 October 1943 and effected three weeks later, incorporated this principle. The AAF Tactical Center was established under the command of General Peabody as the superior headquarters over a consolidated School of Applied Tactics and a Demonstration Air Force, whose tactical units and field installations were organized into model strategic and tactical air forces and a model air defense wing.<sup>41</sup>

The reorganization of the AAF Board was the work of General Eubank, who had earlier served as AAF director of bombardment. Under a revised AAF regulation published on 8 October 1943, the AAF Board was declared to be an agency of Headquarters Army Air Forces and was empowered to develop tactics, techniques, and doctrines and to determine all military requirements for the Army Air Forces. The assistant chief of air staff, OC&R, the commander of the AAF Tactical Center, the commander of the AAF Proving Ground Command, and the executive director of the board (Eubank's new position following the discontinuation of the director of tactical development) were members of the AAF Board. Since the AAF Board was domiciled away from Washington, an AAF Board Control Office was established within the OC&R. With the elimination of the departmental structure of the School of Applied Tactics and the old subboards, General Eubank was authorized to secure sufficient qualified personnel to discharge the AAF Board's responsibilities.<sup>42</sup>

On 13 December 1943 Col William F. McKee, deputy assistant chief of air staff for OC&R, announced that the reorganized board would do much of the work of the OC&R Requirements Division. "If there is any question as to whether a project should be carried out here or at the Board," he stated, "the issue should be resolved

## IDEAS, CONCEPTS, DOCTRINE

in favor of sending it to the Board."<sup>43</sup> For his own part, General Eubank, who became president of the AAF Board on 26 April 1944, wanted it to grow in stature from what was in effect a projects board for OC&R into an agency that would serve as an advisory body to General Arnold on all general policies.<sup>44</sup> Enjoying high priorities for experienced officers rotated home from overseas, the board built up to a strength of 98 officers, 65 enlisted men, and 53 civilians in September 1944 and kept this approximate strength during the remainder of the war. Five liaison officers were assigned to the air forces in the major combat theaters; these men proved to be an important source of information for the *Air Operations Briefs*, which were published, beginning 30 November 1944, to disseminate combat lessons throughout the Air Force.

The revamped board made many successful contributions to the use of air power in the war. Over Europe in the autumn of 1943, bomber formations devised by the AAF Board helped cut down Eighth Air Force combat losses. Another study, "Development of Tactics and Techniques for the Destruction of the German Air Force," was a guiding doctrine in establishing American air superiority over Europe. General Spaatz stated that board reports and lectures by its liaison officer, Lt Col Robert C. Richardson III, were of great assistance in overcoming the menace of German jet fighters. The massed B-29 fire raids over Japan, which were begun in March 1945, were initiated in accordance with a plan visualized in an AAF Board project entitled "Incendiary Attack on Japanese Cities."<sup>45</sup>

Although it was active in testing aircraft and equipment and in developing and disseminating tactics and techniques for employing air power, the AAF Board made slower progress in revising and preparing new doctrinal publications. Only after completing a higher priority study entitled "Initial Post-War Air Force" did the AAF Board approve and forward to Washington, on 4 May 1944, a draft titled "The Tactical Air Force: Organization and Employment," which it considered to be an adequate revision of the obsolete FM 31-35. Upon completing another study, "Combat Fighter Formations," the board felt that it had adequately revised FM 1-15, *Tactics and Techniques of Air Fighting*, and it believed that it had accomplished all outstanding manual projects. This optimism was premature. The board's responsibilities were soon to be expanded.

While the board was working on the tactical air force study, Colonel Stearley had been assigned to the Office of the Assistant Chief of Air Staff for Training in Washington. In March 1944 he had assembled a committee that prepared a draft paper on air-ground cooperation. The Army Air Forces submitted this paper and the study on the tactical air force to the War Department G-3 for approval and publication as War Department training circulars. But G-3 refused to approve the tactical air force study until the air-ground cooperation paper was coordinated with the Army Ground Forces. Moreover, on 22 June Brig Gen Mervin E. Gross, chief of the requirements division of OC&R, called attention to the fact that "all field service regulations and field manuals dealing with air force subjects, with the exception of FM 100-20, are abominably obsolete and confusing." Gross proposed to make the AAF Board responsible for preparing all AAF publications on

## AF THINKING AND WWII

doctrine. He also proposed to augment its strength to permit it to handle the complete task of reviewing, writing, and compiling manuals that would be approved and published by the Army Air Forces. However, General Gates, the director of management control, offered a counterproposal that the AAF Board be responsible for the substance of operational manuals, Management Control for administrative manuals, and Materiel and Services for supply and maintenance manuals, with the Training Aids Division preparing all manuscripts for final publication. General Gates's recommendations were accepted in June at a meeting of representatives from the interested agencies, and the AAF Board was accordingly directed to ensure the continuing of a project to prepare, review, and revise all field service regulations, field manuals, and publications which established AAF operational and training doctrine.<sup>46</sup>

To meet the added responsibilities for preparing the doctrinal publications and the new *Air Operations Briefs*, General Eubank organized an Evaluation Division within the AAF Board. The Policy Branch of this division received the task of reviewing and determining requirements for doctrinal manuals. Having determined the need for a manual, the Policy Branch was expected to establish committees made up of qualified personnel from the AAF Board, the School of Applied Tactics, the Proving Ground Command, and any other interested command to prepare a draft of the manual. Even though the Policy Branch outlined a comprehensive series of air manuals that should be written, it was not notably successful in producing manuals. The Policy Branch had difficulty committing qualified personnel to its project committees and preparing a draft manual required the examining of a mass of pertinent reports and the soliciting and evaluating of suggestions from many different headquarters. The Policy Branch also ran into problems in trying to coordinate its work with the Army Ground Forces. Headquarters Army Ground Forces, for example, refused to approve the draft training circular entitled "Air-Ground Cooperation," which was forwarded to it in April 1944; it complained that the draft was theoretical and contained far too much of the thinking incorporated in FM 100-20. As the debate continued, Headquarters Army Ground Forces broadened the discussion to include attacks on FM 100-20. In January 1945, for example, this headquarters challenged both the statement that gaining air superiority should be the first requirement for the success of any major land operation and the proposition that in the absence of air supremacy the initiative passed to the enemy by citing the success of the German army in launching its Ardennes offensive without possessing air superiority. As a result of the debate, the several theaters of operations were compelled to adopt their own techniques for air-ground cooperation. More than a year had passed before the War Department G-3 succeeded in patching together compromises that enabled it to issue definitions of doctrine required in preparation for the invasion of Japan. On 20 April 1945 the War Department published Training Circular 17, *Air-Ground Liaison*, and on 19 June 1945 it released Training Circular 30, *Tactical Air Command: Organization and Employment*. In yet another project, the AAF Board required a long period to coordinate the effort with interested parties. On

## IDEAS, CONCEPTS, DOCTRINE

11 February 1944, the board began a manual entitled "Tactical Doctrine of Troop Carrier Aviation" but did not complete the text in final form until 21 August 1945.<sup>47</sup>

**Official Evaluations of Air Operations**

Under the leadership of General Eubank, the Army Air Forces Board became a respected and valuable agency for making evaluations and devising solutions to far-reaching problems encountered in the theaters of operations. But the board never attained the authority to recommend air policy to General Arnold to the same degree that the Navy General Board could influence the chief of naval operations. As World War II progressed, moreover, other agencies began to undertake a large part of the work that might have fallen within the province of a more powerful AAF Board.

A new level of bureaucracy slowly emerged in the United States to perform the functions of operations analysis, a development which paralleled the British experience. Having recognized the close relationship between scientific development and warfare during the 1930s, the Royal Air Force (RAF) had gotten good results from using civilians who possessed unusual scientific or analytic talents for operations analysis—a function which was described as the study of operations within a command for the purpose of improving tactics, equipment, methods of training, or methods of supply. In 1940 President Roosevelt named Dr Vannevar Bush, who was then chairman of the National Advisory Committee on Aeronautics, to chair the National Defense Research Committee. Its purpose was "to coordinate, supervise, and conduct scientific research on the problems underlying the development, production, and use of mechanisms and devices of warfare, except scientific research on the problem of flight." In May 1941 Roosevelt expanded the committee into the Office of Scientific Research and Development. As early as April 1942 a group of about 20 civilian analysts began to work with the Navy and the Army Air Forces in search of solutions to the problem of antisubmarine warfare. Dr Edward L. Bowles, the head of the group, ultimately devised the system of radar and related techniques that effectively checked the Nazi submarine menace during the latter half of 1943. At the request of General Spaatz, eight civilian operations analysts joined the Eighth Air Force in the United Kingdom on 15 October 1942. A few days later, on 24 October, General Arnold authorized the establishment of operations analysis sections throughout the Army Air Forces.<sup>48</sup>

The genesis for this committee came, when in the course of a conversation on the afternoon of 3 December 1942 with General Gates, chief of AAF management control, General Fairchild recalled some of the perplexities that had confronted him as a member of the Joint Strategic Survey Committee of the Joint Chiefs of Staff. The Joint Intelligence Committee had made many criticisms of the air target list included in AWPD-42; some of the criticisms appeared fully justified. When Gates's executive, Col Guido R. Perara, joined in the conversation, Fairchild suggested that he (Perara) might like to find the answer to the fundamental matter

## AF THINKING AND WWII

in question: "How can Germany be so damaged by air attack that an invasion of the continent may be possible within a relatively short period, say one year?" After thinking about the matter overnight, General Gates addressed a memorandum to Fairchild pointing out that nowhere in the War Department was there a group of analysts or research workers who were capable of assembling raw data and drawing conclusions from it. In search of a solution to the problem, Colonel Perara and Maj W. Barton Leach, who had been recruiting operations analysts for air force commands, proposed that a high-level committee of operations analysts should be formed to study Germany and to recommend target systems to General Arnold. The idea won Arnold's prompt approval and General Gates assembled a small group of distinguished scholars and industrialists in a first meeting of the Committee of Operations Analysts on 10 December 1942. In early spring 1943 the committee made its first report on German target systems to Arnold. After completing this effort, the committee addressed itself to determining the strategic vulnerabilities of Japan to air assault.<sup>49</sup>

The operations analysis function continued to slip further out of the domain of the AAF Board. Leach, who was promoted to colonel and served both as a member of the committee and as chief of the AAF Operations Analysis Division, provided general guidance to the buildup of some 17 operations analysis sections throughout the Air Force. By the end of the war more than 400 civilian and military analysts were serving in the Air Force. These operations analysts, most of whom were civilian specialists, followed "a considered policy of keeping very quiet— not asking for recognition, not claiming credit for accomplishments, not getting publicity." The operations analysis sections lent their peculiar skills to such command problems as bomb and fuze selection, bombing accuracy, battle damage and loss, and general mission analysis. The memorandum reports of each operations analysis section were forwarded to Washington and were circulated to interested commands. At the IX Bomber Command in Europe, for example, three operations analysts prepared a basic aerial gunnery manual, called "Get That Fighter," that was eventually adopted for use in the Army Air Forces, the Navy, and the Chinese air force. The operations analysts dealt with many of the same problems that the AAF Board was charged to consider, but the principal difference was that the operations analysis sections were prepared to solve problems on the spot in combat theaters. On some occasions the findings of the operations analysis section disagreed with those of the AAF Board. On 18 October 1944, for example, the AAF Board issued what it considered to be a definitive doctrine on weapons selection entitled "Selection of Bombs and Fuzes for Destruction of Bombardment Targets." But air force commanders preferred to follow the recommendations of their own operations analysis sections, which were in serious conflict with the board recommendations.<sup>50</sup>

In its initial report on the strategic vulnerability of Germany to air attack, the Committee of Operations Analysts recommended, on 8 March 1943, making a continuing analysis of the successes and failures of air operations. The Army Air Forces did not act on this recommendation until the spring of 1944, when it took

## IDEAS, CONCEPTS, DOCTRINE

two steps toward solving the problem of evaluating air operations. The first came on 29 June 1944 when, in response to a request for such authority, the War Department directed General Arnold to establish AAF evaluation boards in the several combat theaters and charge them to make "a critical evaluation of the effectiveness of air attack." "It is essential," the War Department stated, "that we determine now the merits of our past use of air power so that we may, with economy, direct and employ air power to the attainment of maximum results during the war and in the future." Each of the boards would be expected to forward evaluations with supporting data to the Army Air Forces at 30-day intervals, and the reports were to be screened by the OC&R and plans directorate and sent to the AAF Board for thorough analysis. Within a few weeks the evaluation boards departed for the combat theaters, each headed by an experienced air officer—Maj Gen Jacob E. Fickel for the European theater of operations, Maj Gen John F. Curry for the Mediterranean theater of operations, Maj Gen William E. Lynd for the Southwest Pacific area, Brig Gen Shepler W. Fitzgerald for the China-Burma-India theater, and Brig Gen Martin F. Scanlon for the Pacific Ocean areas. The boards were given a list of suggested topics for investigation, but they had complete freedom in selecting the exact subjects they investigated—the only criteria being that the subject was to be of sufficient importance "to permit intelligent redirection of policy and effort in attaining maximum economy of forces in the employment of air."<sup>51</sup> In the theaters, the AAF evaluation boards generally undertook to prepare evaluations of air actions by campaigns rather than by months. As a result their often voluminous reports would provide an important source of documentation about air operations in World War II but were not as valuable as they might have been for a current evaluation of the war effort. At the end of hostilities, the European theater and Southwest Pacific AAF evaluation boards had not completed all of their reports, so after September 1945 some personnel from these two boards were returned to Orlando to finish their tasks.

The second step toward solving evaluation problems emerged from discussions in the Air Staff in March 1944. General Fairchild suggested that a separate analysis should be made of strategic bombing, and he recommended that General Spaatz have US Strategic Air Forces in Europe submit a plan for a comprehensive evaluation. In a letter to Arnold on 5 April, Spaatz endorsed the proposal for a survey of the American strategic bombing effort and suggested that the survey be headed by a civilian of higher caliber and reputation. Although the British wanted to make a joint bombing survey, Spaatz argued against this approach because he wanted to get plain facts from a committee headed by an impartial chairman; he feared that the Soviets might be offended at being excluded from a combined undertaking; and he wanted a quick survey that would be concluded in time to be of use in planning for the strategic air campaign against Japan. The arrival of General Fickel's evaluation board threatened some duplication of effort, but Fickel agreed to confine his studies to the tactical air warfare effort.<sup>52</sup>

When the necessary groundwork had been laid, President Roosevelt directed Secretary Stimson on 9 September 1944 to form a qualified and impartial group to

## AF THINKING AND WWII

study the effect of strategic aerial attacks against Germany. On 3 November, Stimson asked Franklin D'Olier, president of the Prudential Insurance Company, to serve as chairman of the United States Strategic Bombing Survey. Various civilian experts were selected as directors of proposed divisions. The research activities of the survey were divided into three large units: military, economic, and civilian studies—each broken down into divisions. At the end of hostilities in Europe, Maj Gen Orvil Anderson came to the survey as chief of the Military Analysis Division and chairman of a panel of military advisers that included Gen Omar N. Bradley and Vice Adm Robert L. Ghormley. As finally constituted, the United States Strategic Bombing Survey in Europe consisted of some 300 civilian experts, analysts, technicians, and production men assisted by 350 officers and 574 enlisted men. Beginning in November 1944, teams of investigators followed Allied military forces into Germany and compiled enough basic information to fill up 208 published reports. The investigators gathered their data from inspections and examinations of target areas, captured records of the German government and industrial corporations, and interviews and interrogations of thousands of Germans, including practically all of the surviving German political and military leaders.<sup>53</sup>

As the United States Strategic Bombing Survey was completing its field work in the European theater, President Harry S Truman asked D'Olier to head a group that would conduct a joint Army-Navy analysis of the air war against Japan. Truman directed that the Japanese survey would be given help by the secretary of the Navy, thus making it a joint function, although still to be controlled by the civilian chairman and his associates. Paul Nitze, who had directed the equipment and utilities division of the survey, became acting vice-chairman under D'Olier. Many of the same civilian directors agreed to serve in the Pacific; the military advisers included General Anderson, Rear Adm Ralph A. Ofstie, Maj Gen Leslie R. Groves, and Brig Gen Grandison Gardner. Some 485 individuals were on the roster of the Pacific survey. By 3 October 1945 the survey and its detachments were located in Tokyo and in other places throughout Japan.<sup>54</sup>

In analyzing the Pacific war, the United States Strategic Bombing Survey depended heavily upon interrogations of more than 700 Japanese government, military, and civilian leaders. And, while many records had been destroyed, the survey was able to secure reasonably accurate statistics on Japan's economy and war production. After a hard-hitting, fast-moving field investigation, D'Olier and Nitze returned to Washington on 5 December. The key survey personnel assembled there early in January 1946 to complete the 108 volumes of evaluation on the Pacific war that would be published. In view of the great public interest in atomic warfare, Truman decided to receive and to release the Pacific survey's principal reports personally and directed that the three principal reports be coordinated with the State Department. During July 1946 Truman released the Pacific survey's three main reports: *Summary Report (Pacific War)*, *Japan's Struggle to End the War*, and *The Effects of Atomic Bombs on Hiroshima and Nagasaki*.<sup>55</sup>

## IDEAS, CONCEPTS, DOCTRINE

**Wartime Air Doctrine Development Phases Down**

During the rapid growth of the Army Air Forces, both the number of Headquarters Army Air Forces functions and the number of Army Air Forces field commands had tended to multiply. When the Army Air Forces reached its maximum strength, General Arnold thought that many of the details of operations that had burdened the Air Staff should be handled at appropriate field commands. This decentralization and consolidation began on 31 August 1944 with the combination of the Air Materiel Command and the Air Service Command into the Air Technical Service Command, which would administer operating programs in the fields of materiel and supply. On 1 April 1945 the Continental Air Forces was organized to assume jurisdiction over the four domestic air forces and the I Troop Carrier Command. In another move to clear up lines of authority, the AAF Center was established on 1 June 1945 to exercise command over the AAF School (the former AAF School of Applied Tactics) and the AAF Proving Ground Command. The Army Air Forces Board—whose members would be the board president, the commander of the AAF Center, and the commanding general of the AAF Proving Ground Command—was authorized to report directly to General Arnold rather than to the assistant chief of air staff for OC&R. The board would continue to be responsible for the development of tactics, techniques, doctrines, and other military requirements of the Army Air Forces.<sup>56</sup>

For a few months it appeared that the AAF Board might achieve a status similar to that of the Navy General Board, but the end of World War II brought a sudden decrease in the AAF Board's work. It ceased publication of the *Air Operations Briefs* and the board's activities fell from a wartime high of 514 active projects, reached on 15 March 1945, to only 230 projects in work, as of 15 September 1945, most of which were operational suitability tests on new items of equipment that were in the production pipelines at the war's end.<sup>57</sup> In the hope that it would be possible to record operational experience while it was still fresh, the Army Air Forces on 7 September 1945 directed the AAF Board to prepare a field service regulation that would incorporate all of the proven air-ground doctrine of World War II. On 8 October the Army Air Forces further directed the board to revise FMs 100-5 and 100-20 and then to bring all air force field manuals in the 1-series into conformity with these two basic manuals. The board completed a draft of a combined air-ground operations manual on 14 March 1946. Representing the best thought to come out of World War II, the manual was coordinated through the War Department G-3 and the Army Ground Forces and was published as War Department Field Manual 31-35, *Air-Ground Operations*, on 13 August 1946.<sup>58</sup> Since General Eubank was unable to obtain experienced personnel, the revision of other manuals had to await the readjustment that followed the establishment of the postwar air force.

Thus, World War II was doubtlessly the best reported and most thoroughly documented conflict of all time. Because of this sheer volume of documentation, however, few persons—military or civilian—would have the time or the incentive



## AF THINKING AND WWII

to master it. One natural result, according to the civilian scholar Bernard Brodie, was "the divorcement of doctrine from any military experience other than that which has been intensely personal with its proponents."<sup>59</sup> Under such circumstances, the operational experience of World War II could be cited to prove almost any preconception. In 1946, for example, reports by ranking Army officers such as Gen Omar N. Bradley, Gen George S. Patton, and Lt Gen Lucian K. Truscott were offered as a justification of a continuing requirement for horse cavalry in the postwar Army.<sup>60</sup> "If you will only let experience be your teacher," warned Maj Gen Orvil Anderson, "you can have any damn lesson you want." Anderson believed that the lessons of the past had to be interpreted in terms of the potentialities of the future. "Progress in the development of military science and strategy," he said, "is vitally dependent upon the soundness of the evaluations of past battle experience and upon the boldness, inspiration and depth of the projected thinking which creates the solution for the future."<sup>61</sup>

### Examination of the Strategic Air War

"Because the last war saw the weapons of all services employed in profusion," wrote General Spaatz, who had commanded the US Strategic Air Forces (USSTAF) in Europe and the US Army Strategic Air Forces in the Pacific, "one may argue the exact degree of contribution made by strategic bombing to the final decision." According to Spaatz, "the war against Germany was fundamentally an infantry war supported by air power, much as the war against Japan was fundamentally a naval war supported by air."<sup>62</sup> Writing in 1948 an Air University instructor noted that the "Douhet Theory did not receive a thorough test in World War II." The same officer also noted that the "Douhet Theory was somewhat less than an unqualified success in World War II due to the inability of the equipment of the times to fulfill Douhet's expectations."<sup>63</sup> Bernard Brodie, on the other hand, considered World War II to have been a fair test of Douhet's ideas. "If we disregard the over-all vision and consider only specific assertions," Brodie wrote, "it is clear that in World War II Douhet was proved wrong on almost every important point he made. . . . But it is also true that he was able to create a framework of strategic thought which is considered by many responsible airmen to fit the atomic age astonishingly well."<sup>64</sup>

"No useful purpose would be served now," Spaatz wrote in 1948, "by refighting these wars [against Germany and Japan] as the airman might have wished to fight them."<sup>65</sup> Nevertheless, other air force officers, in their effort to establish a conceptual basis for forward thinking, sought to draw what lessons they could from World War II. To Lt Gen George C. Kenney, who had commanded the Allied Air Forces, Southwest Pacific Area, and the US Far East Air Forces, one of the major lessons of the war against Japan was the value of air power for keeping the peace. In November 1945 he said: "I believe that air power is this Nation's first line of defense and that only in air power can we find a weapon formidable enough to

IDEAS, CONCEPTS, DOCTRINE

maintain the peace." In a lecture several years later, Kenney developed the same theme:

If the value of air power in the defense had been recognized a few years earlier our national policy would not have accepted the inevitability of losing the Philippines at the outbreak of a war with Japan. Fairly strong bomber and fighter forces in the Philippines and in Hawaii, with the warning services available at that time, could have prevented the disasters at Pearl Harbor, Bataan and Corregidor. It is extremely doubtful that Japan would even have challenged us at all.<sup>66</sup>

In a Senate hearing in October 1945, General Arnold emphasized that responsibility for the defense of the United States rested upon the air force. "The defense," he said, "has got to be an offensive mission against the source [of enemy power]. . . . But, better still, the actual existence of these weapons of our own in sufficient quantities and so located that a potential aggressor knows we can use them effectively against him, will have a very deterring effect, particularly if the aggressor does not know the whole story and only knows part of the story."<sup>67</sup> General Marshall agreed that "the future peace of the world will largely depend not only on the international policies of the United States but even more on our practical ability to endow those policies with the strength to command international respect." He insisted, however, that "national security is measured by the sum, or rather the combination of the three great arms, the land, air, and naval forces."<sup>68</sup>

The Anglo-American military strategy for the defeat of the Axis that emerged in 1941-42 contemplated early initiation of sustained air offensives against Germany and later against Japan but did not accord overriding production priorities to the air forces for undertaking these offensives. Instead, the strategic planners posed requirements for the development of land, sea, and air forces to accomplish a series of surface campaigns designed eventually to culminate in invasions of the German and Japanese homelands. According to Brig Gen George A. Lincoln, chief of the War Department General Staff Plans and Policy Group, the Anglo-American political objectives required for the guidance of military planning were available in the form of the Atlantic Charter—the master US lend-lease agreement, which pledged recipients to encourage freer postwar trade—and in the United Nations declaration of 1 January 1942, which pledged that the Allies would work for a postwar world political organization. But General Lincoln noted that these political objectives were stated in such broad language that they give little precise guidance to military strategy.<sup>69</sup> Lt Gen Albert C. Wedemeyer recalled that as a military planner he was "vague about the national aims of our own country."<sup>70</sup> One result of the broad political guidance was General Hansell's recollection that American military planners eventually tended to ignore the fact that the war should be fought "from the standpoint of continuing international relations to which the war was an unhappy interlude." As Hansell recalled, "My military bosses and my associates and I were consumed with one

## AF THINKING AND WWII

overpowering purpose: How to win the war with assurance and fewest American casualties. We had little concern for what happened afterward."<sup>71</sup>

In the early months of 1942 the Allies were on the defensive, but at Casablanca in January 1943 the Anglo-American heads of state and combined military staffs undertook to define their war aims and to visualize offensive operations against Germany. On 7 January, prior to leaving Washington for the conference, President Roosevelt met with the Joint Chiefs and told them that he intended to secure an agreement that the Allies would not end the war until they had attained the unconditional surrender of the Axis nations. No military staff work had been done on unconditional surrender and Roosevelt did not invite military discussion of the matter. To Roosevelt the statement of unconditional surrender as the Allies' war aim simplified the political complexities of the alliance's diplomacy. "We have the British, de Gaulle, the Russians, and several other elements," he would explain in private, "all of whose war aims are totally divergent. If we, the United States, now state our war aims we will split asunder the allied war effort which will result in squabbling over the particular interests."<sup>72</sup>

The unconditional surrender formula was useful in rallying popular support and effecting cohesion in the Grand Alliance. Moreover, it could be attained by military operations. American military planners, nevertheless, viewed it as an unfortunate war aim that would make the people of Germany and Japan resist to the bitter end. At Casablanca as assistants to Generals Marshall and Arnold, Wedemeyer (then a brigadier general) and Col Jacob E. Smart insisted that the Allies should direct their war aims against the Axis governments and not their people. These objections notwithstanding, the Allies announced the objective of unconditional surrender on 23 January 1943. Viewed after the fact, the objective of unconditional surrender not only prolonged the resistance of Germany and Japan, but, in the case of Germany, resulted in a complete military and political disintegration that opened central Europe to the entry of Soviet Russia; Japan, meanwhile, would refuse to surrender until the unconditional surrender formula had been relaxed.<sup>73</sup> "During World War II," General Lincoln observed in 1947, "we had driven home to us the accepted principle that military power and military policy are related to political policy, and that these two policies must be closely integrated. We realize very clearly what this inextricable relationship between political and military policies means, that our military policies and actions are based on international political policies and that these two policies must be closely integrated."<sup>74</sup>

#### Thoughts on Air Organization for War

"Had the revolutionary potentialities of the strategic air offensive been fully grasped," General Spaatz concluded, "some of the fateful political concessions made to hold the Russians in the European war and to draw them into the Japanese war might never have been made."<sup>75</sup> Because the Allied strategy was directed toward unconditional surrender, the Casablanca conferees logically laid out a strategic air campaign against Germany in terms of the eventual physical capture

## IDEAS, CONCEPTS, DOCTRINE

of that nation by surface forces. On 21 January 1943 the Casablanca combined bomber directive stated that the ultimate objective of the air campaign was to be "the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened." Addressed to "the appropriate British and United States Air Force commanders," the Casablanca directive established no definite command authority for the combined bomber offensive; the directive implied that the Army Air Forces would conduct daylight attacks and that the RAF Bomber Command would continue its night attacks against area targets. The function of the strategic bomber offensive would be to soften the enemy nation preparatory to surface invasion. "The air weapon system," General Kuter would later comment, "was assigned a supporting role to facilitate the implementation of this conventional surface strategy."<sup>76</sup>

Where General Arnold advocated establishing an overall air command for Europe and Africa in December 1942, the Casablanca conference charged Sir Charles Portal, chief of air staff, RAF, with the strategical direction of British and American bomber operations from the United Kingdom. This responsibility did not include decisions on matters of tactics or techniques. Instead, those two areas remained the provinces of Lt Gen Ira C. Eaker, commander of the US Eighth Air Force, and Sir Arthur Harris, commander of the RAF Bomber Command. And the command of Allied air power in the African and European theaters remained divided throughout the war. In view of the impending Overlord ground invasion of Europe, the Allied Expeditionary Air Force was established on 17 November 1943 under the command of Air Marshal Sir Trafford Leigh-Mallory. It was given operational control over the RAF Tactical Air Force, the Air Defence of Great Britain, and the US Ninth Air Force. But at this same time, the US Joint Chiefs of Staff proposed to establish a strategic air commander in the United Kingdom to control the operations of the Eighth and Fifteenth Air Forces, the latter being based in Italy. The British chiefs of staff did not favor the plan; nevertheless, it was effected on 1 January 1944 when General Spaatz assumed command of the US Strategic Air Forces (USSTAF) in Europe. Since the RAF Bomber Command remained outside this framework, Sir Charles Portal continued to be the coordinating agent of the Combined Chiefs of Staff for strategic bombing until 14 April 1944 when USSTAF passed to the control of Gen Dwight D. Eisenhower as commander, Allied Expeditionary Forces. Following completion of Overlord, the combined chiefs reassumed control of the strategic bomber forces on 14 September 1944.<sup>77</sup>

Maj Gen Orvil Anderson, who served as chairman, Combined Operational Planning Committee, England, from June 1943 to January 1944 and as assistant chief of staff for operations of the VIII Bomber Command from January to June 1944, was critical of the division of fighting air and exploitation air represented in the command arrangements for air power. Anderson thought that all air power should have been concentrated for coordinated attacks against Germany until the strategic air campaign had been successfully completed; after that point, he

## AF THINKING AND WWII

continued, all air power could have been used to support exploitative surface operations. The Eighth Air Force had 15 fighter groups and the Ninth Air Force 18 fighter groups by the time of the Overlord invasion. When the Ninth Air Force established itself in Great Britain on 16 October 1943, it took control of those fighter groups designated for it which had arrived in Great Britain. This was said to be necessary in order that the groups might receive fighter-bomber training, but the Eighth Air Force was actively in combat and retained the right to request fighter support from the Ninth Air Force. Anderson recollected that this decentralized command structure often made it difficult to coordinate requirements for fighter support. When he was asked about Anderson's statements on command arrangements, General Spaatz held a different viewpoint: "There was no difficulty in using Ninth Air Force fighters when we needed them," he said. "If we had a mission we could always get them."<sup>78</sup>

While the combined bomber offensive against Germany was designed to prepare the way for a surface invasion of the Continent, the buildup of Anglo-American bomber forces was relatively slow; in the end the major weight of the strategic bombing attack followed rather than preceded the invasion of Europe. Weak at the war's beginning, the RAF Bomber Command did not begin strategic bombing attacks against Germany until May 1940. After a slow buildup the US Eighth Air Force conducted its first daylight bombing mission from bases in the United Kingdom on 17 August 1942, but much of the strength of this small air force was soon drained away to support the Allied land campaign in North Africa. In January 1943 the Army Air Forces had only 12 heavy bombardment groups deployed in theaters against Germany. The maximum strength of 62 heavy bomber groups was not attained against Germany until May 1944, less than a month before the invasion of Normandy on 6 June 1944. The total of the first-line B-17s and B-24s deployed against Germany increased from 413 in January 1943 to a maximum of 5,072 in March 1945.<sup>79</sup> The RAF Bomber Command's strength increased from a miscellany of 515 light, medium, and heavy bombers in January 1943 to a total of 1,069 Halifax, Lancaster, and Mosquito bombers in April 1945.<sup>80</sup> Of the total 2,770,540 tons of bombs dropped by AAF and RAF aircraft against Germany, only 17 percent fell prior to 1 January 1944 and only 28 percent prior to 1 July 1944.<sup>81</sup> By mid-1944 the limited strategic air campaign had fatally weakened Germany's capacity to counter the Allied ground invasion, but the maximum military benefits did not accrue to the invading forces because the greatest weight of the strategic air attack had not yet been felt by the German people or the German military forces.<sup>82</sup>

#### Battling for Air Superiority

One of the basic premises of Army Air Forces doctrine was that its heavy bomber aircraft, flown in massed and self-defending formations, could successfully penetrate enemy defenses and perform precision-bombing attacks in daylight hours. In confidential talks with General Arnold in December 1941, moreover, Air

## IDEAS, CONCEPTS, DOCTRINE

Marshal Portal had asserted that British bases were going to be saturated with aircraft. Hence the Army Air Forces ought to concentrate on moving bombers to Britain and delay the deployment of fighters there until they were needed to support a ground invasion of Europe.<sup>83</sup> Arnold and Portal decided to limit the deployment of US fighters to the United Kingdom to the few groups required for local air defense. AAF programs, nevertheless, gave a reasonable priority to activating and training the fighter groups that would be needed to provide a canopy for the invasion of Europe even though early Eighth Air Force bomber attacks, albeit relatively shallow, seemed to indicate that the bombers could defend themselves.<sup>84</sup>

The Casablanca directive nominated the German aircraft industry for destruction and directed the Eighth Air Force "to impose heavy losses on the German day fighter force and to contain German fighter strength away from the Russian and Mediterranean theaters of war," but it made no requirement for establishing air superiority over Germany.<sup>85</sup> During the first half of 1943, General Eaker used Eighth Air Force P-47s and RAF fighters to help the heavy bombers penetrate the German fighter belt inward from the channel coast. Nevertheless, he remained convinced that his main requirement was for larger bomber forces that would permit the planes to fly more effective defensive formations and additional deception missions. But opposition began to build against Eaker's position. As early as 23 March 1943, Eaker's own plans section argued that "our primary objective should be the German Fighter Force in the air, on the ground, and the industry which supports it. . . . A sufficient depletion of the German Fighter Force is the one essential preliminary to our imposing our will by the use of air power on any portion of the German war effort which may be subsequently selected, be it submarines, oil, transportation or morale." Back in the United States, following the old Air Corps Board's idea for the development of a "bomber-destroyer" aircraft, the AAF Board tested several YB-40s—heavily armed B-17s designed to provide tremendously augmented firepower to a bomber formation. A similar modification of the B-24, called the YB-41, also was tested at Eglin Field. These experiments indicated methods of increasing the armament on basic B-17s and B-24s. However, when the YB-40s were employed in combat in May 1943, they were too heavy to stay in formation with B-17s and the whole concept proved impracticable.<sup>86</sup>

Alarmed by the increasing success of Luftwaffe fighters (which were not armed with cannon and could outrange the bombers' defensive fire), the Combined Chiefs of Staff, in June 1943, directed that the "first priority in the operation of British and American bombers based in the United Kingdom shall be accorded to the attack of German fighter forces and the industry upon which they depend." On 28 June, Arnold gave the Army Air Forces six months to provide some escort aircraft that could accompany bombers to targets deep within Germany, but the heavy losses suffered by Eighth Air Force bombers on the long-range missions to Schweinfurt and Regensburg on 17 August and on the repeat attack on Schweinfurt on 14 October gave warning that escort planes would be required well before 1 January 1944. In Washington, Kuter pointed out to Arnold that the invasions of

## AF THINKING AND WWII

Europe—Overlord on the Normandy coast and Anvil in southern France (tentatively set for May or June 1944)—might not be possible unless immediate efforts were made to establish air superiority.<sup>87</sup>

In the United Kingdom, General Eaker was under pressure to abandon daylight bombing and convert to night attacks. However, he believed that a climax was approaching in the air war, and he asked Arnold to send him every available fighter, thus abandoning the idea of unescorted bombers. Eaker also asked the AAF Board to study his problem and recommend solutions. In December 1943 the AAF Board recommended that immediate efforts be made to provide pressurized, droppable fuel tanks to extend the range of P-51 Mustang and P-38 Lightning aircraft. The North American Aviation Company had developed the P-51 on its own initiative. The British had purchased some Mustangs, while the Army Air Forces had bought some for use as A-36 dive-bombers. But even though other agencies had liked the P-51 before this, not until the AAF Board focused its attention on the Mustang, was it developed and procured in quantity as a high-performance, long-range fighter that would accompany bombers to any target in Germany.<sup>88</sup> Meanwhile, on 1 January 1944, General Spaatz was given command of both the Eighth Air Force and the Fifteenth Air Force. And between October 1943 and February 1944 the number of heavy bombardment groups operating against Germany increased from 26 to 48. Thus, the strategic air forces gained in numbers at the same time that they got P-47 and P-51 fighters for escort and the command structure became more open to fighter protection.

"It is a conceded fact," General Arnold told the commanders of the Eighth and Fifteenth Air Forces on 27 December 1943, "that Overlord and Anvil will not be possible unless the German Air Force is destroyed. Therefore, my personal message to you—this is a MUST—is to, '*Destroy the Enemy Air Force wherever you find them, in the air, on the ground and in the factories.*'" On 13 February 1944, the Combined Chiefs of Staff issued a new directive for the combined bomber offensive that ordered: "The progressive destruction and dislocation of the German military, industrial and economic systems, the disruption of vital elements of lines of communication and the material reduction of German air combat strength, by the successful prosecution of the combined bomber offensive from all convenient bases."<sup>89</sup>

Because, on given days, the vagaries of weather closed some strategic targets while leaving others open, both the US Strategic Air Forces (USSTAF), Europe, and the RAF Bomber Command found it difficult to give overriding priority to sustained attacks against any one category of targets. However, taking advantage of a short period of good flying weather beginning on 20 February 1944, USSTAF directed six extremely heavy bombardment attacks at German fighter aircraft production plants, and the RAF Bomber Command flew night attacks against area targets related to aircraft production. Benefiting from fighter support flown by the Eighth, Ninth, and Fifteenth Air Forces and the RAF Fighter Command, the USSTAF bombers incurred a lower percentage of losses in daytime operations than did the RAF Bomber Command. The Big Week broke the back of the

## IDEAS, CONCEPTS, DOCTRINE

Luftwaffe fighter force and in effect established Allied air superiority over Germany.

As a result of the experience, the usual interpretation was going to be that bombers required fighter escort to operate safely and effectively. Brig Gen Orvil Anderson, however, would point out that attaining Allied air superiority over Europe was in no small part attributable to mistakes made by Hermann Goering. For one thing, the German fighters never attempted significant morning attacks over Great Britain when the American bombers were taking off and laboriously forming up for missions and would have been most vulnerable. For another, the German fighters could have met the P-47s and P-51s near the channel coast and forced them to drop their wing tanks, thus making it impossible for the Americans to continue their missions. Instead, the German fighters preferred to meet the American formations deep within Germany, usually over the bomber target. In Anderson's opinion, Goering made his greatest mistake at the end of December 1943 when he ordered his fighter pilots to avoid Allied fighters and concentrate their attack on the bombers. This order ignored the basic fact of air fighting that when aircraft of roughly equal performance meet, the one that seeks to avoid combat is automatically at an almost certainly fatal disadvantage. After some argument, Anderson was able to persuade Maj Gen James H. Doolittle to issue orders on 4 January for the Eighth Air Force fighters to take the offensive—"to pursue the Hun until he was destroyed"—rather than to continue to provide position defense to friendly bombers. Goering's mistake and the Eighth Air Force's quick recognition of his error helped assure the attainment of Allied air superiority.<sup>90</sup>

A close reading of Air Force correspondence of the Schweinfurt-Regensburg time period reveals a confidence that although strategic bombers, employed in force, could perform their missions over Germany even without air superiority, most planners and commanders acknowledged that an early attainment of Allied control of the air was necessary if the surface invasions of Europe were to succeed. The United States Strategic Bombing Survey reached the opposite conclusion, however, stating that the establishment of Allied domination of the air over Europe had proven essential to the strategic bombing campaign. Without domination of the air, the bombing survey reported, "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."<sup>91</sup> In describing the Schweinfurt-Regensburg losses, the official Air Force history of World War II likewise concluded: "The fact was that the Eighth Air Force had for the time being lost air superiority over Germany. And it was obvious that superiority could not be regained until sufficient long-range escort became available."<sup>92</sup> When questioned in October 1949 about the validity of this statement and about the history's general conclusion that the Eighth Air Force had sustained unacceptable losses late in 1943, Gen Hoyt S. Vandenberg pointed out that bombers had been able to get through to their targets in spite of strong enemy defenses. "No bombing mission set in motion by the Army Air Forces in World War II," Vandenberg pointed out, "was ever stopped short of



## AFT HINKING AND WWII

its target by enemy opposition." He further explained that the question of acceptable or unacceptable losses to a bomber force depended upon "the destructive effect of bomber weapons and the value of the strategic target."<sup>93</sup>

**Effect of Flak and Fighters**

Army Air Force doctrine in the 1930s had displayed little concern for the effect that hostile antiaircraft artillery fire might have on strategic bomber missions. Ground fire had not been effective against aircraft in World War I or in the Spanish Civil War. When American heavy bombers began to make daylight strikes against enemy targets in France in the autumn of 1942, however, it suddenly appeared that hostile flak might be more of an obstacle to the bomber mission than enemy fighters. When Col Curtis E. LeMay was en route to England with the 305th Bombardment Group in October, he and his key officers happened to be in Prestwick at the same time as Col Frank A. Armstrong, Jr., who was heading back to Washington. Armstrong had led the first daylight bomber mission to Sotteville-Rouen on 17 August, had flown two additional missions, and was as much of an expert as the fledgling airmen had ever seen. Armstrong told LeMay and his staff that a heavy bomber crew would not be able to survive over a gun-defended target if it maintained a straight course for more than 10 seconds. "This," LeMay recalled, "was pretty discouraging information." Even good peacetime bombardiers could hardly hit a target precisely with such a short run. LeMay knew that his crews would need to fly a straight-in bomb run in order to get enough aiming time, but the question was whether they could survive with such tactics. Using an old ROTC manual on the French 75-millimeter field artillery gun, LeMay worked out a fire problem on the number of rounds that a gun crew would require to hit a target the size of a B-17, sitting still on a hillside at a distance of 25,000 feet. He computed that the gun crew would have to fire 372 rounds. These looked like good odds, and LeMay convinced his group that it would go straight in and make its attack without evasive action. Over Saint-Nazaire on 23 November 1942, with LeMay leading, the 305th encountered intense flak that damaged 6 of the 16 B-17s on the mission (including LeMay's lead plane), but no planes were lost and the target was well covered with bombs. "We never did take any evasive action from then on," LeMay recalled, "and within three weeks no one else was taking evasive action either."<sup>94</sup>

Operating over France and Germany, American heavy bombers and other aircraft met exceedingly strong antiaircraft artillery defenses. From the start of the war Germany had given flak equipment an equal production priority with aircraft, and in December 1944 she gave it an even higher priority. By the end of 1944, German flak defenses included 16,000 heavy guns, 50,000 light and mobile guns, 7,500 searchlights, and 1,500 barrage balloons; more than 1,000,000 men manned these defenses. Important targets were defended all around by emplacements of heavy guns—the principal gun being the 88-millimeter piece that could fire 20 rounds per minute. The great Ruhr defenses were capable of hurling 200 tons of

## IDEAS, CONCEPTS, DOCTRINE

metal and explosives into the air every minute; the Cologne defenses, 80 tons; and the Berlin defenses, 70 tons. The German flak defenses, firing for one minute, could have put 5,000 tons of shells into the sky.<sup>95</sup> Within the Ninth Air Force, flak evaluation intelligence and counterflak tactics helped tactical aircraft maintain the element of surprise that they needed to survive fire from very mobile and always moving light antiaircraft guns.<sup>96</sup> The Eighth and Fifteenth Air Forces also used flak intelligence in the planning of their missions. However, in view of the circumjacent defenses at most strategic targets, about the best that could be said was that a mission approaching a hypothetical target from the north might be expected to draw 372 rounds, while one from the east would receive 374. In the last months of the war, some bombs would be directed at flak emplacements for flak suppression purposes. But, for the most part, strategic bomber mission planners usually ignored flak and picked target approaches for some other tactical reason such as a course that would have a good initial point or that would keep the sun at the backs of the bombardiers. The best tactic against heavy flak was to get as many bombers over a strategic target as quickly as possible to saturate the defense.<sup>97</sup>

In the early years of the war in the European theater, hostile flak and fighters worked together effectively; many of the bombers shot down by the Luftwaffe were first crippled by flak and forced to straggle. When the back of the German air force was broken early in 1944, antiaircraft artillery became the major combat risk for the Allied bomber units. In the European theater from August 1942 through May 1945, the Army Air Forces lost 4,274 aircraft in air-to-air combat (2,452 heavy bombers, 131 medium and light bombers, and 1,691 fighters) and 5,380 aircraft to hostile antiaircraft fire (2,439 heavy bombers, 492 medium and light bombers, and 2,449 fighters). Figured in terms of total American combat sorties flown in the European theater (274,921 by heavy bombers, 96,523 by light and medium bombers, and 527,314 by fighters), the loss rate was less than 2 percent even against the most effective antiaircraft defenses. Despite this evidence to the contrary, Army wargamers, testing modern methods of wargaming shortly after the war ended, played the B-17s and B-24s against the German fighter and 88-millimeter gun defenses of World War II and concluded that the heavy bombers could not live in such an environment. When told of these conclusions, General LeMay responded: "Experience, I think, is more important than some of the assumptions you make."<sup>98</sup>

### Problems of Strategic Air Targets

The Anglo-American strategic air campaign against Germany marked the first significant effort to do something drastic to an enemy other than to defeat his combat forces. In this pioneer effort, planners sought to describe air target systems whose destruction would accomplish desired objectives. One of the major problems facing these planners was a lack of basic information about German industry when the war began. As strategic bombing commenced, German industries were dispersed, adding to the complexity of identifying targets.

## AF THINKING AND WWII

Moreover, since Hitler did not order full-scale German mobilization for war until 1942, the German economy had a cushion of capability that could be employed to expand production in 1943-44.<sup>99</sup>

Thinking in terms of a survey of the vulnerability of US industry to strategic air attack that had been made at the Air Corps Tactical School in the early 1930s, the air officers who drew up AWPD-1 recommended strategic air attacks against Germany's electric power, transportation, oil, and petroleum capacities as well as against civilian morale. AWPD-42 specified the order of priority of air targets as being: aircraft and aircraft engine factories, submarine building yards, transportation facilities, electric power plants, oil refineries, aluminum manufacturing plants, and rubber plants. The major difference between the two target lists was that AWPD-1 assumed that an air offensive might eliminate the necessity for a subsequent ground invasion, whereas AWPD-42 looked toward the establishment of an air ascendancy necessary to subsequent surface operations. The strategic targets suggested in AWPD-1 much more closely approximated the findings of the United States Strategic Bombing Survey as to what the optimum target system for the destruction of Germany's industrial life would have been than did either AWPD-42 or the attack program that, under orders from higher authority, was actually implemented.

Under directives from the Combined Chiefs of Staff, the Eighth Air Force was required to direct much of its effort against other targets. But these attacks generally failed to weaken the German war effort. Because of heavy Allied ship losses in the battle of the Atlantic, the Casablanca directive of January 1943 required the strategic bombers to give first priority to attacks against German submarine bases and construction yards. Although tons of bombs were dropped on the heavily fortified submarine pens, those bombing raids did little to diminish the German submarine offensive. The ultimate solution for the German submarine menace, after May 1943, proved to be their detection and destruction at sea.<sup>100</sup>

Lacking sufficient force to destroy decisive target systems, General Eaker attempted to discover a "long-chance objective" whose destruction would produce results greatly out of proportion to the effort involved. In Washington on 8 March 1943, General Arnold's Committee of Operations Analysts recommended that the destruction of three ball-bearing plants at Schweinfurt would eliminate 43 percent of a most essential ingredient to the Axis war effort. The committee concluded that "on the basis of American experience, as well as in the opinion of responsible authorities in the United Kingdom, ball bearings represent a potential bottleneck in German industry, particularly in the manufacture of war material."<sup>101</sup> Although about 12,000 tons of bombs were dropped on the ball-bearing plants in a series of attacks over several months beginning on 17 August 1943, the United States Strategic Bombing Survey later found that "the attacks on the ball-bearing industry had [no] measurable effect on essential war production."<sup>102</sup>

By the organization of USSTAF in January 1944, General Spaatz had a growing capability to destroy selected strategic targets in Germany. In the months that followed the Big Week, however, USSTAF strategic bombing capabilities were

## IDEAS, CONCEPTS, DOCTRINE

diverted to attacks against German V-weapon sites and to missions in direct or general support of Allied ground troops in Europe. Even though Spaatz was permitted to begin attacks against Germany's oil resources on 12 May 1944, a massive, sustained air campaign against strategic air targets in Germany did not begin until after D-day, when Allied ground troops were safely ashore on the Normandy coast. The intensive strategic air campaign undertaken in September 1944 against Germany's transportation was described by the United States Strategic Bombing Survey as "the decisive blow that completely disorganized the German economy." Contrary to the intention of early AAF planners, the German electric power system was never a principal target. "Had electric generating plants and substations been made primary targets . . .," the United States Strategic Bombing Survey stated, "the evidence indicates that their destruction would have had serious effects on Germany's war production." In addition, by December 1944, German reserves of fuel had become insufficient for sustaining effective military operations. Under the full force of strategic bomber attack and with war requirements multiplying more swiftly than production could handle, the economic life of Germany virtually collapsed as 1944 drew to a close. "The German experience," stated the United States Strategic Bombing Survey, "suggests that even a first-class military power—rugged and resilient as Germany was—cannot live long under full-scale and free exploitation of air weapons over the heart of its territory."<sup>103</sup>

**Early Strategic Bombing in the Pacific-Far East**

In the Pacific, the pattern of Allied operations and commitment of forces was different from that employed in Europe, but the strategy relative to the employment of air power was essentially the same. Because of Japanese expansion in the first year of the war, Air Force planners recognized that even the very long range B-29s would be unable to reach the Japanese homeland until the enemy's perimeter had been reduced. "Our armed forces in the Far Eastern Theater," stated AWPD-42, "are not within effective striking distance of the vital sources of Japanese military policy. . . . Hence from the standpoint of air requirements, the Far Eastern operations may be divided into two phases: (1) Air operations in support of our land and sea forces to regain bases within striking distance of Japan. . . . (2) Air operations against Japan proper to destroy her war making capacity." During 1942, defensive battles at the Coral Sea and Midway contained Japan's efforts to extend her perimeter, and limited American offensives in the Solomon Islands and eastern New Guinea added security to Allied bases. The Allied leadership was presented with competing strategies to bring Japan within reach. In Washington early in 1943, the Joint Strategic Survey Committee favored a drive supported by carrier-based aircraft across the Central Pacific to the China coast, where air bases could be established to permit an extended air campaign against Japan. Meanwhile, in the Southwest Pacific area, Gen Douglas MacArthur urged an advance along the New Guinea-Philippines axis to the China coast. At the

AF THINKING AND WWII

Quadrant conference in Quebec in August 1943, the Combined Chiefs of Staff authorized limited operations along both lines of advance. Between the Quadrant and the Sextant conference, which was held in Cairo in November-December 1943, the Joint Staff planners in Washington debated two controversial ideas at length and with some heat.<sup>104</sup>

Easiest to resolve of the two controversies was the concept of operations set forth in a Joint War Plans Committee overall plan for the defeat of Japan. The initial draft of the plan included a statement to the effect that the campaigns in Europe had demonstrated clearly that air forces by themselves were incapable of decisive action; hence, an invasion and conquest of the Japanese home island would be necessary to conclude the war. When he returned from Europe to become chief of the Combined and Joint Staff Division of AAF Plans in November 1943, General Hansell tried to get this basic thought in the concept paper eliminated but managed only to get it modified materially. The plans division under Hansell was willing to admit that air power in Europe had not demonstrated thus far that it could of itself bring a powerful modern nation to defeat. However, the circumstances in the island nation of Japan were quite different from those in Europe, and no one had proved that such an achievement could not be attained in the Japanese case. Whether or not Japan could be brought to surrender by air attack, Japanese resistance would have to be drastically reduced through a sustained bombing effort if an invasion of the Japanese homeland was to be feasible. Thus, a first priority would have to be given to the development and employment of air forces to conduct a sustained offensive against the Japanese homeland.<sup>105</sup>

The second part of the planning controversy had to do with the prospective employment of the new B-29 Superfortress bombers that had been bought from blueprints and would be service-tested in combat beginning in 1944. With General MacArthur's support, Lt Gen George C. Kenney wanted to station the B-29s at Darwin, Australia, and employ them against strategic targets in the Netherlands East Indies. But General Arnold was determined that the B-29 force would be used against targets in or adjacent to the Japanese home islands. In March 1943 AAF/ACS Plans had begun to study a project for using B-29s against Japan from bases in south-central China. Arnold also had asked the Committee of Operations Analysts to analyze potential strategic targets in Japan. The Sextant conference approved this planning in December 1943, agreeing that the Matterhorn project would include the construction of bases near Calcutta, India, and at Chengtu, China, for the USAAF XX Bomber Command and two wings of B-29s. The Committee of Operations Analysts recommended that merchant shipping, steel production, urban industrial areas, aircraft plants, the antifriction bearing industry, and the electronics industry as preferred targets for the B-29s. The committee believed that these B-29 missions could immobilize Japan's steel production by destroying a few coke plants in Manchuria and Japan. It also pointed out that Japan's urban industrial areas were few, concentrated, and very vulnerable to incendiary attack.<sup>106</sup>

## IDEAS, CONCEPTS, DOCTRINE

Because of logistical problems the XX Bomber Command would be able to operate only a few B-29 groups from bases in isolated south-central China. From Chengtu, moreover, the B-29s would not have enough range to reach Tokyo and other industrial targets on Honshu. Hence, AAF planners favored the Mariana Islands as potential bases for B-29s but had no real information as to the number of bases that could be built in these islands, which were held by the Japanese. Bases were accordingly constructed in the Aleutians at Adak and Shemya to accommodate four B-29 groups; an existing airfield on Ceylon was enlarged to permit B-29 staging for attacks against the oil fields in the Netherlands East Indies; and consideration was given to eventually establishing a B-29 command in the Philippines. At the Sextant conference in Cairo, however, Arnold urged that B-29 operations ought to be begun from China in May 1944 and from the Marianas before the end of that year. Once again the Combined Chiefs of Staff authorized continued advances through the Central and Southwest Pacific without definitely accepting either line of attack as being better than the other. During February 1944 the Pacific strategy was more fully debated in Washington by representatives of General MacArthur and Adm Chester W. Nimitz, commander in chief of the Pacific Fleet and Pacific Ocean areas. General Hansell, siding with Nimitz's representative, presented the AAF concept of the Pacific war, which stressed the importance of the Marianas to the bomber offensive against Japan proper to the Joint Chiefs of Staff on 15 February. After hearing all parties, the Joint Chiefs on 12 March 1944 ordered Admiral Nimitz's Pacific forces to invade the Marianas beginning on 15 June 1944. Since a new XXI Bomber Command would be based in the Marianas, the Joint Chiefs limited the size of the XX Bomber Command to a single wing of four B-29 groups.<sup>107</sup>

Only after the European hostilities had ended, would British air forces be available for use in the Pacific. Moreover, in the Pacific, the B-29s would be based in several different theaters of operations. Arnold later recalled that a visit to the Pacific in autumn 1942 had made him realize that he would have to retain command of the very long range B-29s: "There was nothing else I could do," he remarked, "with no unity of command in the Pacific."<sup>108</sup> If the B-29 forces had been assigned to the European theater of operations, they doubtless would have been under the general direction of the Combined Chiefs of Staff and would have been organized in a strategic air force similar to that used to control the heavy bomber strategic forces. The conduct of a strategic air war against Japan, however, posed different command problems.

In the first thinking about Matterhorn, the AAF staff favored establishing a strategic air force headquarters in Washington similar in concept to the old GHQ Air Force, which would be directly responsible through Arnold to the Joint Chiefs of Staff. When the Joint Chiefs accepted this concept, the US Twentieth Air Force was activated on 4 April 1944. Arnold assumed personal command as the executive agent of the Joint Chiefs, Hansell was designated chief of staff, and members of the Air Staff did double duty as the staff of the Twentieth Air Force. Commands of the theaters in which the Twentieth Air Force's XX and XXI Bomber

AFTHINKING AND WWII

Commands were based were directed to coordinate B-29 operations with other air operations in their theaters, to construct and defend B-29 bases, and to provide logistical support and common administrative control of the B-29 forces. Should strategic or tactical emergencies arise requiring the use of the B-29 forces for purposes other than the missions assigned to them by the Joint Chiefs, the theater commanders were authorized to use the B-29 forces upon immediately informing the Joint Chiefs of such action. As will be seen, the B-29 command organization would be revised again in 1945. Several years later an Air Force officer described the wartime creation of the Twentieth Air Force as "one of the most important events in United States Air Force history. If that had not occurred," he thought, "we might still be parcelling out our big punch in penny packets to numerous theater and lower commands."<sup>109</sup>

In spite of this improved command structure, the early operations of the Twentieth Air Force's XX Bomber Command were similar to the early indecisive results of the Eighth Air Force in Europe. What made these results even more disappointing was the fact that the Japanese army and navy air forces had already been reduced to low effectiveness by earlier theater air battles. Like the fledgling Eighth Air Force, the XX Bomber Command was a piecemeal commitment of too little capability to perform effective strategic air attacks. Once again, the available force was employed against long-chance objectives. Called upon to operate the new B-29 planes on very long range missions against priority iron and steel targets in Japan and Manchuria, the XX Bomber Command faced the additional problem of providing logistical support across the Himalayas to the forward operating bases at Chengtu. In final analysis, only about 14 percent of the command's capability could be employed against the enemy, the remaining 86 percent being absorbed by the use of B-29s as tankers to haul fuel from India into China. At the start of its operations on 15 June 1944 the XX Bomber Command sent 47 B-29s to attack the Yawata iron and steel works on Kyushu. By January 1945, the command had dropped about 800 tons of bombs on targets in the Japanese home islands, but the raids were of insufficient weight and accuracy to produce significant results. Several daylight precision attacks were flown against coke ovens in Anshan, Manchuria, but these attacks were later determined to have had little strategic significance since Japanese iron and steel production already had been severely curtailed because of a loss of shipping needed to transport raw materials.<sup>110</sup>

In an effort to get results from the XX Bomber Command, Arnold put General LeMay in command on 29 August 1944. In the months that followed, LeMay substantially improved the operating record of the B-29s. But there was little that he could do to increase the effectiveness of attacks against Japanese targets that were too far distant from the Chengtu bases. In the autumn of 1944, the XX Bomber Command was used to attack targets on Formosa, in Burma, at Singapore, and in the Netherlands East Indies. In January 1945, LeMay was transferred to the Marianas; in the following months the XX Bomber Command also moved to Pacific bases. Looking backward at the XX Bomber Command's experience, Brig Gen John B. Montgomery, who had been the deputy chief of staff for operations

## IDEAS, CONCEPTS, DOCTRINE

of the XXI Bomber Command, concluded that the piecemeal employment of the B-29s had proved a psychological boost for China's sagging morale, but from a military standpoint he suggested that the B-29 effort flown from China and India might just as well have been saved until facilities were ready to permit the B-29s to be marshaled and employed as an effective striking force. "Had we done that," Montgomery thought, "we would have saved airplanes and crews . . . and I think the war would have been over at about the same time."<sup>111</sup>

**Strategic Air against Japan**

Only three days after Admiral Nimitz's forces invaded the Marianas on 15 June 1944, construction of a B-29 base, named Isley Field, began on Saipan. When General Hansell, who had taken command of the XXI Bomber Command, landed the first B-29 at Isley on 12 October, however, he found that only a single unpaved airstrip had been built. In the Marianas, the B-29 command found it difficult to obtain adequate logistical support from a theater command that was primarily intent on building a fleet base and other facilities to support continuing surface operations.<sup>112</sup> Meanwhile, back in Washington, Twentieth Air Force target planners were making a new appreciation of the strategic vulnerability of Japan to air attacks that could be flown by the XXI Bomber Command. During the summer the target planners lost their enthusiasm for Japanese iron and steel targets in favor of attacks against Japan's aircraft plants. At Arnold's request, the Committee of Operations Analysts submitted a fresh estimate of Japan's strategic vulnerability based on the separate assumptions that Japan might either be defeated by an air and sea blockade or by those means plus a surface invasion.

On the first premise, the committee recommended a general air campaign against shipping including extensive aerial mining operations, an attack against the aircraft industry, and saturation bombing of six urban industrial areas. In the event of a surface invasion, the committee recommended priority attacks against the aircraft industry, with an effort also against industrial targets and intensification of the antishipping campaign. In the European theater, AAF commanders had not favored the area bombing attacks that were flown against cities by the RAF Bomber Command. In its earliest analyses of Japan, however, the Committee of Operations Analysts had brought out the fact that Japan's cities were highly flammable and that a substantial part of Japan's war production was done in small factories dispersed throughout urban areas. On 24 April 1944 General Kuter had called the Twentieth Air Force's attention to incendiary tests against simulated Japanese city targets that were being conducted at Eglin Field. The AAF Board soon completed two reports recommending the proper admixture of incendiaries and fragmentation bombs and the tactics and techniques of B-29 incendiary missions that might prove most effective against Japan's cities.<sup>113</sup>

Although it accepted the report of the Committee of Operations Analysts, the Joint Target Group of the Joint Chiefs of Staff discounted the possibility that the Japanese war might be ended by any means short of surface invasion; hence, the



## AF THINKING AND WWII

group recommended that an emphatic priority be given to the destruction of Japan's air power and that urban attacks and mining operations be delayed. Acting for the Joint Chiefs, the Twentieth Air Force accordingly directed the XXI Bomber Command to attack Japan's major aircraft plants. Following delays caused by weather, the XXI Bomber Command sent its first bombing mission on a high-level attack against Tokyo's Nakajima aircraft plant on 24 November 1944. Against the high-flying B-29s, Japanese fighter interceptors had little real effect. But, in the months that followed, the precision bombing effort appeared rather unsuccessful. Adverse winter weather scattered bomber formations, obscured targets, and reduced bombing accuracy. The long flights to Japan and the need to lift heavy bomb loads to more than 25,000-foot bombing altitudes strained engines and brought about substantial losses of aircraft at sea. Impatient with the performance of the XXI Bomber Command, General Arnold moved General LeMay to its command on 20 January 1945, but neither the new commander nor the commitment of another bomb wing to combat from North Field on Tinian on 4 February appeared to give better results.

Actually the B-29 attacks against the Japanese aircraft factories proved more effective than was realized. The United States Strategic Bombing Survey discovered that the damages caused by the B-29s were enough to convince the Japanese of a need to disperse their aircraft plants. The destruction inflicted, plus the confusion resulting from frantic dispersal efforts, reduced the preattack capacity of aircraft engine plants by 75 percent, of airframe plants by 60 percent, and of electronics and communications equipment plants by 70 percent.<sup>114</sup>

General Arnold, apprehensive about reports that the Japanese were building a new and heavily armed fighter interceptor that might inflict heavy losses upon the B-29s and mindful of the need for fighter escort in the European theater, had sent a memorandum to the Joint Plans Section in July 1944 recommending the seizure of the island of Iwo Jima midway between the Marianas and Japan to serve as a base for long-range escort fighters. The same month Arnold committed five long-range P-47N and P-51 fighter groups to the XXI Bomber Command. As it happened, Japanese air defenses were never a serious threat to the B-29s. Although the Japanese were able to stage a few heckling attacks through Iwo Jima against the airfields in the Marianas in November 1944 and even though in the early months of B-29 operations against aircraft factories, the Japanese were able to concentrate their fighters on occasion and to shoot down a few B-29s. Japan's air defenses actually were rapidly losing their effect and the heckling attacks had ceased before Nimitz's forces invaded Iwo Jima on 19 February 1945. After very severe ground fighting had cleared the island, the VII Fighter Command deployed three fighter groups to Iwo Jima in March. Long-range Mustangs escorted B-29s to Tokyo on 7 April. But the fighters were not often called upon for such support. Meanwhile the XXI Bomber Command had begun to operate mostly at night. After 5 June 1945, the Japanese made their last effective air opposition against day-flying B-29s. Thereafter, the Japanese yielded complete air supremacy, electing to hoard their remaining aircraft for suicide attacks against an expected surface invasion.<sup>115</sup>

## IDEAS, CONCEPTS, DOCTRINE

Until 6 March 1945, General LeMay had considered that the XXI Bomber Command had not "really accomplished a hell of a lot of bombing results." The command, however, was gaining strength. A third bombardment wing began operations from North Field on Guam on 25 February. Anticipating the arrival of this third B-29 wing, Arnold had issued a new target directive on 19 February that continued to give first priority to precision attacks against aircraft engine factories but made incendiary attacks against urban industrial concentrations in Tokyo, Nagoya, Osaka, and Kawasaki a strong second priority. While the fire raids were desired by Washington, General LeMay kept his own counsel on the tactics that he would employ on the great Tokyo fire raid, which would be mounted on the night of 9-10 March 1945. He called for a stream of bombers from the three wings to come in low (4,900 to 9,200 feet) and to drop their incendiaries on fires started by pathfinder crews. Since gunners who would be unused to night attack might shoot at each other's planes in the dark, LeMay ordered both guns and gunners removed from the B-29s. The weight saved by the removal of armament and the low attack altitude would permit the B-29s to carry very heavy loads of firebombs. Many aircrewmen were certain that LeMay's radical tactics would do nothing but get them killed. Yet, even though over the target in a steady stream in the early morning hours of 10 March, the B-29s sustained only moderate losses as they kindled fires that destroyed about one-fourth of metropolitan Tokyo. LeMay had staked his professional career on the decision to operate the bombers at a low level. "This decision, combining technical acumen with boldness of execution," General Hansell said later, "was one of the classic air decisions of the war."<sup>116</sup>

With 385 B-29s available in his combat wings, General LeMay was able to order combat missions every fourth to sixth day, depending on the weather, which was the most serious obstacle affecting operations. Daylight precision-bombing attacks against industrial targets were conducted from medium levels, and fire raids continued against Tokyo, Kobe, Osaka, and Yokohama. On 27 March the XXI Bomber Command began to mine Japan's shipping channels and harbors. On the same day, other B-29s struck Japanese airfields on Kyushu. And, as he was authorized to do in an emergency, Nimitz directed that approximately 75 percent of the XXI Bomber Command's combat effort be flown against airfields on Kyushu and Shikoku in the period between 17 April and 11 May. Recognizing the gravity of the situation caused by Japanese suicide air attacks against the American forces at Okinawa, LeMay did not strongly resist this commitment of his forces even though he suggested that bomber attacks could not completely neutralize the hostile airfields. The Iwo-based long-range fighters of the VII Fighter Command also made sweeps over Japanese airfields on Honshu and Kyushu, but without scoring very good results. Hostile planes were widely dispersed and the enemy pilots did not come up and fight.<sup>117</sup>

Believing that an all-out air attack could force Japan to surrender prior to a surface invasion, LeMay was willing to commit his command to maximum operations, even at the risk of exhausting all available crews. In the waning weeks of May and the early days of June, the XXI Bomber Command returned to strategic

## AF THINKING AND WWII

air attacks and completed the conflagration of Japan's five principal urban industrial areas. The 58th Bombardment Wing, arriving from India, began missions from Tinian on 5 May. Another B-29 wing that had been especially equipped to make radar attacks against oil storage facilities rounded out the XXI Bomber Command's strength when it arrived on 26 June. By late spring 1945, Brig Gen Emmett O'Donnell, Jr., commander of the 73d Bombardment Wing, which had been first into action from the Marianas, noted a general conviction throughout the bomber command that the Japanese could not stand up under the terrific amount of damage that the B-29s were placing upon them. "I thought personally," recalled O'Donnell, "in a couple of weeks it would be all over." When Arnold visited Guam early in June, LeMay told him that 30 to 60 of Japan's cities and every industrial target in the home islands would be destroyed by 1 October. In the air, the B-29s were virtually unopposed. "The record will show," LeMay later commented, "that in the last two months of the war it was safer to fly a combat mission over Japan than it was to fly a B-29 training mission back in the United States."<sup>118</sup>

**Atomic Attack at Hiroshima and Nagasaki**

Meanwhile the Japanese government had begun to seriously consider ways to end the war. On 20 June 1945 Emperor Hirohito told his council that it would be necessary to have a plan to close the war at once. Early in July the Japanese government asked the Soviet Union to intercede with the United States to stop the war, but the Soviets refused to relay the proposal. These peace feelers faced much internal opposition as Japan's militarists continued to play for time; they believed that if Japan could somehow survive the air attacks she might be able to inflict such a high rate of casualties on American surface invaders as to be able to get a negotiated peace. The reiteration of the unconditional surrender formula in the Potsdam Declaration on 26 July 1945 gave new strength to the Japanese militarists.<sup>119</sup> Top-level American officials in Washington knew of Japan's desire to end hostilities, but in September 1944 the Combined Chiefs of Staff had committed the United States and Great Britain to the seizure of "objectives in the industrial heart of Japan." This strategy was reaffirmed at Yalta in February 1945. To help ensure the success of this strategy, the Allies granted the Soviet Union territorial concessions in East Asia in return for its promises to join the war against Japan when hostilities were concluded in Europe.<sup>120</sup>

In the spring of 1945 the question was not so much whether Japan would be invaded but how the effort would be ordered and commanded. Arnold thought that a supreme commander should be appointed, with coequal status for ground, naval, and air force subordinates—an arrangement that would permit all AAF units in the Pacific to serve under one top air commander. Not willing to accept this proposal, the Joint Chiefs, on 3 April 1945, instead approved a directive that designated General MacArthur as commander in chief, Army forces in the Pacific, and named Admiral Nimitz as commander in chief, Pacific, with command over

## IDEAS, CONCEPTS, DOCTRINE

all naval forces. The Joint Chiefs agreed on 2 July to authorize the establishment of the United States Army Strategic Air Forces (USASTAF), Pacific, under the command of General Spaatz, with a headquarters on Guam. Under this plan, the Headquarters and Headquarters Squadron, XXI Bomber Command, was redesignated as the Headquarters Squadron, Twentieth Air Force, and the Eighth Air Force was to be redeployed from Europe to command new B-29 wings based on Okinawa. The Joint Chiefs of Staff would direct USASTAF operations; Arnold would act as Joint Chiefs' executive agent for USASTAF.<sup>121</sup>

Under the new command organization, the Twentieth Air Force had five wings and 21 B-29 groups plus the fighters based on Iwo Jima that previously had been assigned to the now inactivated XXI Bomber Command. Employing 923 B-29s the Twentieth operated virtually at will over Japan during July; after 4 July, General Kenney's Far East Air Forces began to strike targets on Kyushu from bases on Okinawa. During the Okinawa crisis, General LeMay had supported naval operations without demur. He had other thoughts, however, when Adm William F. Halsey requested on 14 July that the B-29s fly maximum effort strikes against airfields in the Tokyo area on 24-25 July and again on 1-2 August to support Third Fleet carrier air strikes into the Tokyo-Nagoya areas. LeMay protested that it was foolish to expend 6,500 tons of B-29 bombs to protect the carriers while their aircraft would be dropping 500 tons of bombs. He agreed, however, to use Iwo-based fighters in support of the Third Fleet strikes. Thinking differently, the Joint Chiefs ordered LeMay to employ the B-29s as Halsey requested. On 24 and 25 July, Iwo-based P-51s were sent out against airfields in the Tokyo area, but bad target weather somehow prevented B-29 attacks, which were diverted to their original strategic targets.<sup>122</sup>

General Spaatz, arriving on Guam on 29 July, began organizing the United States Army Strategic Air Forces — work which would not be completed before the war's end. If the organization had been fully accomplished, the Eighth and Twentieth Air Forces would have controlled a total of 49 B-29 groups. As it was, General Doolittle established the Eighth Air Force on Okinawa on 19 July, but its first B-29 wing was still getting into place when Japan surrendered.

Before reaching the theater, Spaatz had been briefed on the atomic bomb, which the 509th Composite Group on Tinian would drop on a target designated by Washington as soon as it could be delivered from laboratory production. Escorted only by photo planes, a 509th Group B-29 dropped the first atomic bomb against Hiroshima on 6 August. Three days later another of the group's B-29s dropped the second atomic bomb over Nagasaki. In haste, the Soviet Union declared war on Japan. On 10 August the Japanese government officially announced its decision to accept the Potsdam surrender terms, provided the surrender would not alter the institution of the emperor. Although Japan did not surrender unconditionally, the United States and its Allies accepted Japan's offer and terminated active hostilities on 12 August 1945.<sup>123</sup>

The revolutionary employment of nuclear air weapons and the entry of the Soviet Union into the war tended to obscure the contributions of the sustained

AFT HINKING AND WWII

conventional strategic air offensive to the defeat of Japan. Looking backward, Spaatz could not see how the entry of Russia into the war had any effect on Japan's decision to surrender. He believed that conventional bombing could have ended the war, but he thought that the employment of the atomic bomb had been justified as a means of ensuring, without doubt, that many Americans would not have to lose their lives in a tremendously costly surface invasion.<sup>124</sup> "Without attempting to minimize the appalling and far-reaching results of the atomic bombs," Arnold observed, "we have good reason to believe that its actual use provided a way out for the Japanese government. The fact is that the Japanese could not have held out long, because they lost control of their air. They could not offer effective opposition to our bombardment, and so could not prevent the destruction of their cities and industries."<sup>125</sup> Based upon a thorough investigation, the United States Strategic Bombing Survey stated its opinion that "certainly prior to 31 December 1945, and in all probability prior to 1 November 1945, Japan would even have surrendered even if the atomic bombs had not been dropped, even if Russia had not entered the war, and even if no invasion had been planned or contemplated."<sup>126</sup>

### Thoughts on Air Power and Air Force

"The air power of a nation," the Air Corps Tactical School had taught as early as 1935, "is its capacity to conduct air operations; specifically, the power which a nation is capable of exerting by means of its air forces. Air power is actual and not potential. Air power is measured by the immediate ability of a nation to engage effectively in air warfare."<sup>127</sup> In the view of the Air Corps Tactical School, air power was synonymous with the military air striking force in being, but to many observers the experience of World War II indicated that this definition was much too restrictive.<sup>128</sup>

When he published his widely read *Victory through Air Power* in 1942, Alexander de Seversky drew upon his experience as a tsarist military pilot and as an inventor, airplane designer, and aircraft producer in the United States and boldly predicted that aircraft would be developed with global ranges, thus ending the isolation of the Western Hemisphere. "Range deficiency," de Seversky wrote, "has been the curse on Hitler's aviation." The United States would soon be open to air attack from every point of the compass. "It is sheer waste," he concluded, "to maintain advanced bases instead of hurling the full aerial potential directly against the adversary. The entire logic of aerial warfare makes it certain that ultimately war in the skies will be conducted from the home grounds, with everything in between turned into a no-man's land." De Seversky's concept of global air warfare paralleled the naval warfare ideas that he had obtained from studying Alfred Thayer Mahan. As he later admitted, de Seversky also followed Mahan in offering a wide conception of the nature of air power, which included a striking air force, a defensive air force, and cooperation [air support] air forces as well as the industries, the personnel, and the materials; or, in short, everything that produced the power to navigate in the air.<sup>129</sup>

## IDEAS, CONCEPTS, DOCTRINE

When General Arnold made his official report to the secretary of war on 12 November 1945, he accepted the same extrapolation of Mahan's classic definition of naval power. "Air power," Arnold stated, "includes a nation's ability to deliver cargo, people, destructive missiles and war-making potential through the air to a desired destination to accomplish a desired purpose. Air power is not composed alone of the war-making components of aviation. It is the total aviation activity—civilian and military, commercial and private, potential as well as existing."<sup>130</sup> This definition was accepted by General Spaatz, when he became chief of staff of the US Air Force in 1947.<sup>131</sup> Moreover, the Congressional Aviation Policy Board stated in 1948 that: "Air power is the total ability of a nation to capitalize on the medium of flight. . . . National air power is an entity not fundamentally divisible as a weapon, or as a carrier. Materials, organization, and craftsmanship which go to make a great aviation industry are as readily turned to the combat plane as to the transport."<sup>132</sup>

Before World War II, Air Corps thinkers had visualized the air force as a striking arm quite separate and distinct from the auxiliary aviation that supported surface action, although the separate air striking arm could be used as necessary to support ground action. By 1945, however, General Arnold equated air force with military air power. Only a few years later Spaatz was emphasizing that Congress had assigned the nation's "primary air power role to the Air Force."<sup>133</sup> Moreover, in 1945, Arnold had described the air force as comprising a global striking force that would be employed from strategically located bases and that could meet and overpower an aggressor's air threat as near as possible to its source; a tactical air force which would work closely with the army, air transport and troop carrier aviation; and an up-to-date training establishment fully supplied with the latest aircraft and equipment.<sup>134</sup>

Addressing the first class in the new Air Command and Staff School in September 1946, an Army Air Forces instructor stated: "Air power is a force in itself capable of being used alone or in cooperation with other forces. The early prophets of air power, careless of their terminology, claimed that air power rendered obsolete all other weapons and armed forces. Though these men were led to false prophecy, their vociferous claims no doubt helped to hasten the development of air power."<sup>135</sup> Although this lecture was not authoritative, it manifested an apparently prevalent opinion springing from the highest levels of authority that World War II had been a composite victory of cooperative air, ground, and naval forces. "The elementary lessons which we have learned from the hard experience of World War II," stated Secretary of War Robert P. Patterson in October 1945, "is that there must be a single direction of the Nation's land, sea, and air forces . . . these arms must operate as a single team under single direction, which has final responsibility and final power of decision over all."<sup>136</sup> In January 1947, Secretary Patterson wrote: "Air power tipped the scales for victory in the war." But in November 1947 he stated: "World War II was not won in the air alone. It was won by the combined effort of ground forces, sea forces and air forces, working as members of a single team."<sup>137</sup>

## AF THINKING AND WWII

The team concept of Allied victory in World War II was strongly supported by high-ranking Army officers. "The national security is measured by the sum, or rather the combination of the three great arms, the land, air, and naval forces," General Marshall stated in October 1945.<sup>138</sup> "In my opinion," said Gen Omar Bradley in November 1945, "no one service won this war or is going to win any future war of any magnitude. It takes all our services together, plus the industrial effort of our Nation to win any major war." To illustrate his point, Bradley granted that air attacks cut down the employment of German V-2 rockets against England, but he invited attention to the fact "that not until the Navy and the Army forces got together and went over and captured the launching sites did the V-2 attacks completely come to a stop."<sup>139</sup> As chief of the War Department Plans and Policy Group in February 1947, Brig Gen George A. Lincoln argued that World War II had demonstrated that air power was a dominant factor in war and peace but that it had also taught that a tremendous hidden Army and Navy effort was required "to make air power effective over the target." This effort included air-ground battles required to seize and hold air bases needed to put air power over its target.<sup>140</sup> "The war also illustrated," as Secretary of the Army Kenneth C. Royall stated in December 1947, "that final victory had to be won by tanks, guns and men, on the ground." Allied forces, Royall continued, "never stopped the launching of the V-bombs, and never engaged in any material damage to them or to the submarine pens, until the infantry did so from the ground, despite the enormous bombing and almost unopposed bombing of Europe for a considerable period of time, and in great volume."<sup>141</sup> "Although I am personally convinced that Air Power will again be the dominant factor," said Gen J. Lawton Collins in October 1948, "I'm equally convinced that Air Power alone cannot win the war. . . . It took, and it will again take, in my opinion, the combined operations of land, sea and air forces to reach a conclusion."<sup>142</sup>

Although the Navy appeared somewhat less enthusiastic about the "team" concept than did the Army, the theater commanders of the Pacific war — General MacArthur and Admiral Nimitz — saw the defeat of Japan as a victory of combined forces. "The victory was a triumph for the concept of the three dimensions of war — ground, sea and air," MacArthur stated in October 1945. He added: "By a thorough use of each arm in conjunction with the corresponding utilization of the other two, the enemy was reduced to a condition of helplessness. By largely avoiding methods involving the separate use of the services and by avoiding methods of frontal assault as far as possible, our combined power forced the surrender."<sup>143</sup> Admiral Nimitz thought in 1945 that without the atomic bombs the surrender of Japan "would have taken a longer time," but he thought that the victory resulted from

the strangulation of her industry, her being cut off from all supplies, her lack of gasoline, her inability to get raw materials from China . . . Such gasoline as they had was stored in places from which it could not be distributed, because the transportation systems had been destroyed by the air attacks, the very efficient destruction carried on by the B-29s.

## IDEAS, CONCEPTS, DOCTRINE

It was just a question of time before the Japanese would have been forced to this same surrender. The atomic bomb undoubtedly hastened that surrender.<sup>144</sup>

Army Air Forces leaders also accepted the point of view that World War II had been won by combined arms. Thus, in April 1944, Maj Gen Follett Bradley could argue that the "true expositor of military things to come must . . . evaluate correctly the effect of air power in combination with land and sea power on a battle, a campaign and a war, and he must know something of the technique by which that effect is produced."<sup>145</sup> In October 1945, Arnold hailed the command decisions of February 1943 by which "the air had been consolidated under an air command, coordinated with similarly concentrated land and naval forces. . . . With this change it became possible to exploit fully the versatility and weight of air power and to exert fully the over-all commander's strategic will in the air."<sup>146</sup> In November 1945, he wrote that the doctrine of the air force comprehended the fact "that it is the team of the Army, Navy and Air Forces working in close cooperation that gives strength to our armed services in peace or war."<sup>147</sup> Speaking of the termination of hostilities in the Pacific, General Doolittle said in November 1945: "The Navy had the transport to make the invasion of Japan possible; the Ground Forces had the power to make it successful; and the B-29 made it unnecessary." In its broad aspects, however, he pointed out that "the recent war was won by teamwork. . . . No single service won the war. The Navy fought magnificently as did the Ground Army and the Air Army. . . . The smooth functioning of the team was the direct result of having unity of command—one supreme commander in each theater of war."<sup>148</sup>

The emphasis upon combined forces was accompanied by a subtle downgrading of the significance of the role of strategic bombardment in World War II. In Secretary Patterson's view, "the hammering that German industry and transportation took from the American and British air forces so seriously crippled the mobility of the German army that it was unable to withstand the combined assaults from the East and from the West."<sup>149</sup> Speaking of strategic bombing, Gen Jacob L. Devers, commander of the Army Ground Forces, said: "The Ground Forces recognize this strategic battle role of the air which must be successfully conducted before the Infantry and Artillery can close with the enemy."<sup>150</sup> General Bradley concluded that strategic bombing in Europe "was ultimately an effective deterrent to the success of the enemy on the battlefield. . . . It had a decisive effect on the ultimate ability of the Allies to defeat Germany in a shorter time, saving many, many lives and dollars."<sup>151</sup>

In the immediate aftermath of World War II, Air Force officers were inclined to agree that a second phase of ground conflict would characterize a future war. "Japan," General Spaatz said in March 1947, "was a peculiar situation, being an island empire. . . . But when you are up against a continental empire you have the problem of winning against great masses of people with great internal resources. . . . We had established almost complete air superiority over Germany at the time of the invasion, but it took a considerable amount of fighting to subdue



## AF THINKING AND WWII

Germany after air superiority had been established." Speaking in August 1949 after he had become chief of staff of the Air Force, Gen Hoyt S. Vandenberg announced: "My opinion of the effectiveness of strategic bombing in both Europe and in the Pacific was that it contributed in large measure to the success in the conclusion of the war and saved a great many lives that otherwise would have been lost."<sup>152</sup> "We of the Air Force," Vandenberg stated in a speech in August 1952, "have never claimed that air power, in alliance with mass destruction weapons, could decide a war alone."<sup>153</sup>

### Lessons on Air Superiority

In the 1930s, the Air Corps had regarded establishing control of the air to be essential only in support of surface operations. Based upon his observations of the Battle of Britain and other early World War II operations, however, de Seversky boldly asserted, "*We cannot and must not dream of conquering the enemy without first capturing dominance in the air—but once we have clear-cut dominance in the air, all else becomes a secondary subordinate, auxiliary operation.*" And he stated the further rule: "*Only air power can defeat air power [emphasis in original].*"<sup>154</sup> In view of the experience of the Eighth Air Force over Germany, the Army Air Forces found it easy to abandon Douhet and to adopt a doctrine of "air superiority" or "control of the air," which—like the definition given to air power—was an extrapolation from Mahan. As the United States Strategic Bombing Survey's summary report of the European war stated, "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."<sup>155</sup> Looking backward at World War II in October 1945, Arnold said: "The Air Force's primary mission the world over was to knock out enemy air power—to win the air war. . . . All types of aircraft shared in this task in many different roles."<sup>156</sup> Doolittle pointed out that the United States had to have control of the air over Japan before it could deliver the atomic bomb. "The first lesson," he said, "is that you can't lose a war if you have command of the air, and you can't win a war if you haven't."<sup>157</sup> "You know, at first hand," Spaatz told a convention of air veterans in November 1947, "the penalty paid by Germany and Japan for their failure to control the air over their own territories. You know the inevitable outcome of any failure to control the air over our own country."<sup>158</sup> Writing in 1950, Col Dale O. Smith and Maj Gen John DeForest Barker, noted: "It has long been held as Air Force doctrine that air superiority should be the primary mission of air power."<sup>159</sup>

The Air Force doctrine of air superiority or control of the air was quite acceptable to War Department and Army spokesmen. Robert P. Patterson stated: "World War II drove home the lesson that a nation lacking in air power has no chance of winning a war. . . . In every campaign fought out on the surface, success went to the side that had local command of the air. . . . Without command of the

IDEAS, CONCEPTS, DOCTRINE

air, the launching of a military operation on land or sea was virtually unthinkable.<sup>160</sup> As Lt Gen Manton S. Eddy stated in March 1949, "There is no question in a soldier's mind that air power is as indispensable to the national security as bread and water are to life. Land forces cannot fight decisively unless the air is controlled by its sister services."<sup>161</sup> "In spite of the fact that air power can never be decisive in total war," General Bradley told an audience in November 1951, "the air battle must be won if a war is to be won."<sup>162</sup>

While the doctrine of control of the air was firmly implanted in Air Force thinking as a result of conventional air operations in Europe, some second thoughts about the influence of nuclear bombing capabilities indicated a trend back toward Douhet. Written largely by Maj Gen Orvil Anderson and published in 1947, the concluding report of the United States Strategic Bombing Survey, *Air Campaigns of the Pacific War*, observed that

air superiority is not an end in itself. Air superiority was necessary in the past war in order that surface operations could be successfully undertaken and in order that decisive bombing of the enemy's vital components could be accomplished. If science and technology produce an air weapon which can, unaided, penetrate enemy defenses and accurately deposit its bombs, it may not be necessary to fight the conventional air battle and obtain conventional air superiority before the decisive attacks on an enemy's economy are mounted. Any force, having successfully made such attacks, however, probably would quickly inherit air domination for the exploitation phase of the war.<sup>163</sup>

In a lecture in June 1949, General Anderson warned that conventional ideas of air superiority would not always hold good: "You will reach the point in the distant future when you won't even think of opposing air in the air. It will be moving too fast. . . . You'll fight them at the launching site or you won't fight them."<sup>164</sup> "Future defense and future security," Col David A. Burchinal pointed out in the autumn of 1949, "would seem to stem from the basic premise that successful air defense must be capable of destroying an attacking force or an aggression potential before the attack can be launched or the potential realized."<sup>165</sup>

In his book *Air Power: Key to Survival*, published in 1950, de Seversky continued to attach great importance to air dominance. "We can undertake nothing through military force," de Seversky also told an Army War College audience in March 1952,

unless first we have secured command of the air. To gain command of the air, we must win the air battle. . . . The idea that we can send a lot of bombers, either from bases abroad, or from bases at home or from aircraft carriers, and destroy everything in Russia without first winning command of the air is, in my estimation, sheer bunk. . . . Therefore, the battle for command of the air is just as much in the cards today as it was in the last war. . . . Just the same as it would have been impractical in the last century to control a part of the ocean—just a patch of the ocean. . . . So the air battle will be widespread, and will be fought for the command of the entire air space, clear around the globe.<sup>166</sup>

AF THINKING AND WWII

**Development of Tactical Air Power**

In a talk with one of his assistants on 22 August 1945, Maj Gen Lauris Norstad, who was then the chief of Army Air Forces plans, stated that the conception of the tactical air force was "one of the greatest developments" of World War II. However, he immediately added that the atomic bomb might have made a tactical air force "as old-fashioned as the Maginot line."<sup>167</sup> The Air Force would continue to debate the effect of nuclear weapons on air power at the same time that it was recording the doctrinal lessons of World War II applicable to tactical air power.

The experience of World War II left no doubt as to the impact of air power on land battles. "The Normandy invasion," Gen Dwight D. Eisenhower explained on 16 November 1945,

was based on a deep-seated faith in the power of the air forces, in overwhelming numbers, to intervene in the land battle. That is, a faith that the air forces, by their action could have the effect on the ground of making it possible for a small force of land troops to invade a continent, a country strongly defended, in which there were 61 enemy divisions and where we could not possibly on the first day of the assault land more than 7 divisions. . . Without that air force, without the aid of its power, entirely aside from its anticipated ability to sweep the enemy air forces out of the sky, without its power to intervene in the land battle, that invasion would have been fantastic. . . Unless we had that faith in the air power to intervene and to make safe that landing, it would have been more than fantastic, it would have been criminal.<sup>168</sup>

One of the major ironies of World War II was that, when operating against a first-class adversary on a continental landmass, air units assigned or attached to ground forces proved incapable of providing effective support to the ground forces. As has been seen, such penny packets of air power were unable to accomplish missions of importance to the ground forces—which the Allied experience in North Africa demonstrated to be the attainment of air superiority, the interdiction of the movement of hostile troops and equipment to or within the battle area, and the close support of friendly ground troops by aerial attack of battlefield objectives which could not be handled by friendly artillery. Although War Department Field Manual 100-20, *Command and Employment of Air Power*, prescribed the tasks of a tactical air force as being air superiority, interdiction, and close support, it did not attempt to describe the exact organization to be used in combat theaters. In Italy the Fifth Army and the XII Tactical Air Command attained unity of purpose by maintaining adjacent headquarters and holding nightly planning conferences. Calls for close air support went back from frontline units to the army air section and were monitored by the corps air section. If the corps remained silent, it was assumed that the corps could not handle the mission by artillery or other means. The request was reported at once by the army air section to ground liaison officers at the airdromes, while G-3 and tactical air command officers determined whether the mission should be flown. About 50 percent of these requests were refused. Approximately 75 percent of the refused missions were disapproved by G-3 as not in conformity with army plans, while the

## IDEAS, CONCEPTS, DOCTRINE

remainder were rejected by the tactical air command on technical grounds. At the front lines, experienced pilots served tours of duty as forward air controllers to direct support aircraft to their targets. When necessary, especially in the mountainous terrain of Italy, a Rover Joe or Horsefly airborne tactical air controller flying a liaison plane would lead support aircraft to their targets.<sup>169</sup>

The organization for tactical air control adopted in the European theater was an expansion of the system employed in Italy. In the battles of France and Germany, the Ninth Air Force cooperated with the 12th Army Group while subordinate air commands developed very close relationships with various armies: the IX Tactical Air Command with the First Army, the XIX Tactical Air Command with the Third Army, and the XXIX Tactical Air Command with the Ninth Army. Each of these tactical air commands possessed microwave ground control interception radars, and their fighter-bomber groups were employed alternatively as required either for defense or for air support. With the demise of the dive-bomber, the US air forces modified the P-47 to serve as a tactical fighter-bomber, and the P-47 fighter, although originally designed as a high-altitude interceptor, proved to be superb in this new role. The radical air-cooled engine on this plane made it less vulnerable to hostile ground fire than was the P-51, which had an in-line liquid-cooled engine. To permit flexibility, medium bombers and tactical reconnaissance aircraft were retained under the direct command of the Ninth Air Force. The reconnaissance aircraft flew missions requested by army and air force units. They also proved invaluable in leading fighter-bombers directly to targets of opportunity. While many Army officers questioned the inherent wisdom of such a centralization of reconnaissance capabilities, Gens Courtney H. Hodges, George S. Patton, Jr., and W. H. Simpson, the commanders of the First, Third, and Ninth US Armies respectively, expressed their individual approval of the tactical air reconnaissance system.<sup>170</sup> By March 1945, Lt Gen Walter Bedell Smith, the chief of staff to General Eisenhower, noted that "the tactical coordination of air and ground forces has become an instrument of precision timing."<sup>171</sup>

In Europe all air force capabilities were available for the support of the surface campaign. Even though heavy bombardment was employed on occasion to augment tactical bomber forces (most notably on 25 July 1944 when 1,508 heavy bombers softened the German lines at Saint Lô preparatory to the First Army's breakthrough out of Normandy), the outstanding contribution of the heavy bombers to the overall ground campaign was the elimination of the Luftwaffe as an effective fighting force. Although the Ninth Air Force stood ready to maintain friendly air superiority, it was committed routinely to interdiction and close support operations, with roughly 15 percent of the tactical air effort going to close air support. But in static periods such as existed prior to the Saint Lô breakthrough and while the armies were building up before the Siegfried Line, the proportion of air effort allotted to targets along the front lines did not exceed 10 percent of the tactical air forces capability. The remaining tactical air effort was committed to armed reconnaissance and to attack against interdiction targets behind the enemy lines.<sup>172</sup> A flexible employment of tactical air groups on varied missions ensured

AF THINKING AND WWII

that no one unit suffered debilitating losses. Fighter-bombers, for example, suffered their highest rate of loss to flak on the dive-bombing missions commonly required for bridge attacks and close air support; armed reconnaissance, area support, and fighter-sweep missions were only about two-thirds as dangerous as dive-bombing missions.<sup>173</sup> What could happen when a group was solely committed to the most hazardous mission was illustrated during the Ardennes offensive. Because it was based closest to the area, the 406th Fighter-Bomber Group provided the burden of the close air support to the 101st Airborne Division, which was besieged at Bastogne; from 23-28 December the group flew 529 close support sorties into this area. Of its 60 operational P-47s at the beginning of the period, the group lost 17 shot down and had more than 40 damaged by flak.<sup>174</sup> Although the evidence was not conclusive, such experience indicated that an air unit committed solely to close air support in the European theater would have encountered disproportionately high casualty rates that would have adversely effected its continuation in operations.

In the Pacific theaters of World War II, American forces accepted the same tasks of tactical air power as were recognized in Europe, but organizational patterns were different. In General MacArthur's Southwest Pacific theater, the entire Fifth Air Force cooperated intimately with the Sixth Army and, after June 1944, the Thirteenth Air Force usually worked with the Eighth Army. While General Kenney began to organize tactical air commands for the planned invasion of Japan, he elected to use standard bombardment and fighter wings to provide cooperation with individual ground task forces during the war.<sup>175</sup> In the early days in the Pacific Ocean areas, Marine Corps and Thirteenth Air Force aircraft were organized in the same naval task group to support ground fighting on Guadalcanal. Marine F7F Tigercats usually flew air patrols overhead while Air Force P-39 squadrons, which lacked the ability to intercept high-flying enemy aircraft, performed close support missions. In the island invasions of the Central Pacific, Navy and Marine carrier-based air units provided air superiority, interdiction, and air support as necessary. Some years later, after he had become commandant of the Marine Corps, Gen David M. Shoup would recall that "the finest close air support for ground troops that I experienced in World War II came from Navy squadrons at Saipan." In working from fast aircraft carriers, Marine airmen not only were virtually losing their service identity, but also a serious defect in fast-carrier support for ground operations came to light on 17 June 1944 when the Fifth Fleet suddenly had to withdraw from Saipan to fight the naval battle of the Philippine Sea. Lightly gunned Marine Corps infantry was left ashore without close air support. Rather than allow this to happen again, Lt Gen Holland M. Smith, the Marine Corps officer in command of Expeditionary Troops, recommended and the Navy accepted, the proposition that Marine Corps air groups would be designated as air support specialists and would be assigned to escort carriers, which would not be withdrawn from an invasion objective for a fleet engagement. According to the organization worked out and employed by the marines at Peleliu and Okinawa, a Marine Corps air wing became an integral part of a Marine Corps

IDEAS, CONCEPTS, DOCTRINE

division. Since Marine ground commanders could normally expect only flat trajectory fire of naval guns during critical phases of ship-to-shore amphibious operations and since they would usually go ashore with limited amounts of organic artillery, Marine air wings would be organized, trained, and employed as a substitute for Marine artillery.<sup>176</sup>

In the winter of 1945-46, the War Department began to refine the air-ground lessons of World War II for the purpose of determining future organization. Army officers generally preferred the system which had been employed in the European theater of operations to that which had been devised by the Marine Corps in the Pacific. General Eisenhower, who became Army chief of staff on 19 November 1945, subsequently explained the reasons why he believed that the Army should not attempt to develop its own organic air support.

The Army concept of the land, sea and air principle of organization of the armed forces is well-known, this Service accepts without reservation the concept of complementary roles—air, ground and sea—and consequent mutual dependence of the three components of the armed services. Under this three service concept it is axiomatic that no single service should acquire forces or equipment necessary to accomplish joint missions single-handed, if such forces or equipment unnecessarily duplicate those characteristics of and fundamental to either of the other two services. The experiences of this war have indicated that in many operations, if not in the majority, the task was of necessity accomplished by contributions from two or three services acting under the principle of unified command. Furthermore, the welding of the forces resulted in the greatest possible concentration of combat power at the decisive point while at the same time permitting the greatest economy of force on lesser tasks.

Employment of tactical air in World War II is an outstanding illustration of the application of this concept to a specific problem. Battle experience proved that control of the air, the prerequisite to the conduct of ground operations in any given area, was gained most economically by the employment of air forces operating under a single command. This assured a maximum of flexibility, providing a command structure under which all forms of available air power could be concentrated on tactical support missions or on strategic missions, as the situation demanded—in other words, it permitted the maximum concentration of combat air power at the decisive point at the decisive time. Throughout the war, the Army depended on the necessary tactical air support from a practically autonomous Air Force. This type of close, accurate, and effective support of the frontline fighting units was provided and proved an essential element in the achievement of the Army objectives.

The case for the concept that tactical air units belong under the Air Force rather than under the Army is supported by the abundant evidence of World War II, but does not rest on this evidence alone. Basically, the Army does not belong in the air—it belongs on the ground. Planes are but a facet of the over-all problem, which is basically much broader and includes responsibilities now involving approximately one-third of the Air Force. Control of the tactical Air Force means responsibility, not merely for the fighters and medium bombers themselves, but, as well, for the entire operating establishment required to support these planes. This includes the requisite basic air research and development program necessary to maintain a vital arm and the additional specialized service forces to support the arm; for example air maintenance units, aircraft warning units (radar, DF stations), tactical air communications nets, etc. In short, assumption

## AF THINKING AND WWII

of this task by the Army would duplicate in great measure the primary and continuing responsibilities of the Air Force and, in effect, would result in the creation of another air establishment.<sup>177</sup>

Some other factors also evidently bore on the Army's rejection of the Marine Corps air support system. The Marine Corps was designated, equipped, manned, and trained to engage in shock-type action that would be limited in time, magnitude, and scope. Army divisions, on the other hand, were intended to operate in sustained ground campaigns on broad theater fronts. While Marine Corps commanders would have to depend on air support as a substitute for artillery firepower, Army commanders preferred to rely upon the supporting fire of their own organic artillery within the first thousand yards beyond the front lines.<sup>178</sup>

As has been seen, Army and Army Air Forces officers were so generally satisfied with the tactical air system employed in Europe that it was in effect engrossed in War Department Field Manual 31-35, *Air-Ground Operations*, with little difficulty in August 1946. There were, however, evidences that at least some influential Army officers did not like the cooperative air support system. Writing in 1949 about his experiences as commander of the US Fifth Army in Italy, Gen Mark Wayne Clark was willing to admit that his forces had received "splendid air support of all kinds by both British and American planes." "Nevertheless," he continued, "the command setup was never satisfactory from my point of view and it still is not satisfactory. . . . I believed then, and my experiences in Italy did not change my view, that ground troops cannot be successful in battle unless adequately supported by combat aviation, and that such planes as are used for this purpose are necessarily auxiliary weapons, as is the artillery, and that they should come under the direct orders of the ground commander."<sup>179</sup> The Army's chief historian found that satisfaction with air-ground cooperation was greatest at the higher command levels and less pronounced at the lower levels. "The air and ground forces of the Army," he wrote, ". . . did not develop an effective air-ground battle team in World War II. The Marines did, in cooperation with naval aviation and their own."<sup>180</sup>

At the same time that some Army officers wished a closer command subordination of tactical air units to ground control, some Army Air Forces commanders visualized a much more decisive role for tactical air power. According to Gen Omar Bradley, Maj Gen Elwood R. "Pete" Quesada, commander of the IX Tactical Air Command (which was paired with the US First Army in Europe), "had come into the war as a young and imaginative man. . . . To Quesada the fighter was a little-known weapon with vast unexplored possibilities in the support of ground troops."<sup>181</sup> Late in 1944, Quesada made a suggestion that got back to Washington in a roundabout manner, that a concentration of available Allied fighter strength in Europe in low-level attacks against Germany could win the war during the winter of 1944-45. After World War II, Quesada was promoted to lieutenant general and given command of the Tactical Air Command. He was willing to accept the relationships of the air-surface force team as it existed at the cessation of hostilities only as a point of departure for future doctrine. Writing in

## IDEAS, CONCEPTS, DOCTRINE

1948 he thought it axiomatic that the first prerequisite for a successful major campaign would be air supremacy or control of the air. He suggested, however, that World War II had only superficially indicated the "inherent ability of Tactical Air Power to be a decisive force in a strangulation campaign." In World War II, air doctrine had envisaged the isolation of a hostile force from its means of support, but it had not looked toward preventing an enemy force from engaging in battle. Quesada thought that by a vigorous interdiction campaign tactical air power could "paralyze the enemy's means of communication" and "sources of industrial support" and "prevent opposing armies from coming into contact." If such a concept of the employment of tactical air power was effectively pursued in a future conflict, direct support of ground troops in a zone of contact might well constitute only a small portion of the total tactical air effort. Only if tactical air power did not perform its primary functions in a convincing manner would friendly ground troops evidence a requirement for close air support.<sup>182</sup>

**Importance of Airlift**

A final aspect of doctrine emerging in the postwar period related to airlift. As Maj Gen Robert M. Webster, who had headed both tactical and transport commands in Europe in World War II, remarked in 1947, "I would say that we went into the last war with only two basic types of military aircraft, the bomber and the fighter. I feel that we have come out of that war with an additional type, the transport plane, and that we should think in terms of bomber-fighter-transport—since they are all equally important—and they must be properly balanced to each other if we are to be prepared to conduct successful war operations."<sup>183</sup> Back in the 1930s the Air Corps, prodded relentlessly by Maj Hugh J. Knerr who insisted that air striking forces could not depend upon ground lines of communications for logistical support, had established a requirement that both the GHQ Air Force and the Air Corps Materiel Division ought to possess transport aircraft. Both because of shortages of procurement funds and because of the Baker board's recommendation that civilian airliners could be requisitioned for a war emergency, the Army Air Forces had acquired only six air transport groups with 124 aircraft by hand in December 1941. Lacking any firm basis of experience with the air transport, the officers who drew up AWPD-1 estimated that the ascendant air force would require only 19 troop carrier groups with 1,520 planes for airborne troop employment and only 13 transport groups with 1,040 planes for air logistical support. Early in 1942 the Army Air Forces established the Air Transport Command and the I Troop Carrier Command, the former to provide worldwide air transport services and the latter to train troop carrier organizations for service in overseas theaters. At its maximum strength in February 1945, the Army Air Forces possessed 32 troop carrier groups and nine air transport divisions with a total of 10,138 aircraft.<sup>184</sup>

As events transpired, the Air Transport Command became responsible for the transportation, by air, of personnel, materiel, mail, strategic materials, and other



## AF THINKING AND WWII

cargoes for all War Department agencies (and other authorized government agencies) except those served by troop carrier units. The primary mission of troop carrier units was found to be: "To carry troops and auxiliary equipment to effective locations in combat zones from which to begin active combat operations." The control and employment of troop carrier organizations was hardly the same in any two theaters. In each theater, however, logistical services found continuing demands for the employment of troop carrier planes for intratheater movement of essential personnel and freight, but the combat employment of troop carrier planes and gliders for airborne operations always was given a higher priority. Resolution of the competing demands of the logisticians and the airborne commanders was never accomplished completely.<sup>185</sup>

Since there were never enough transport planes to permit them to be parceled out among using organizations, the Anglo-American organization of theater airlift forces accordingly placed central control of most such units under some form of theater troop carrier headquarters, which could employ the transport planes interchangeably for airlift or air assault operations. The organization in the European theater included the establishment of a combined air transport operations room (CATOR) in the Air Staff, Supreme Headquarters Allied Expeditionary Forces, the assignment of the IX Troop Carrier Command to the First Allied Airborne Army, and the activation of the 302d Transport Wing under the Air Service Command, USSTAF. Lt Gen Lewis H. Brereton, commander of the First Allied Airborne Army, subsequently complained that CATOR emphasized the logistical employment of his troop carrier crews to the detriment of their preparation for airborne operations. Other commanders, however, stated that the removal of aircraft from airlift operations for intensive air assault training and for the execution of airborne missions adversely deprived them of badly needed logistical support.<sup>186</sup>

"We have learned and must not forget," Arnold informed Secretary Stimson on 27 February 1945, "that from now on air transport is an essential of air power, in fact, of all national power. . . . We must have an air transport organization in being, capable of tremendous expansion."<sup>187</sup> In spite of this positive statement, the Army Air Forces was not too certain about the manner in which troop carrier and air transport aviation ought to be organized; there was a considerable sentiment that the two functions ought to be combined. At this time, Brig Gen William D. Old, commander of the I Troop Carrier Command, vigorously dissented from the proposals for combination and instead suggested that Army Airborne Forces should be established under the War Department on a parity with the Army Air Forces, Army Ground Forces, and Army Service Forces. Based in part upon studies conducted in OC&R and at the AAF Board, Arnold decided on 5 December 1945 that the Army Air Forces would retain the Air Transport Command to support the strategic air forces and would keep troop carrier aviation as a part of the tactical air forces.<sup>188</sup>

IDEAS, CONCEPTS, DOCTRINE

**General Arnold's Final Word**

In his final report to the secretary of war on 12 November 1945, General Arnold recalled the course of the successful air war that had been waged against the Axis. While he expressed satisfaction, he warned against complacency. "National safety," Arnold emphasized,

would be endangered by an Air Force whose doctrines and techniques are tied solely to the equipment and processes of the moment. Present equipment is but a step in progress, and any Air Force which does not keep its doctrines ahead of its equipment, and its vision far into the future, can only delude the nation into a false sense of security. . . . The basic planning, development, organization and training of the Air Force must be well rounded, covering every modern means of waging air war, and the techniques of employing such means must be continuously developed and kept up to date. The Air Force doctrines likewise must be flexible at all times and entirely uninhibited by tradition<sup>189</sup>

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AF THINKING AND WWII

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AF THINKING AND WWII

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Maj Gen Haywood Hansell



Maj Gen Orvil A. Anderson, commandant, Air War College, 1946-50



Gen Muir S. Fairchild, assistant chief, Air Corps, 1941-42, and commander, Air University, 1946-48



Gen Carl Spaatz, commanding general, Eighth Air Force, 1942-44, commanding general, United States Strategic Air Forces, 1944-46, commanding general, US Air Force, 1947-48



Lt Gen Ira Eaker, commanding general, Eighth Air Force during World War II



Carl de Sevsky, author of Victory through Air Power



Lt Gen Elwood R. Quesada, commanding general, IX Tactical Air Command, 1944-45, deputy chief of staff, Intelligence, 1945-46

## CHAPTER 5

**THE AIR FORCE IN NATIONAL DEFENSE:  
ORGANIZATION AND STRATEGY, 1944-49**

"Those of us who have seen this war fought . . . realize that there is no place in modern war for a separate air force, for a separate army, or for a separate navy," Brig Gen Haywood S. Hansell told the House Select Committee on Post-War Military Policy in March 1944. "The Army Air Forces (AAF) advocate, and strongly recommend," he continued, "the integration of the nation's fighting forces into a single unified organization. Hence, our conviction demands unity rather than separation."<sup>1</sup> The Army's air arm had traditionally sought a separate air force, but the experience of World War II had caused its leaders to believe that the nation needed integrated rather than separate armed services. The War Department, long a traditional opponent of a separate air force, now became the main driving force for armed service unification. Only the Navy, whose top-ranking officers proposed to General Arnold that AAF strategic bombardment ought to be joined with naval air forces to provide a national striking force, was going to oppose a close unification of the armed services.<sup>2</sup>

**Armed Service Unification and the Air Force**

As a background policy for the beginning of postwar planning, Gen Henry H. Arnold approved a statement on 25 February 1944 that advocated establishing a single secretary of war with four assistant secretaries heading the ground forces, the air forces, the naval forces, and a combined bureau of war resources. The plan visualized a compact general staff, directed by a single chief of staff to the president and a supreme war council consisting of the military commanders of the four major services that would be presided over by the single chief. Arnold's plan assumed that the air force would be coequal with the other services and would possess its own air commander and air general staff. The air force would include "all military aviation except shipborne units operating with the Navy, and those artillery-control and 'liaison' units operating with the Army."<sup>3</sup> In regard to the assigning of organic aviation to the Army, the Army Air Forces policy, announced on 10 October 1944, favored such assignments only if the aircraft would be put to sustained use; only if the separation of such aircraft from the mass of airpower would not seriously reduce that power; only if the function to be performed would not duplicate functions already being performed by AAF units; and only if no need would arise

## IDEAS, CONCEPTS, DOCTRINE

for separate and extensive airdrome, maintenance, or training facilities.<sup>4</sup> On 1 October 1945 General Arnold officially informed his subordinate commanders that he favored a department of armed forces under a military commander "who will command the Army, the Navy, and the Air Force and any combined task forces in existence."<sup>5</sup>

"The greatest lesson of this war," Arnold stated in his last report to the secretary of war on 12 November 1945, "has been the extent to which air, land, and sea operations can and must be coordinated by joint planning and unified command." Arnold, therefore, called for the establishing of "one integrated, balanced United States military organization that will establish, develop, maintain, and direct at the minimum expense the forces . . . required for peace enforcement and for national security with the capability for the rapid expansion in case of all-out war." Arnold wished to retain the Joint Chiefs of Staff, headed by a chief of staff reporting directly to the president. He also emphasized that a permanent national intelligence organization would be essential to the future conduct of strategic air warfare.<sup>6</sup> Gen Carl A. Spaatz, who would assume command of the Army Air Forces on 1 March 1946, told the Senate Committee on Military Affairs that "unity of direction" and "equality for the Air Force which will insure unification of our air potential" were "absolute imperatives which stem from the lessons of this last war."<sup>7</sup> On 24 October 1946 Spaatz informed his subordinate commanders that the Army Air Forces "supports without reservation" the War Department position on unification, which comprehended a single secretary heading a single department of national defense with three branches of equal standing—army, navy, and air.<sup>8</sup>

In the three years that defense unification was being studied and debated, the Navy posed different objections to plans that were offered and submitted counterproposals to each plan. As a matter of continuing policy, the Navy objected to the high degree of consolidation inherent in the War Department plan for a single chief of staff for the armed forces. The Navy also desired guarantees that would preserve naval aviation and the Marine Corps, together with its integral aviation. On a visit to the Pacific in the winter of 1944–45, a Joint Chiefs of Staff study committee headed by Adm James O. Richardson found senior naval officers not averse to unification. Rear Adm Forrest P. Sherman, who was Adm Chester W. Nimitz's chief planner, later explained, however, that a general change in feeling toward unification occurred in the spring of 1945. Admiral Sherman said that establishing the independent Twentieth Air Force and deciding to divide the command of American Army and Navy forces between Douglas MacArthur and Nimitz "disrupted unified command in the Pacific and disillusioned naval officers who had given support to theories of a single department." Sherman also recalled that Gen George C. Marshall had told him in September 1944 that he would not tolerate further command of Army troops by Marine officers.<sup>9</sup>

In its report on 11 April 1945 Admiral Richardson's special committee proposed the organization of a department of armed forces, a single commander of the armed forces, and a joint staff, all to be superimposed on coordinate army,

## AF IN NATIONAL DEFENSE

navy, and air branches. It also proposed that the secretary of the armed forces was to serve as a member of the Joint Chiefs of Staff and that both the Army and Navy would retain their special aviation components. Rather than merely oppose unification, Secretary of the Navy James V. Forrestal asked Ferdinand Eberstadt in June 1945 to head a study on national defense organization. When completed in September 1945, the Eberstadt report recommended that three coequal departments of war, navy, and air be recognized and that coordination between them would be achieved by the statutory establishment of the Joint Chiefs of Staff, a national security resources board, and a military munitions board. It recommended the establishment of a national security council, which would correlate the military and foreign policy of the United States.<sup>10</sup>

First presented to the public in October by Lt Gen J. Lawton Collins, the War Department's reorganization plan provided for a department of armed forces, a chief of staff of the armed forces (who would provide guidance to coequal army, navy, and air force chiefs), and a director of common supply and hospitalization. The chief of staff of the armed forces and a chief of staff to the president together with the chiefs of the three coequal branches would comprise the Joint Chiefs of Staff. On 19 December 1945 President Harry S Truman proposed to Congress a defense reorganization that made some concessions to the Eberstadt report but drew most heavily on the proposals made by Admiral Richardson's special committee and the War Department's plan. Under the president's proposal, the Navy would retain its carrier- and water-based air and the Marine Corps. While Congress prepared for hearings, Truman established the National Intelligence Authority by executive order on 22 January 1946. In his judgment, all of the services had agreed that there was a need for the coordination of foreign intelligence activities.<sup>11</sup>

During 1946 lengthy hearings before congressional committees and numerous Army-Navy conferences enabled the services to develop their respective positions and determine what Congress was likely to approve in the way of armed service reorganization. Speaking with candor, Adm Richmond K. Turner stated the Navy's opposition to unification: "Because the Navy has had and should retain in the future its position as the first line of military security for the United States, I believe the Navy will never willingly agree to a consolidation of national military forces in any manner that will silence the Navy's voice in military affairs or materially restrict its present responsibilities." Gen Alexander A. Vandegrift, commandant of the Marine Corps, feared that "the single Secretary for Common Defense and the all-powerful National Chief of Staff are entirely free either to abolish the Marine Corps outright or to divest it of all its vital functions." Adm John H. Towers bluntly charged that the new air force meant to take over naval aviation, saying in part: "I fear -- and I have good reason to fear -- that the Army Air Force advocates of a separate air force have well established in mind the plan, upon realization of a separate service, to absorb naval aviation. . . . Approximately 40 percent of our postwar Navy is aviation. Its loss would be completely disastrous to the Navy." On

## IDEAS, CONCEPTS, DOCTRINE

15 May 1946, Sen David I. Walsh and Rep Carl Vinson informed Secretary Forrestal that Congress was not likely to approve the creation of one department of defense under the administration of a single secretary, the appointment of a single supreme commander of the armed forces, a curtailment of the Marine Corps, a transfer of vital naval aviation functions to a separate air force, or the elimination of the responsibilities of the secretaries of war and Navy to initiate and support their budgets before Congress.<sup>12</sup>

Held during May 1946, a series of conferences between Forrestal and Secretary of War Robert P. Patterson developed fundamental points of disagreement between the Navy and Army. The War Department position on aviation had been suggested by Arnold's testimony before the Senate Committee on Military Affairs in October 1945. Arnold had said: "I think there is a definite place for the air arm of the fleet, to work in conjunction with the fleet. . . . I do not think that the flat-top planes have the power to deliver the blows that are necessary for our primary air force." In May 1946 the War Department thought that the separate air force should develop and operate all military air resources except for carrier- and water-based aircraft deemed essential for Navy and Marine Corps operations and for such land-type aircraft as were necessary for the internal administration of naval affairs, for training, or for air transportation over routes of sole interest to naval forces where such requirements could not be met by normal air transport facilities. The Army Air Forces was already performing long-range reconnaissance, and the War Department proposed that it could provide such reconnaissance to the Navy and also meet surveillance requirements for antisubmarine warfare. As for the Marine Corps, the War Department agreed on the requirement for a "balanced fleet marine force including its supporting air component," but it wished to limit the marines to service with the fleet in connection with the seizure of enemy positions not involving sustained land fighting and with phases of amphibious warfare relating to waterborne aspects of landing operations. In rebuttal to these positions, the Navy insisted that to perform fleet reconnaissance, conduct antisubmarine warfare, and protect ocean shipping its aviation needs included a certain number of land-based planes completely under naval control and manned by naval personnel trained in naval warfare. The Navy insisted that the fleet marine force should participate with the fleet without limitations in the seizure or defense of advanced naval bases, in the conduct of limited land operations, and in amphibious warfare.<sup>13</sup>

In a letter to Patterson and Forrestal on 15 June 1946, President Truman agreed to eliminate the single armed service chief of staff, but he insisted that there would be a single department of defense with coequal army, navy, and air force branches. The president stated that naval aviation should be given every "opportunity to develop its maximum usefulness." He believed, however, that land-based planes for long-range reconnaissance, antisubmarine warfare, and protection of shipping should be manned by air force personnel. Truman approved Forrestal's plan for the continued functioning of the Marine Corps. Finally, the president expressed a



## AF IN NATIONAL DEFENSE

hope that unification legislation might be speedily enacted on the basis of the Army-Navy agreements as supplemented by his decisions on the controversial matters. Congress refused to be prodded and took no substantial action on the desired unification legislation during the remainder of 1946.<sup>14</sup> Acting again by executive order, Truman vested in the chairman of the Army and Navy Munitions Board the final authority over military procurement, and on 17 October he established the President's Scientific Research Board to supervise military research and development activities.<sup>15</sup>

At an informal conference in his home early in November 1946, Secretary Forrestal argued that the Army and Navy must make some new efforts to arrive at a mutually acceptable unification plan. According to agreement, Maj Gen Lauris Norstad, who was serving as the director of plans and operations on the War Department General Staff, and Vice Adm Forrest P. Sherman, now the deputy chief of naval operations, would work together to secure agreements. As a first effort Norstad and Sherman sought to draft a directive that would provide uniform instructions to unified theater commanders, who would be charged with operations of land, naval, and air forces. In 1941 and 1942 Army and Navy planners had debated procedures for the command of joint operations without reaching final conclusions. One proposal was that a theater commander should depend on his subordinate air, ground, and naval commanders for advice and could have a staff comprising men from his own service. A second concept was that a theater commander ought to have a joint staff of officers from all services, who, after collaboration with subordinate service commanders, would draw up plans that would secure unity of action while leaving a good degree of freedom to the subordinate commanders. Of all the theater commanders of World War II, only Admiral Nimitz organized and used a joint staff. General MacArthur's staff was entirely composed of Army officers. In Europe, although General Eisenhower's staff had officers from the several services, it was, nevertheless, dominated by Army and AAF officers. And, even though he organized theater air and naval commands, Eisenhower chose to command the theater ground forces personally and did not establish a theater ground command. Despite the fact that they recognized that they could not make rigid rules for the exercise of unified command in the theaters, Norstad and Sherman recommended that each theater commander employ a joint staff. The Joint Chiefs of Staff accepted this proposal and issued a directive on 14 December 1946 that required unified commanders to establish "a joint staff with appropriate members from the various components of the services under this command in key positions of responsibility."<sup>16</sup>

Following the agreement on unified theater command staffs, Norstad and Sherman resumed consideration of the higher level problems of armed service unification. They forwarded their agreements on these subjects to President Truman on 16 January 1947 and continued to work in the president's office where a draft of a proposed national security act was drawn up and submitted to Congress on 27 February. In the late spring, Senate and House committees held hearings

IDEAS, CONCEPTS, DOCTRINE

and made amendments to the bill, many of them designed to prevent any change in the status of the Marine Corps or naval aviation. President Truman signed the National Security Act on 26 July 1947.<sup>17</sup>

The National Security Act of 1947 created the National Military Establishment and made substantial changes in the nation's defense organization to include a separate Air Force, but the act represented federalization rather than unification of the armed services. To coordinate national security efforts, the act established the National Security Council, which would advise the president on the integration of domestic, foreign, and military policies. The Central Intelligence Agency, which superseded all national intelligence authority, would coordinate all governmental intelligence activities and report to the National Security Council. The National Security Resources Board was established to advise the president concerning the coordination of military, industrial, and civilian mobilization problems. Within the National Military Establishment, the secretary of defense was authorized to establish general policies and programs, exercise general direction, take steps to eliminate duplication, and to supervise and coordinate the budget estimates of the departments of Army, Navy, and Air Force. Each service secretary, however, was accorded direct access to the president and to the director of the budget. The law also provided that each department should be administered as an individual executive department. With its membership to comprise the chiefs of staff of the Army and the Air Force, the chief of naval operations, and the chief of staff to the president, the Joint Chiefs of Staff were provided a joint staff of not more than 100 officers and was charged principally "to prepare strategic plans and to provide for the strategic direction of the military forces." The act also provided for the organization of a Munitions Board and a Research and Development Board within the National Defense Establishment.<sup>18</sup>

On the same day that he signed the National Security Act of 1947, President Truman nominated James Forrestal as the first secretary of defense and issued an executive order prescribing the functions of the several armed forces. Guarantees for the unchanged status of the Marine Corps and for land-based naval aviation already had been added to the basic law. But Truman's executive order charged the United States Air Force to organize, train, and equip air forces for air operations including joint operations; to gain and maintain general air superiority; to establish local air superiority where and as required; to develop a strategic air force and conduct strategic air reconnaissance operations; to provide airlift and support for airborne operations; to furnish air support to land and naval forces including support of occupation forces; and to provide air transport for the armed forces except as provided by the Navy for its own use.<sup>19</sup>

**Key West Agreements on Roles and Missions**

Speaking on 26 July 1947, retired Lt Gen James H. Doolittle exclaimed: "This is the day Billy Mitchell dreamed of." Toward the end of a transition period

## AF IN NATIONAL DEFENSE

provided in the law, James Forrestal assumed the duties of secretary of defense on 17 September 1947 and on 18 September 1947 W. Stuart Symington took the oath of office as the first secretary of the Department of the Air Force. Although it hailed the National Security Act of 1947 as a substantial achievement, *Air Force Magazine*, voicing the sentiments of the new Air Force Association, pointed out that important matters remained to be resolved:

Still to be decided is the irritating question of where naval air authority ends and Air Force responsibility begins. . . Still to come are the increased economies which can only be achieved through the avoidance of duplication, multiple use of equipment, and a combined training program—and the even greater economies which will be realized only when it is possible to draw on one air force for the requirements of all other services.<sup>20</sup>

It is difficult to determine from available records exactly what opinions Air Force leaders held on the matter of integrating all military aviation into the United States Air Force. Even though his opinion was not official, Alexander P. de Seversky had suggested in *Victory through Air Power* that naval aircraft carriers would become unnecessary in view of the fact that "ultimately war in the skies will be conducted from the home grounds, with everything in between turned into a no-man's land." He also had argued that for purely aerodynamic and engineering reasons, naval carrier-based aircraft, which had to be designed to operate from the restricted areas of carrier flight decks, would always be inferior in performance to land-based aircraft of similar types.<sup>21</sup> On the basis of wartime lessons that carrier aircraft should be jet powered and able to carry heavier bombs, the Navy had initiated design of a 65,000-ton aircraft carrier in 1945; construction of the supercarrier, to be known as the CVA-58 or the USS *United States*, was begun prior to unification. The Navy conceived that the prototype flush-deck CVA-58 would be employed in task group, along with a *Midway*-class (CVB) carrier, two *Essex*-class (CV) carriers, and supporting and screening ships. Launching while the task group was still some 500 to 600 miles at sea, the CVA-58's long-range aircraft would neutralize hostile air bases ashore, permitting the task group to run within 200 miles of an enemy coast and launch its strike aircraft to accomplish naval missions.<sup>22</sup>

Shortly after he took office as secretary of defense, Forrestal remarked that the Navy believed that the Air Force wanted to get control of all military aviation, while the Air Force believed that the Navy was trying to encroach upon the strategic air prerogatives of the Air Force.<sup>23</sup> On 1 March 1948 the Joint Congressional Aviation Policy Board reported that there were basic differences of opinion between the Air Force and the Navy as to the mission of naval aviation set forth in Truman's executive order and in the provisions of the National Security Act of 1947. "As an example," the board reported, "the Navy interprets the law to permit it to develop any type of weapon and to base its plans and requirements on the utilization of any weapon. The Navy contends that it is complying with the law in disregarding the executive order on this point because the law and executive order are in conflict."<sup>24</sup>

## IDEAS, CONCEPTS, DOCTRINE

Secretary Forrestal told Gen Omar N. Bradley, shortly after the latter became Army chief of staff in February 1948, that the large aircraft carrier had already been approved and would be built.<sup>25</sup> Forrestal, nevertheless, concluded that the time had come to decide "who will do what with what." Hence, he assembled the Joint Chiefs of Staff at Key West, Florida, on 11 March 1948 to thrash out roles and missions. As basic guidance, Forrestal demanded that the three services each recognize the need for mutual support of each other's legal missions. According to Forrestal, the Joint Chiefs reached basic agreement that the Navy would proceed with the developments of weapons that it considered essential to its functions—including the 65,000-ton aircraft carrier and nuclear bombs that could be transported on naval aircraft—provided that the Navy would not develop a separate strategic air force. The Air Force recognized the right and need for the Navy to participate in an all-out air campaign and to attack inland enemy targets, for example, airfields from which hostile aircraft might be launched to attack a fleet. The formal agreements of the Joint Chiefs of Staff were subsequently approved by President Truman on 21 April 1948 and issued under the title of "Functions of the Armed Forces and the Joint Chiefs of Staff."<sup>26</sup>

Following historical patterns, the Key West agreement specified that the Army had primary interest in operations on land, the Navy in operations at sea, and the Air Force in operations in the air. Forces developed to meet the requirements of primary functions were to be employable in collateral functions that supported and supplemented the other services in carrying out their primary functions. The primary functions of the United States Air Force were: to defend the United States against air attack, to gain and maintain general air supremacy, to defeat enemy air forces, to control vital air areas, to establish local air superiority, to conduct strategic air warfare, to organize and equip air forces for joint amphibious and airborne operations, to furnish close combat and logistical air support to the Army, and to provide (with exceptions) air transport for the armed forces. In coordination with the other services, the Air Force was charged to develop doctrines and procedures for the defense of the United States from air attack, joint amphibious and airborne operations, and air defense from land areas. Specific collateral functions of the Air Force included a responsibility to interdict enemy sea power through air operations, to conduct antisubmarine warfare and protect shipping, and to conduct aerial minelaying operations. Among its primary functions, the Navy was to conduct air operations as necessary in a naval campaign; to establish local air superiority in an area of naval operations; and to perform naval reconnaissance, conduct antisubmarine warfare, protect shipping, and perform minelaying, including the air aspects of such tasks. The Navy's collateral functions required it to interdict enemy land, air power, and communications through operations at sea; to provide close air support for land operations; to furnish aerial photography for cartographic purposes; and to participate in the overall air efforts as directed by the Joint Chiefs of Staff.<sup>27</sup>

## AF IN NATIONAL DEFENSE

Speaking for the Navy, Vice Adm Arthur W. Radford subsequently described the Key West agreements as "one of the most remarkable documents that has ever been produced along those lines."<sup>28</sup> In a conversation with Forrestal on 16 March 1948, however, General Spaatz objected to a proposed press release to the effect that agreements in all major areas had been reached at Key West. Spaatz said that the question of whether there were to be two air forces or one air force had not been resolved.<sup>29</sup> Gen Hoyt S. Vandenberg, who succeeded Spaatz as Air Force chief of staff on 30 April 1948, assured Forrestal on 28 July that the Air Force was not trying to get control of all aviation but suggested that the nation could not continue to spend scarce funds on two duplicating programs—long-range bombers and supercarriers. "I said," Forrestal recorded in his diary in regard to the conversation with Vandenberg, "I was against the development of a new fleet of supercarriers by the Navy but I felt it was most important that one such ship, capable of carrying the weight of a long-range bombing plane, go forward."<sup>30</sup> In an article appearing in *Life* magazine on 16 August, Spaatz charged that the Navy's 65,000-ton carrier represented an attempt to create a second air force for industrial bombing when much still needed to be done to provide a truly balanced structure around the core of one air force.<sup>31</sup>

Noting on 9 August that the Key West agreements apparently had not provided a solution of disputes in the field of strategic air warfare, Forrestal asked General Spaatz and Admiral Towers to return from retirement for a few days and to set down their concepts of strategic air warfare as it might have to be waged in defense of the United States. In a memorandum on 18 August, Spaatz and Towers were said to have agreed that the Key West decisions were sound but in need of interpretation, that "no sharp line can be drawn between strategic bombing and tactical bombing," and that the Navy's ability to perform its primary missions would require it "to provide for the delivery of atomic bombs."<sup>32</sup> In an effort to clarify the Key West agreements further, Forrestal assembled the Joint Chiefs of Staff at the Naval War College in Newport, Rhode Island, on 20 August 1948. Here it was agreed that "each service, in the fields of its primary missions, must have exclusive responsibility for programming and planning, and the necessary authority," but that "in the execution of any mission of the armed services, all available resources must be used to the maximum overall effectiveness."<sup>33</sup> At a meeting of senior officers in the Pentagon on 24 August, Forrestal expressed optimism that problems of roles and missions finally had been resolved. "I am convinced that at the top command levels," he said, "there is a clear understanding of the exclusive role of the Air Force in the field of strategic air warfare and . . . the intent of the Air Force not merely to permit but to seek all the help it can get from Naval Air in the use of air power, either strategically or tactically. Likewise, the Navy is assigned the exclusive role in the field of anti-submarine warfare; and . . . the intent of the Navy is also to invite all the help it can get from the Air Force in carrying out this mission."<sup>34</sup>

Although progress was being made in determining the roles and missions of the armed forces, at least two retired Air Force officers continued to believe that all

IDEAS, CONCEPTS, DOCTRINE

military aviation should be consolidated. In December 1948 General Doolittle criticized the National Security Act of 1947 as "an unfortunate compromise" that had failed to accept Army Air Forces recommendations that there be one separate autonomous Air Force, complete coordination of the three armed forces, a head to the Joint Chiefs of Staff, and roles and missions designated by executive order rather than by legislation. Doolittle wished to concentrate all military aviation in the US Air Force: "One specialized branch of the Air Force," he said, "would operate with the Navy just as a specialized branch, the Tactical Air Force, now cooperates with the Army."<sup>35</sup> In October 1949 General Spaatz wrote: "The Navy now spends more than half its total appropriation in support of naval aviation. The result is that the Nation is dissipating its wealth and wasting aviation talent in supporting two air forces." Specifically queried about the Spaatz article, Secretary Symington emphasized that the view that there should be one air force was not an official Air Force position. "I know of no officer in the Air Force," he said, "who agrees with the position that there should be one Air Force for the country."<sup>36</sup>

**Unified and Specified Commands**

Although roles and missions were in dispute, the secretary of defense and the Joint Chiefs of Staff successfully provided command and control arrangements for unified and specified commands. When the unified theater commands were officially formed in December 1946, the Joint Chiefs of Staff continued to exercise command over them but designated an individual chief of staff as the executive agent for a particular unified command. When the Strategic Air Command was established, the general understanding was that the new command would be centrally controlled and directed by orders of the Joint Chiefs of Staff; but Air Force mission statements provided that the Strategic Air Command would operate in accordance with directives and policies received from the commanding general, Army Air Forces, and later the chief of staff of the Air Force. The Strategic Air Command could not be handled as a unified command (which included Army, Navy, and Air Force forces) since it was composed only of Air Force forces. To solve this problem, the Key West agreements authorized the Joint Chiefs of Staff to designate one of their members as executive agent for unified commands and for certain operations, and specified commands. A specified command thus came to be a single-service command under the Joint Chiefs. Though the Joint Chiefs ultimately stated that the Strategic Air Command had been responsible to them since 14 December 1946, they did not officially assign the mission of conducting strategic air warfare operations to the Strategic Air Command until 13 April 1949. At this time they provided that the Strategic Air Command—functioning under the Joint Chiefs of Staff with the Air Force chief of staff serving as their executive agent—was authorized to direct the strategic air offensive; assign targets, weight of effort, and timing of air operations; and coordinate strategic strikes with theater air activities to prevent interference between forces and secure maximum tactical

## AF IN NATIONAL DEFENSE

advantages.<sup>37</sup> As the first fruits of tangible unification, Secretary Forrestal issued, on 3 May 1948, a final directive uniting the Air Transport Command and the Naval Air Transport Service in a new command to be known as the Military Air Transport Service (MATS); the merger was effective on 1 June 1948. The new MATS was charged to provide air transport for the National Military Establishment under the command and direction of the Air Force chief of staff.<sup>38</sup>

### Building the Air Force's Internal Structure

Definitive planning for the organization of the air force in the postwar structure of the armed forces had begun within the War Department in the autumn of 1943. Establishing the structure of the separate postwar air force necessarily involved assumptions as to the fundamental purposes of military forces, the basic missions of the air force in national defense, and the probable nature of future hostilities. Closely related to each of these matters was the question about the amount of financial support that could be expected in the years of peace that were expected to follow the ending of World War II.

"The primary function of the armed forces is, when called upon to do so, to support and, within the sphere of military effort, to enforce the national policy of the nation," stated Maj Gen Thomas T. Handy's War Department Operations Division planning paper that went forward to General Marshall on 28 October 1943. "There must," Handy continued, "be a complete correlation of national policy with military policy; of the political ends to be sought with the military means to achieve them. Such correlation must be flexible; adaptable to changing conditions and changing needs."<sup>39</sup> Although the expressed idea that military forces should support national policy was relatively new in the United States, Marshall readily approved Handy's basic statement. In his final war report, Marshall additionally defined his own conception of the relationship of force to diplomacy. "Our diplomacy must be wise and it must be strong," he warned. "If our diplomacy is not backed by a sound security policy, it is, in my opinion, forecast to failure."<sup>40</sup>

Since the purpose of military force was to support national policy, Handy proposed that a force in being, not a potential one, was required "for prompt attack in any part of the world in order to crush the very beginnings of lawless aggression, in cooperation with other peace-loving nations."<sup>41</sup> General Marshall, however, would not approve the concept of a large standing Army because its cost would be prohibitive, because the men needed to fill its ranks would not be obtained by recruitment in time of peace, and because it would be repugnant to the American people. Marshall wanted to develop a system and an organization that would endure for years rather than be organized against the expectation that war might begin at some arbitrary date. "We were trying to avoid war," he explained, "but at the same time we carefully had to avoid a financial effect on our economy which would be as disastrous as a war might well be." With these basic beliefs, Marshall placed his faith in combat-ready air power rather than a large ground army. He

## IDEAS, CONCEPTS, DOCTRINE

endorsed Handy's paper with a marginal notation: "I think maintenance of sizeable ground expeditionary force probably impracticable except on a basis of allotment of fillers after six months. Having air power will be the quickest remedy."<sup>42</sup>

When Maj Gen Barney M. Giles, chief of Air Staff of the Army Air Forces, laid the basic ground rules for planning the postwar air force on 11 December 1943, he specified that the air force would be autonomous and would maintain "an 'M' day force, instantly ready to repel attack or to quash any incipient threat to world peace." Giles assumed that the air force would consist of a GHQ, six air forces, and air units stationed on a chain of permanent bases from the Philippines eastward to the west coast of Africa.<sup>43</sup> Brig Gen Howard A. Craig, chief of operations, commitments, and resources (OC&R), immediately protested the plan because it appeared to parcel out the air striking force among six commands. "Forty very heavy bomber groups," Craig argued, "could be moved from Kansas to prepared bases anywhere in the world in a matter of hours. This precious striking force should be retained centrally available for concentration against the enemy, safe from sabotage, treachery, or the dangers native to piecemeal distribution."<sup>44</sup> Maj Gen Westside T. Larson, commander of the Third Air Force, agreed with Craig: "The powerful very heavy air arm . . . , like a fleet 'in being,' must not be strategically disposed of in the Pacific or Atlantic areas on fixed or permanent location but on the contrary should remain a compact force, free to move and be temporarily based in any of the numerous strategic areas—strategy being a continuing element dependent upon the vacillating policy of foreign countries." Larson also urged that the postwar plan "should incorporate the operation of the Air Force directly under the Commander US Air Forces and not as a part of any task force organization that may be set up in the various strategic theaters."<sup>45</sup>

Although creating the Twentieth Air Force on 4 April 1944 established the precedent for the unified command and employment of strategic air striking forces, the postwar status of tactical air forces continued to be a problem. In December 1944 Brig Gen Frederic H. Smith, Jr., deputy chief of the Air Staff, stated that a proposal to establish a postwar tactical air force to handle air-ground training was "fallacious in principle and dangerous in implication." Smith argued that only two overseas theaters had established tactical air forces and he urged: "Strategic Air Forces must when the situation demands be employed in tactical operations and vice versa."<sup>46</sup> As has been seen, General Norstad was initially sympathetic to the tactical air force, but nuclear weapons caused him to change his mind. Since tactical air units obviously could not be employed until the strategic air offensive had been completed, Norstad favored the maintenance of a nucleus for a tactical air force that could be expanded after M-day.<sup>47</sup>

In view of the impending Allied victory in World War II, the air defense of the United States apparently was not considered to be of pressing importance. In a study prepared on 30 May 1945, however, Maj Gen H. R. Oldfield, the AAF special assistant for antiaircraft, pointed out that fighter-interceptors, signal aircraft warning services, and antiaircraft artillery units were complementary members of



## AF IN NATIONAL DEFENSE

an air defense team. "To divorce the antiaircraft artillery from this team and place it on a cooperative basis," Oldfield thought, "not only violates the principle of unity of effort and of economy of force but endangers the success of the air defense mission."<sup>48</sup> Maj Gen Donald Wilson, who had become chief of OC&R, proposed on 6 June 1945 that air defense commands ought to be organized in the United States and charged to give their full attention to defense work. Wilson was critical of the wartime arrangement wherein three continental air forces had been charged with air defense at the same time that they were principally concerned with training of air force units.<sup>49</sup> After studying air defense requirements, Arnold forwarded a study to the War Department Operations Division on 4 August 1945, which outlined the unitary problem of air defense and recommended that antiaircraft artillery should be transferred from the Army to the postwar air force.<sup>50</sup>

Few of the postwar organizational problems were as perplexing as the future of air transport and troop carrier aviation. The Air Transport Command wished to continue into the postwar period at a strength of approximately six squadrons, each with 10 four-engine transports. Brig Gen William D. Old and Lt Gen Lewis H. Brereton advocated establishing a postwar airborne army, which would combine airborne troops and troop carrier aircraft.<sup>51</sup> According to rumor, the War Department General Staff bounced the airborne army proposal from office to office, with no one liking it but everyone hesitating to disapprove it. In the end the War Department G-3 indicated that it preferred that the headquarters of a troop carrier command and of the airborne force be maintained separately but located in close proximity to permit intimate coordination without consolidation.<sup>52</sup> In assessing the potential impact of nuclear weapons on air force organization, however, Norstad offered the opinion that troop carrier aviation ought to be integrated into the Air Transport Command and that the air force ought to procure large transport planes that could provide mobility to a strategic bombing force or lift large numbers of ground troops.<sup>53</sup>

#### Postwar Air Organization Plans

When the Air Staff began to make plans for the postwar air force, it based its organizational conception on the War Department's plan to maintain a postwar Army of 1,700,000 men. On this basis, Arnold approved an initial air force objective on 25 February 1944 calling for 105 groups, divided into 40 very heavy bombardment, two heavy bombardment, four medium and light bombardment, 45 fighter, three reconnaissance, and 11 troop carrier groups. The size of this force was devised without consideration of cost, but the force would be capable of "striking quickly and forcibly" on M-day and Maj Gen Laurence S. Kuter defended it as being necessary to keep the peace in a troubled world. When the 1,700,000-man Army was brought to General Marshall's attention on 13 November 1944, however, he rejected it out of hand because the annual cost of supporting such an Army would be excessive.<sup>54</sup>

## IDEAS, CONCEPTS, DOCTRINE

To justify a more economical postwar plan, the War Department adopted more optimistic assumptions that an enemy would launch an all-out attack against the United States without a declaration of war and that the United States would have no allies for at least 18 months. But the War Department further assumed that "the United States will have cognizance of the possibility of war for at least one year, and during this year preparatory measures will be inaugurated." Marshall approved these assumptions on 13 March 1945.<sup>55</sup> A few months later, the War Department G-4 questioned the realism of the assumption that the United States would have 12 months' warning time; but the air force wished to continue using this assumption as the basis of its planning because it would pose a strong requirement for the development of alert national intelligence.<sup>56</sup> Given a year in which to mobilize, the Army Air Forces adopted a plan on 21 May 1945 calling for the retention of 78 groups in the interim air force. Since aircraft could not be stockpiled for a future mobilization emergency, Arnold also asked Congress to retain a substantial portion of the government-owned aircraft plants and machine tools on a standby status.<sup>57</sup>

When the 78-group strength was rejected by the War Department as financially impracticable, Lt Gen Ira C. Eaker, deputy commander of the Army Air Forces, reached a decision on 29 August 1945 that 70 groups with approximately 400,000 personnel would be the bedrock minimum strength required by the postwar air force. This absolutely minimum strength would provide a force that could be operationally ready on D-day and still provide training for a million and a half men that the air force would mobilize for a planned five-year war; it was the smallest size force that would keep aircraft production in a sufficiently ready state to meet mobilization requirements; and it was the size force that could man the essential air bases that would be required in a combat and mobilization emergency. The Army Air Forces projected that the 70-group strength would include 21 very heavy bomber, five light bomber, 22 fighter, three all-weather fighter, nine strategic and tactical reconnaissance, and 10 troop carrier groups, plus 22 separate specialized squadrons. This regular strength would be backed up by 27 Air National Guard and 34 Air Force Reserve groups.<sup>58</sup>

The reduction of the Army Air Forces postwar strength from 105 to 70 groups caused revisions in organizational planning. "In the interest of economy," General Eaker stated on 21 May 1945, "air power which can be applied to the accomplishment of more than one of its missions must not be duplicated."<sup>59</sup> The Headquarters Continental Air Forces already had begun to operate at Bolling Field on 1 April 1945; on 8 September its chief of staff, Maj Gen Samuel E. Anderson, proposed that the Continental Air Forces should be charged to provide a global striking force, to provide tactical air force units for cooperative training with Army and Navy forces, to plan the air defense of the continental United States, and to train combat units and crews for overseas service.<sup>60</sup> Seeking a similar organization of air transport resources, the Air Staff prepared a joint staff study on 5 September 1945 that recommended the consolidation of troop carrier and air

## AF IN NATIONAL DEFENSE

transport units into a single Air Transport Command, which would serve as the major headquarters over the Troop Carrier Command, a continental air transport division, and a foreign air transport division.<sup>61</sup> General Arnold never acted on the proposal to place all combat aviation under the single Continental Air Forces. Instead, on 5 December 1945 he directed that the Air Transport Command and troop carrier forces would remain a separate organizational status.<sup>62</sup>

#### Recognition of Research and Development

At the same time the Air Staff was considering the organization of the postwar air force, Arnold gave an increasing amount of his own thought to postwar research and development. In the war years, the Air Technical Service Command had been more concerned with production than with research and development.<sup>63</sup> Research and development responsibilities had been divided among the air communications officer on the Air Staff, the Air Materiel Command, the AAF Board, and the Air Proving Ground Command; the system had worked only because of the cooperation of the various commanders involved.<sup>64</sup> Convinced that American military research and development had often been inferior to that of its enemies, General Arnold asked Dr Theodore von Karman on 7 November 1944 to head and to organize an AAF scientific advisory group that would outline a research and development program to guide the air force for 10 to 20 years. Arnold informed von Karman that the "object of total war is to destroy the enemy's will to resist thereby, enabling us to force our will on him," and he asked that the scientific advisory group indicate the potential scientific lines of advance that the air force might take to accomplish a predominantly offensive mission.<sup>65</sup> After a year's study, the von Karman group would complete on 15 December 1945 a monumental report entitled *Toward New Horizons*.<sup>66</sup>

While the scientific study was progressing, Arnold continued to point out that the air force "must have enough money and enough people and enough facilities to carry on necessary experimental research and development work to keep the US Army Air Forces and US aviation in the No. 1 position which they now occupy."<sup>67</sup> In a talk to his staff on 12 January 1945, Arnold "drew a picture of the next war as starting without warning with thousands of pilotless 'things' suddenly raining destruction over Washington and other prime targets in the United States." As a defense in this scenario, he visualized "other 'things,' not only seeking out the enemy's weapons, but also counteroffensive weapons which would seek out and destroy the enemy's ability to manufacture the articles for waging war."<sup>68</sup> Appearing before a Senate committee on 18 October 1945, Arnold said:

The first essential of air power necessary for peace and security is the preeminence in research. . . . We must remember at all times that the degree of national security rapidly declines when reliance is placed on the quantity of existing equipment instead of its quality . . . . We must count on scientific advances requiring us to replace about one-fifth of existing Air Forces equipment each year and we must be sure that these additions

## IDEAS, CONCEPTS, DOCTRINE

are the most advanced in the whole world. To this end the best scientific talents of the country must be mobilized continuously and without delay.<sup>69</sup>

Air officers had a good appreciation of the importance of research and development, but they were much less sure as to how to organize for it. At this juncture, no one apparently suggested that research and development in air materiel should be divided from procurement and production. Based on a postulate that tactical research and proof testing ought to be separate from the development function, the AAF Board recommended on 29 April 1944 that the wartime relationship of the AAF Board, the AAF Tactical Center, the AAF Proving Ground Command, and the Air Materiel Command ought to continue unchanged in the postwar air force.<sup>70</sup> In September 1945 Brig Gen Eugene L. Eubank recommended that if the AAF Board were made directly responsible to the highest command level and augmented with highly qualified officers it would be "capable of solving problems of any magnitude related to Air Force development, tactics, and techniques."<sup>71</sup> Other authorities regarded the AAF Board as being only one of several important research and analysis agencies. Col Barton W. Leach, chief of the Operations Analysis Division, for example, suggested that the AAF Board, the Operations Analysis Division, the AAF evaluation boards, and the Scientific Advisory Group were so closely related in function that they ought to be placed under the unified direction of an Air Staff officer in charge of analysis, evaluation, and research.<sup>72</sup> Apparently without recognizing that he was circumscribing the province of the AAF Board, General Arnold established an All-Weather Air Forces Board at Lockbourne AFB, Ohio, on 16 June 1945 and charged it to evolve and implement a long-range research and development program for all-weather air operations. Without guidance from above, the Lockbourne center was soon reported to be more concerned with "gadgeteering" than with orderly investigation.<sup>73</sup> At Orlando, Florida, the AAF Board had enjoyed a close relationship with the educational facilities of the AAF School, but on 29 November 1945 the school was physically transferred to Maxwell Field, Alabama, where the Air University was being established.<sup>74</sup>

#### General Spaatz's Air Force Reorganization

In the period prior to November 1945, the Army Air Forces laboriously planned a postwar organization, but the final approval of all planning would be dependent on the wishes of Gen Dwight D. Eisenhower, who became Army chief of staff on 19 November 1945, and General Spaatz, who began to assume the duties of commanding general, Army Air Forces, when General Arnold requested retirement on 8 November. Although Arnold would not begin his terminal leave until 1 March 1946, he thought that his successor should have the responsibility for forming the policies that he would have to carry out. On 29 November, Eisenhower appointed a board of officers under Lt Gen William H. Simpson and charged it to prepare a definitive plan for the reorganization of the Army and the Army Air

## AF IN NATIONAL DEFENSE

Forces that could be effectuated by executive orders and that would permit the separation of the air force from the Army. On 15 November, Spaatz had noted that there was a "tendency to over-emphasize long-range bombardment, and to ignore the versatile application of air power." In January 1946, Eisenhower and Spaatz laid aside the concept that all combat air power might be concentrated in the Continental Air Forces and agreed between them that the major commands of the Army Air Forces should be the Strategic Air Command, the Air Defense Command, the Tactical Air Command, the Air Technical Service Command,\* the Air Training Command, the Air University, the Army Air Forces Center, and the Air Transport Command.<sup>75</sup> Even though the organization of the Tactical Air Command appeared to represent a reversal of earlier expressed concepts that combat air power ought to be capable of both strategic and ground support missions, Spaatz later stated that he organized the Tactical Air Command at his own volition with no pressure from General Eisenhower.<sup>76</sup>

The command reorganization of the Army Air Forces outlined by Eisenhower and Spaatz was keyed to the establishment of the Strategic Air Command, which was visualized as a long-range striking force equipped with atomic-capable B-29s and possibly B-36s. The Strategic Air Command's planes would be based in the United States and would be deployed to forward bases if necessary. Effective on 21 March 1946, Headquarters Continental Air Forces was redesignated as Headquarters Strategic Air Command; on 21 October 1946 the new headquarters moved from Bolling Field to Andrews Field, Maryland. In its mission statement, the Strategic Air Command was charged to conduct long-range operations in any part of the world at any time; to perform maximum long-range reconnaissance over land or sea; and to provide combat operations in any part of the globe, employing the latest and most advanced weapons. The Eighth and Fifteenth Air Forces were assigned to the Strategic Air Command.<sup>77</sup>

"We feel," stated Spaatz, "that the air defense of the United States cannot be left to chance. . . . We must be properly organized so that there cannot possibly be an air surprise such as occurred at Pearl Harbor."<sup>78</sup> AAF leaders continued to urge that the air defense of the United States should be a centralized system that would control fighter aircraft, radar, and antiaircraft artillery; and they believed that antiaircraft artillery should be integrated into the Army Air Forces. According to rumor, antiaircraft artillery officers in the Army Ground Forces did not want to integrate with the Army Air Forces. The Simpson board recommended that antiaircraft artillery should not be transferred to the Army Air Forces but that antiaircraft artillery units should be trained and attached to Army Air Forces units from time to time.<sup>79</sup> The Air Defense Command was activated at Mitchel Field, New York, effective on 27 March 1946, and the First, Second, Fourth, Tenth, Eleventh, and Fourteenth Air Forces assigned to it. The Air Defense Command was charged to provide for the air defense of the United States, but it was obvious

\* In March 1946 the Air Technical Service Command was redesignated as the Air Materiel Command

IDEAS, CONCEPTS, DOCTRINE

very early that providing tactical units to it would be difficult. Despite statements to the contrary, the War Department and the Army Air Forces held a relaxed view that air defense would be a mobilization measure. In the event of a war emergency, the Joint Chiefs of Staff would organize defense commands and make Navy, Strategic Air Command, and Tactical Air Command fighters available to the control of the Air Defense Command. In such an event, Air National Guard and Air Force Reserve fighter units would be mobilized and the Air Defense Command accordingly would be charged to organize, administer, train, and maintain the Air National Guard and the Air Force Reserve.<sup>80</sup>

Since the tactical air forces and ground forces had worked closely together in Europe, Spaatz wished to retain a close relationship between the headquarters of the Tactical Air Command and that of the Army Ground Forces. As a result, Headquarters Tactical Air Command was activated at Tampa, Florida, on 21 March 1946 but was moved on 27 May to Langley Field, Virginia, where it was proximate to Headquarters Army Ground Forces (later Army Field Forces) at Fort Monroe, Virginia. The mission of the Tactical Air Command required it to cooperate with land and sea forces in ground and amphibious operations and to train and equip tactical air units for operations anywhere in the world. It also was charged to promote "progressive development of air-ground coordination techniques and doctrines." Assigned to the Tactical Air Command were the Third and Ninth Air Forces and the IX Troop Carrier Command, but the latter was soon disbanded and replaced by the Third Air Force (Troop Carrier).<sup>81</sup>

In view of earlier decisions to retain them without change, the Air Materiel Command, the Air Transport Command, and the Air Training Command continued in being when the War Department reorganization was announced on 14 May 1946.<sup>82</sup> Still seeking to distinguish between the air transport and the troop carrier mission, the Army Air Forces stated the policy that the Air Transport Command would be responsible for air transport service between the United States and the overseas theaters and among the overseas theaters. The troop carrier units had to be prepared for airborne assault and for airlanded operations and for the performance of intratheater airlift at the discretion of the theater commanders.<sup>83</sup>

**Continuing Thinking about Research and Development**

Unlike the organization of the combat functions, which progressed rapidly toward a functional alignment of responsibilities, the establishment of a framework for air research and development was marked by numerous changes in plans. In order to "shake down" for peacetime operations, Headquarters Army Air Forces was reorganized on 15 September 1945 with five assistant chiefs of Air Staff: ACAS-1 (Personnel), ACAS-2 (Intelligence), ACAS-3 (Training and Operations), ACAS-4 (Supply), and ACAS-5 (Plans). Research and development functions, which had been handled by Organization, Commitments, and

## AF IN NATIONAL DEFENSE

Requirements, passed to ACAS-3.<sup>84</sup> In the last weeks before he retired, General Arnold spent most of his time thinking about the future development of the Air Force. At the advice of Dr Edward L. Bowles, Arnold, on 5 December 1945, directed the establishment of a deputy chief of air staff, research and development. Headed by Maj Gen Curtis E. LeMay, the new Air Staff office was charged to prepare the overall research and development program for the Air Force and to concern itself with policy matters affecting the research and development program. The Air Materiel Command would continue as the field agency responsible for research and development programs.<sup>85</sup>

At the same time that he was centralizing responsibility for future research and development in the Air Staff, Arnold wanted to initiate new research projects before plentiful wartime funds dried up. In September 1945 Arnold took Bowles with him on a trip to the west coast where, late in the month, they met Donald Douglas and F. R. Collbohm in a luncheon conference at Hamilton Field, California. At this meeting, Arnold proposed to divert \$10 million from the Air Force's fiscal year 1946 procurement budget and to commit it to a long-range project wherein the Douglas Aircraft Corporation would assemble a staff of civilian engineers and scientists to study the entire subject of intercontinental warfare and the best means of waging it. The staff would also be prepared to evaluate the military worth of competing systems of warfare, current and future, with the objective of providing air planners with the best possible guides as to the most economical and effective means of achieving the AAF mission. When Douglas agreed to undertake the project, the Air Materiel Command negotiated a \$10-million, three-year contract beginning in May 1946 for a study of future warfare. This contract was the genesis of the nonprofit Research and Development (Rand) Corporation, which would be located at Santa Monica, California, and which would split away from Douglas in a mutually agreeable action in 1948.<sup>86</sup>

In the summer of 1944 the Air Staff had discussed and dismissed a proposition that an air council ought to be created to sit in Washington and provide high-level policy guidance. This proposal was apparently voted down because of the belief that the Air Staff could act as an air council when such was necessary.<sup>87</sup> In spite of the transfer of the AAF School to Maxwell Field, where it would be redesignated as the Air University on 12 March 1946, air planning continued to visualize that the AAF Center would comprise the AAF Board and the AAF Proving Ground Command. In January 1946, however, Spaatz directed on 12 February that the Air Board be established with Maj Gen Hugh J. Knerr as its secretary-general. As formally established on 5 March, the Air Board comprised the commanding general, the deputy commanding general, the secretary-general, the commanders of major AAF commands, and such other retired officers, civilians, and Air National Guard and Air Reserve officers as the commanding general of the Army Air Forces might care to appoint. The mission of the Air Board required it to study problems and policies and make recommendations to the AAF commander.<sup>88</sup>

## IDEAS, CONCEPTS, DOCTRINE

Establishing the Air Board necessitated disbanding the AAF Board, since, as General Eaker observed, "there should not be two air boards." In his study of the matter, Norstad suggested that the Air Board already had assumed responsibility for advising the AAF commander on all general policies. He suggested that the AAF Board mission of reviewing and evaluating tests of materiel and new developments should be assigned to the AAF Proving Ground Command, thus allowing that command to review and evaluate its own tests. He recommended that the missions of the AAF Board, which required it to "determine lessons learned from current combat operations" and to "develop and recommend the doctrines and techniques to be used in the training employment of the Army Air Forces," should be assigned to the new Air University. Norstad pointed out that at the Air University "hundreds of instructors, spurred on by the sharp analysis and questions of thousands of highly-experienced students," would constantly evaluate combat doctrines. "They," said Norstad, "can probably do a better job, resolve a greater amount of sound air thinking into usable doctrine than any other group of men anywhere. And they will do it whether or not they are charged with it."<sup>89</sup>

The disposition of the AAF Board and the distribution of its missions closely followed Norstad's recommendations. On 8 March 1946 the AAF Center was redesignated as the AAF Proving Ground Command, and the center's personnel—together with that of the AAF Board—moved to Eglin Field, Florida, where the AAF Board was formally inactivated on 1 July 1946.<sup>90</sup> On the same day the Air Staff directed the Air University to develop basic doctrines and concepts for the employment of air power; to review, revise, and prepare basic AAF doctrines for publication; to maintain continuing research into the strategic, tactical, and defensive concepts of air power; to review and evaluate new tactics, techniques, and organization and make recommendations regarding them; to collect, analyze, and disseminate information on new methods and techniques of aerial warfare; to plan and supervise the development and testing of new and improved methods and techniques of aerial warfare; and to approve, activate, and designate test agencies and monitor all projects involving tactical unit testing.<sup>91</sup>

The redistribution of the missions and responsibilities of the AAF Board marked the completion of the postwar organization of the Army Air Forces. At Maxwell Field, Maj Gen Muir S. Fairchild immediately began to seek the resources that would permit the new Air University to accomplish its test and development mission. Tentative guidance led him to believe that the Air University would be assigned a fighter, a bomber, and a guided missile group, together with other units, which would serve as a test and development force. Hearing of the Air University's expectation, Maj Gen Elwood R. Quesada, commander of the Tactical Air Command, immediately protested that the organization of a test and development force would be an extravagant use of scarce tactical units, and he demanded that tactical experimentation and development be entrusted to the operational commands. On 13 May 1946 Spaatz agreed with Quesada and informed Fairchild that tactical groups would not be assigned to the Air University. He enjoined that



## AF IN NATIONAL DEFENSE

the Air University would devote itself to individual training and leave equipment and tactical tests and demonstrations to the Air Materiel Command, the Air Proving Ground Command, and the combat commands. "The doctrines taught at the Air University," Spaatz ordered, "will be those current in the various commands, approved as necessary by this Headquarters."<sup>92</sup>

Despite this curtailment in its mission, the Air University assumed many of the responsibilities of the AAF Board. At a meeting on 6 June, Eubank urged Fairchild to organize a small section or committee directly responsible to the Air University commander to accomplish the missions being transferred. "By keeping a separate group working together on these functions," Eubank explained, "I believe it will assure that the functions do not get lost and I believe it will help avoid the impression of a too academic interest in the problems that will come up."<sup>93</sup> To allay the suspicions of the combat commands, Maj Gen David M. Schlatter, deputy commander of the Air University, announced that in accomplishing its research, evaluation, and doctrinal functions, the Air University would "act in the capacity of a monitoring agency or steering committee utilizing the expert knowledge available in all of the commands of the Air Force."<sup>94</sup> On 18 June 1946, following Eubank's recommendation, Fairchild established a Research Section within the Air University's Academic Staff Division with spaces for 16 officers, most of whom were transferred from Eglin Field to complete projects on which they were assigned when the AAF Board was discontinued. A reorganization of the Academic Staff on 1 October 1946 resulted in the establishment of a Research Division with several sections and 18 officers. Since the division was evaluating rather than conducting research, the Research Division was redesignated as the Evaluation Division, Academic Staff, on 29 August 1947.<sup>95</sup> Cognizant that it was responsible for stimulating thinking and discussion on air power projects and for disseminating as well as formulating doctrine, the Air University began to publish the *Air University Quarterly Review* in May 1947.<sup>96</sup>

In spite of a rapid turnover of experienced officers in its research and evaluation function, the Air University worked off the backlog of projects that it had inherited from the AAF Board and undertook some new projects. Since it had no assigned combat units, the Air University relied on other commands to conduct tests. Especially where the Tactical Air Command was concerned, the split responsibility proved troublesome. In September 1946, for example, the Air University protested that the Tactical Air Command was providing very poor support for several test projects—notably the tactical tests of P-80 aircraft at March Field, California. Hearing of the protest, one Tactical Air Command officer retorted that the Air University ought to discontinue its research section and transfer the people to the operating commands where research ought to be performed.<sup>97</sup> The way in which the new system of preparing doctrine would function was gradually worked out. In August 1947, for example, the assistant chief of Air Staff for training and operations held a meeting in Washington to discuss the preparation of a common air defense doctrine. It was agreed that two panels would be established to prepare the

## IDEAS, CONCEPTS, DOCTRINE

doctrine. The Air University would monitor the panel concerned with policy and doctrine, and the Air Defense Command would monitor the panel studying tactics and procedures.<sup>98</sup> This same pattern would be repeated in other doctrinal studies.

**Organization of USAF Headquarters**

Even though the postwar organization of the Army Air Forces had been designed to provide for a smooth transition into the autonomous United States Air Force, some changes were necessary when the National Military Establishment got under way in September 1947. General Spaatz became chief of staff, United States Air Force, and General Vandenberg, who had been deputy commanding general and chief of Air Staff in the Army Air Forces, became vice chief of staff, United States Air Force. Looking forward to the establishment of the United States Air Force and not all sure that the postwar organization of the Army Air Forces would be suitable to the autonomous service, Spaatz had suggested that the Air University should use some of its highly experienced students to examine the whole scope of air organization. Prepared as a seminar activity in the first class of the Air War College, problem no. 4, "Proposed Reorganization Army Air Forces," was completed on 6 January 1947. This study recommended that the Headquarters United States Air Force should be "a policy and planning staff with virtually all the operational activity of the Air Forces to begin at the major command level below this staff." Believing that "wars are waged with two weapons—men and materiel—and the combination of the two provide for operations," the Air War College study recommended that all headquarters staffs in the Air Force should be organized into three activities: personnel and administration, materiel and logistics, and plans and operations. Possibly reflecting the views of Maj Gen Orvil A. Anderson, who was a founding commandant of the Air War College, the study also recommended that the most effective utilization of air power in an overall strategy required the consolidation of air defense, strategic striking, and tactical support forces into a single command. The study accordingly proposed to eliminate the Strategic Air Command, the Tactical Air Command, and the Air Defense Command and to place all air power capabilities under a single Air Combat Command.<sup>99</sup>

Whether by design or coincidence, Spaatz accepted the three-deputy system recommended by the Air War College when he reorganized Headquarters United States Air Force on 10 October 1947. This reorganization divided Air Staff functions between the deputy chiefs of staff for personnel and administration, operations, and materiel, and the comptroller, who would later be recognized as a deputy chief of staff. Some of the functions that had been exercised by the deputy chief of staff for research and development necessarily passed upward to the new statutorily created Research and Development Board of the National Defense Establishment. The October reorganization of the Air Staff placed the remaining responsibilities of the office in the Directorate of Research and Development

## AF IN NATIONAL DEFENSE

under the deputy chief of staff for materiel. The new director of research and development would serve as the military director of Doctor von Karman's Scientific Advisory Board but would otherwise be subordinated to the deputy chief of staff for materiel.<sup>100</sup>

During the negotiations over unification, the Air Board was said to have served Spaatz in a role similar to that of a "board of directors in a business organization."<sup>101</sup> With unification attained in the summer of 1947, however, General LeMay suggested to Spaatz and Vandenberg that it might be wise to establish a US Air Force aircraft and weapons board, consisting of all major air commanders. LeMay reasoned, "We should have more than just the staff experience in Washington participating in the discussions of new weapons." He thought that the new board would constantly survey the research and development program to ensure that proper weapons were emphasized, developed, and procured for the combat units.<sup>102</sup> When it was assembled for its first meeting on 19 August 1947, the newly created USAF Aircraft and Weapons Board was comprised of the Air Force deputy chiefs of staff and the major air commanders. Meeting on call during 1948, the Aircraft and Weapons Board examined, discussed, and offered formal recommendations on programs that were submitted to it by subcommittees of officers drawn from Air Force headquarters and from the major commands. As a vehicle for handling high-level problems, the Aircraft and Weapons Board rapidly eclipsed the Air Board, especially after January 1948 when General Knerr was transferred from the secretary-general position to assume other duties.<sup>103</sup>

Shortly after becoming chief of staff of the Air Force on 30 April 1948, General Vandenberg began to show dissatisfaction with the manner in which the Aircraft and Weapons Board (which he had had a large part in establishing) was functioning. With 15 senior members talking and voting there was much confusion, and it was difficult to prevent leaks of information out of such a large body. Vandenberg also believed: "In the final analysis, the top command of the Air Force is responsible for the weapons with which it will fight the war." Effective on 29 December 1948, Vandenberg accordingly established the USAF Board of Senior Officers, headed by General Fairchild, who had become vice chief of staff; the other members included the deputy chief of staff for operations, the deputy chief for materiel, and the commanding general, Air Materiel Command, as voting members. Both Secretary of the Air Force W. Stuart Symington and Vandenberg referred problems to this board, but neither attended its sessions nor sought to influence its deliberations, which commonly included a solicitation of opinions from the major air commanders. The establishment of the USAF Senior Officers Board foreshadowed the end of the Air Board, which finally became completely dormant in the autumn of 1949.<sup>104</sup>

## IDEAS, CONCEPTS, DOCTRINE

**The Air Force in the Developing Cold War Strategy**

When the War Department began its planning for a postwar defense establishment in 1943, no one identified a likely adversary for the United States. The fact that the Soviet Union would become an enemy to the free world apparently became known to different leaders at different moments. Thinking back to the time that General Bradley and he had gone forward to meet with Soviet Marshal Georgi K. Zhukov in May 1945, General Vandenberg recalled a feeling of foreboding about Russia. The Soviet army was digging in, and Zhukov proudly displayed new jet aircraft and Stormovik fighters that had technical features that American designers had said were impossible for the Soviets to achieve. "I remember talking to General Bradley," Vandenberg recalled, "about my concern over the apparent feeling . . . that the Russians had . . . masses of manpower and no brains."<sup>105</sup> Putting his thoughts on paper, Spaatz wrote Arnold on 11 October 1945: "With the rapid weakening of our forces in Europe and Asia, the USSR is able to project moves on the continent of Europe and Asia which will be just as hard for us to accept and just as much an incentive to war as were those occasioned by the German policies. . . . I believe we should proceed rather slowly toward demobilizing our armed forces, particularly units of our Strategic Air Command."<sup>106</sup> Looking back at the events of 1945, General Marshall agreed that the "confused and tumultuous demobilization was very injurious" and that it had weakened the diplomatic initiative of the United States. Marshall maintained that the United States could not have established "a very large force" in the period of postwar exultation, but he felt even more strongly that "the failure to establish a very definite procedure for maintaining our defensive posture was a very serious error."<sup>107</sup>

In 1945 and 1946 both the foreign and the military policy of the United States assumed that the United Nations "would gain rapid and growing recognition as a central factor in the establishment and maintenance of world security."<sup>108</sup> Based on this assumption, General Eisenhower directed that Army and Air Force strength levels for the fiscal year beginning in July 1946 should be kept to the minimum. In May 1946, Spaatz was willing to hope that the United Nations would establish international arrangements for collective security, but he was unwilling to rely upon a hope. "In modern war," he pointed out, "any nation losing command of the air approaches to its vital areas is in serious peril. . . . The surest defense will be our ability to strike back quickly with a counteroffensive, to neutralize the hostile attack at its source, or to discourage its continuance by striking at the vitals of the aggressor."<sup>109</sup> When it published its first plan for training and employment on 25 July, the Strategic Air Command pointed out: "No major strategic threat or requirement now exists nor, in the opinion of our country's best strategists, will such a requirement exist for the next three to five years." Serving in ACAS-3, Brig Gen Thomas S. Power endorsed the letter back with the admonition: "While the probability of a major strategic threat or a major armed conflict involving this

## AFIN NATIONAL DEFENSE

nation in the next three to five years may appear to be remote, the possibility of such an occurrence cannot be excluded."<sup>110</sup>

During 1946 General Spaatz strongly supported a 70-group strength for the Army Air Forces, but his greatest immediate problem was to salvage something from the explosive demobilization that would reduce the air arm to a strength in December 1946 of only 55 groups, of which two could be counted as combat ready. In the emergency, Spaatz viewed the Air Force mission as being. "(a) To provide a long-range striking force in instant readiness and with the power and capacity to destroy the storehouse of enemy weapons and thereafter to reduce the enemy's industrial capacity and war-making potential [and] (b) To provide in peacetime a minimum establishment for prompt and rapid expansion from peace to war." In the critical months of 1946, Spaatz gave first priority to "the backbone of our Air Force—the long-range bomber groups and their protective long-range fighter groups organized in our Strategic Air Force."<sup>111</sup>

When the Strategic Air Command was established, air strategists were said to have recognized that the adaptability of nuclear weapons to delivery by air at great distances "makes the airplane at present, and its descendants in the future, the greatest offensive weapon of all times."<sup>112</sup> The plans for the Strategic Air Command, however, were predicated on scientific reports that fissionable materials were very scarce and that a state of nuclear plenty was improbable. Arnold had stated that nuclear weapons would be scarce and very expensive.<sup>113</sup> As a result of this prediction, the Strategic Air Command planned to employ both high-explosive and nuclear weapons. To perform its mission, the command asked that it eventually be assigned 21 bombardment groups (very heavy), nine fighter groups (very long range), and three reconnaissance groups (very long range). When he was assigned to head the Strategic Air Command in 1946, Gen George C. Kenney immediately organized one wing with three B-29 groups as the atomic-capable strategic striking force.<sup>114</sup> The size of this force was described as sufficient "to fully exploit the expected availability and effectiveness of new bombardment weapons including the atomic bomb."<sup>115</sup>

Before World War II, air power had been unable to project across ocean barriers without the aid of surface craft, but the prospective development of 10,000-mile-range aircraft—including the Northrop XB-35 Flying Wing and the Consolidated XB-36—promised to open a new air frontier over the frozen wastes of the Arctic. "We must visualize," said Spaatz, "the launching of heavy blows from any point on the globe against any other point."<sup>116</sup> In November 1945 a 6,553-mile flight of four B-29s led by Brig Gen Frank A. Armstrong from Hokkaido to Washington over the top of the world demonstrated that the Arctic was no barrier to air travel.<sup>117</sup> The Strategic Air Command's plan for training and employment issued on 25 July 1946 acknowledged the concept of transpolar air operations and divided the world into three sectors of potential operations: North Atlantic, North Pacific, and Far East. In a future war the Strategic Air Command thought it certain that "there will be but one Theater of Operations covering the entire globe or at

## IDEAS, CONCEPTS, DOCTRINE

least the Northern Hemisphere." Moreover, the next war almost certainly would "be primarily an air war until air supremacy is obtained, since surface forces cannot successfully operate without that supremacy." The Strategic Air Command's concept of operational employment accordingly called for a centralized control of the global strategic bomber force and a periodic rotation of bomber, long-range fighter, and reconnaissance groups from home bases in the United States to forward bases in the North Atlantic, North Pacific, and Far East. In a war emergency the plan assumed that a relatively few atomic-capable B-29s would be employed, probably on the direction of the president, either as a part of larger B-29 formations or as individual aircraft that would strike at night or under cover of bad weather.<sup>118</sup>

"Destruction is just around the corner for any future aggressor against the United States. Quick retaliation will be our answer in the form of an aerial knock-out delivered by the Strategic Air Command." A public relations release thus explained the Strategic Air Command's concept of employment in August 1946.<sup>119</sup> As a matter of fact, however, the strategic striking force was very weak. The Strategic Air Command had the only two operational groups in the United States that were fully combat ready; SAC did not expect to have a total of four B-29 groups and two long-range fighter groups operational before February 1947.<sup>120</sup> Thus, the Army Air Forces was unable to measure up to its first postwar crisis, which occurred in August 1946, when two American C-47s were shot down by Communist pilots over Yugoslavia and the State Department proposed an immediate and aggressive use of air power against that country. Norstad had to point out that the Air Force was too weak to risk war. In place of the show of force over Yugoslavia, Assistant Secretary of War for Air W. Stuart Symington proposed an around-the-world B-29 flight, only to have this turned down by the State Department. In November, however, the Strategic Air Command was suddenly directed to send six B-29s to Europe. Led by Col James C. Selser, Jr., these planes left the 43d Bombardment Group's base at Davis-Monthan Field, Arizona, on 13 November 1946, made the trans-Atlantic crossing, and landed safely at Frankfurt, Germany, despite low ceilings and half-mile visibility. In a 12-day stay in Europe, the B-29s made flights along the borders of Soviet-occupied territory and surveyed airfields to determine their suitability for B-29 operations.<sup>121</sup>

#### Problems of Aircraft Procurement

Besides the explosive demobilization of its strength, the Army Air Forces found it impossible to procure new aircraft that were needed for modernization and to keep the aircraft producers of the United States in a solvent condition. Believing that national security required the maintenance of a healthy aircraft industry that could rapidly expand within a one-year period, Assistant Secretary of War Robert A. Lovett had sponsored the establishment of an Air Coordinating Committee with members from the War, Navy, and Commerce departments in December 1944.

## AF IN NATIONAL DEFENSE

After detailed study of mobilization requirements, the Air Coordinating Committee recommended on 22 October 1945 that the military services procure a minimum of 3,000 aircraft, or an airframe weight of 30,700,000 pounds, each year to keep the nation's aircraft industries in a condition that would permit rapid expansion. This recommendation was predicated on an assumption that there would be a civilian requirement of 325 commercial transports and 20,000 private airplanes each year.<sup>122</sup>

As it finally materialized, the Air Force 70-group and 22-squadron program called for a total of 6,869 aircraft, while the 27 Air National Guard and 34 Air Reserve groups would be authorized an additional 5,572 aircraft, making a grand total of 12,441 aircraft. To replace losses in a period of conflict in which the aviation industry was gearing up for war production, the Air Force wanted to maintain an additional reserve of 8,100 aircraft.<sup>123</sup> Based on estimates of attrition and a planned program of obsolescence that would transfer aircraft from primary to secondary missions, such as training, after a given number of years, the Air Force computed that the annual procurement requirements of the 70-group and 22-squadron program would be its proportionate share of the 3,000 planes which the Air Coordinating Committee indicated as being the figure that the military services needed to purchase annually. The Air Force would expect to maintain technical air supremacy.<sup>124</sup> "Quality of equipment is of major consequence," Spaatz explained. "Only technical air supremacy will permit an air defense capable of detecting and intercepting a possible surprise attack with the air weapons of the future; an air offense capable of destroying critical targets in enemy territory; and effective cooperation with the surface forces on land and sea."<sup>125</sup>

Despite their appreciation of the need for aircraft modernization, both Arnold and Spaatz found it difficult to justify aircraft purchases while the Army Air Forces was retrenching. During the last years of World War II, the Army Air Forces had placed heavy orders for modern aircraft. In fiscal year 1944 it had ordered 100 global-range B-36 bombers and 498 new P-80 jet fighters; in fiscal year 1945 it had ordered an additional 417 P-80 fighters and 100 P-84 jet fighters. With new planes on order from war appropriations, it was difficult to justify the purchase of more aircraft at the same time that tremendous holdings of war-surplus planes needed liquidation. Rather than incur criticism for purchasing new and improved transport aircraft at the same time that it was releasing planes to the civil airlines, for example, Arnold directed on 27 August 1945 that the AAF would reduce its procurement objectives for transports "to the absolute minimum for development purposes."<sup>126</sup> In fiscal year 1946, which began on 1 July 1945 and was the first postwar year, the Army Air Forces purchasing authorization was cut back to 622 aircraft—the principal models including 60 of the improved Superfortresses (designated B-50s), 250 twin-fuselage Mustang fighters (which had been adapted as an interim all-weather interceptor and designated as P-82s), and 141 P-84 jet fighters.<sup>127</sup>

## IDEAS, CONCEPTS, DOCTRINE

As it was drawn up in the spring of 1946, the postwar aircraft procurement plan of the Army Air Forces reflected the fact that large stocks of World War II planes were still combat capable, that atomic bombs were scarce, and that new jet aircraft were very expensive. Brig Gen Alfred R. Maxwell, chief of the Requirements Division (ACAS-3), visualized the following future aircraft requirements. Aircraft like the B-36 with its global range would be important as special weapons for employment against extremely distant targets—possible A-bomb targets, but such planes would not be procured in large numbers. Aircraft of the B-50 type would be the workhorse bombers for the medium range and would be procured in large numbers. Penetration fighters would continue to be the most important fighter type, but all-weather and interceptor fighters would increase in importance as enemy nations threatened US air supremacy. To give fighter support for long-range bombers, the Air Force proposed to develop a parasite fighter that would be transported by a bomber to a target area and then rejoined to the bomber for the trip home. Strategic and tactical reconnaissance planes would continue to be modifications of standard bomber and fighter models. Troop carrier aircraft would include large helicopters, which would replace gliders, and large transport models capable of moving completely equipped infantry and armored divisions to any combat zone in the world. As a matter of priority, the Army Air Forces wanted to develop jet bombers, but, with current technology, jet aircraft used large amounts of fuel and did not have the range demanded of bombers.<sup>128</sup>

In its budget requests for fiscal year 1947 the Air Force sought to follow the program summarized by General Maxwell and begin procuring the aircraft required for a modernized 70-group program. In its review of the military requests, the Bureau of the Budget severely reduced all items of the budget, including funds requested for aircraft procurement. The Bureau of the Budget struck out requests for authority to procure new transport aircraft on the ground that contractors would not be able to accomplish the proposed schedule although the Air Force believed that they could. The budget office also reduced the overall program by 35 bombers and 42 fighters; after Congress had voted aircraft purchase funds for fiscal year 1947, the Bureau of the Budget subsequently impounded \$30 million of aircraft procurement funds and transferred that amount to the pay and travel funds of the Army.<sup>129</sup> In fiscal year 1947 the Army Air Forces accordingly expended \$302,684,000 for aircraft procurement and placed orders for a total of 769 aircraft, including 73 B-50s, 96 B-45s, 80 P-80s, 191 P-84s, and 33 P-86s. The B-45 was a new, light jet bomber that was designated as a replacement for the A-26 as a ground support aircraft; the P-86 Sabre was a new swept-wing jet interceptor.<sup>130</sup>

The AAF aircraft procurement program for fiscal year 1947 was less than half of the Army Air Forces' proportionate share of the amount recommended by the Air Coordinating Committee as necessary to maintain a solvent aircraft industry.<sup>131</sup> In the spring of 1947, when it was drawing up its budget requests for fiscal year 1948, the Army Air Forces put in for 1,844 planes, a figure based on a modernization of 55 groups and 15 skeleton groups. This number was not keyed



AF IN NATIONAL DEFENSE

directly to any plan to keep the aircraft industry healthy.<sup>132</sup> An economy-minded House of Representatives, plus rising costs of aircraft, cut the Air Force program far below the requested figure. Based on an authorized expenditure of \$495,507,000, the Air Force issued procurement orders for 965 aircraft in fiscal year 1948. The purchase included 82 B-50s, 43 B-45s, 154 P-84s, 188 P-86s, and, for the first time since the war, 120 new troop carrier and transport aircraft.<sup>133</sup> The transports included 27 C-97s, a global transport version of the B-29; the troop carriers included 36 C-119 Flying Boxcars.<sup>134</sup>

First Policies on Missiles and Rockets

"The weapons of today are the museum pieces of tomorrow," General Arnold had warned when he was in the process of leaving office in November 1945.<sup>135</sup> Based on guidance provided in Doctor von Karman's *Toward New Horizons*, Arnold talked confidently about supersonic flight and intercontinental missiles. As drawn up in the winter of 1945-46 by the Air Materiel Command, a five-year Army Air Forces research and development program generally reflected the findings of von Karman's scientists and was designated to provide a continuity to air research and development efforts. The program sought to conserve scarce engineering and scientific resources of the nation, but it was predicated on the basic rule that the Air Force would not engage in in-house research and development unless private agencies were unwilling to do the work on a contract basis.<sup>136</sup> In explanation of the five-year program, General LeMay observed: "Time in this period of unprecedented scientific progress can be the decisive factor in the continued existence of the United States."<sup>137</sup> General Spaatz spoke of the requirement for maintaining a technical air supremacy; and, in a statement of general AAF policy in October 1946, he emphasized that "the Army Air Forces must maintain a position of preeminent leadership in research and development."<sup>138</sup>

After studying the results of captured German scientific data, von Karman's AAF Scientific Advisory Group had reported that the Germans appeared correct in their conclusion that a transoceanic rocket could be developed. Von Karman also suggested that rocket-driven airplanes would be necessary to maintain air superiority. Rocket barrages with atomic warheads, von Karman said, could well become the only effective air defense weapons.<sup>139</sup> Von Karman's findings were quite different from those of Dr Vannevar Bush when he offered his scientific advice to the Senate Committee on Atomic Energy in December 1945. "We have plenty enough to think about," Bush said,

that is very definite and very realistic—enough so that we don't need to step out into some of these borderlines which seem to be, to me, more or less fantastic. Let me say this. There has been a great deal said about a 3,000-mile high-angle rocket. In my opinion, such a thing is impossible today and will be impossible for many years. The people who have been writing these things that annoy me have been talking about a 3,000-mile high-angle rocket, shot from one continent to another, carrying an atomic

## IDEAS, CONCEPTS, DOCTRINE

bomb and so directed as to be a precise weapon which would land exactly on a certain target, such as a city. I say, technically, I don't think anybody in the world knows how to do such a thing, and I feel confident it will not be done for a very long period of time to come. . . . I think we can leave that out of our thinking. I wish the American people would leave that out of their thinking.<sup>140</sup>

In making up its five-year research and development program, the Army Air Forces chose to believe von Karman rather than Bush. "There is great danger that the Air Force," stated General Knerr, secretary-general of the Air Board, in February 1946, "may find itself in the position of the Coast Artillery and the Navy in the not too distant future thru failing to realize that the airplane can well join the battleship and antiaircraft artillery as ineffective weapons carriers. The aerial missile, by whatever means it may be delivered, is the weapon of the Air Force."<sup>141</sup> During 1946, the Air Force accordingly negotiated a contract for Project MX-774 with Consolidated-Vultee Aircraft for study and investigation of missile guidance and control, rocket engine swiveling, and lightweight missile structures—the whole project looking toward the eventual development of an intercontinental ballistic missile. Another contract was negotiated with North American Aviation for rocket propulsion and for research and development of a pilotless aircraft, which would become known as the Navaho. In yet another contract, the Rand Corporation was asked to investigate the feasibility of a minimum-orbital satellite that would provide photographic reconnaissance of inaccessible areas of the earth.<sup>142</sup>

Despite the fact that it attached great importance to its five-year research and development program, the Air Force was not notably successful in getting funds for it. For fiscal year 1947, Congress appropriated \$186 million for AAF research and development.<sup>143</sup> General LeMay was certain that all of this money could have been obligated by the end of the fiscal year, though not at a uniform rate. The Bureau of the Budget, however, did not feel that all of the appropriation could be obligated. In January 1947 it notified the War Department that the fund would be cut by \$100 million. After a réclame, the bureau released \$25 million of the amount in question but continued to impound \$75 million of the air research and development fund, which was transferred to pay and travel of the Army, where there were deficiencies.<sup>144</sup> Both President Truman and an economy-minded House of Representatives reduced requested Air Force appropriations for fiscal year 1948, with the result that Congress finally appropriated only \$145,300,000 for air research and development for the fiscal year beginning on 1 July 1947. This figure would be the nadir of Air Force research and development appropriations after World War II.<sup>145</sup>

Writing on 11 April 1947, General LeMay emphasized that "the greatest need at this time is assurance of a stabilized annual appropriation for research and development."<sup>146</sup> Later on, Department of Defense experts would state that the curtailment of research and development in the immediate postwar years had been a major mistake.<sup>147</sup> The reduction of air research and development funding had an immediate effect upon Air Force work on guided missiles. Making his last appearance as deputy commanding general of the Army Air Forces before the

## AF IN NATIONAL DEFENSE

House Appropriations subcommittee in March 1947, General Eaker explained that with an all-out program (similar to that which had expedited the nuclear weapon), a 5,000-mile-range missile probably could be developed in five years. The Air Force, however, could not bear the expense of such a program and had to progress on the research and development effort at a more leisurely pace, which might produce an intercontinental missile in 10 to 15 years. "We cannot," Eaker said, ". . . abandon the development of the very long-range very heavy bomber as a primary weapon of our long-range striking force but we should, as a wise precaution, spend the necessary experimental funds to insure that we are the first in the field with a long-range guided missile which may be the primary weapon at some future date, but probably not within 15 years."<sup>148</sup> As it happened, however, the Air Force was compelled to give even more emphasis in spending its scarce research and development funds to the support of the Air Force in being than Eaker had thought would be necessary. These projects included range extension, long-range strategic aerial reconnaissance, new jet bombers, high-thrust aircraft propulsion systems, short-range airborne guided missiles, and high-speed fighters.<sup>149</sup> In 1947 the Air Force reevaluated its guided missile requirements and gave priorities to research and development projects that promised to increase the capabilities of the Air Force in being. The new order of priority for missiles included: (1) missiles to enhance strategic air bombardment with conventional aircraft, (2) air defense missiles, (3) surface-to-surface missiles, and (4) interim missiles to include guided bombs and drone aircraft. Under this criteria and because of shortages of funds, the missile project MX-774 was not renewed in 1948, but the Consolidated-Vultee Aircraft Corporation continued some studies in the intercontinental ballistic missile field with its own funds.<sup>150</sup>

### Emerging Soviet Threats

In the winter of 1946-47 the United States began to recognize that its policy of cooperation with the Soviet Union was rapidly breaking down. The antics of the Soviet representatives in the United Nations, the Iranian crisis of 1946, the Greek civil war, and Soviet pressure on Turkey gave the United States a better appreciation of the bipolar nature of world power and of the challenge of Soviet expansionism. As W. Barton Leach wrote in February 1947, "if we have war it is going to be with Russia," but "if we have no war with Russia we shall have no war at all for at least two decades." Although Leach had returned to academic life at Harvard University from his wartime service in the Army Air Services, he remained a close friend of General Vandenberg's and he may well have expressed some degree of Air Force thinking.<sup>151</sup> In an appearance before the House Subcommittee on Appropriations also in February 1947, Brig Gen George A. Lincoln again demonstrated—with increasing urgency—the close relationship between military capabilities and foreign policy. "The War Department's broad policies . . .," he stated, "must be based on those of our State Department. Conversely, the State

## IDEAS, CONCEPTS, DOCTRINE

Department, in formulating its national policies must take into consideration the capabilities of the armed forces to maintain a respectable position in the world which makes our emissaries respected.<sup>152</sup> Revealing clearly for the first time that the United States recognized the menace of the Soviet Union, President Truman requested authority from Congress on 12 March 1947 to extend military and economic assistance to Greece and Turkey to enable them to combat internal Communist subversion and external Soviet pressure. In view of the deterioration of relations with the Soviet Union, General Spaatz began to speak openly of a war with "a continental empire" and the "problem of winning against great masses of people with great internal resources."<sup>153</sup>

With full support from the War Department, Spaatz submitted a budget for fiscal year 1948 that would have permitted the Army Air Forces to attain a minimum, permanent postwar strength of 70 groups and 22 separate squadrons. The Bureau of the Budget, however, reduced the air request to an amount sufficient to maintain a peacetime strength of only 55 groups and 17 separate squadrons. The Air Force, nevertheless, obtained authority to base its procurement and training objectives on a 70-group strength and to activate 15 groups and five squadrons that would not be manned or equipped.<sup>154</sup> In appearances before the House Subcommittee on Appropriations, Spaatz emphasized America's vulnerability to air attack from across the Arctic and urged that the only way to prevent bombs from falling on the United States "is to get them at the place they start from, and that is primarily our mission." Maj Gen Otto P. Weyland, chief of AAF plans, pointed out that America's air strategy was one of defense and retaliation. "It is conceivable," said Weyland, "that the United States will start an aggressive war. Hence, it is obvious that at the start of a war, we will be the recipient of an all-out surprise attack."<sup>155</sup>

In May 1947 Congress appropriated the \$400 million that President Truman requested as aid for Greece and Turkey, thus indicating approval for the Truman doctrine's objective of containing Soviet expansion. The first session of the 80th Congress was reluctant to vote military appropriations in the amounts requested. The House made a 10-percent cut in the AAF budget; part of it was restored by the Senate but only after General Eisenhower made a personal plea to get the money.<sup>156</sup> Some of the reluctance to vote military preparedness funds may have sprung from the findings of the President's Advisory Commission on Universal Military Training, which reported on 29 May 1947. This distinguished panel endorsed military preparedness as the surest way of checking international aggression. It believed that World War III would begin with atomic sneak attacks against the United States, but it felt that such attacks were not imminent. "For a period estimated by responsible scientists at not less than 4 years and not more than 10 years," the commission reported, "we can expect immunity from such an attack because we alone will possess the atomic bomb." In a final summation, the president's commission noted that "we cannot safely assume that we will have sole possession of atomic explosives beyond 1951, although most scientists and

## AF IN NATIONAL DEFENSE

engineers familiar with the production of the atomic bomb believe it will be 1955 at the earliest before an attack in quantity can be made against us.<sup>157</sup> As a matter of record, moreover, the Joint Chiefs of Staff, and specifically both Spaatz and Vandenberg, placed more emphasis on aid to threatened nations under the Truman doctrine and the Marshall economic recovery program than they did to attainment of the 70-group program. "The 70-group program," Spaatz testified, "should not be reached at the expense of arms aid to Europe." Vandenberg said, "that the 70-group program, as visualized by the Air Force, with Europe unprepared, would not be as efficient as a lesser number of groups with a sound economy of the United States and a western Europe that could resist aggression and give us time."<sup>158</sup>

Acting on the basis of this official line of thought and understanding that most of its units would be equipped with World War II aircraft, the Army Air Forces obtained authority in July 1947 to activate or organize all of the groups in the initial 55-group phase of the 70-group program and to have them in place with some degree of operational effectiveness by the end of the year. In the final allocation of strength, the 55 groups included 13 very heavy bombardment, three light bombardment, 24 fighter, seven reconnaissance, and eight troop carrier groups.<sup>159</sup> Each major command sustained a reduction of combat strength, but the new allocation indicated that the Army Air Forces was beginning to mobilize against a particularized strategic threat somewhat different from the generalized concepts in initial postwar planning.

"As the initial blow will come from the air and be delivered by air power," stated Gen George C. Kenney, who headed the Strategic Air Command, in September 1947, "the answer must be for us to maintain our air power strong enough to deter any possible enemy from attacking us."<sup>160</sup> Under the 55-group phase, 12 very heavy bombardment groups, five fighter groups, and one very long range reconnaissance group were assigned to the Strategic Air Command.<sup>161</sup> Even though the Strategic Air Command enjoyed priorities in manning and equipment, it did not obtain new equipment or a complete acceptance of its operational concept. Immediately after V-J Day, the Twentieth Air Force had been assigned to the Pacific theater; hence, one very heavy bombardment group and one very long range reconnaissance squadron continued to be assigned to the Far East Air Forces in the Pacific. The Strategic Air Command maintained that these two units should be placed under its command and that their functions should be performed by SAC groups which would stage to Pacific bases as necessary. But Gen Douglas MacArthur, commander in chief, US Far East Command, did not agree to give up those units.<sup>162</sup> Other than the fact that B-29s would be unable to reach many targets in the Soviet Union, the Strategic Air Command's most pressing aircraft problem in organizing to meet the growing Soviet threat concerned fighter escort. The Army Air Forces accepted the position that "the necessity of providing adequate fighter protection for very long range bombardment aircraft was conclusively demonstrated during World War II." To protect its bombers against hostile jet

## IDEAS, CONCEPTS, DOCTRINE

fighters, SAC would require jet fighter escorts. However, no American jet fighter had enough range to escort a B-29, and it was problematical whether jet aircraft could escort relatively slow conventional B-29s. Pending solution of the problem, the Strategic Air Command indicated that it would expect to operate its bombers over hostile territory only at night.<sup>163</sup>

In initial postwar planning, the Army Air Forces had considered air defense essentially a mobilization problem. When he was named to head the Air Defense Command, Lt Gen George E. Stratemeyer accordingly was instructed to give most of his attention to establishing an aircraft control and warning system and to managing the Air National Guard and Air Reserve, which would, upon mobilization, provide fighter units for air defense.<sup>164</sup> As thus laid out, the air defense mission appeared simple, but Stratemeyer found it complex. Thinking in terms of scarce military funds and the eventual need to detect and destroy supersonic jet aircraft and nuclear missiles, Stratemeyer thought that the first priority in the Air Force budget should be given to research and development, the second to the Strategic Air Command, and the third to the air defense system.<sup>165</sup> Stratemeyer believed that both the equipment and doctrine for air defense was obsolete and he urged that a minimum nucleus of regular Air Force interceptor groups ought to be assigned to the Air Defense Command.<sup>166</sup> While it held to the concept that all available fighter units would be assigned to air defense in an emergency, the Army Air Forces agreed that the Air Defense Command should have some regular groups of its own. Thus, a fighter group was activated at Dow Field, Maine, in November 1946, and two additional fighter groups (all-weather) were assigned to the command in May and June 1947 with stations at Mitchel Field, New York, and Hamilton Field, California.<sup>167</sup> The fighter groups assigned to air defense were withdrawn from the Tactical Air Command. Despite efforts to dramatize the tactical air mission, General Quesada found it hard to maintain a going organization. Shortly after its establishment, the Tactical Air Command organized its assigned groups into the Ninth Air Force and the Third Air Force (Troop Carrier), but, because of the reduction in its troop carrier units, the latter organization was inactivated on 1 November 1946.<sup>168</sup> Since most tactical air units were assigned to the Far East Air Forces, the United States Air Forces in Europe, the Alaskan Air Command, the Pacific Air Command, and the Caribbean Air Command, the Tactical Air Command had only one light bombardment, three fighter, three tactical reconnaissance, and three troop carrier groups as its share of the 55-group strength.<sup>169</sup>

#### The Finletter Commission

After he had become secretary of defense, Forrestal noted, "At the present time, we are keeping our military expenditures below the levels which our military leaders must in good conscience estimate as the minimum which would themselves ensure national security. By doing so we are able to increase our expenditures to

## AF IN NATIONAL DEFENSE

assist in European recovery." Forrestal considered that the United States was taking a calculated risk that was justifiable. "As long as we can out-produce the world, can control the sea and can strike inland with the atomic bomb," he wrote, "we can assume certain risks otherwise unacceptable in an effort to restore world trade, to restore the balance of power — military power — and to eliminate some of the conditions which breed war."<sup>170</sup> Forrestal's reasoning held good only as long as the United States possessed an aircraft industry that could meet the mobilization requirements of the nation's armed forces. By the spring of 1947 it was evident that many of the postwar assumptions regarding this industry were in error. The widespread assumption that a rising demand for commercial aircraft would help tide a number of companies over readjustments failed to materialize; the aircraft industry remained from 80 to 90 percent dependent on government purchases of military aircraft. The Air Force and the Navy had been unable to purchase a quantity of aircraft required to keep industry solvent, and the changing year-to-year purchasing programs had caused higher pricing of aircraft, thus reducing the quantity that could be purchased. Jet aircraft, moreover, cost substantially more than conventional planes, thus further decreasing quantity procurement.<sup>171</sup>

Despite their pressing concern for European recovery, both President Truman and Congress showed increasing alarm about the state of preparedness of the American aircraft industry. At the recommendation of the Air Coordinating Committee, Truman appointed a committee on 18 July 1947 headed by Thomas K. Finletter and charged it to make an objective inquiry into national aviation policies and problems and to assist him in formulating an integrated national aviation policy. The President's Air Policy Commission assembled on 29 July, held formal hearings from 8 September to 3 December, and completed its report on 30 December 1947.<sup>172</sup> Meanwhile, Congress — where the Republican party held a majority — felt "a general concern over national security and the threatened bankruptcy of the aircraft industry and civil air carriers." Authorized on 22 July 1947, a temporary Joint Congressional Aviation Policy Board was formed with Sen Owen R. Brewster as chairman. This board organized an advisory council of civil aviation representatives and retired military leaders, including General Arnold. The congressional board held its first meeting on 15 September. Although it held frequent meetings of its advisory council and staff, after the first session the panel chose to use the elaborate testimony of the president's commission rather than call witnesses. The Joint Congressional Aviation Policy Board made its report to Congress on 1 March 1948.<sup>173</sup> Although the conclusions of the Finletter and Brewster investigations were quite similar, the Brewster board was more pronounced in its criticism of the defense establishment. From the outset of its investigation, moreover, the Brewster board believed that "the primary problem of national aviation policy was one of providing well-balanced military and naval air forces rather than one of finding means to maintain an aircraft industry. If the former were accomplished," the board believed, "the health of the latter would be assured."<sup>174</sup>

IDEAS, CONCEPTS, DOCTRINE

In November and December 1947 the testimony of influential witnesses before the President's Aviation Policy Commission manifested a growing awareness of the importance of US military strength but illustrated diverse opinions as to what its composition ought to be. "Insofar as our thinking about preparation, readiness for war, or national security . . . is concerned," said Secretary Forrestal,

we are faced with the hard and solid fact that as a democracy we do not start wars and therefore can never be in a complete state of readiness. . . . This nation's experience has been a clear demonstration that peace will not be furthered by the neglect of military strength. . . . In the past, we have invited aggression by that neglect. The military policies of this nation stem from a single desire and obligation. That is to use our strength as a force for peace

He emphasized the close relationship between the State Department and the National Defense Establishment. "One of our principal tasks," he said, "is to see to it that there is integration between our foreign policy and our military attitude. In other words, to see to it that the policy does not outstrip power."

Forrestal pointed out that America's concept of national security had changed. Before World War II, he said,

our concepts of security were the integrity of our own domain, and the freedom from . . . attack or danger of invasion . . . In my own view . . . our security is now far broader than that. Our security is . . . our ability to contribute to the reconstruction of the world, and . . . our military requirements have to be fitted into the pattern of what we do toward the other larger results, in other words, the reconstruction of society.

He also said: "It would not serve us to have the greatest military establishment in the world and concurrently be going down the road to continued and continuous inflation." He did not agree that the individual military services should present their requirements to Congress because "even in wartime, you could never meet the requirements of all the services . . . there has to be an accommodation of both . . . saying what we need and then someone saying what we shall get." As for air power, Forrestal believed that "the United States must have air forces sufficiently powerful to protect its own security and territory and sufficiently powerful and versatile to be capable of making swift and effective counterattacks in the event of war." He felt that air power should be developed over a period of years in an orderly manner, and he expected that the Joint Chiefs of Staff would provide a strategic plan for the military establishment which would give "an opportunity to bring into better balance the components of that establishment."<sup>175</sup>

Leading the Navy testimony before the President's Air Policy Commission, retired Adm Chester W. Nimitz provided a statement prefaced with a warning: "Unless we retain our ability to control the sea . . . we may eventually find ourselves exchanging long range air attacks which will be indecisive alike against ourselves and our enemies, but at the same time damaging to our own cities and vital installations." Nimitz emphasized that naval aviation was an integral part of the fleet "I cannot . . . accept the idea," he said, "that naval aviation is a part of the Air



AF IN NATIONAL DEFENSE

Force. . . I regard the Navy, the Air Force, and the Army as you would the three legs of a stool . . . and I think each one of those forces must be strong enough to carry out the mission which is assigned to it." Secretary of the Navy John L. Sullivan argued that "any de-emphasis in Naval aviation spells the end of America's control of the sea." "During the war," he said,

England learned that whenever a sufficient number of German bombers came over on a determined raid, enough of them got through to give a great deal of trouble. . . . Later on, when the bombs kept coming over it was most apparent that the only defense against determined air attack or guided missiles—and the same proves true in the atomic techniques—the only defense is to . . . put a very large number of men on ships, transport them overseas and capture the platforms from which those weapons were launched.<sup>176</sup>

"I believe in air power, without 'ifs,' 'buts,' or 'however's,'" stated former Secretary of War Robert P. Patterson. "I believe that our national defense should be centered on air power . . . to a far greater degree than is the case at present. It is my opinion . . . that we will not need the strongest Army in the world or the strongest standing Navy in the world, but we will need the strongest Air Force in the world."<sup>177</sup> Secretary of the Army Kenneth C. Royall described air power as "our first line of defense in the event of war," but, in view of the fact that World War II had had "to be won by tanks, guns and men, on the ground," he asked the commission "not to forget that the Navy and the Army, as well as the Air Forces, must be taken into account in cutting up shares of national defense."<sup>178</sup> Representing views of a scientist, Dr Carl T. Compton, president of the Massachusetts Institute of Technology, stated that the question of whether more powerful nuclear weapons could be developed was still in the realm of speculation. However, he felt that a surprise atomic attack against the United States even with current weapons would be a "very unpleasant . . . prospect." He recommended that for a mobile striking air force to be employed "as a strategic weapon against the most important of the enemy's sources of industrial and military warfare." "I believe," he concluded, "that the existence of a striking Air Force of that type, always ready as a threat of retaliation, would be the strongest single thing that we could do in this country, to act as a deterrent against aggression by any other nation."<sup>179</sup>

Appearing in behalf of the Air Force, Secretary Symington offered the view that the United States had been "forced into a position of world leadership and of responsibilities of a global extent" at the same time that it had "lost the cushion of time and distance." Spaatz described the major segments of the Air Force plan for national security as being the 70 combat groups, adequately manned and equipped civilian components, plans and installations for aerial defense of the United States, a research and development program second to none, vigorous and alert aircraft manufacturing and air transport industries, and an industrial mobilization plan. Both Spaatz and Vandenberg devoted most of their testimony to explaining the aircraft requirements of the 70-group program.<sup>180</sup> Maj Alexander P. de Seversky, however, discussed broader aspects of air warfare. "As long as we use piloted

IDEAS, CONCEPTS, DOCTRINE

aircraft," he argued, "the destruction of the enemy cannot be accomplished without first assuming control of the air above his territory. . . . Penetration by piloted airplanes, even with jet and rocket propulsion, will be unthinkable without all-out air combat. Only with the advent of intercontinental rockets can there be any talk of penetration without combat." He pointed out that the 70-group Air Force would not necessarily represent air power in being in the full strategic sense. "A strategic military force is one which is self-sustained in its own medium, regardless of its base; capable of assuming control of its medium while denying it to the adversary. By thus assuming freedom of action in its own medium, it can bring about the end of hostilities through the direct application of force upon the enemy's means to wage war." In the past, armies had been strategic forces on land and navies on the high seas. "Today," he said, "when neither of them can maintain a battle under hostile skies, they have ceased to be strategic forces and become auxiliaries to Air Power." De Seversky conceived that an air force in being should have two main divisions: an intercontinental striking force large enough to paralyze an enemy's industrial establishment and a continental defense force of a size sufficient to defend the vital industries of the United States.<sup>181</sup>

"We believe," stated the President's Air Policy Commission on the basis of testimony presented to it, "that the United States will be secure in an absolute sense only if the institution of war itself is abolished under a regime of law." Since early attainment of this condition seemed doubtful, the commission found that "our security includes . . . winning any war we may get into . . . not losing the first campaign of war . . . not having our cities destroyed and our population decimated in the process of . . . winning the first campaign . . . not having our way of life . . . taken from us in preparing for war."<sup>182</sup> The Joint Congressional Aviation Policy Board reported that the only defense against modern war "will be [a] swift and more devastating retaliatory attack." The board also noted that

the primary military objective of modern warfare is no longer the armed forces of the enemy. The primary objective is the war potential or . . . the industrial organization and the resources of the enemy. . . . The great contenders in a possible war of the future will engage in the political and then the industrial phases of that war. The political phase of the next war has been actively engaged in since V-E Day—and the industrial phase is clearly recognizable.<sup>183</sup>

With professed reluctance, the President's Air Policy Commission stated that "relative security is to be found only in a policy of arming the United States so strongly (1) that other nations will hesitate to attack us or our vital national interest because of the violence of the counterattack they would have to face, and (2) that if we are attacked we will be able to smash the assault at the earliest possible moment." The commission recommended that the United States should maintain "an adequate Navy and Ground Force" but that the military establishment "must be built around the air arm. . . . Our military security must be based on air power." In view of the violence of an enemy attack against the United States, the commission stated: "What we must have and can support is a reasonably strong

## AF IN NATIONAL DEFENSE

defensive establishment to minimize the enemy's blow, but above all a counteroffensive air force in being which will be so powerful that if an aggressor does attack, we will be able to retaliate with the utmost violence and to seize and hold the advanced positions from which we can divert the destruction from our homeland to his.<sup>184</sup>

The President's Air Policy Commission sought to base its military aircraft procurement recommendations on a firm estimate of the date by which an enemy nation might be expected to possess nuclear weapons. The commission found that expert opinion on the subject varied from that of some highly qualified persons who said that other nations might already possess the weapons to that of other equally well-qualified persons who estimated that other nations would not possess atomic weapons in quantity for fifteen years. The commission thus set its own date of 1 January 1953 as A-day—the date when the US air arm should be able to deal with a possible attack against the United States. The commission stated that a future hostility might well be a localized conflict or a practice war such as the Spanish civil war had been, but it urged that the United States must assume that "if the enemy can do it he will make a direct air assault on the United States mainland regardless how or where the first shooting starts." The commission recommended that immediate steps be taken to build the Air Force to 70 groups (6,869 first-line aircraft) and the Air National Guard to 27 groups (3,212 first-line aircraft) and to equip the 34-group Air Force Reserve adequately. The Air Force was also judged to require an additional reserve of some 8,100 aircraft. It recommended that the 70 groups should be ready for service by 1 January 1950 and the complete Air Force program should be in being by the end of 1952. The commission found it more difficult to evaluate Navy requirements for aircraft. Although the Navy would not be required to oppose a hostile surface fleet in the future, it would be expected to keep supply lines open to forward air bases and to overseas sources of essential war materials. The aircraft carrier would be the major ship of the future Navy; to carry out its future responsibilities (one of the most important being protection against modern submarines) the Navy would require 5,793 first-line planes plus about 5,100 in support. The Navy had presented strong arguments for increasing its air strength to 8,000 first-line planes with 6,500 planes in support, but the president's commission believed that such an increase would constitute a naval expansion which should be deferred until the Joint Chiefs of Staff had completed a strategic plan that would demonstrate the need for a naval expansion. In addition to providing the minimum-level combat air arm that the United States would require on 1 January 1953, the President's Air Policy Commission believed that expanded aircraft procurement would enable the nation's aircraft industries to maintain the industrial base necessary for a national mobilization emergency.<sup>185</sup>

The Joint Congressional Aviation Policy Board was openly critical of the fact that the Joint Chiefs of Staff had not completed a unified plan of action for a future conflict that would have allowed it to make an exact computation of the aircraft

## IDEAS, CONCEPTS, DOCTRINE

requirements of the Navy and the Air Force. In view of the "inability of the Joint Chiefs of Staff to prepare a unified plan," the congressional board accepted the unilateral statements of requirements offered to it under two plans of action: Plan A to provide the air strength necessary to mount promptly an effective, continuing, and successful air offensive against a major enemy, and Plan B to prevent the loss of a war at the outset of hostilities through effective retaliation but not a sustained offensive action. Plan A included the Air Force's 70-group program with 20,541 aircraft plus the Navy program of 14,500 aircraft, or a total of 35,041 aircraft to be procured between 1949 and 1953, when procurement would begin to level off. Plan B was substantially the same program, but with less reserve aircraft. "We believe," stated the Joint Congressional Aviation Policy Board, "that when . . . a unified plan has been determined, the total requirements of the armed services may be materially reduced below the totals of the estimates prepared unilaterally."<sup>186</sup> As an additional means of maintaining a desirable mobilization base, both the congressional board and the president's commission suggested that the armed services should give thought to contracting with civilian firms for part of the military's aircraft maintenance. Contract overhaul of military aircraft should result in monetary savings and would build up civil staffs trained in such work for use in a mobilization emergency.<sup>187</sup>

Some of the men who worked on the President's Air Policy Commission report expressed regret that the commission had not been more critical of the weakness of the overall defense plan for the United States.<sup>188</sup> De Seversky later suggested that the president's commission "strategically didn't make much sense" except to the aviation industry, because it recommended everything that flew—strategic aviation, tactical aviation, naval aviation, marine aviation, airlines, helicopters, and private flying. He described the division of the strategic problem into two phases, according to whether or not Russia had atomic weapons, as being unrealistic. "That, I thought," said de Seversky, "was a great fallacy because improved explosives don't necessarily change strategy; they may change tactics, but they do not change strategy. Whether you are carrying TNT or atomic bombs, you will have to win control over the medium through which you want to make a delivery. The means of delivery are more important than the explosives."<sup>189</sup> A board of Air Staff officers named by Secretary Symington to analyze the reports of the president's commission and the congressional board took more optimistic attitudes when it reported on 23 March 1948. These officers judged the four primary functions of the Air Force to be: defense against air attack, the capability to deliver an immediate retaliatory attack against an aggressor, tactical air support of ground forces, and gaining and maintaining air supremacy in order to carry out sustained air operations against vital enemy installations. Since both the commission and the board had recommended that the Air Force attain a 70-group strength, the board of officers recommended that the Air Force begin an immediate expansion toward that program.<sup>190</sup>

### Air Power and the Berlin Airlift

In the summer of 1947, prior to the organization of the National Defense Establishment and the investigations by the president's commission and the congressional board, the Army, Navy, and Air Force had unilaterally prepared their budgets for fiscal year 1949. The budgets were based on the overall target of \$10 billion that President Truman had indicated would be available for military defense. The service budgets supposedly were developed from Joint Chiefs of Staff plans, but the Joint Chiefs neither reviewed nor approved the detailed military budget. When Forrestal appeared before the president's commission, he let it be known that he would be very reluctant to disturb the structure of the fiscal year 1949 military budget, except on the urgent request of the Joint Chiefs of Staff.<sup>191</sup> The Air Force portion of the national defense budget for fiscal year 1949 allowed the operation of a maximum of 55 combat groups and 17 separate squadrons and provided \$700 million for the continued modernization of the combat groups by replacement of their World War II aircraft.<sup>192</sup>

In visualizing the expenditure of the \$700 million for new aircraft, Air Force planners committed enough funds in the 1949 budget for the purchase of enough additional jet fighters to equip a total of 13 of the Air Force's 24 fighter groups with these aircraft.<sup>193</sup> However, none of the available jet fighters could escort bombers to far distant targets. Still the Air Force accepted the doctrinal lesson of World War II that an attainment of a preliminary air superiority was necessary in order that surface operations could be undertaken successfully or that decisive bombing of an enemy's vitals could be accomplished. In July 1947, however, in the United States Strategic Bombing Survey report titled *Air Campaigns of the Pacific War*, Maj Gen Orvil A. Anderson questioned the air superiority doctrine. "Air superiority is not an end in itself," suggested Anderson "Operations must be evaluated in terms of the decisiveness of the action and the cost to our own war potential. If the over-all damage inflicted on the enemy significantly outweighs the cost of the operation in terms of manpower, materiel, and production potential, the operation may be strategically sound."<sup>194</sup> During World War II, the Eighth Air Force had found that the best method for daylight penetrations of Germany was with large bomber formations. In the summer of 1947, however, interceptor tests flown by the 1st Fighter Group against B-29s indicated that P-80 pilots had difficulty intercepting a single B-29.<sup>195</sup> As the speed of both bombers and fighters increased, General Kenney reasoned that dogfighting between aircraft would be impossible and that intercepting fighters might be able to make no more than a single head-on pass against a bomber.<sup>196</sup>

Although Air Force thinkers had begun to express cautious optimism that the employment of nuclear bombers without fighter escort might be strategically feasible, the USAF Aircraft and Weapons Board, when it began to study the problem of attacking Soviet targets in the autumn of 1947, was uncertain about the

## IDEAS, CONCEPTS, DOCTRINE

kinds of bombers that ought to be procured for the Strategic Air Command. At this time it still appeared that the future supply of atomic bombs would be very limited and that the Strategic Air Command would have to plan to use a heavy proportion of conventional bombs in a strategic air campaign. The major problem, however, was to penetrate Soviet defenses and attack heavily defended targets with atomic bombs.<sup>197</sup> The only intercontinental bomber that the Air Force had in prospect was the giant, conventional B-36. An order for 100 of these planes had been placed on 23 July 1943, but to meet price rises and the costs of improved engines this wartime order had been cut to 95 aircraft. Since the war appropriation covering the contract would run out in June 1948, the Air force would need new appropriations to complete it. The B-36 was large and appeared to be relatively slow, but it was the only aircraft that could bomb Soviet targets from bases in the United States.<sup>198</sup> B-29s and improved B-50s were already in the Strategic Air Command inventory, but these planes lacked the range to strike deep in Soviet targets and return. The Air Force had two jet strategic bombers under contemplation. In 1944 in response to a requirement, the Boeing Company had developed the six-jet, medium-range B-47. In 1946 Boeing had won the design contest for an intercontinental jet bomber that would be designated as the B-52. But, with available power plants and a requirement for built-in intercontinental range in its design stage, the B-52 was threatening to become even larger than the B-36.<sup>199</sup> Recognizing that Air Force bombers lacked global range, Col Dale O. Smith suggested in an article published in the autumn of 1947 that the Air Force might prepare its crews to fly one-way atomic combat missions. Smith suggested that the crews would have a good chance to evade and survive. Such blitz tactics would rapidly expend the bomber force, but Smith thought that there "seems to be little doubt that the nation making the first atomic bomb strike in force will be the victor."<sup>200</sup>

In an effort to clear up indecision within the Air Force regarding the strategic bomber program, General Spaatz formed a Heavy Bombardment Committee on 9 September 1947 with representatives from the Air Staff, the Strategic Air Command, the Air University, and the Air Materiel Command, and charged it to study "methods of and instrumentalities for air delivery of individual and mass atomic attacks against any potential enemy from bases within the continental United States." In its discussions, the bombardment committee shared the current concern that the B-36 might not have as good a chance to penetrate as would faster medium bombers. Based on this belief, the committee sought means to extend the range of medium bombers. General Kenney had already urged the development of tracked landing gears that would enable his bombers to operate from hastily prepared airstrips, possibly on the polar ice caps. Another alternative, favored by both the Strategic Air Command and the Air Materiel Command, was to develop air-to-air refueling equipment and to employ tanker aircraft that could refuel strike aircraft en route to a target. Such aerial refueling had been used in 1929 when then Major Spaatz and Captain Eaker had broken the world's aircraft flight endurance

## AF IN NATIONAL DEFENSE

record in the *Question Mark*. Thought had been given to the use of aerial refueling during World War II, but the technique was logistically infeasible for supporting massed bomber attacks that employed iron bombs. As a means of extending the range of fighter-escort aircraft, General Vandenberg had urged aerial refueling in 1945. Aerial refueling would be expensive, however, since two aircraft—a bomber and a tanker—would be required to accomplish a single sortie.

After studying all aspects of the bomber problem, the Heavy Bombardment Committee recognized that the most practical way to extend the range of existing medium bombers and to lighten the design weight of the proposed intercontinental B-52 jet bomber was to develop equipment and techniques for air-to-air refueling of bombers from specially equipped tanker aircraft. Aerial refueling also would permit the B-47 jet bomber, which was still in prototype awaiting a decision for production, to strike far distant targets. The committee, therefore, recommended that air-to-air refueling be developed as a matter of first priority. It, nevertheless, emphasized that the Air Force should not completely close the door on the development of aircraft with built-in range. Since much of the information about the B-36 was still speculative, the panel recommended that the Air Force ought to continue the funding of the 95 B-36s that were on order. The latter serial models of these B-36s could be equipped with improved engines, and it might be possible to convert some of the earlier serial B-36As into aerial tankers. At sessions held on 27-30 January 1948, the USAF Aircraft and Weapons Board accepted the Heavy Bombardment Committee's recommendations, and Spaatz formally approved them on 3 March 1948.<sup>201</sup>

In the winter of 1947-48, the Soviet Union began revealing its aggressive designs upon Western Europe. According to unofficial reports reaching the US State Department late in 1947, the Soviet general staff sought permission from the Soviet government to push troops straight into Western Europe, thus preempting the rebuilding of Western Europe with military force before Marshall Plan aid could become effective. As the story was told, however, the Politburo overruled the Red Army and issued orders for internal Communist strikes and revolts throughout Western Europe. The organization for revolution was activated in December 1947, but the essential structure of most European governments held up despite an agonizing week of strikes and disorders.<sup>202</sup> On 24 February 1948, however, a Communist coup d'état overthrew the government of Czechoslovakia, which had been a model of democratic rule in central Europe. Few Communist acts of aggression shook the Western nations as profoundly as the loss of this friendly republic to the forces of Soviet subversion.<sup>203</sup> In a top-secret message from Berlin on 5 March, Gen Lucius D. Clay, commander in chief, US European Command, reported that war might well be imminent. "For many months, based on logical analysis," Clay messaged, "I have felt and held that war was unlikely for at least ten years. Within the last few weeks, I have felt a subtle change in Soviet attitude which I cannot define but which now gives me a feeling that it may come with dramatic suddenness."<sup>204</sup>

## IDEAS, CONCEPTS, DOCTRINE

When he appeared before the House Subcommittee on Military Appropriations on 16 March 1948, Secretary Forrestal conceded that the international position of the United States had deteriorated. "Wars," he said, "are usually caused by the assurance on the part of an aggressive power that it possesses sufficient superiority to overcome any possible obstacles to the success of its military efforts. . . . Since the United States is a democracy—a form of government which traditionally does not start a war of aggression—its national defense policy must be directed at preventing the development of that tempting imbalance of power." Forrestal admitted that the president's commission and the congressional board had shown that the nation's air strength was less than its strategic position required. "There is no question," he said, "but that our national security would be greatly enhanced by such a powerful Air Force." He argued, nonetheless, that the armed forces budgets had "to strike a balance between funds which are available and expenditures which might be considered strategically desirable or even essential." Thus, Forrestal supported the \$10 billion military budget, which would maintain the Air Force at 55 combat groups and would keep the Army and Navy in an appropriate balance with this force. "While the Air Force and naval aviation alone may be the cutting edge," he concluded, "we must also have the logistical organization to back them up, the adequately equipped Ground Force to seize and hold the bases from which planes fly, the ships with which to supply and help protect such bases, and all of the other elements of balanced strength."<sup>205</sup>

Speaking to the same committee later in the same day, Secretary Symington emphasized that an Air Force in being provided two assets: "It serves as an active deterrent to any aggressor, and it is the force which envelops him in prompt and decisive retaliatory action if he risks war with the United States." In response to a direct question, both Symington and Spaatz, who accompanied the secretary, asserted that the minimum air power necessary for the security of the United States was the 70-group program. Symington agreed that the "maintenance of an adequate Army" was "essential to the effectiveness of the Air Force." Several hundred thousand Army troops would be necessary for "holding and servicing an airbase complex in a forward area." In subsequent testimony, Gen Omar N. Bradley, who had succeeded General Eisenhower as Army chief of staff, demonstrated the Army's importance by visualizing how a future war would be fought: "First, by repelling any attack made against us, and repairing the damage, and preparing the people to receive that shock without getting too discouraged. Next, we would immediately secure bases we do not now have from which he might attack us. . . . Next, we would try to launch a counterattack against him by air. The next phase would be trying to move those bases closer to the enemy."<sup>206</sup>

While congressional hearings on the defense establishment's fiscal year 1949 budget continued, the Soviet commander in Germany served notice on 1 April 1948 that his troops would begin to inspect Allied trains and trucks going to Berlin. The Soviet military blockade of Berlin was beginning although it would not be clamped down in earnest until June. When Forrestal appeared before the House Armed



## AF IN NATIONAL DEFENSE

Services Committee on 12 April, Representative Carl Vinson told him frankly that he intended to seek to secure an additional \$992 million for aircraft procurement funds to provide a 70-group Air Force. Answering a question that Forrestal had put to them earlier, the Joint Chiefs stated on 14 April that, based solely on military considerations, they believed that the administration should advocate a balanced military establishment commensurate with the 70-group program for the Air Force. To support such a balanced force, more than \$9 billion would need to be added to the fiscal year 1949 budget. Forrestal returned this report with an additional request that the Joint Chiefs gave him an estimate of the additional force which could be obtained with an additional \$3 billion rather than \$9 billion. Within the Air Force share of this increment, Spaatz figured that the Air Force could — by utilizing many mothballed planes rather than buying a complete complement of new aircraft — afford to activate all of the 70-group program except for two light bomber and two troop carrier groups, which could be delayed since they would be scheduled to support ground divisions that would not be active before 1950. Apparently accepting the Joint Chiefs' planning, President Truman forwarded a supplemental appropriation request to Congress on 13 May asking for \$3,068,441,000.<sup>207</sup> Truman stated that every effort should be made to reassure the public that the increased appropriation was "not one of mobilization for war, but rather one of maintaining a firmer foundation of preparedness on which a more rapid mobilization could be based than would be possible without the increases." Truman enjoined Forrestal to proceed with great care in making commitments and to give the entire program a realistic review in September and December 1948. On 25 June, Truman further directed that the Air Force would not expand beyond a strength of 411,000 men and 9,240 active aircraft pending further review in the autumn of 1948.<sup>208</sup>

Shortly after he succeeded Spaatz as Air Force chief of staff on 30 April 1948, Gen Hoyt S. Vandenberg faced the immediate problem of mobilizing existing Air Force capabilities to resist Soviet aggression in Germany and the longer range problem of expanding the Air Force within the limits set forth by President Truman. In Germany, on 24 June, Soviet troops finally halted all rail and road movement from the west into beleaguered Berlin. Later on, Gen Maxwell D. Taylor would assert that people like General Clay and others felt that the United States "should have used force on the highway, at least to verify what the Russian intent was."<sup>209</sup> Contemporary evidence, however, indicates that from the start of the crisis Washington authorities proceeded on the assumption that Berlin would be supplied as long as possible by airlift. "After discussion with the military services . . . and . . . throughout the National Security Council and finally with the President and the appropriate committees of Congress to whom I reported," said Under Secretary of State Robert A. Lovett, "we decided to stand firm in Berlin and not be thrown out, confident that we could do the job ultimately by the same techniques that we used in lifting approximately 70,000 tons in one month over the hump from India into China at very high altitudes."<sup>210</sup>

## IDEAS, CONCEPTS, DOCTRINE

In Germany, where he had been assigned as commander of the United States Air Force in Europe, General LeMay started the Berlin Airlift with locally available planes on 26 June 1948. Back in Washington, Secretary of State George C. Marshall and Lovett emphasized that the United States could not afford to bluff. "We had to have something to back us up," Lovett maintained, "in case the Russians wanted to use this as an excuse for a war." At a meeting on 27 June, Forrestal, Lovett, and high-ranking officers discussed the advisability of deploying two additional B-29 squadrons to join the squadron of the 301st Bombardment Group, which was on a rotational tour of duty at Furstenfeldbruck Air Base in Germany and of securing approval from Great Britain for the movement of two other B-29 groups to British bases. With Truman's approval, the State Department queried Britain on her willingness to accommodate the groups and received an affirmative reply.<sup>211</sup> On 27 June, Air Staff officers went to Andrews Field and verbally briefed the Strategic Air Command as to what was expected of it. Without delay, the Strategic Air Command ordered the two remaining squadrons of the 301st Group to move to Goose Bay, Labrador, the normal summer staging point for Europe. The 28th and 307th Groups were put on short alerts at their home airfields. Given orders to continue the deployment, the 301st Group was in place in Germany on 2 July. Some additional time was required to prepare bases in Great Britain, but the 307th arrived there on 17 July and the 28th had its planes in England on 18 July.<sup>212</sup> As soon as the B-29 deployment was completed, the Military Air Transport Service was able to put most of its capabilities into the Berlin Airlift. Maj Gen William H. Tunner took command of the augmented Airlift Task Force (Provisional) in Europe on 30 July. Ultimately employing US Air Force, Navy, and Royal Air Force transport aircraft, Tunner soon geared up Operation Vittles to its maximum capacity; the airlift carried a total of 2,325 million tons of food, fuel, and supplies into Berlin before the blockade was ended. One of the most important immediate lessons of the airlift, according to Tunner, was the inherent efficiency of large transport planes to accomplish important airlift missions.<sup>213</sup>

"For the first time in history," stated *Air Force Magazine* in September 1948,

the United States is employing its Air Force as a diplomatic weapon. . . . Today, in keeping with its coming of age as the nation's first line of defense, the USAF has taken on two big assignments in international affairs . . . One is what has been called "the return of the American Air Force to Europe," the arrival of two groups of Strategic Air Command B-29s in England. The second is the Berlin Airlift. . . . The first chapters of the "role of air power in diplomacy" are being written here.<sup>214</sup>

Earlier in the summer, Forrestal had feared that the British might not be willing to accept forceful diplomacy that carried a risk of war; but, in October, Chancellor of the Exchequer Sir Stafford Cripps assured him that "Britain is placing its main reliance on the development of fighter aircraft to insure the security of Britain. Britain must be regarded as the main base for the deployment of American air power and the chief offensive against Russia must be by Air." When Forrestal visited Britain in November 1948, Winston Churchill told him that the United

AF IN NATIONAL DEFENSE

States ought not to minimize the destructive power of atomic weapons lest the Russians receive dangerous encouragement. Speaking in person in Boston on 31 March 1949, Churchill advanced the same view even more positively. "It is certain," he said, "that Europe would have been communized like Czechoslovakia and London under bombardment some time ago but for the deterrent of the atomic bomb in the hands of the United States."<sup>215</sup>

**Strategic Bombing and the B-36 Controversy**

"I am firmly convinced," wrote Dr Edward Teller, the nuclear physicist who had done pioneer work on the A-bomb and who would father the H-bomb, "that in the early postwar years secrecy was a powerful barrier between military men who were clinging to the past and scientists who were turning away from what seemed a frightening future."<sup>216</sup> The whole matter of atomic weapons continued to be a very heavy secret that was not even shared among all top-level military officers. Writing in November 1948, Bernard Brodie reported there was "reason to believe that the amount of uranium and thorium available in the world for the manufacture of atomic bombs is much more limited than was being assumed two years ago, and the deposits available are much more accessible to the United States than to the Soviet Union."<sup>217</sup> Knowledge of the size of the US atomic weapons production effort and the stockpile was confined to a very small circle. As late as May 1951, Gen Douglas MacArthur testified that he did not know the number of atomic weapons in the US stockpile.<sup>218</sup> Although two years had passed since Hiroshima and Nagasaki had been destroyed by atomic weapons and additional tests of atomic bombs had been made at Bikini and Eniwetok in the summer of 1946, there was lingering uncertainty in the military services as to the potential effect of atomic weapons on the old techniques of war. One viewpoint was that an atomic bomb was merely another weapon. While his statement was soon retracted, the head of the Navy's Aviation Ordnance Branch told the House Committee on Armed Services in October 1949: "You could stand in the open at one end of the north-south runway at the Washington National Airport, with no more protection than the clothes you now have on, and have an atom bomb explode at the other end of the runway without serious injury to you."<sup>219</sup>

Although Air Force thinkers never underestimated the destructive capabilities of atomic weapons, they apparently required time in which to grasp the potential gamut of effects that these weapons held for air operations and the modifications of air doctrines that could be accepted when they were employed. One of the principal results of the clear identification of Soviet Russia as the major menace to world peace was a vigorous analysis within the National Military Establishment of the potential influence of atomic weapons on future American military strategy. The concept that atomic air power could "kill a nation" apparently emerged in the Air Force Directorate of Intelligence during the winter of 1947-48 when target planners were attempting to work up a list of industrial objectives in the Soviet

## IDEAS, CONCEPTS, DOCTRINE

Union that had been requested by the Joint Chiefs of Staff. In the aftermath of World War II, the United States Strategic Bombing Survey depreciated the effectiveness of Royal Air Force attacks against German population centers, thus US Air Force target planners attempted to develop Soviet steel, oil, aluminum, aircraft engines, tank factories, and electric power plants as air targets. Since most of these specific targets were located within 70 Soviet cities, some target planners suggested that atomic attacks might be directed against the Soviet cities rather than the specific industries. The concept followed that the mission of atomic air attack might be to destroy governmental control and industrial mobilization and support potential instead of specific industrial targets. "I think," recalled Col Grover C. Brown, who had been assigned to the Directorate of Intelligence, "it was a sort of a shock to a lot of people when a few began to talk about bonus effects and industrial capital and particularly when some began to ask what was a city besides a collection of industry?"<sup>220</sup>

When members of the State Department's Policy Planning Staff were briefed concerning the concept of atomic bombardment of Soviet cities, they were reported to be completely opposed to it. "If you drop atomic bombs on Moscow, Leningrad, and the rest," George Kennan was said to have commented, "you will simply convince the Russians that you are barbarians trying to destroy their very society and they will rise up and wage an indeterminate guerrilla war against the West." Charles Bohlen was quoted as responding: "The negative psycho-social results of such an atomic attack might endanger postwar peace for 100 years."<sup>221</sup>

Although the concept of atomic air attacks specifically directed against Soviet urban targets was not accepted, the thinking did much to direct Air Force concepts of its strategic capabilities. In his final report as Air Force chief of staff, Spaatz wrote: "The primary role of military Air Power is to attack—not other aircraft but targets on the ground that comprise the source of an enemy's military strength." In an article published shortly after his retirement, Spaatz asserted: "It is theoretically possible to demonstrate on the basis of the war just finished that the precision bombing of a few hundred square miles of industrial area in a score of Russian cities would fatally cripple Russian industrial power." But at the same time that he argued for the decisiveness of strategic atomic air attack, Spaatz reasoned that Army and Navy forces would be needed to secure forward air bases. "Only from forward air bases can the mass of American air strength, including fighters," he wrote, "gain control of the enemy air space. And not until we have won this control could we be absolutely sure of the outcome of a war." Since air power could not gain and hold forward air bases, Spaatz considered that ground and sea forces would "remain indispensable supporting instruments in the struggle for a mastery of the air" until intercontinental air weapons were developed.<sup>222</sup>

Speaking out in a "gloves-off" talk in Los Angeles on 16 July, Secretary Symington for the first time publicly criticized the balanced force concept of American defense that had come out of World War II. According to a newspaper report, Symington assailed "ax-grinders dedicated to obsolete methods" of warfare

## AF IN NATIONAL DEFENSE

who contended that large Air Force appropriations might unbalance the three armed services, and he declared that air power should not be put in balance with the Army and Navy but with the power of potential adversaries.<sup>223</sup> In a letter on 11 August 1948, General Kenney pointed out that atomic bombs and other modern developments had made profound changes in the concepts of war.

When we consider that 100 atom bombs will release more foot pounds of energy than all the TNT released by all the belligerents of World War II combined and that the effort could be put down in a single attack, it is evident that the long drawn out war is out of date. . . No nation, including our own, could survive such a blow. A war in which either or both opponents use atomic bombs will be over in a matter of days so that our target analysis system should change. Bombing of targets which will effect enemy production in a few months is meaningless. There is no time to try to destroy the enemy air force. The air force that is superior in its capability of destruction plays the dominant role and has the power of decision. The inferior air force has no role. Before it can be built up the war will be over. The advantage accruing to the aggressor who makes such a surprise attack has become so great that it can almost be considered decisive.<sup>224</sup>

In making a reevaluation of Douhet's principles in the light of atomic explosives in the summer of 1948, Lt Col Joseph L. Dickman found that the Douhet theory was "not only a pattern for the conduct of the war but also a guide for the preparation for one." He argued that the power of atomic bombs validated Douhet's principles on air power. Dickman suggested a corollary rule. "If, at any time, it appears that expenditures for tactical aviation will jeopardize development in strategic, the former will have to be sacrificed."<sup>225</sup> In a study prepared on 10 August 1948, Col William W. Momyer, director of plans for the Tactical Air Command, analyzed the whole Air Force mission. He pointed out that the Tactical Air Command would not become involved in hostilities unless the atomic offensive failed and the war degenerated into a conventional air-surface action, a contingency that he did not anticipate would occur at all and, in any event, not until approximately two years after the onset of a war. Momyer pointed out that Tactical Air Command's fighters would pass to the operational control of the Air Defense Command at the onset of hostilities and argued for a more effective cross-training of fighters to perform both air defense and tactical air missions. Finally, he questioned the planned use of jet fighters in an escort capacity as "an obsolete concept of the last war."<sup>226</sup>

Three articles in the autumn 1948 issue of the *Air University Quarterly Review* strongly advocated a strategic bombardment strategy. "We have come to the realization that if we are to have peace in our time it will have to be a Pax Americana," wrote Lt Col Frank R. Pancake. "There has been a further awakening to the fact that the instrument of Pax Americana must be Air Power, just as the instrument of Pax Britannica a century ago was sea power. . . . In the event of another war our first and perhaps only major offensive effort will be strategic air attacks."<sup>227</sup> Writing on the relationship of air power and foreign policy, Lt Col John P. Healey stated: "The historic discrepancy between our foreign policy aims and their means of military support is now ended. The 'quantum jump' taken by military

## IDEAS, CONCEPTS, DOCTRINE

technology in this country affords a measure of military power sufficient to support our present aim if such power is wisely used as a deterrent."<sup>228</sup>

Looking backward at World War II, Col Dale O. Smith noted that air siege or strategic bombardment was "generally considered to have been the most decisive factor" in the defeat of the Axis, but that the strategic bombing effort had required the support of surface combat. In the war against Germany, the strategic bombing effort had been frequently switched from one target system to another in the expectation that a "key" target system could be destroyed with decisive results. In the end, Smith said, "when German industry collapsed, no single target system was responsible but rather a widespread disintegration of all industry occurred." From this experience, Smith thought it plausible to conclude that "the most effective air siege will result by concurrently attacking every critical element of an enemy's economy *at the same time*. . . . If all the critical industrial systems could be destroyed at one blow, so that recuperation were impossible within any foreseeable time, there seems little question but that a nation would die just as surely as a man will die if a bullet pierces his heart and his circulating system is stopped." Smith visualized an atomic striking force of 300 B-29s directed against an enemy nation, and he thought there was little doubt that "an offensive bomber force, utilizing tactical surprise, will be able to penetrate to targets in the enemy heartland." Believing that the strategic air assault with atomic weapons would destroy a modern nation, Smith suggested that the Air Force should abandon "the old doctrine of 'sustained' operations." "The atomic bomb is real. . . . There need be no doubt about its combat worthiness," he wrote. "Why then must we revert to the old TNT bombs and forever hamstring our logistical and tactical plans with the requirement for sustained operations?"<sup>229</sup>

**Fiscal Limits Affected the Military**

Even though a bill that authorized a peacetime Air Force strength of 70 groups and an eventual level-off purchase of 5,200 aircraft a year was lost in the closing rush of the 80th Congress during the late summer of 1948, General Vandenberg considered that Congress—by providing the first increment of funds for such a purpose—had given the Air Force a clear mandate to expand to the 70-group objective. The Air Force, therefore, decided that the purchase of the 2,201 new aircraft that could be funded with the augmented fiscal year 1949 appropriations would be pointed toward accomplishment of the 70-group program. The Air Force, thus, contracted to purchase 190 B-45 aircraft to partially equip five light bombardment groups and three night tactical reconnaissance squadrons. In the spring of 1948 many Air Force officers had continued to be skeptical of the B-36. However, when the Air Force began to get deliveries of some of these planes, the test data from them was so much better than had previously been reported that Vandenberg elected on 24 June to continue the funding on the original contract for 95 aircraft. Contracts were also awarded for 10 B-47 jet bombers, 132 B-50Ds,

## AF IN NATIONAL DEFENSE

1,457 jet fighters, and 147 transport and troop carrier planes. Moreover, by stretching available personnel strength rather thinly, the Air Force was able to activate a total of 60 combat groups before the end of 1948.<sup>230</sup>

In the spring of 1948 when work was begun on fiscal year 1950 budget request, the Air Force assumed that appropriations would be enlarged to support expanded personnel strength and aircraft procurement necessary for the 70-group program. The Air Staff, therefore, first submitted a request for an \$8 billion appropriation to the secretary of defense. Then, as Secretary Symington explained, "word got around that again the three services were going to ask for everything they could get on a unilateral basis and then we were all going to be cut proportionately because there was no agreed on strategic plan against which to buy." Symington, therefore, took personal responsibility for raising the Air Force budget request to more than \$11 billion. As a result, the uncoordinated original estimates of the three military services received by Forrestal totaled more than \$30 million.<sup>231</sup> The indications were that no such amount of money would be available. During fiscal year 1949 the Bureau of the Budget had expected that the treasury would have a \$5 billion surplus, but, because of an economic recession, there would be a deficit of almost \$2 billion. In the summer of 1948, acting on advice from the Bureau of the Budget and apparently without consulting the National Security Council or the Joint Chiefs of Staff, President Truman established a ceiling of \$14.4 billion on the national defense budget for fiscal year 1950.<sup>232</sup> The wide difference between the military requirements submitted by the individual services and the presidential ceiling forced the secretary of defense to make decisions.

In an effort to return responsibilities for stating force requirements to the Joint Chiefs of Staff, Secretary Forrestal secured the appointment of a budget review board of three officers from the services headed by Gen Joseph T. McNarney, commander of the Air Materiel Command. As early as 10 July, Forrestal also submitted a formal request for budgetary guidelines to the National Security Council. When he received no response, he evidently sought bits and pieces of advice elsewhere. Walter B. Smith, US ambassador to Russia, told Forrestal that the Russians did not, in his opinion, have the industrial competence to develop the atomic bomb in quantity for "five or even ten years." General Vandenberg reassured Forrestal that the Air Force could drop the atomic bomb "where, how, and when it was wanted." Working in terms of requirements for balanced forces, the McNarney board reduced the service requests to \$23.6 billion but could go no lower. The Joint Chiefs of Staff estimated that the \$14.4-billion defense budget would limit US action against the Soviet Union to a strategic air offensive from Britain and suggested that for \$16.9 billion the United States could maintain forces needed to control the Mediterranean as well as conduct the strategic air offensive. Forrestal presented these facts to Truman on 5 October, but President Truman held to the \$14.4 billion budget and planned to take care of the Mediterranean with a supplemental appropriation if an emergency arose.<sup>233</sup> In a final conference with the president on 9 December, Forrestal and the service secretaries again advocated

IDEAS, CONCEPTS, DOCTRINE

the \$16.9 billion budget, but Truman would not budge from \$14.4 billion. Faced with this ceiling, the Joint Chiefs of Staff agreed that the funds should be subdivided at \$4.834 billion for the Army, \$4.624 billion for the Navy, and \$5.025 billion for the Air Force.<sup>234</sup>

Aware that it faced definite strategic requirements and would be unable to expand to 70 groups, the Air Force began to reorganize its forces in the winter of 1948-49. Under the \$14.4-billion budget ceiling, the Air Force mission (as defined by the USAF Senior Officers Board) would be:

- (a) initially, to launch a powerful air offensive designed to exploit the destructive and psychological power of atomic weapons against the vital elements of the Soviet war-making capacity.
- (b) To provide on an austerity basis for the air defense of the United States and selected base areas
- (c) To provide the air components necessary for the advancement, intensification, and/or diversification of our initial offensive until forces generated from inadequate mobilization bases have become available.<sup>235</sup>

Seeking to pool resources that could be used for more than one purpose, the Air Force on 1 December 1948 established the Continental Air Command at Mitchel Field as a superior headquarters to the Air Defense Command and the Tactical Air Command. The Continental Air Command received direct command over the six air forces formerly assigned to the Air Defense and Tactical Air Commands, both of which were reduced to the status of operational headquarters. The Continental Air Command also took over three of the Strategic Air Command's fighter groups.<sup>236</sup> Although the consolidation of commands was a product of austerity, Col William H. Wise, deputy chief of the Air University's Evaluation Division, hailed it as being fundamentally correct and called for further consolidation. "An Air Force Combat Command," he recommended,

should be so organized and constituted as to make it readily feasible to employ maximum strength in the performance of the mission at hand, be it strategic, tactical, or defensive . . . Since an Air Force properly organized and equipped to achieve success in the decisive phase will be capable also of performing the necessary tactical operations in the exploitation phase, the peacetime maintenance of a specialized air arm at the expense of the strength and effectiveness of the decisive air echelons is unwarranted. The soundness of this concept is already recognized in the Air Force, but how soon corrective action can or will be accomplished is a matter for conjecture.<sup>237</sup>

Since the budgetary limitations would force the Air Force to reduce its combat strength to 48 groups and 10 separate squadrons and to change its aircraft purchase programs, General Vandenberg assembled the USAF Senior Officers Board in Washington on 29 December 1948 for the first of seven-day-long sessions. Because General Fairchild was ill, General McNarney presided as acting chairman. The other two members of the board were Generals Norstad and Craig. Recognizing that the Joint Chiefs of Staff had for the first time provided a strategic concept of operations against Soviet Russia, the board determined that "the launching of an atomic offensive and the defense of the Western Hemisphere and the essential base areas from which to launch the atomic offensive must be considered as the



## AF IN NATIONAL DEFENSE

primary mission of the Air Force and must be given the greatest consideration and priority." Because of the supreme importance of the strategic air mission, which was now being vested in the Air Force, the board decided that means must be found to deliver the atomic stockpile under the most adverse conditions foreseeable, which included loss of advanced bases in the United Kingdom and an unexpected failure of aerial refueling techniques.<sup>238</sup>

In determining requirements for strategic bombers, the USAF Senior Officers Board heard testimony from General LeMay, who had taken command of the Strategic Air Command on 16 October 1948. LeMay stated his basic conviction that "the fundamental goal of the Air Force should be the creation of a strategic atomic striking force capable of attacking any target in Eurasia from bases in the United States and returning to the points of take-off." To deliver the atomic stockpile, LeMay needed four groups of bombers and one group of strategic reconnaissance aircraft. LeMay liked the B-36. In its tests in 1948, the B-36B had proven to be a better aircraft than had been predicted. By attaching two twin-jet pods (actually B-47 engines) to the big conventional bomber, the B-36B would be able to operate on a target run at an altitude of 45,000 feet and a maximum speed of 378 knots. Assuming that the Soviets were not more advanced in aerial defense than was the United States, the board reckoned that the B-36B would be able to penetrate Soviet defenses. With its range, moreover, the B-36B could cover 97 percent of Soviet target complexes from bases in North America. The B-36 also could haul 43 tons of conventional bombs over medium ranges, which would permit a great intensification of a conventional air offensive if advanced bases were available. The Strategic Air Command was programmed already to get two groups of B-36s, and the senior officers concurred with LeMay's request that the command be authorized a total of four groups of B-36Bs and one group of RB-36Bs, all to be equipped with supplemental jet pods.<sup>239</sup>

Since the 48-group program would reduce the Strategic Air Command's strength to 14 bomber groups, the Senior Officers Board gave careful consideration to the composition of the 10 groups that would be equipped with medium bombers. These planes might be called on to deliver nuclear weapons, but they more probably would be dispatched with conventional bombs in the wake of a B-36 atomic attack against targets, such as Soviet oil, that were too small to warrant atomic bombs. The Senior Officers Board noted that sufficient B-50s had been delivered or were on order to equip and maintain five medium bomber groups and one reconnaissance group. They recommended that two other medium groups and one medium reconnaissance group should be equipped with speedy but limited range B-47s. The remaining three medium bomber groups would continue to be equipped with B-29s and RB-29s, but the board noted that the Air Force had issued procurement orders for 30 B-54A aircraft — an ultimate development of the B-50 — which would probably become the replacement for the B-29s and RB-29s.<sup>240</sup>

## IDEAS, CONCEPTS, DOCTRINE

The Senior Officers Board made no recommendations as to the aircraft to be used for modernizing the two strategic weather reconnaissance groups and the one strategic mapping group that would be retained in the 48-group program. The five light bomber groups that had been put in the 70-group program to perform ground support missions were reduced to a single group. Tactical reconnaissance also was reduced to the equivalent of one group (two squadrons in the United States and one in the Far East). The board postponed consideration of the aircraft requirements for the four heavy troop carrier groups and two light troop carrier groups that would remain in the 48-group program, but it gave careful attention to the equipment and composition of the 20 fighter groups that would be kept in active service. In World War II the P-47 and P-51 had served as admirable all-purpose fighters, but the board reasoned that the advent of jet power probably prevented the development of a successful all-purpose jet fighter. The F-80s, F-84s, and F-86s would be no more than marginally effective against any bomber faster than a B-29. Accordingly, the board recommended that a pure interceptor fighter should be developed by 1953-54. Pending further developmental work in fighters, the board recommended that the F-84 and F-86 should perform both interceptor and penetration missions, but it stated that the 20 fighter groups should be divided into eight penetration groups, seven interceptor groups, and five all-weather fighter groups.<sup>241</sup>

The cutback of the Air Force from its planned objective of 70 groups to 48 groups necessarily reduced the weight and speed of the initial air offensive, seriously delayed the time at which the Air Force would be prepared to support exploitative surface operations, and reduced the fighter defenses that had been planned for advanced US bases in the United Kingdom. Recognizing these limitations, Vandenberg approved the report of the USAF Senior Officers Board; Secretary Symington also gave his approval when it was submitted to him on 13 January 1949. On 5 February the Joint Chiefs of Staff approved the Air Force deployment inherent in the 48-group program.<sup>242</sup> The sudden termination of the 70-group objective meant that the Air Force had ordered aircraft from fiscal year 1949 money that it would be unable to use. By canceling various orders including 51 B-45s no longer needed for light bombardment groups, 118 F-93s ordered as penetration fighters, and 30 C-125B assault transports that had been designed to replace gliders, the Air Force recaptured some \$269,761,000 from fiscal year 1949 supplemental funds that could be applied to the purchase of B-36s. In a series of actions begun on 29 January 1949, the Air Force requested authority from Secretary Forrestal to purchase 32 B-36s and 7 RB-36s and to modify the B-36s already on hand or on order with jet pods. While this request was under study in the National Military Establishment Research and Development Board, LeMay requested still more B-36s on 2 February. LeMay told Vandenberg that he carefully compared the projected performance capabilities of the B-36s against those of the B-54s and that he had decided that the B-54 contract ought to be canceled and enough B-36s be bought to equip two additional groups. The Senior Officers Board

## AF IN NATIONAL DEFENSE

reconvened on 21 February to hear about the proposed change, and it agreed that either B-36s or B-47s ought to be procured instead of B-54s. Both the board and General Vandenberg were willing to cancel the B-54 contract, but they were reluctant to convert two medium bombardment groups into heavy bombardment groups. At another meeting of the Senior Officers Board on 8 March, LeMay offered a compromise proposal whereby he would retain the existing group structure but would increase the aircraft complements of each B-36 and RB-36 group from 18 to 30 aircraft. This proposal was accepted, and the Air Force secured the cancellation of the B-54 contract and a recertification of funds to purchase 36 B-36s and five additional B-47s. Shortly before his resignation as secretary of defense on 28 March, Forrestal approved the basic decisions to procure additional B-36s. On 4 May 1949 President Truman formally released the funds for the several B-36 projects.<sup>243</sup>

In other meetings during the spring of 1949, the USAF Senior Officers Board took long looks at Air Force development in relation to the new strategic planning. The board recommended, in January, that the B-52 be designed to transport atomic weapons and that any accommodation made to permit it to carry iron bombs should not increase its basic weight. In March the board accepted the B-52 as the follow-on replacement to the B-36 and recommended that B-36 production facilities should be changed over to B-52 production as soon as enough B-36s had been obtained to outfit four heavy bomber and two heavy reconnaissance groups. Also in March the board recommended that B-47 production ought to be accelerated so that these medium jets eventually could replace the conventional B-29s and B-50s. In a meeting in May the board gave detailed consideration to Air Force fighters and transports. After study of all available fighters, the board agreed with the recommendation of Maj Gen Gordon P. Saville, head of the Air Defense Command, that the F-86 Sabre was the best interim air defense fighter that could be procured. The board earlier had recommended that the Air Force should purchase no more than service test quantities of light cargo aircraft, but in May it concluded that all transports procured ought to be designed to meet emergency and wartime military cargo airlift requirements of the Army and Air Force. The board recommended that the C-97 be continued in production until the Douglas C-124, which most closely met wartime cargo requirements and should become the standard heavy transport, could begin to reach units in May 1950. Although the board reduced most requirements for smaller troop carrier planes, it recommended continued production and procurement of C-119s, planes that were suited for airdrop and air-delivered transport functions.<sup>244</sup>

#### A Collective Defense and Air Power Strategy

While military planning emphasized that budget ceilings necessitated redirections in strategy, President Truman apparently had begun to think seriously about collective security as early as the summer of 1948. In March 1948 the Western

## IDEAS, CONCEPTS, DOCTRINE

European nations concluded the Brussels Pact pledging themselves to collective self-defense. The following July, Truman instructed Under Secretary of State Lovett to begin exploratory discussions looking toward the participation of the United States in a broadened Atlantic alliance. Agreements were reached on the general nature of such a treaty in September and in December Secretary of State Dean Acheson began to negotiate the treaty in private. In his inaugural address on 20 January 1949, Truman spoke of a need for a collective defense on the North Atlantic area.<sup>245</sup>

When they appeared before congressional committees in support of the National Military Establishment budget for fiscal year 1950, the military leaders generally emphasized the force reductions that were impending. Appearing before the House Subcommittee on Appropriations on 31 January 1949, Forrestal justified the budget as one "designed to maintain a military posture for the preservation of peace." Forrestal continued to believe in balanced forces, but he admitted that "as air power expands its radius it may be that you will have a war in the future where you will rely on it alone." He favored the 70-group concept as an authorized force, but he believed that this should be an ultimate—rather than an immediate—goal.<sup>246</sup> Army officers did not question the new strategy. Secretary of the Army Kenneth C. Royall mentioned that for the first time in American history the defense budget had been correlated for the three services; Lt Gen Albert E. Wedemeyer, the Army's deputy chief of staff for plans and combat operations, observed that "for the first time in my knowledge since I have been in the Army the strategy has been correlated and integrated."<sup>247</sup>

At Air Force hearings early in February, Secretary Symington explained that the Joint Chiefs of Staff had accepted strategic bombing as the primary mission of the Air Force and had approved the establishment and maintenance of the 48 combat groups and 10 separate squadrons. The Air Force assistant for programming, Maj Gen Frederic H. Smith, Jr., frankly described the 48-group program as having "definite capabilities in the strategic air-offense field and . . . a respectable defensive power," but noted that it was "deficient in its means to exploit the offensive, because it is shy in the essential close support of the ground-force elements and in pursuing the tactical advantage with fighter bombers and light bombardment." Appearing on 7 February, Vandenberg did not question the president's decision to limit the military budget but gave his own purely personal, military viewpoint on the matter. "Not taking into consideration the other factors which I realize must be taken into consideration," he said, "but speaking purely from a military point of view, it is my opinion that the minimum defense forces, as far as the Air Force is concerned—and with world conditions as they are today—would consist of a 70-group Air Force."<sup>248</sup>

In speaking of the 1950 budget, Secretary of the Navy John L. Sullivan made oblique remarks about the "enthusiasm of single-weapon experts." However, the Navy supported the budget even though under it the numbers of its attack carriers

## AF IN NATIONAL DEFENSE

would have to be reduced from 11 to nine, and there would be other substantial reductions in naval vessels afloat.<sup>249</sup>

While the leaders of the National Military Establishment supported the presidential budget, Congress apparently believed that it would be necessary to have a stronger Air Force if the nation was to follow an air strategy. On 28 March, Chairman Carl Vinson of the House Committee on Armed Services proposed that the Air Force receive an additional \$800 million to enable it to maintain 57 effective combat groups. Two days later, Chairman George H. Mahon of the House Subcommittee on Armed Services Appropriations stated that Congress had already taken the initiative to provide a 70-group program, and he recommended that Congress increase the Air Force appropriation by about \$1 billion so that the Air Force could maintain about 60 groups.<sup>250</sup> With such an amount of money, the Air Force proposed to add six strategic bomber groups, thus restoring the Strategic Air Command to its strength under the proposed 70-group structure, and to maintain three fighter, one light bomber, and one troop carrier group in order to support the Army.<sup>251</sup> After exhaustive debate, Congress finally added more than \$726 million to the Air Force appropriation for fiscal year 1950.<sup>252</sup>

At the same time that the fiscal year 1950 budget was under consideration in Congress, the Department of Defense had already begun to make its estimates for the 1951 budget. On 21 January 1949 Forrestal brought General Eisenhower back to Washington on temporary duty to work with the Joint Chiefs of Staff in the preparation of a war plan that he hoped would be the basis of future budgets. In preparing for the 1951 budget, Forrestal directed each service chief to review his portion of the war plan and state the forces that would be required. These force levels then were costed for budgetary purposes. Following the same procedure used the year before, the Joint Chiefs established a budget advisory group and headed it with Vice Adm Robert B. Carney. Assisted by the plans staffs on the three services, the Carney group took longer than expected in its deliberations and was unable to provide unanimous recommendations to the Joint Chiefs. Increasingly fatigued by his duties, Forrestal arranged to resign. President Truman requested that he introduce Louis A. Johnson to the duties of secretary of defense. Accompanied by Johnson, Forrestal took the Joint Chiefs to Key West in February 1949 for several days of uninterrupted study of force levels. The Joint Chiefs were still unable to resolve all their problems within the \$14.4 billion that they expected to be the budget ceiling for fiscal year 1951, but they agreed to accord priorities to forces on the basis of what would be necessary in order to avoid defeat, what next would be necessary, and what they would require if each service could have every type of weapon that it wanted.<sup>253</sup>

In December 1948, when they had considered the force structure to be attained under President Truman's budget ceiling, the Joint Chiefs of Staff had been able to agree on all items except the number of attack carriers that the Navy would continue to operate. The Air Force recommended four, the Army six, and the Navy nine. Unable to agree, the Joint Chiefs had passed the problem to Forrestal, who

## IDEAS, CONCEPTS, DOCTRINE

had decided that the Navy would retain eight attack carriers and attendant forces on active duty.<sup>254</sup> Apparently troubled after his return from Key West about the matter of the supercarrier *United States*, which the Navy was beginning to build, Forrestal asked secretary-designate Johnson to make a thorough study of the problem, saying that he had come to have doubts about it but that he did not feel he could do anything about it. Shortly after he became secretary of defense on 29 March 1949, Johnson asked the Joint Chiefs to state their opinions on the aircraft carrier. Adm Louis E. Denfield, chief of naval operations, favored the completion of the \$188 million vessel, on which some \$20 million had already been expended. General Bradley, on the other hand, reasoned that budgetary restrictions already seriously limited the maintenance of minimum levels of balanced forces, that the fundamental purpose for which the supercarrier was designed lay within a primary function of the Air Force, that the Soviet Union was not a naval power, and that the potential use of carrier air forces against land targets was limited. He, therefore, concluded that it was "militarily unsound to authorize at this time the construction of additional aircraft carriers or to continue expenditures on the USS *United States*." Vandenberg also expressed his opposition to the large carrier because he could "see no necessity for a ship with those capabilities in any strategic plan against the one possible enemy." He added that limited defense funds imposed a necessity "of never buying a second priority item when essential items are still unbought." When his opinion was asked, General Eisenhower agreed that construction of the large carrier should be canceled. After consulting with President Truman, Secretary Johnson issued orders on 23 April discontinuing the construction of the *United States*.<sup>255</sup>

Meanwhile, the text of the *North Atlantic Treaty* was released to the public on 18 March 1949, a little more than two weeks before it was signed on 4 April in Washington by representatives of Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States.\* By adhering to the treaty, the member nations agreed that an armed attack against one or more of them in Europe or North America should be considered to be an attack against all of them. Each of the members agreed to "assist the Party or Parties so attacked by taking action as it deems necessary, including the use of armed forces, to restore and maintain the security of the North Atlantic area." The overall Western Union command structure established by the Brussels Pact would become a part of the North Atlantic Treaty Organization (NATO).

When he forwarded the draft treaty to Truman on 7 April, Secretary Acheson pointed out that it did "not mean that the United States would automatically be at war if we or one of the other parties to the treaty were attacked." The United States would be obligated to take promptly the action which it deemed necessary, but the

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\* Greece and Turkey were invited to join NATO on 15 February 1952 and these two nations signed the treaty later that spring. The Federal Republic of Germany was admitted to NATO in 1955.

AF IN NATIONAL DEFENSE

decision would have to be made in accordance with the constitutional process under which only Congress had the power to declare war. President Truman sent the treaty to the Senate on 12 April 1949. In spite of spirited debate by opponents of US involvement in European affairs, the Senate voted 82 to 13 to accept it on 21 July 1949.<sup>256</sup> While the North Atlantic treaty was under consideration in the Senate, the Soviets evidently realized that the Berlin Airlift had thwarted their efforts to starve West Berlin and that the Berlin blockade was leading to Western European military unification. First informally on 27 April and then formally on 12 May, the Soviets agreed to end the Berlin blockade. Continued for a while to build up supply stockpiles, the Berlin Airlift officially ended on 30 September 1949.<sup>257</sup>

The principle of collective security manifest in the Atlantic Pact permitted a formalization of the American military strategy that already had been necessitated by the presidential budgetary ceilings in fiscal year 1949. On 25 July, President Truman asked Congress to appropriate \$1.4 billion for military aid to countries that were vital to the security of the United States. The major portion of the appropriation would be devoted to the needs of the Western European nations. Appearing as the representative of the Joint Chiefs of Staff in support of the Mutual Defense Assistance Act before the House Committee on Foreign Affairs on 29 July, General Bradley outlined the new collective strategy. "The essence of our overall strategy," he said, "is this: There is a formidable strength, and an obvious economy of effort, resources, and manpower in this collective strategy, when each nation is capable of its own defense, as a part of a collective strategic plan." In approving the Mutual Defense Assistance Act, the Joint Chiefs followed "the principle that the man in the best position, and with the capability, should do the job for which he is best suited." The Joint Chiefs also assumed that:

- First, the United States will be charged with the strategic bombing.
  - We have repeatedly recognized in this country that the first priority of the joint defense is our ability to deliver the atomic bomb.
  - Second, the United States Navy and the Western Union naval powers will conduct essential naval operations, including keeping the sea lanes clear. The Western Union and other nations will maintain their own harbor and coastal defense.
  - Third, we recognize that the hard core of the ground power in being will come from Europe, aided by other nations as they can mobilize.
  - Fourth, England, France, and the closer countries will have the bulk of the short-range attack bombardment, and air defense. We, of course, will maintain the tactical air force for our own ground and naval forces, the United States defense.
  - Fifth, other nations, depending on their proximity or remoteness from the possible scene of conflict, will emphasize appropriate specific missions.
- Bradley argued that the defensive capabilities of the United States would be improved if the military assistance program was put into effect.<sup>258</sup>

## IDEAS, CONCEPTS, DOCTRINE

Most members of Congress apparently accepted the idea that military aid was needed, but many objected to the manner and timing of the request, to the amount, and especially to the proposal that the president have a free hand in allocating the money and arms. A new administration bill, sent to Congress on 5 August, proved more acceptable because it eliminated the blank-check authority for the president. On 28 September, Congress passed the Mutual Defense Assistance Act of 1949, authorizing an appropriation of \$1,314,010,000 and on 6 October the president signed the bill. The act authorized \$1 billion in arms assistance to the North Atlantic countries but provided that \$900 million of it would not be available until the president had approved recommendations for an integrated command structure. The remaining funds were committed to the military aid of Greece and Turkey, Iran, the Philippines, the Republic of Korea, and the Republic of China.<sup>259</sup>

In the spring of 1949, when Congress added \$726 million to the Air Force appropriation for fiscal year 1950, President Truman and Secretary Johnson were willing to hear Secretary Symington's plea for a 70-group Air Force, but Truman subsequently impounded the additional funds and kept the Air Force at the 48-group level. Not waiting for the beginning of fiscal year 1950 to initiate its downward readjustment in strength, the Air Force began to inactivate tactical organizations in March 1949. By the end of the year it would possess 47 groups and 13 separate squadrons. Generally following the recommendations of the USAF Senior Officers Board, the aircraft authorized for procurement in fiscal year 1950 included 34 B-36Fs and 13 RB-36Fs, 81 B-47s, 709 jet fighters, 14 C-97s, 51 C-119Cs, and 50 C-124s, plus miscellaneous aircraft for a total of 1,252 planes.<sup>260</sup>

Based partly on the impoundment of the funds that Congress had voted for Air Force expansion, the Joint Chiefs of Staff assumed that the budgetary ceiling of all military forces during fiscal year 1951 would be the same austere \$14.4 billion that had been authorized in fiscal year 1950. In May 1949 Secretary Johnson took the Joint Chiefs to another conference in Key West, where they established the force levels that could be supported with \$14.4 billion. Quite without warning in July, however, President Truman summoned Department of Defense officials and the Joint Chiefs of Staff to his office, where the director of the budget told them that the national defense expenditures for fiscal year 1951 must be reduced to \$13 billion.<sup>261</sup> "I was sick about it," said Secretary Johnson, as he recalled his reaction to the news. Although he tried to get the figure raised, he was unsuccessful. "The climate on the Hill, the climate of the President's economists and all the rest of the economists, the climate of the world at that moment—the airlift having been successful—the climate was," Johnson recalled, "there was going to be peace."<sup>262</sup> In view of the reduction of the budget, each armed service would have to stand a further reduction in forces. While the connection was not mentioned, the reduction in the defense budget was the same amount that Truman had requested; the president may have intended that reductions in US forces would be compensated for by an increasing effectiveness of friendly allied forces.



### Investigations of the B-36 and Defense Unification

In the winter of 1948-49 the US Navy accepted the new American military strategy based on a primacy of the strategic bomber offensive. According to Vice Adm Arthur W. Radford, however, the Navy Department had not known of the Air Force plans to purchase additional B-36s for strategic bombing until reports to this effect appeared in the newspapers.<sup>263</sup> At the first Key West conference, the secretary of defense had laid down the principle that each service should develop the weapons it required to perform its mission: the cancellation of the *United States* on the split advice of members of the Joint Chiefs appeared to negate this principle. Secretary Johnson had canceled the supercarrier without consulting either the chief of naval operations or Secretary of the Navy Sullivan; in protest, Sullivan resigned his office on 26 April. Sullivan explained that he expected the decision not to develop a powerful weapon also would "result in a renewed effort to abolish the Marine Corps and to transfer all naval and marine aviation elsewhere."<sup>264</sup> Within the Navy Department, a civilian public relations specialist drew up an anonymous document, widely circulated in April and May, which charged that the B-36 had been selected through corruption; that the Air Force was obsessed with a belief that "airplanes can reduce warfare to a clean, quick, inexpensive and, to our side, painless procedures"; that Air Force statements about the performance capabilities of the B-36 were "false," "silly," and contrary to "all common sense and all engineering knowledge"; and that in the effort to obtain the B-36 the Air Force had canceled purchases of other aircraft to the detriment of continental air defense and the air support of the Army.<sup>265</sup> The Navy also anticipated that in its 1951 budget it would have to reduce its attack carriers from eight to six, its escort carriers from 19 to eight, its carrier air groups from 14 to six, its patrol squadrons from 30 to 20, and its Marine Corps air squadrons from 23 to 12.<sup>266</sup> In response to a request for an opinion, the new Secretary of the Navy Francis P. Matthews informed Congressman Vinson on 20 July that the Air Force was "unbalanced in favor of strategic bombing to the detriment of its ability to provide tactical air support for ground forces and for other missions involving tactical aviation. Some reduction of the large bomber groups translated into tactical aircraft would produce better balance with the entire program, still being within the 48-group limitation."<sup>267</sup>

As it was directed to do by the House of Representatives, Congressman Vinson's Armed Services Committee began hearings in August in which all principal officials who had been concerned with B-36 procurement were questioned. Early in the hearings the author of the anonymous charges appeared and confessed the falsity of his allegations. After three weeks the committee unanimously resolved on 25 August that not one iota of evidence had been presented that would support charges that fraud or favoritism had played any part in the procurement of the B-36 but that the testimony had shown that the Air Force had selected and procured the bomber solely on the grounds that it was the best

## IDEAS, CONCEPTS, DOCTRINE

aircraft for its purpose. Even though it suspended the B-36 hearing early, the committee expressed itself as deeply disturbed "by reason of recent developments within the Department of Defense which might have resulted in the impairment of the proper functioning of one or all of the services and thus endanger the national defense."<sup>268</sup> Because of this belief, the committee opened a second phase of its hearings on 6 October and for 12 days heard testimony on the national defense program. In the course of often repetitious testimony in the two hearings, Navy, Air Force, and Army officers presented detailed but somewhat different analyses of their concepts of national military capabilities and strategy.

In his letter to Vinson at the outset of the hearings, Secretary Matthews demonstrated that the primary mission of the Navy was to command the seas and in order to carry out its primary mission the Navy had to have weapons which could "destroy enemy forces threatening that command." Taking a corporate view of the responsibility of the Joint Chiefs of Staff to ensure the defense of the United States, Matthews was willing to grant each service a responsibility to inquire into the expenditure of scarce defense funds by the other services, but he argued that a chief of any service was best informed as to the weapons his service needed to carry out its responsibilities. As for the B-36, Matthews charged that the plane sacrificed performance characteristics to obtain intercontinental range. As long as the Navy controlled the seas, Matthews submitted that advanced bases would be available to the Air Force, which should, therefore, develop and employ shorter range and higher performance bombers.<sup>269</sup>

Heading a long visit of distinguished Navy witnesses, Admiral Radford expressed his opposition to the B-36 because it had "become, in the minds of the American people, a symbol of a theory of warfare—the atomic blitz—which promises them a cheap and easy victory if war should come." He believed the B-36 to be an obsolete aircraft suited only for city bombing. "Are we as a nation," he asked, "to have 'bomber generals' fighting to preserve the obsolete heavy bomber—the battleship of the air?" He insisted that a proper air strategy ought to be built around short-range jet aircraft such as the B-47 and naval jets that would operate from advanced land bases and aircraft carriers to establish control of the air over hostile territory and then wage strategic air warfare campaigns.<sup>270</sup> Rear Adm R. A. Ofstie made a distinction between strategic air warfare, which was directed against an enemy's will and ability to wage war, and strategic bombing, which he and the Navy witnesses arbitrarily described as an indiscriminate blitz against urban areas. Ofstie supported strategic air warfare and accurate attacks on precise military targets, but he deplored the strategic bombing that had unwisely destroyed Germany and Japan. Ofstie thought that the concept of instant retaliation had produced an illusion of power and even a kind of bomb-rattling jingoism. The strategic bomber force, moreover, was an independent force that served none of the primary demands for national security—the defense of Western Europe, the protection of forward bases, the early reduction of enemy military potential, or command of the sea. "Must the Italian Douhet continue as our

## AF IN NATIONAL DEFENSE

prophet," he asked, "because certain zealots grasped his false doctrines many years ago and refuse to relinquish this discredited theory in the face of vast, costly experience? Must we translate the historical mistake of World War II into a permanent concept merely to avoid clouding the prestige of those who led us down the wrong road in the past?"<sup>271</sup>

Appearing as the next principal witness for the Navy, Brig Gen Vernon E. Megee, assistant director of Marine Corps aviation, emphasized the Marine Corps belief in tactical air power. "The evidence appears conclusive," he stated, "that in both the Atlantic and Pacific battle areas, tactical aviation, not strategic bombing, was the decisive factor." He charged that the Air Force was neglecting the development of tactical air power, and further asserted that the Air Force's "traditional doctrinal insistence on coequal command status at all levels of contact with the ground forces . . . deprives the Army commander of operational control over his supporting elements and requires that [the] ultimate decision must be made at the level of the highest echelon, in case of dispute between ground and air commanders."<sup>272</sup> Continuing the Navy testimony, Fleet Adm Ernest J. King pointed out: "Mass bombing is merely a specialized task and big bombers alone will not assure us command of the air. Without control of the air, the job of the soldier, the sailor, and even the job of the strategic airman becomes more difficult, perhaps impossible."<sup>273</sup> As an advocate of air power, Adm Louis E. Denfield, chief of naval operations, favored an initial air offensive by the nation's total military air power — Air Force, Navy, and Marine Corps — at the outset of a war. He believed that the airplane had materially altered the conduct of war, but that it had not changed the basic principles and objectives of war. "The defeat of the armed forces of the enemy," he said, "is still the primary objective of war. Air power is not an end in itself."<sup>274</sup>

Because of the nature of the charges under investigation, Air Force leaders devoted most of their time to a detailed history of B-36 procurement. However, on 12 August Vandenberg described the strategic situation and the objectives and the capabilities of the Air Force. Disdaining to talk in riddles, he identified the Soviet Union as the "one military threat to the security of the United States and to the peace of the world." The aggressive thrust of the Soviets could be contained only by the economic and military power of Western nations. "The only war a nation can really win," he said, "is the one that never starts." "When reason, good will, and the accommodation of competing national interests give assurance of keeping the peace," he thought, "the maintenance of deterrent forces will be unnecessary. Until that day comes, the striking power of atomic weapons in the hands of this country is a prerequisite of national and world security."<sup>275</sup>

As his statement continued, Vandenberg described the Air Force mission as being the defense of the United States against air attack, the maintenance of forces in being necessary to attack, immediately and effectively, the vital elements of an enemy's war-making capacity, and the preparation of air power that would work in conjunction with surface forces. Even though all of these missions were

IDEAS, CONCEPTS, DOCTRINE

important, the Joint Chiefs had determined that the capacity for immediate retaliatory strategic attack was essential: this attack would blunt an enemy's initial operations and lay a foundation for subsequent operations by land, sea, and air forces. Although the Air Force had given first emphasis to its strategic air elements, Vandenberg pointed out that the distinction made between strategic air operations (attacks against an enemy's industrial strength) and tactical air operations (attacks against an enemy's military forces) was not completely valid. Such a distinction, he said, "denies the unity of air power, by failing to recognize that strategic and tactical air units are component parts of a whole and are complementary forces." As a matter of practicality, he demonstrated that it was more difficult and more expensive to destroy a deployed tank or plane than to destroy them in the process of manufacture, but the choice of air targets depended on the situation. "The ultimate objective of the strategic air campaign," he said,

is to reduce an enemy's capacity to below the level at which he can support his war effort. However, there may well be interim or emergency objectives of overriding importance. For example, this would be the case if the enemy had a long-range air fleet and a stock of atomic bombs, and if this disposition of these weapons rendered them vulnerable to attack by a strategic force. Before attacking an enemy's economic strength, it might be mandatory, in the interest of survival, to take action to prevent these weapons of mass destruction being employed against us. Likewise, a hostile army poised on a European frontier might, under certain circumstances, provide the best target for a strategic air force.<sup>276</sup>

In justifying the employment of B-36s under conditions where air superiority would not have been attained, the Air Force appeared to be deviating from its findings that control of the air was necessary for a strategic air campaign. Vandenberg was reluctant to discuss the matter in open sessions, but he reiterated the historic fact: "No bombing mission set in motion by the Army Air Forces in World War II was ever stopped short of its target by enemy opposition." In response to another pointed question, he said: "We have new tactics, new techniques, new speeds, new altitudes, an entirely different type of explosive. Where at one time the losses might be unacceptable, in another war, in order to destroy a target, they might be very acceptable."<sup>277</sup> Pressed still further, Vandenberg made an appraisal that would plague him for the next several years. "In our defensive system or in that of Britain or of any other country with an air defense system," he said, "the ultimate that we can ever hope for from the point of view of destruction of forces launched against us is in the neighborhood of 25 percent. That is the ultimate, and it undoubtedly would be less than that."<sup>278</sup>

In their testimony before the hearings, both Symington and Vandenberg emphasized that the Joint Chiefs of Staff were in full agreement that "the capacity for an immediate retaliatory strategic bombing offensive is considered essential to the security plans of the United States." "Today," said Vandenberg, "our air potential is the most effective single deterrent to aggression; it is the strongest single force working for peace."<sup>279</sup> "In the first place," said Symington, "the Air

## AF IN NATIONAL DEFENSE

Force believes that the atomic bomb plus the air power necessary to deliver it represent the one most important visible deterrent to the start of any war. . . . Secondly, if war comes, we believe that the atomic bomb plus the air power to deliver it represent the one means of unloosing prompt crippling destruction upon the enemy, with absolute minimum combat exposure of American lives."<sup>280</sup> Both Symington and Vandenberg disavowed any belief that an atomic blitz could produce a "quick, easy, and painless war." "We can hope, but no one can promise," said Symington, "that if war comes the impact of our bombing offensive with atomic weapons can bring it about that no surface forces ever have to become engaged. Disregarding such an illusory hope, we do know that the engagement of surface forces will take place with much greater assurance of success and much fewer casualties to the United States and its Allies if an immediate, full-scale atomic offensive is launched against the heart of the enemy's war-making power."<sup>281</sup> Vandenberg also emphasized that "any possible future war can be won only by the highest degree of teamwork among the Army, Navy, and Air Force." He specifically denied that the Air Force sought to take over Navy or Marine aviation, and he stated a belief that any future war "will be concluded on the ground." Vandenberg, nevertheless, pointed out that balanced forces were those that were "balanced against the task to be performed." "Balance among military forces," he thought, "should be based on the time sequence of military tasks called for in the strategic timetable."<sup>282</sup> This concept had caused him to oppose the construction of the supercarrier. "I am in favor," he said, "of the greatest possible development of carrier aviation to whatever extent carriers and their aircraft are necessary for fulfillment of a strategic plan against the one possible enemy we have to face." Aircraft carriers had been of great importance in the island campaigns of the Pacific, but Vandenberg believed that a future war would resemble the war against Germany rather than that against Japan. Although he did not believe that a supercarrier would be of value in a continental war, he saw a great requirement for the employment of aircraft carriers in antisubmarine warfare. He said that he was "not only willing but insistent that the types of carriers which can help meet the threat of an enemy submarine fleet shall be developed fully and kept in instant readiness. The sea lanes must be kept open."<sup>283</sup>

Speaking as the newly appointed chairman of the Joint Chiefs of Staff, General Bradley deplored the fact that too many secrets were being spread on the record. Nevertheless, he felt forced to disclose the military plans and preparations of the United States. With reference to the corporate Joint Chiefs of Staff, Bradley said: "We all believe that the No 1 priority for the Air Force must be strategic bombing ability." The Joint Chiefs "considered the fact that we were able to retaliate quickly as one of the big deterrents to war today." He identified Soviet Russia as the major adversary to the United States and saw Europe as "the first prize for any aggressor in the world today." His basic concept of US military operations in a future war included the defense of the United States and North America, early retaliation from combat ready bases, the seizure of forward bases to permit attacks against

## IDEAS, CONCEPTS, DOCTRINE

enemy targets from shorter ranges, and—the ultimate necessity—the ability "to carry the war back to the enemy by all means at our disposal" including "strategic bombardment and large-scale land operations." In a continental war, he believed there would be little requirement for island-hopping and predicted that "large-scale amphibious operations, such as those in Sicily and Normandy, will never occur again."<sup>284</sup>

In his discussion of strategy, Bradley defined strategic bombing as "violent airborne attacks on the war-making capacity or potential of an enemy nation." He justified strategic bombing: "From a military standpoint, any damage you can inflict on the war-making potential of a nation, and any great injury you can inflict upon the morale of that nation contributes to the victory." As for the charge that mass bombing was immoral, he pointed out that "war itself is immoral." "Strategic bombing," he said, "has a high priority in our military planning, because we cannot hope to keep forces in being of sufficient size to meet Russia in the early stages of war. This is particularly true since we are never going to start the war, and the Soviet Union because of their peculiar governmental organization can choose the date of starting it. Lacking such forces in being, our greatest strength lies in the threat of quick retaliation in the event we are attacked." The insinuation that the atomic bomb was relatively ineffective drew Bradley's strongest refutation. "The A-bomb," he said, "is the most powerful destructive weapon known today. . . . As a believer in humanity I deplore its use, and as a soldier I respect it. And as an American citizen, I believe that we should be prepared to use its full psychological and military effect toward preventing war, and if we are attacked, toward winning it."<sup>285</sup>

Both Bradley and Gen J. Lawton Collins, who had become the Army chief of staff, refuted the charge that the Air Force had neglected tactical aviation. Bradley pointed out that in the face of very strong enemy opposition in Europe the Ninth Air Force had allocated approximately one group for the support of each two Twelfth Army Group divisions. Using this comparison as a guide, he questioned whether the Marine Corps required the equivalent of seven groups for the support of only two Marine divisions.<sup>286</sup> Speaking of his experience in Europe during World War II, General Collins recalled that "the tactical air forces were able both to support the ground forces and to assist in the safe conduct of our strategic bombers in their missions of destruction and isolation of the battlefields." To prevent the costly duplication that would have ensued if the army had insisted on retaining its own organic close-support aviation, Collins said: "The Army . . . willingly agreed to the transfer to a Department of the Air Force of tactical air along with air transports." He expressed dissatisfaction with the lack of progress being made in developing joint interservice doctrine, but he stated unequivocally that the Air Force was cooperating with the Army. Purely as a personal opinion, Collins predicted that airborne operations would be much more important in a future war with "the only potential enemy" than large-scale amphibious operations.<sup>287</sup>

## AF IN NATIONAL DEFENSE

During the course of the unification and strategy hearings, Chairman Vinson and several committee witnesses took note of the fact that the secretary of defense had organized a Weapon Systems Evaluation Group (WSEG) to provide the secretary and the Joint Chiefs of Staff with objective analyses of the effectiveness of competing weapon systems. At Newport in August 1948 the Joint Chiefs had agreed that the establishment of a weapons evaluation group was desirable and necessary. Secretary Forrestal promptly established the Weapon Systems Evaluation Group, headed by Dr Philip M. Morse, who had headed the Navy's Operational Evaluation Group during World War II; the group's membership included military officers and civilian operations analysts. At the request of President Truman, the WSEG made a detailed study of the Strategic Air Command between August and December 1949. Though the results of the study were never released, a source described as knowledgeable stated on 6 January 1950 that the B-36 could be expected to have a better than even chance of delivering its bombs to a target area. The study apparently reinforced the Air Force position that the B-36, while not perfect, was capable of going anywhere of importance in the world and dropping an atomic bomb.<sup>288</sup> Although the fact could not be presented in the public hearings, General LeMay later recalled that the Soviet air defenses in 1949 and for several years afterward were too weak to have effected unacceptable losses on a nuclear-laden strategic bombing force. "We didn't have to worry about winning an air power battle," he reminisced, "because the Russians had no threat against us. . . . We could ignore the rule book in winning the air power battle and go about destroying their resources."<sup>289</sup>

Both at the time that the hearings were in progress and afterward, the B-36 and unification and strategy investigations were seen to involve challenges that had been made to broad concepts of unification and strategy. "Despite protestations to the contrary," General Bradley observed, "I believe that the Navy has opposed unification from the beginning, and they have not in spirit as well as deed, accepted it completely to date." Bradley called for team play in national defense: "This is no time for 'fancy dans' who won't hit the line with all they have on every play, unless they can call the signals."<sup>290</sup> In the course of the hearings, Chairman Vinson openly deplored the fact that the national military budget was being prepared in terms of ceilings worked out by the Treasury and the Bureau of the Budget rather than in terms of the nation's risks and foreign policy requirements. "The first duty of our Government," he said, "is to provide for the national defense. I am less fearful of deficit financing than I am of the designs of the Russians." Vinson told Secretary Johnson that he felt that Congress and the American people believed that the nation required a 58-group Air Force.<sup>291</sup>

Although the House Committee on Armed Services favored an expansion of the Air Force, the committee's formal report on the unification and strategy investigation made on 1 March 1950 explicitly endorsed strategic pluralism in defense organization. Speaking of strategy, the committee concluded that "the basic reason for this continuing disagreement is a genuine inability for these

## IDEAS, CONCEPTS, DOCTRINE

services to agree, fundamentally and professionally, on the art of warfare. . . . Of course, with the views so sharply opposed, both services cannot be right; the committee suspects that both are right -- and that both are wrong. The true answer probably lies somewhere in the gulf between the two." Especially in the early stages of unification before the esprit of a single armed forces had developed, the committee expressed "strong doubts that it is a service to the Nation's defense for the military leaders of the respective services to pass judgment jointly on the technical fitness of either new or old weapons each service wishes to develop to carry out its assigned missions." Holding that "military air power consists of Air Force, Navy, and Marine Corps air power, and of this, strategic bombing is but one phase," the committee expressed an intention to examine any proposals for reducing the size of Marine aviation very closely, deplored the manner in which the construction of the USS *United States* had been canceled, and announced that it would rely on the professional endorsement of Air Force leaders (subject to evaluation by the Weapon Systems Evaluation Group) as to the capabilities of the B-36 bomber. The committee thought that the Weapon Systems Evaluation Group was a proper forum for examining competing weapon systems, but it stated that the appropriate role of the group would be "to evaluate weapons after they have been developed, not to instruct the services what types of weapons they will or will not develop." Finally, the Armed Services Committee emphasized its belief that unification ought to involve a comprehensive and well-integrated program for national security based on three separately administered military departments.<sup>292</sup>

Coming in the autumn of 1949, when the Soviet Union staged its first atomic explosion and, thus, served notice that the United States no longer possessed a nuclear monopoly, the strategic bombing controversy stood as a benchmark in the movement toward armed service unification. The "revolt of the admirals" clearly embittered interservice relations. "I have been here for some years," said Secretary Symington, "and I think the hatchet job that is being done, and has been done on the B-36 is the best hatchet job that I have seen since I have been in town."<sup>293</sup> On the other hand, General Bradley's reference to "fancy dans" left a false impression that difficulties in armed service unification arose from personality rather than more fundamental issues that needed attention. After a retrospective analysis of the controversy, a civilian James C. Freund concluded that "the budget-first approach to national security emerged as the real culprit on the scene." But he also pointed out that the controversy conclusively demonstrated that unification had not solved all defense problems, that military problems were becoming increasingly dependent on technological judgments, that Congress was unprepared to formulate or pass judgment on strategic and technological issues of defense, and that the military leaders had proven unable to arrive at unanimous decisions on weapons and strategy.<sup>294</sup>

Speaking shortly after the interservice row of 1949 had taken place, Maj Gen John A. Samford, the Air Force director of intelligence, pointed out that the armed forces leaders had been unable to agree on the art of warfare. "Since it has been



## AF IN NATIONAL DEFENSE

stated that military men are unable to reach any fundamental agreement on the art of war," he predicted, "it seems very probable that civilian thought will go to work to help them."<sup>295</sup> This prediction would prove to be correct. The strategic bombing controversy had two other important effects. For a number of years after 1949, the Joint Chiefs of Staff accepted a practice of stating quantitative requirements for military forces and of leaving qualitative requirements to the providing service. For example, the Joint Chiefs determined the number of aircraft carriers or heavy bombardment groups that would be required to implement strategic plans, but they would not determine the size or the types of carriers or the kinds of bombers that would be provided.<sup>296</sup> The hearings also demonstrated that the Air Force had not given enough realistic thought to the problem of targeting nuclear weapons. This matter would receive serious attention within the year that followed the investigations.

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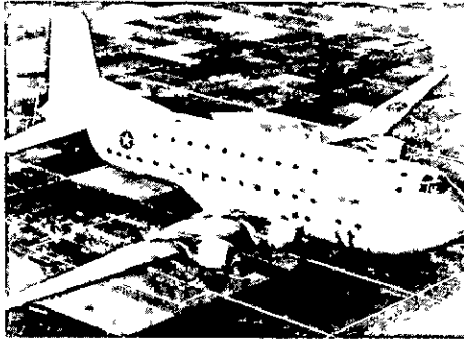
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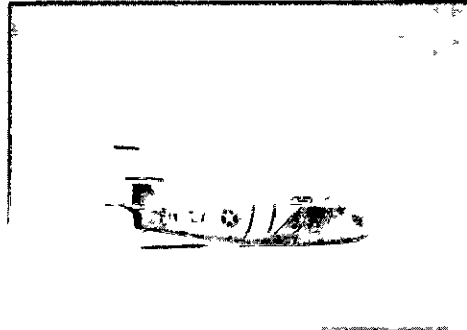
Gen J Lawton Collins, Army chief of staff, 1949-53



Gen Lauris Norstad, deputy chief of staff, Army Air Forces, 1944-45, deputy chief of staff, Operations, 1947-50, commander in chief, United States Air Forces in Europe, 1950-1952.



C-124 Globemaster



F-86 Sabre



Dr Theodore von Karman, chairman, Army Air Forces Scientific Advisory Group



Maj Gen Hugh J Knerr, commander, Air Technical Services Command, 1945-46, secretary general, Air Board, 1946-48



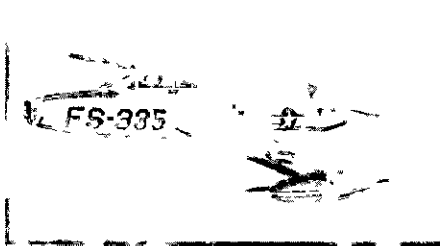
W Stuart Symington, first secretary of the Department of the US Air Force, 18 September 1947



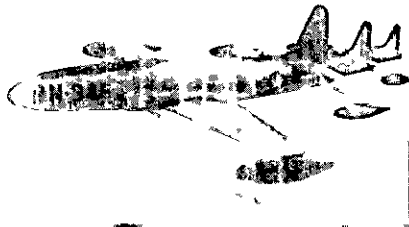
Lt Gen William Turner, commander of Military Air Transport Services during Berlin Airlift



Gen Hoyt S. Vandenberg, Air Force chief of staff, 1948-53



F-84 Thunderjet



F-80 Shooting Star



C-119 Flying Boxcar



C-97A Stratofighter

## CHAPTER 6

### RESPONSES TO SOVIET NUCLEAR WEAPONS AND LIMITED WAR, 1949-53

Established by statute in the spring of 1948 to examine governmental organization and operations, the Commission on Organization of the Executive Branch (better known by the name of its chairman, former President Herbert Hoover) divided its work among special task force committees. For more than six months, one such panel, the Committee on National Security Organization, headed by Ferdinand Eberstadt, heard testimony on the functioning of the National Military Establishment. On 16 December 1948, the Eberstadt task force released a lengthy report, which was summarized by a Hoover commission report issued on 28 February 1949. The Hoover report concluded that "the authority of the Secretary of Defense, and hence the control of the President, is weak and heavily qualified by the provisions of the act of 1947 which set up a rigid structure of federation rather than unification. . . . The National Military Establishment . . . is perilously close to the weakest type of department."<sup>1</sup> After a year of operating under the 1947 act, Secretary Forrestal also reported firsthand observation of certain weaknesses and inconsistencies in the act, which had not been foreseen at its passage.<sup>2</sup>

#### Evolving Patterns of Defense Organization

In a message to Congress on 5 March 1949, President Truman accepted many of the recommendations made by the Hoover commission and Secretary Forrestal in proposing changes to the National Security Act of 1947. He wished basically to convert the National Military Establishment into an executive department to be known as the Department of Defense and to provide the secretary of defense with appropriate responsibility and authority and with civilian and military assistance adequate to fulfill his enlarged responsibilities. Truman specifically recommended that the Departments of Army, Navy, and Air Force be designated as military departments, and that the secretary of defense should be the sole representative of the Department of Defense on the National Security Council (NSC). Where the Hoover commission recommended that the departmental secretaries become under secretaries of defense, Truman wished to retain them to administer their respective military departments under the authority, direction, and control of the secretary of defense. He also recommended that Congress authorize an under secretary of defense and three assistant secretaries of defense; place the statutory duties of the Munitions Board and the Research and Development Board under

IDEAS, CONCEPTS, DOCTRINE

the secretary of defense; and provide for a chairman of the Joint Chiefs of Staff who would take precedence over all other military personnel, be the principal military adviser to the president and the secretary of defense, and perform such other duties as they might prescribe.<sup>3</sup>

At hearings on the proposed legislation held by the Senate Committee on Armed Services in March 1949, Secretary Forrestal candidly acknowledged that he originally had opposed a too great concentration of power in the secretary of defense but he had come to believe that there were sufficient checks and balances inherent in the governmental structure to prevent misuse of the broad authority he felt must now be vested in the position. As a part of an evolutionary development, Forrestal thought that the proposed amendments to the National Security Act would "convert the military establishment from a confederacy to a federation."<sup>4</sup> At another appearance before the same committee in April, Secretary Symington expressed strong Air Force support for increased defense centralization. "From the very beginnings of hearings on the proposal to unify the armed services," he pointed out, "the Air Force has favored centralization and clear definition of authority and responsibility for the positions of the Secretary of Defense and the head of the Joint Chiefs of Staff." He personally favored the Hoover recommendation to designate the departmental secretaries as under secretaries of defense. "I would say," he concluded, "that any diminishing of the power and prestige of the Air Force as a result of making the Air Force a military department instead of an executive department would be very much in the interest of the United States."<sup>5</sup>

With a few modifications, President Truman's recommended amendments to the National Security Act passed the Senate unanimously on 26 May 1949. But, in the House of Representatives, Chairman Vinson's Committee on Armed Services was openly skeptical of the bill. "What has been worrying me . . .," Vinson told the new secretary of defense Louis Johnson as hearings began on 28 June, "is that the Congress is frozen out, kept at arms' length, from the problems of the three Departments, I cannot reconcile this with the constitutional responsibility of the Congress, and I think this bill should be amended to keep Congress a part of the team."<sup>6</sup> Vinson felt that the secretary of defense already possessed powers that were adequate for the purposes of unification. While the House Armed Services Committee was considering the legislation, Congress passed and President Truman signed into law on 20 June the Reorganization Act of 1949, which authorized the president to institute reorganization plans within the executive branch, unless a house of Congress should veto the proposal by a majority vote within 60 days. In accordance with this authority, Truman submitted Reorganization Plan No. 8 on the National Military Establishment to Congress on 18 July, which proposed to accomplish most of the earlier legislative recommendations by executive action. While Truman preferred that Congress would act on a matter by regular legislative process, he apparently used the reorganization plan procedure to emphasize the importance of his recommendations. Since the bill passed by the House differed markedly from that



SOVIET NUCLEAR WEAPONS

voted by the Senate, the legislation was rewritten in a conference committee in an acceptable form, and the compromise bill became law on 10 August.<sup>7</sup>

The National Security Act Amendments of 1949 established the Department of Defense as the successor to the National Military Establishment, thus reducing the Departments of the Army, Navy, and Air Force to military rather than executive departments. The secretary of defense was given direction, authority, and control over the department, but the services were to be separately administered. The secretary was prohibited from transferring or consolidating any combat function, and he was required to report to Congress any reassignment of noncombat functions. The services could no longer appeal directly to the president or the Bureau of the Budget, but any service secretary or chief of staff could, after notifying the secretary of defense, make recommendations to Congress on his own initiative. The act established the position of chairman of the Joint Chiefs of Staff, who was charged to preside at meetings of the Joint Chiefs, to prepare agenda for the meetings, and to inform the president or secretary of defense of issues upon which the Joint Chiefs had not been able to agree. The act provided that the chairman of the Joint Chiefs of Staff could not vote and that he would have no command authority. No changes were made in the existing status of the Munitions Board or in the Research and Development Board. The deputy secretary of defense was given precedence within the Defense Department immediately after the secretary; three assistant secretaries were authorized. The secretaries and under secretaries of the military departments and the chairman of the Munitions and Research and Development Boards were designated as nonpermanent members of the National Security Council.<sup>8</sup>

**Toward the Air Research and Development Command**

In its report on 16 December 1948, the Committee on National Security Organization, headed by Ferdinand Eberstadt, proposed that immediate steps should be taken to establish closer working relations between the Joint Chiefs of Staff and the Research and Development Board to assure that advances in weapons and weapon systems were considered adequately in the formulation of strategic plans.<sup>9</sup> This recommendation, which could be effected without changes in legislation, apparently reflected a growing appreciation of the basic closed-circle relationship between scientific development and military strategy. According to Karl F. Kellerman, the executive director of the Research and Development Board's Committee on Guided Missiles, however, the board found it very difficult to obtain long-range strategic guidance from the Joint Chiefs of Staff. "We ask them," Kellerman said, "what the war will be like so we can plan intelligently for new weapon development and they counter by asking us what new weapons will be available so they can plan intelligently for the future war."<sup>10</sup> In the limited defense budgets of the late 1940s, moreover, research and development funding had been reduced in favor of operating forces. "There are those in high positions in the Air Force today," charged Maj Gen Donald L. Putt, the director of Air Force Research

## IDEAS, CONCEPTS, DOCTRINE

and Development, "who hold that research and development must be kept under rigid control by 'requirements' and 'military characteristics' promulgated by operational personnel who can only look into the past and ask for bigger and better weapons of World War II vintage. . . . They have not yet established that partnership between the strategist and the scientist which is mandatory to insure that superior strategy and technology which is essential to future success against our potential enemies."<sup>11</sup>

In a letter to Secretary Symington on 15 January, Dr Theodore von Karman, chairman of the USAF Scientific Advisory Board, doubted that the Eberstadt criticisms applied directly to the Air Force, but he observed they probably held a meaning for all of the military services. Von Karman reminded Symington that the facilities of the Air Materiel Command at Wright Field were inadequate for research in an era of supersonic flight, and he noted the impression that the Air Force had made research and development too subservient to the procurement of materiel. "When research work becomes too closely allied with operational and procurement problems," he postulated, "one gets too little farlooking research work."<sup>12</sup> Writing to Vandenberg on the same day that he addressed Symington, von Karman urged that the Air Force should again establish the position of deputy chief of staff for research and development. "Air supremacy," von Karman noted, "will be an indispensable factor in the event of another war. In the air battle, technical surprise and general technical superiority will always be decisive . . . DECISIVE technical superiority IN TIME OF WAR will go to the side which most rapidly and exhaustively transforms new technical developments into pieces of battlespace equipment IN TIME OF PEACE." He was certain that necessary long-range planning and more effective utilization of specialized personnel, critical facilities, and limited funds could come only through more centralized Air Staff control over research and development activities.<sup>13</sup>

When Vandenberg asked for guidance on research and development from retired Gen James H. Doolittle, he got much the same opinion that he had received from Dr von Karman. "Everyone is for research and development," Doolittle shrewdly observed, "just as everyone is against sin. However, very few people will sacrifice it."<sup>14</sup> Believing that some constructive action was necessary, Vandenberg asked the Air University to make a study of the research and development structure of the Air Force. In a companion effort on 7 April, General Fairchild asked the USAF Scientific Advisory Board to give him advice on the same problem. Maj Gen Orvil Anderson headed the Air University study committee and von Karman named Dr Louis N. Ridenour to head the Scientific Advisory Board's special committee on research and development. The two groups worked closely together during the summer of 1949; the Ridenour committee submitted its report on 21 September and the Air University committee sent forward its recommendations, including a review of the Ridenour report, on 19 November.<sup>15</sup>

"Any war which we can now foresee," the Ridenour committee stated, "will be an inter-continental war, and we must presume that in such a conflict the Air Force would play a major role, since naval blockade would be ineffective and land

## SOVIET NUCLEAR WEAPONS

invasion against an unweakened enemy would be hazardous in the extreme. . . . Even more important . . . is the deterrent effect of our air power upon the Russians. . . . To maintain this impressive role during the years of negotiation and diplomacy to come, the Air Force must retain its present qualitative superiority." Hence, the committee observed: "If war is not imminent, then the Air Force of the future is far more important than the force-in-being" and research and development should be funded as a necessary expense. More specifically, the Ridenour committee recommended that a position of deputy chief of staff for research and development be established both to head such activities within the Air Staff and to command a new research and development command, which should be divorced from the procurement and production functions of the Air Materiel Command. The single agency research and development organization should be made responsible for unified budgeting, thus making it possible to identify the total costs of research and development. However, strong efforts were needed to increase the number of Air Force officers and civilians with advanced technical skills on the active roles and to make full use of their capabilities. The committee recommended that the air research and development command should be provided with expanded field facilities and that such facilities ought to be operated by civilian contractors, thus allowing the Air Force to concentrate its limited technical manpower in the work of contract supervision and operational evaluation. Finally, the Ridenour group recommended that the technical talent and facilities of US universities and industries should be utilized much more fully, particularly through contracts for specific research and development projects. As an operating procedure, the committee recommended that the Air Force make a needed distinction between components and systems. A system was conceived to be an assemblage of interacting components brought together to deal with a particular problem such as strategic bombardment of air defense. "Within the Air Force," the committee recommended, "the role of systems engineering should be substantially strengthened, and systems projects should be attacked on a 'task force' basis by teams of systems and components specialists organized on a semi-permanent basis."<sup>16</sup>

After making its own study of Air Force research and development, the Air University committee stated: "We cannot hope to win a future war on the basis of manpower and resources. We will win it only through superior technology and superior strategy." The committee believed that Air Force leaders generally recognized the importance of research and development but the pressures of day-to-day operational, materiel, and political problems prevented the implementation of vigorous exploratory programs. The Air University's panel believed that a positive system to secure interactions between science and strategy had to be established as an absolute and automatic function rather than as a voluntary functioning of personalities. Since program stability was the pressing requirement in research and development, the Air University recommended that fluctuations in availability of personnel and funds should be absorbed in activities that were associated with the force in being and not with the Air Force of the future.

IDEAS, CONCEPTS, DOCTRINE

The Air University committee generally endorsed the recommendations of the Ridenour group; Gen George C. Kenney, now the commander of the Air University, added a strong personal approval to the report of the Air University committee. "As long as we remain ahead of any possible opponent technically," he wrote, "we could not lose a war; but if we once fall behind technically, it is difficult to see how we could win a war of the future."<sup>17</sup>

In Washington on 2 December 1949, a conference headed by Lt Gen K. B. Wolfe, deputy chief of staff, the Air Materiel Command—with representatives from the Air Staff, Air Materiel Command, and the Air University—reviewed the Ridenour and Air University reports on research and development and recommended that General Vandenberg implement the philosophy contained in them. The conference noted that Vandenberg had four deputies who were responsible for the Air Force of today and suggested that it would be logical to establish a fifth deputy chief of staff for development who would be responsible for the Air Force of the future. The conference also recommended that the Air Force accept reductions in its combat force in being as were necessary to support the establishment of a separate air research and development command. By implication, the Wolfe group did not accept the unorthodox Ridenour recommendation that the deputy chief of staff for development should also command the separate air research and development command. With approval from Vandenberg, the Office of Deputy Chief of Staff, Development was established on 23 January 1950; Maj Gen Gordon P. Saville assumed the position as deputy chief. The new office was provided with two directorates: Requirements, and Research and Development.<sup>18</sup>

With the understanding that its growth would be evolutionary through a gradual assumption of research and development functions and facilities from the Air Materiel Command, the Air Research and Development Command (ARDC) was established under Maj Gen David M. Schlatter in Washington on 23 January 1950. Many months elapsed before the new command began operating, but the Air Force had indicated its intention to devote new emphasis to the building of force capabilities for the future.<sup>19</sup> "Based on our present concept, that of retaliation," explained Maj Gen Donald L. Putt on 16 February 1950,

we have given our enemy two very important advantages, initiation and time. We shall, of necessity, have to depend on outwitting him in strategy and outpacing him in technology. . . It is apparent that in modern strategy and technology, developments in the one are largely predicted on or affected by developments in the other. We, therefore, arrive at the general position that national security will depend on our combining these two variables which we control, our strategy and our technology. This in a sense defines the magnitude and importance of technology to our military security.<sup>20</sup>

**Military Support for Foreign Policy**

According to the basic War Department outline for the postwar organization of the US military establishment, "the primary function of the armed forces is, when

## SOVIET NUCLEAR WEAPONS

called upon to do so, to support and, within the sphere of military effort, to enforce the national policy of the nation. There must be a complete correlation of national policy with military policy; of the political ends to be sought with the military means to achieve them.<sup>21</sup> Under this concept the role of the armed forces was to give authority to the conduct of American diplomacy; the foreign policy of the United States assumed the nature of an absolute, which desirably would be supported as necessary by appropriately prepared military forces. Actually, however, from the start of the postwar period, American foreign, military, and economic policies bore a closed-circle relationship in which a weakness in any one of the policies made for a weakness in them all. Dismissing for the moment that argument as to whether it was good or bad for the military to participate in the making of foreign policy, Maj Gen Lauris Norstad observed in May 1947 that "military considerations do, in fact, play a large part in the determination of foreign policy and its implementation. This being so, it is doubly important that the military at all times remain subordinate to the political."<sup>22</sup>

In a discussion with Secretary Forrestal in early September 1947, General Norstad, who was still troubled about the prospects of military participation in diplomatic decisions, stated his view that the National Security Council might well become a forum in which military representatives could ensure that the State Department did not undertake far-reaching policies requiring a level of military support that exceeded available capabilities. Seeking a clarification at the first meeting of the National Security Council on 26 September 1947, Forrestal volunteered his conception that the council "would serve as an advisory body to the President, that he would take its advice in due consideration, but that determination of and decisions in the field of foreign policy would, of course, be his and the Secretary of State's."<sup>23</sup> Henceforth, the National Security Council met ordinarily on the first and third Thursdays of each month to consider aspects of foreign, military, and domestic policy and to provide single sets of recommendations on particular problems to President Truman. If the president approved the policy recommendations, the NSC papers became the administration's policy. The chief advantage of the National Security Council appeared to be that it gave an opportunity for a member whose activity would be affected by a given policy to express his views and have his views expressed to the president.<sup>24</sup> To provide a means for exchanging political and military advice, a standing interdepartmental group known as the State-War-Navy Coordinating Committee (SWNCC) had been established in December 1944; in October 1945 the secretaries of state, war, and Navy had designated the SWNCC as "the agency to reconcile and coordinate action to be taken by . . . the departments on matters of common interest . . . and establish policies on politico-military questions." In 1947 the SWNCC was redesignated as the State, Army, Navy, Air Force Coordinating Committee (SANACC) and, despite the establishment of the National Security Council, the intergovernmental agency continued to function at the working level during the administration of Secretary Forrestal.<sup>25</sup>

IDEAS, CONCEPTS, DOCTRINE

According to the prevailing concept of proper military-civil relations of the late 1940s, the State Department was expected to define foreign policy and the Defense Department was expected to implement it with force commitments when requested. When State Department planners began preparing an integrated statement of foreign policy, however, they immediately found that no one could define authoritatively the basic national objectives of the United States. The files of the State Department and National Security Council were filled with papers dealing with separate problems and areas, each of which included specific objectives, but there was no consolidated statement of basic American purposes. The Joint Chiefs of Staff encountered this same problem. In October 1949 General Bradley told congressional investigators that in the absence of any authoritative definition, the Joint Chiefs of Staff had assumed that

the people of the United States have as their national objective a desire for peace and security without sacrifice of either the basic rights of the individual or the present sovereignty we cherish . . . Secondly, we intend to maintain our political way of life and our form of government in our own country. . . Our third objective is to maintain, and to raise, if possible, our American standard of living. And fourth, we Americans would like to have peace and security for the entire world, and all the good that these conditions can bring.

Bradley conceived that the national objectives did not "demand a similar political way of life or a similar form of government in other countries of the world" and that they included a hope for "the successful development of an effective world organization, based on the United Nations." In their approach to the problem, the State Department planners finally decided that the basic national purpose of the United States was best expressed in the preamble to the Constitution: "to form a more perfect Union, establish Justice, insure Domestic Tranquillity, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity." In 1949 the House Committee on Armed Services was in agreement with these generalized objectives, but it suggested that the National Security Council ought to issue "a firm statement of principles upon which the Joint Chiefs of Staff may rely as an official expression of their civilian leaders."<sup>26</sup>

Seeking "the containment of communism and . . . the defense of America," the United States lent military and economic assistance to counter Soviet aggression in Iran, Greece, and Turkey and in Trieste and Berlin.<sup>27</sup> On 7 May 1948, however, President Truman told Secretary Forrestal that annual military budgets must be kept relatively stable in order that they would not "cut too deeply into the civilian economy"; at this time the domestic economic policy of the United States began to prevail in no small part over both the foreign and military policy.<sup>28</sup> Although the United States hoped to restore a balance of power in both Europe and Asia, the successful civil war waged by the Chinese Communists affected American influence in East Asia.<sup>29</sup> In Korea the United States remained committed to the political objective of securing the unification and independence of the divided

## SOVIET NUCLEAR WEAPONS

nation, but on 25 September 1947 the Joint Chiefs of Staff considered that the American occupation troops could better be used elsewhere and would be extremely vulnerable in the event of a general war. They accordingly informed President Truman: "From the standpoint of military security, the United States has little strategic interest in maintaining the present troops and bases in Korea." In response to an American request, the United Nations General Assembly entertained the Korean unification problem; on 10 May 1948 it sponsored elections that formed the legitimate government of the Republic of Korea. The United States undertook to train and equip Republic of Korea armed forces to make them strong enough to provide security "against any but an overt act of aggression by North Korean or other forces." The last of the American occupation forces were withdrawn from Korea on 29 June 1949.<sup>30</sup> In the summer of 1949, subsequent to the defeat of the Chinese Nationalist government on mainland China and its retreat to Formosa, State Department planners queried the Defense Department as to whether, if political and psychological reasons demanded, the United States could commit military forces to the defense of Formosa without improperly imbalancing the force deployment necessary for security against the contingency of general war with the Soviet Union. The Defense Department replied it could not under the limitations of the \$13-billion military budget.<sup>31</sup> Operating with a relatively fixed annual budget despite the growing costs of modernization and the need to counter growing Soviet air offensive capabilities, the Air Force was compelled to curtail its oversea operations. "We have already closed out the Caribbean Air Command," Vandenberg pointed out in May 1950. "Perhaps," he added, "the nation should be willing to sacrifice some of its influence in Europe and Asia in order to strengthen its air defenses at home."<sup>32</sup>

In the postwar years members of the State Department Policy Planning Staff assumed the habit of conferring directly with members of the Joint Strategic Survey Committee of the Joint Chiefs of Staff in regard to military problems, and the SANACC provided an additional working-level agency for exchanging information and arriving at policies. In the autumn of 1949, however, Secretary of Defense Johnson ruled that State Department contacts with the Defense Department would be cleared through his office. Johnson later explained that he was seeking to ensure that basic decisions would be made by the top echelons rather than by subordinate offices. But some persons believed that the secretary was concerned lest pressures from the State Department to increase military forces would make it difficult for him to carry out his mandate to limit military spending.<sup>33</sup> Because he thought it was improper for the National Security Council to be called upon to discuss matters that had already been agreed to at lower levels, Johnson abolished SANACC.<sup>34</sup> Sensitive to charges that the Department of Defense was attempting to determine foreign policy, Johnson asserted: "The Defense Department is concerned with the military. . . . Neither the Secretary of Defense nor his assistants nor the Joint Chiefs of Staff nor the Chairman have . . . tried to fix . . . foreign policy. We have stayed out of that. . . . When foreign policy is determined, then our line is determined. Within that foreign policy it is our duty to work."<sup>35</sup> General Bradley

IDEAS, CONCEPTS, DOCTRINE

and the Joint Chiefs also attempted to adhere to this distinction between foreign and military policy. "We are asked the military implications of certain policies, and we try to restrict ourselves to military implications of various phases of foreign policy," he said. "This is our job as adviser to the Government on military matters. . . . We have never, to my knowledge, advocated any action which is not in accordance with the foreign policy in effect at that time."<sup>36</sup>

**Soviet Nuclear Weapons and Technological Challenge**

Although the leaders of the United States had recognized that no nation could maintain a complete monopoly on nuclear weapons, responsible American scientists had not expected the Soviet Union to detonate an atomic weapon before 1952, at the soonest. Early in 1949, an Air Force long-range detection service had begun to fly missions to search the upper atmosphere for evidence of atomic explosions anywhere in the northern hemisphere, and on 3 September 1949 one of the search planes picked up a radioactive air sample over the North Pacific. After reviewing the evidence, a special committee of Atomic Energy Commission experts stated positively that an atomic explosion had occurred somewhere in Asia between 26 and 29 August 1949. "We have evidence," President Truman told the American people on 23 September, "that within recent weeks an atomic explosion occurred in the USSR."<sup>37</sup>

What was surprising was not that the Soviet Union had developed an A-bomb but that it had done so more rapidly than had been predicted. In a magazine article published during October 1949, General Bradley cautioned that the Soviet A-bomb

is no occasion for hysteria . . . For an industrially backward country, the making of an atomic bomb is not so difficult as the problem of turning it out in quantity and delivering it. As long as America retains (as it can) a tremendous advantage in A-bomb quantity, quality and deliverability, the deterrent effect of the bomb against an aggressor will continue. Sustained research and development can keep us far in the lead with methods for intercepting enemy bomb-carriers. No one can predict what the weapons of the future may be; in the long run our promise of security lies in the combined, unparalleled inventiveness and industrial skill of Western Europe and America.<sup>38</sup>

**Developments in Nuclear Weapons**

In spite of an official analysis that "the fission bomb was not a mortal threat to the United States," both because of its finite destructive power and the fact that the Soviets would require several years to stockpile such weapons, American officials were shaken by the knowledge that the Soviets had the A-bomb.<sup>39</sup> The immediate effect of the Soviet nuclear capability was to stimulate research and development in the field of nuclear weapons: the products of the effort would have important effects on national strategic planning.



## SOVIET NUCLEAR WEAPONS

"At the end of World War II," observed W. Sterling Cole, chairman of the congressional Joint Committee on Atomic Energy, "there was a general slowdown in our entire military program, including atomic weapon development. This relaxation was due in large measure to a general belief that a lasting peace had been accomplished, that we would enjoy atomic monopoly for some years, and that there would be international control of atomic weapons."<sup>40</sup> The two World War II atomic bombs that had been employed against Japan had been large and awkward "laboratory" models which could not have been transported by planes smaller than B-29s, and even these aircraft had to be especially modified for the purpose. As has been noted, there was a prevalent belief in scientific and military circles in the late 1940s that the world's supply of fissionable uranium was very scarce. Air Force leaders recognized the desirability of a family of atomic weapons that could be employed against an entire spectrum of targets; however, they believed, on good authority, that fissionable material would always be scarce and that small atomic bombs could not be designed or produced. Consequently, these Air Force leaders favored the developing and stockpiling of the larger and more efficient atomic weapons that would be employed in a strategic air offensive. The Military Liaison Committee made Army, Navy, and Air Force requirements known to the Atomic Energy Commission, but the Department of Defense was only one of the customers of this production agency. Since 1946 many scientists had been more interested in the employment of the atom for peace than for war.<sup>41</sup>

As early as April 1942, atomic scientists Edward Teller and Enrico Fermi discussed the possibility of developing a fusion or thermonuclear weapon that would yield infinitely more power than the fission-type atomic weapon. But the decision had been made to develop the atomic bomb. And, although a small research program on the thermonuclear energy was continued, the Atomic Energy Commission (AEC) gave no major consideration to the question of undertaking active development of a thermonuclear weapon, which would be better known as the H-bomb. Immediately after Truman's announcement in September 1949 that an atomic explosion had occurred in the Soviet Union, a staff paper was prepared in the Joint Committee on Atomic Energy advocating that an H-bomb be developed, to which the Atomic Energy Commission replied that it was doing all that it could in the thermonuclear field. On the Atomic Energy Commission, however, retired Adm Lewis L. Strauss reasoned that the United States could not afford merely to seek to maintain an arithmetic lead over the Russians in stockpiling A-bombs. Therefore, on 5 October he proposed to his colleagues that the time had come for a quantum jump in the form of an intensive effort to develop the thermonuclear weapon. The Atomic Energy Commission's General Advisory Committee of scientists and engineers opposed a crash program to develop an H-bomb on both technical and moral grounds, and the majority of the membership of the Atomic Energy Commission did not favor an all-out thermonuclear program. On 9 November, however, the entire problem was laid before President Truman. Writing to Truman on 25 November, Strauss recommended that the president direct the Atomic Energy Commission "to proceed with the development of the

## IDEAS, CONCEPTS, DOCTRINE

thermonuclear bomb, at highest priority subject only to the judgement of the Department of Defense as to its value as a weapon, and of the advice of the Department of State as to the diplomatic consequences of its unilateral renunciation of its possession."<sup>42</sup>

Early in November the H-bomb controversy blossomed in the American public press, with elaborate arguments being developed on both sides. Troubled by the divided opinion in the AEC report, President Truman on 10 November designated Secretary of State Dean Acheson, Secretary of Defense Johnson, and AEC chairman David E. Lilienthal as a special subcommittee of the National Security Council to make recommendations to him. In the following weeks, the departments of State and Defense moved into accord on the necessity of producing thermonuclear weapons, as did the joint congressional committee. The matter, nevertheless, continued under consideration until late January 1950, when Dr Klaus Fuchs, a former group leader at the Los Alamos atomic weapons laboratory, confessed that he had passed nuclear secrets to the Soviets, a situation that demanded immediate action. In a day-long meeting on 31 January, secretaries Acheson and Johnson agreed upon the need for immediate and full-scale development of the thermonuclear bomb. Lilienthal opposed that view, arguing that there was a considerable doubt as to the technical feasibility of thermonuclear weapons and advocating that a better course of action would be to create more flexible atomic weapons. At the conclusion of the discussion, the special committee recommended that President Truman direct the Atomic Energy Commission to take immediate steps to develop a thermonuclear weapon. Accepting the recommendation, Truman announced on 31 January that on the previous day he had directed the Atomic Energy Commission "to continue its work on all forms of atomic weapons, including the so-called hydrogen or superbomb."<sup>43</sup> In protest Lilienthal resigned as chairman of the Atomic Energy Commission on 15 February and was shortly thereafter replaced by Gordon Dean.

The decision of the United States to emphasize the weapon aspects of thermonuclear energy shortly provided the beginnings of a family of nuclear weapons. Late in February 1950 the Atomic Energy Commission announced that it would turn out A-bombs on a virtual production-line basis. Thus, the critical problem of atomic supply, long considered a question in military planning, had apparently been solved. As a matter of fact, uranium ores were never scarce. The military had based its requirements on an assumption that the availability of raw materials would rigidly limit production; meanwhile the Atomic Energy Commission did not step up its materials procurement program because the limited requirements could not be met without expanding existing sources. Higher prices offered for uranium ores following the decision in 1950 to expand production led to the discovery of large mineral reserves in the United States. Technological innovations in the thermonuclear program also permitted refinements in A-bomb technology. In May 1950 a military requirement for a small bomb that could be delivered by high-performance aircraft was forwarded to the Atomic Energy Commission, and in this same month the Sandia Corporation

SOVIET NUCLEAR WEAPONS

reported that it would be possible to proceed with the manufacture of an efficient A-bomb that could be transported and dropped by fighter-type aircraft.<sup>44</sup> Where nuclear weapons previously had been available only for strategic air warfare employments, they could now be developed for tactical air warfare applications.

**Thoughts on Nuclear Air Power**

Under the privilege of academic freedom and with the understanding that their views did not necessarily represent official viewpoints, the faculty and students of the Air University had begun to make analyses of the effect of nuclear weapons on warfare as early as 1947. An Air War College seminar studying the import of the atomic bomb on strategy and tactics concluded in April 1947 that "the initial blow suffered by any nation from an atomic attack can be decisive."<sup>45</sup> Based on a detailed analysis of the threat to the United States posed by the Soviet Union, Air War College students conjectured in June 1948 that "all measures short of direct military action to contain the threat of Communist domination are of doubtful effect in meeting other exacting requirements in preserving our national life. Military action using weapons of mass destruction, prior to the Soviet development of these weapons, in final essence appears to be the only ultimate means of attaining security of our nation and the world."<sup>46</sup> Speaking to the Air Command and Staff School in June 1949, Maj Gen Orvil Anderson sought to outline the new patterns of air warfare in an atomic age. He said:

In World War II no fighter cap ever gave adequate protection to any surface target . . . The attackers always came through. . . . They always paid in attrition . . . but air came through, and the indications are strong that as technology advances the ability of air to come through at lesser and lesser costs is quite clear, quite apparent. You will reach the point in the distant future when you won't even think of opposing air in the air. . . . We'll go back to a counter-artillery work. We'll fight them at the launching site or we won't fight them<sup>47</sup>

In an article published in October 1949, Lt Col Harry M. Pike of the Air Command and Staff College faculty frankly questioned whether the United States ought to attempt an air defense effort. "If our enemies send over great numbers of aircraft carrying enough atomic bomb-type weapons to attain a goodly part of their strategic objective's and if our air defense system is capable of destroying only about ten percent of their planes and probably a lesser percentage of their missiles," Pike asked, "is the expenditure of such an enormous sum of money—probably billions of dollars—for an air defense system feasible and acceptable? Are there perhaps other places for us to put our money in order that the probability of attack might be made more remote?" If military funds were of little or no consideration, Pike would have favored "a mighty defense effort aimed at making this country literally unpenetrable." But, under existing funds limitations, he argued that an air defense system could not "rate a high rung on the priority ladder."<sup>48</sup>

IDEAS, CONCEPTS, DOCTRINE

The notion that the United States might conduct a preventive war against Soviet nuclear capabilities was completely unacceptable to Thomas K. Finletter, who replaced Symington as secretary of the Air Force on 24 April 1950. Speaking to the Air War College on 23 May, Finletter stated bluntly:

I believe that preventive war is not a possible policy for the United States government to carry out at this time . . . Anybody who advocates a preventing war . . . is simply taking the easiest way and is not willing to face up to the tremendously difficult political and military things we have to do. I think that the American people want their military leaders and their political leaders to work themselves out of this mess in some way which is consistent with the spirit and the creed of the American people.<sup>49</sup>

On 7 June, General Saville told Air War College students that there were good military reasons why the Air Force could not reasonably think about preventive war. While scientists assumed that the nuclear explosion in August 1949 had been Russia's first test, it was possible that earlier tests had not been discovered and the Soviet Union might have a stockpile of weapons. In order to wage preventive war and simultaneously shield the United States from counterattack, the Strategic Air Command would have to destroy the Soviet Long-Range Air Force in the initial air assault. As of early 1950 the Air Force did not have the reconnaissance capabilities and available intelligence information to pinpoint the location of Soviet aircraft for an initial attack or keep account of their deployments once an attack was begun. Saville suggested that, at best, preventive war might well turn into a situation wherein "I'll beat your brains out and you beat my brains out."<sup>50</sup>

At the Massachusetts Institute of Technology, Dr George Valley, Jr., a professor of physics and a member of the USAF Scientific Advisory Board, apparently read Colonel Pike's article that degraded the potential of air defense. Professor Valley believed that an air defense system capable of blunting an enemy attack could be had with modern technology at a cost that would not unduly detract from the support of the strategic air striking arm, and he recommended that a scientific study be made of air defense. Generals Vandenberg and Fairchild immediately called in key members of the Scientific Advisory Board and requested that action be taken to execute Valley's proposal. In November 1949 Vandenberg established an Air Defense Systems Engineering Committee under Valley and charged it to determine "the operational development of equipment and techniques—on an air defense system basis—which would produce maximum effective air defense for a minimum dollar investment." The committee of eight scientists—most of whom were associated with the Massachusetts Institute of Technology—met on weekends at the Cambridge Research Laboratories. In March 1950 the Valley committee proposed that a new system of close-in radar nets, communications facilities, information-processing computers, fighter-interceptors, and unmanned interceptor missiles would increase the probable kill ratio of attacking aircraft from 10 to 30 percent. It estimated that the interior defense would require some eight to ten mechanized air defense systems and that each would cost about \$1 billion.<sup>51</sup>

SOVIET NUCLEAR WEAPONS

"The period which we all realized must some day come when intercontinental air warfare would be a possibility," General Fairchild stated on 7 February 1950, "is now at hand. . . . Air Force thought and action is oriented about the concept that our primary effort must be directed toward providing the means of surviving such an atomic phase, not only without disaster, but so that our relative strength would be such that we may mobilize and bring to bear any forces that may be required to assure victory." Fairchild believed that the Soviet atomic weapon had increased the importance of the American strategic striking force. "Indeed," he said,

its continued effective, efficient existence is the greatest deterrent against the possibility of occurrence of another great conflict. If, through the grave miscalculation of others, such a conflict should nevertheless occur, it is our strategic striking force that we must put primary reliance upon for protection of our homeland by the destruction of the bases and remaining aircraft of the long-range forces directed against us and for so reducing enemy capacity to support his war effort that we may gain the time required for ultimate victory.

Even though the strategic striking force continued to be of first importance and first priority, Fairchild called for a new emphasis on air defense forces. "We must," he said, "provide the greatest degree of air defense attainable, within the means available to us." The Air Force could no longer expect to mobilize air defense units in a time of emergency. "Air-defensive forces," Fairchild ruled, "must be trained and equipped and in place and actually on 24-hour alert if they are to be committed to combat in defense against any sudden atomic attack — possibly one in great force." In view of the budgetary situation and the need to emphasize both the air striking and air defense forces, the Air Force had no choice but to further reduce the priority of the tactical air force. Although the Air Force continued to program some tactical air groups to permit peacetime training and development of tactics and doctrine, the tactical air force would not be adequate for the support of any large-scale surface operation immediately on the outbreak of hostilities. Such a force would have to be mobilized after a war's beginning.<sup>52</sup>

Speaking candidly of the importance of the strategic striking force on 10 May, Vandenberg visualized a future war:

An alert enemy will strike us first. Further, our defense forces in being will kill some of the attackers but only a small percentage. To be really effective, we must have an air defense capable of killing enemy air power at its source. We ourselves must strike effectively before much else can be done by anybody. As was the case in the last war, it is up to the Air Force to carry the war to the enemy and to gain air superiority before surface operations in force can be successively undertaken.<sup>53</sup>

Asked to explain the Air Force philosophy of air defense on 7 June, General Saville emphasized the "relationship between Air Defense, the Air Offensive, and Time." "I believe it's obvious to us all," said Saville,

IDEAS, CONCEPTS, DOCTRINE

that when we had exclusive ownership of the A-bomb we had a relative position in which we were going over the enemy and drop A-bombs on him and he was going to drop TNT on us . . . And, at that time, it was perfectly proper completely to ignore the Air Defensive business, go into the air offensive and give complete preoccupation to the air offensive. But when the enemy starts A-bomb stockpiling, you get a different situation You're back into the relative war again

Saville thought that the time had come to go back to the "15-year old theory . . . that a well organized air attack once launched cannot be stopped. . . . I think you have to stop it before it is launched and you can do so by offensive means only." Thus, Saville believed that the time had come for the Strategic Air Command to take the counteratomic offensive as its number one mission. Although Saville suggested that no form of air defense could be more than 60 percent successful, he urged that the United States must build a centralized air defense system of a magnitude that could be calculated in terms of its monetary costs both to the United States and to the Soviet Union. In other words, would a dollar expended by the United States for air defense cost the Russians comparatively more to augment their offensive capabilities in order to sustain the casualties that the US air defenses would inflict on an attacking Soviet force? Saville's "guesstimate" was that the United States could afford to build an air defense system with "two-notch" radar — one set of radars at the interior defense line and another on offshore picket vessels— and 67 air defense squadrons, the whole system to be capable of inflicting about 30 percent casualties on an attacking force. Such a defense would not prevent the Soviets from dropping some A-bombs on the United States, but it would introduce imponderables and additional requirements into their offensive plans, which would give the United States some five years to gear its forces to fight an atomic war. Saville did not favor the construction of a much more expensive three-notch radar system, with a very extended early warning radar line, until it could be determined whether other intelligence efforts could not provide the "early, early warning" more cheaply. He summed up his remarks by mentioning what he jocularly called the Saville theory of air defense: that the United States ought to try to gain as much time as possible to prepare itself to fight in an air war in which both adversaries would possess nuclear capabilities.<sup>54</sup>

NSC-68: Call for US Rearmament

At the same time that he directed the Atomic Energy Commission to begin developing thermonuclear weapons on 30 January 1950, President Truman called upon the secretaries of state and defense to undertake a basic review of the national policies and military strategy of the United States in the light of the Soviet atomic explosion. The two secretaries in turn ordered that the work be undertaken by an ad hoc group from the State Department's Policy Planning Staff headed by Paul H. Nitze and from the Joint Strategic Survey Committee with Maj Gen Truman H. Landon as head of its team. At the start of the study, General Landon was said to

## SOVIET NUCLEAR WEAPONS

have felt that he had to support the \$13-billion military budget that had been accepted by both Johnson and Bradley, but Nitze wanted a broader scale study that would compute requirements without reference to arbitrary financial support. Accepting the central purpose of American policy as being the establishment and maintenance of conditions throughout the world under which the democratic experiment as laid down in the Constitution could survive and prosper within the United States, the ad hoc group viewed the principal threat to this objective as stemming from the Kremlin's design for world domination. The planners believed, however, that the Kremlin placed first importance on the maintenance of their regime in the Soviet Union; second importance on the preservation of their power base in Russia; and third importance upon the objective of eventual world domination. The planners did not believe that the Communist leaders would initiate a general war until they had developed their atomic stockpile to respectable proportions, which might take them to 1954. Although the Soviets could be expected to attempt to subvert, weaken, and discredit the coalition forces opposing them, the planners doubted that the Kremlin would attempt any overt aggression until it was better prepared for the contingency that local war might spread into general war.

When the State Department planners had outlined foreign policy objectives, the determination of the alternatives permitted by the US military posture concerned both the State and Defense members of the ad hoc study group. One alternative was to continue with limited military forces. This course had already proven unsatisfactory. In the summer of 1949, when the Policy Planning Staff had queried the Joint Strategic Survey as to whether it was necessary to attain air superiority prior to the mounting of a strategic air offensive, it had been told that air superiority was essential but simply could not be planned for within a \$13-billion military budget. Another equally unsatisfactory course was to sacrifice foreign commitments and to withdraw US power to the Western Hemisphere. A third alternative was to take advantage of the available nuclear stockpile and initiate hostilities as soon as possible. The fourth alternative recommended by the group was to initiate an immediate large-scale buildup of American and allied military and general strength in order to develop an adequate power shield under which the United States could both resist local Soviet aggressions and deter general war, while concurrently developing means other than all-out war that would eventually achieve a modification in the nature of the Soviet regime. In mid-March the ad hoc group circulated its paper through the Pentagon, where it was endorsed by the three service secretaries and the members of the Joint Chiefs of Staff. On 12 April, President Truman tentatively approved it by referring it to the National Security Council, which would estimate the programs and costs necessary to implement the recommendations. Handling the paper as NSC-68, the National Security Council soon estimated that the expanded military program would cost about \$50 billion a year for several years. While these defense expenditures appeared large, they appeared also to be within the economic potential of the United States.<sup>55</sup>

## IDEAS, CONCEPTS, DOCTRINE

At the same time that the State-Defense ad hoc study group was preparing NSC-68, Congress had begun hearings on the Department of Defense budget for fiscal year 1951. Even though the budget estimates had been set up well before the atomic explosion in Russia, Secretary Johnson and General Bradley defended the \$13-billion budget when they appeared before the House Military Appropriations Subcommittee on 12 January 1950. The \$13-billion budget was divided as follows: \$4.018 billion to go to the Army, \$3.881 billion to the Navy, and \$4.433 billion to the Air Force. Within this budget ceiling, the Army would maintain 10 combat divisions and 48 anti-aircraft artillery battalions — 47 of these battalions having been added to the Army program for 1951 to counter the Soviet air threat. By making reductions in force (including limited status for the battleship *Missouri*), Adm Forrest P. Sherman, the new chief of naval operations, had obtained concurrence from the Joint Chiefs to operate seven large aircraft carriers. However, because of its reduced appropriations the Navy planned to reduce its attack-carrier air groups from 14 to nine, its antisubmarine squadrons from eight to seven, its patrol squadrons from 30 to 20, and its Marine air squadrons from 23 to 12. The Air Force would continue to possess a regular force to 48 groups and 13 separate squadrons, while another 27 groups would be manned by the Air National Guard and 25 by the Air Force Reserve. Although these 48 regular groups could not be equipped with modern aircraft, the \$1.2 billion allocated for Air Force procurement would permit the Air Force to introduce additional jet fighter aircraft into its inventory and to complete the equipping of three of the four heavy bomber wings and the two strategic reconnaissance wings with B-36 aircraft. Even though the \$13-billion budget ceiling had been set before the Soviet atomic explosion, Secretary Johnson asserted that the Joint Chiefs had long anticipated such an event and had tailored the forces to such an eventuality. Barring unforeseen changes in the international situation, Johnson volunteered the additional information that the Department of Defense would submit a budget request for another \$13 billion in fiscal year 1952. "Frankly, considering the intelligence estimates that we have available, and realizing that the amount of money which our economy can stand for defense is a Presidential responsibility," General Bradley said, "I am in complete agreement with that ceiling."<sup>56</sup>

Throughout the spring of 1950, President Truman faced the issue of whether the nation should go to the \$50-billion military budget that the foreign situation required or adhere to the \$13-billion ceilings set in terms of the internal domestic economy. The United States was still in an economic recession. During fiscal year 1950, receipts from taxes continued to decline and there would be a deficit of some \$3 billion. To triple the military budget, the government would have to increase taxes heavily and impose various kinds of economic controls.<sup>57</sup> Although Truman postponed a decision on NSC-68, Secretary Johnson appeared before a reconvened meeting of the House Military Appropriations Subcommittee on 26 April and requested an additional \$350 million for fiscal year 1951. "We want always that our Air Force, and Navy Air, shall be equal to the demand of the world situation. As long as there is doubt on anybody's part, who ought to be competent



## SOVIET NUCLEAR WEAPONS

to judge," Johnson explained, "we shall try to err on the side of safety." Johnson accordingly asked that the additional money should be subdivided with \$200 million going to the Air Force for aircraft procurement, \$100 million to the Navy for new planes, and \$50 million to be expended in converting and operating Navy antisubmarine vessels. Johnson also stated that four squadrons of Marine Corps aircraft slated for inactivation would be continued without additional appropriation.<sup>58</sup> The additional \$200 million would permit the Air Force to procure 77 production aircraft (medium bombers and medium and heavy transports), to rehabilitate 228 primary trainer aircraft, and to convert 71 B-29 medium bombers into aerial-refueling tankers.<sup>59</sup> But the Air Force received no mandate for the expansion. To General Vandenberg (who had allowed General Fairchild to justify the Air Force budget for 1951 and thus had escaped having to endorse limited military expenditures) the gap between Air Force requirements and Air Force capabilities was nothing short of tragic. "The simple and appalling fact," he told Air War College students in May 1950, "is that we will not be able to support even 48 groups out of the resources which have been proposed for us for Fiscal Year 1952." In an address in Detroit on 19 May, Vandenberg disagreed in public with Secretary Johnson's contention that US military forces were sufficient and warned that the United States could not expect to mobilize for a war after it had absorbed a large-scale air attack. In another public address on 16 June, Vandenberg again disagreed with the administration's policy of limiting and reducing the strength of the Air Force, while at the same time it placed more and more responsibility on it.<sup>60</sup> Even though Vandenberg got on the record in opposition to the limited defense posture prevailing in the spring of 1950, his warnings did not move the administration toward rearmament. In East Asia, however, the Soviets were about to unleash the forces of aggression that would compel the United States to make a complete reappraisal of its military requirements.

### Strategic Implications of Limited War in Korea

In a statement of American policy toward China on 16 December 1945, President Truman had looked upon the establishment of a strong, united, and democratic China as being of the utmost importance to the success of the United Nations. However, he had emphasized that the United States would not employ "military intervention to influence the course of any Chinese internal strife."<sup>61</sup> President Truman was not willing to deviate from this policy, and thus it will never be known whether the employment of American military forces might have made it possible for Nationalist China to have withstood the Chinese Communist military victory. Some Rand scholars later argued that the critical problems faced by the Chinese Nationalists were inflation and corruption and a consequent loss of troop morale. The Rand researchers believed that a relatively small number of American officers and enlisted men could have straightened out the problems of logistics, technical services, and finance for the Chinese Nationalist army and that this

## IDEAS, CONCEPTS, DOCTRINE

assistance together with American air support and a moderate aid program for the Chinese economy might have prevented the Chinese Communist victory.<sup>62</sup> "The decision to withhold previously pledged American support," Gen Douglas MacArthur would write, "was one of the greatest mistakes ever made in our history."<sup>63</sup>

Following the withdrawal of American military forces from Korea in June 1949, the mission of General MacArthur's Far East Command was limited to the defense of the geographical region including Japan, the Ryukyus, the Marianas, and the Philippines. In an interview with a newspaper correspondent in Tokyo early in 1949, MacArthur did not include the Republic of Korea within America's defense responsibilities. "Now the Pacific has become an Anglo-Saxon lake," MacArthur was quoted as saying, "and our line of defense runs through the chain of islands fringing the coast of Asia. It starts from the Philippines and continues through the Ryukyu archipelago which includes its broad main bastion, Okinawa. Then it bends back through Japan and the Aleutian Island chain to Alaska." In an apparent effort to clarify a position relative to Formosa, Secretary of State Acheson in a speech before the National Press Club on 12 January 1950 stated that the defensive perimeter of the United States ran from the Aleutians to Japan, then to the Ryukyus, and then to the Philippines. Should an attack occur in some area outside this perimeter, Acheson stated that initial reliance for resistance to such an attack would be expected from the people subjected to the attack and "then upon the commitments of the entire civilized world under the charter of the United Nations which so far has not proved a weak reed to lean on by any people who are determined to protect their independence against outside aggression." In explaining this speech, Acheson later maintained that he had said exactly what he meant to say. "Now, I think I said what I tried to say very clearly," he stated,

that the United States had certain points which were a defensive perimeter. At those points United States troops were stationed; there they would stay and there they would fight. In regard to other areas, I said nobody can guarantee that, but what we can say is that if people will stand up and fight for their own independence, their own country, the guaranties under the United Nations have never proved a weak reed before, and they won't in the future.<sup>64</sup>

Although the strategic estimates included in NSC-68 reasoned that the Soviets would not initiate hostilities — not even a small war that might flare into all-out war — until they could stockpile atomic weapons, the Kremlin determined to take advantage of what appeared to be a strategic opportunity in East Asia. The Soviets apparently believed that their puppet forces from North Korea could easily overrun the defenses of the Republic of Korea, without necessitating an overt employment of either Soviet or Chinese Communist forces. Soviet strategy seems to have discounted any serious military response by the United States to an invasion of South Korea, and it evidently did not believe that the United Nations Security Council could muster any effective opposition. The Soviets may have been relatively sure of the latter assessment, because since January 1950 Jacob Malik,

## SOVIET NUCLEAR WEAPONS

the Soviet delegate who could have wielded his country's veto, had been boycotting the Security Council. This assessment of Soviet strategy was arrived at by Rand associate Allen S. Whiting, after a careful study of admittedly fragmentary evidence.<sup>65</sup> As early as February 1951, however, Alexander de Seversky suggested that Malik's failure to attend the Security Council meetings and to veto initial United Nations actions in Korea might not have been a mistake. "I do not agree," he said, "that the Soviets did not expect us to fight in Korea, or that Malik was away from the Security Council . . . by mistake. It was all done by design, to draw us from the other side of the world and use up as much as possible of our potential, and we just fell right into the trap." Somewhat later, Seversky would also suggest that the Soviets may have opened the hostilities in Korea as a part of a well-concealed plan to encourage orthodox military thinking in the United States and to lead it to prepare "to fight again decisive battles on the ground . . . on Russia's terms and under conditions . . . that favor Russia in every respect."<sup>66</sup>

Whatever the strategy of the Soviet Union may have been, the North Korean armed forces began a well-prepared invasion of the Republic of Korea in the early morning hours of 25 June 1950. Even though Soviet forces were not overtly present, General Bradley found it evident that "militant international communism inspired the northern invaders" and that, for the first time, "communism is willing to use arms to gain its ends."<sup>67</sup> The major lesson to the free world was that the Communists would use force to accomplish foreign policy objectives. "The communist aggression in Korea," stated Secretary of Defense George C. Marshall, who assumed direction of the nation's defense effort on 12 September 1950, "marked the beginning of a new military policy for the United States. It left no doubt that the Soviet government and its satellites were willing to risk a general war by multiple aggression all over the world, unless confronted by substantial military strength."<sup>68</sup> Calling Korea a very special situation, Secretary Finletter pointed out that the United States was compelled to participate in a peripheral war in Korea, which was not a part of its global strategy, to demonstrate its national will and determination to resist aggression. "The western world," he noted, "has a very large periphery which fronts on Soviet Russia. In my opinion, it cannot defend that whole periphery with armed force. The real basic might of the western world, of which the United States is the center, is the capacity and will, if absolutely driven to it, to make war on anybody who attacks."<sup>69</sup>

In the last week of June 1950, President Truman with advice from the National Security Council and the Joint Chiefs of Staff heeded the request of the United Nations Security Council that all member nations "furnish such assistance to the Republic of Korea as may be necessary to repel armed attack and restore international peace and security in the area." In instructions received in Tokyo on 27 June, General MacArthur was authorized to employ air and naval forces in the area south of the 38th parallel in the hope that this support would enable the Republic of Korea army to rally and withstand aggression. On 30 June the Far East Air Forces (FEAF) and the Naval Forces Far East were empowered to attack military targets in North Korea. Later that day MacArthur was authorized to move

## IDEAS, CONCEPTS, DOCTRINE

ground combat troops from Japan and employ them against the North Korean People's Army. In authorizing these responses to the aggression, the Washington authorities approved the requests for conventional actions as they were made by MacArthur. By a fortunate circumstance, moreover, the Communists had launched their local aggression in Korea, which was one of the few spots along the Soviet periphery that was at all close to any concentration of available American military forces. In fact, the presence of US forces in Japan probably had much to do with the nature of the reaction. "The reason why we got involved in this periphery war, which is not a part of our global strategy," Finletter stated, "is that the enemy came down right under our noses, where we had the greatest concentration of American military power outside the United States."<sup>70</sup>

Despite a complete knowledge that the Soviet Union and Communist China were aiding the North Korean armed aggression, President Truman was adamant that the conflict would be limited to Korea's borders. "Every decision I made in the Korean conflict," he wrote, "had this one aim in mind: to prevent a third world war and the terrible destruction it would bring to the civilized world. This meant that we should not do anything that would provide the excuse to the Soviets and plunge the free nations into full-scale all-out war."<sup>71</sup> In the early days of the Korean emergency, Truman directed the US Seventh Fleet to isolate Formosa from the Communist mainland, ordered that Far East Air Forces and Naval Forces Far East aircraft would stay well clear of the frontiers of Manchuria and the Soviet Union, and instructed Secretary Johnson to revise a directive to MacArthur so as to eliminate an implication that the United States might be planning to go to war against the Soviet Union.<sup>72</sup> Secretary Acheson also believed that the Korean hostilities must be limited. "The whole effort of our policy is to prevent war and not have it occur," he stated. "Our allies," he added, "believe this just as much as we believe it, and their immediate danger is much greater than ours because if general war broke out they would be in a most exposed and dangerous position."<sup>73</sup>

**Bases of American Action in Korea**

As far as can be determined, the Washington authorities, without making any real consideration of the employment of an alternate strategy, accepted the orthodox surface strategy for handling the local war in Korea that General MacArthur presented during the last week of June 1950. At a later date, Lt Gen Albert C. Wedeymer, Army chief of plans, seriously questioned the wisdom of these initial decisions. "I think we Americans are surface-minded," he said. "We think in terms of the Army and Navy, and not up in the air with the new weapons that science has given us. I think that punitive action should have been taken with the Navy and with the Air Force, instead of putting ground forces in Korea."<sup>74</sup> When he arrived in the Far East in July 1950 as the commander of FEAF Bomber Command, Maj Gen Emmett O'Donnell was confident that with five groups of B-29s and with incendiary munitions, he possessed a capability to destroy

SOVIET NUCLEAR WEAPONS

everything of value in North Korea within three months. "It was my intention and hope, not having any instructions," he later recollected,

that we would be able to . . . cash in on our psychological advantage in having gotten into the theater and into the war so fast, by putting a very severe blow on the North Koreans, with an advanced warning telling them that they had gone too far in what we all recognized as being a case of aggression. . . . Tell them to either stop the aggression and get back over to the thirty-eighth parallel or they had better have their wives and children and bedrolls to go down with them because there is not going to be anything left up in Korea to return to

After hearing O'Donnell's proposal, Lt Gen George E. Stratemeyer, the Far East Air Forces commander, told O'Donnell that overriding political and diplomatic considerations prevented its acceptance.<sup>75</sup>

In late August and early September 1950, some within the Department of Defense appear to have been of the opinion that the United States could find a solution for the Korean War by adopting stronger policies toward the Soviet Union. Although the full details of the story were never told, Secretary Johnson was reported to have favored action toward Russia. In a public speech on 25 August, Secretary of the Navy Francis Matthews advocated "instituting a war to compel cooperation for peace . . . We would become the first aggressors for peace." On the same day, General MacArthur sent a statement to a veteran's organization that mentioned misconceptions about the value of Formosa to America's strategic position in the Pacific and stressed that air bases on an unbroken island chain would allow the United States to "dominate with air power every Asiatic port from Vladivostok to Singapore." When he was questioned at the Air War College by a newspaper reporter early in September, General Anderson reportedly stated: "We're at war, damn it. I don't advocate the shedding of illusions. Give me the order to do it and I can break up Russia's five A-bomb nests in a week." Acting more discretely inside the administration where he headed the National Security Resources Board, Stuart Symington was said to have advocated immediate action to resolve difficulties with the Soviets, while the United States still possessed a military advantage in atomic air power.<sup>76</sup>

According to Gen J. Lawton Collins, the Army chief of staff, the Joint Chiefs of Staff were opposed to an air campaign against North Korea's cities both because the United States might have to rebuild them and because they did not wish to spread enmity among the North Korean people "What we had in mind," he said, "was what actually transpired in the Ukraine. When the Germans went into the Ukraine, there is no question but what if they had used their heads, they might well have gotten a great deal of support from the Ukrainian people in their fighting against the Russians."<sup>77</sup> President Truman flatly refused to accept the idea that the United Nations should charge the Soviet Union with full responsibility for the Korean conflict and demand that Moscow put an end to it. Acting on peremptory orders from Truman, General MacArthur attempted without success to recall his statement to the veterans organization. General Anderson was immediately

IDEAS, CONCEPTS, DOCTRINE

suspended as commandant of the Air War College and subsequently requested retirement. Secretary Johnson resigned as head of the Department of Defense on 12 September. Secretary Matthews, however, remained in office after he explained to Truman that he had heard preventive war talked so much that he had used the phrase in his speech without realizing its full implications to the administration's policy. Symington's suggestion that stronger action be taken on the basis of America's preponderance in atomic air power apparently did not meet the approval of the Joint Chiefs of Staff, at least two of whom reportedly "did not feel that atomic advantage was a sufficient guarantee to deter the Soviets."<sup>78</sup>

**Tactical Air Operations**

In accordance with the terms of the United Nations Security Council resolution of 27 June 1950, the mission of the United Nations Command forces in Korea during the summer of 1950, as detailed by Secretary Johnson, was "to stabilize, to build up the necessary equipment to go forward, and . . . to go forward to the thirty-eighth parallel."<sup>79</sup> Although somewhat hampered at first by the fact that it was equipped and trained for the air defense of Japan rather than for offensive employment, the Far East Air Forces committed most of its Japan-based Fifth Air Force to the Korean conflict. Assisted by carrier-based aircraft from the US Seventh Fleet, the Fifth Air Force easily destroyed the small North Korean air force, thus establishing local air superiority over Korea in the opening weeks of the war. To permit outnumbered United Nations ground forces to trade space for time and to prevent the North Korean People's Army (NKPA) from overrunning all of South Korea, Fifth Air Force and Seventh Fleet fighter-bombers and FEAF Bomber Command B-29s devoted an exceptionally large proportion of their capabilities to the support of the friendly group troops. In the emergency, air bombardment had to compensate for deficiencies in Army artillery support fire. In these same weeks understrength US Army divisions from Japan were committed piecemeal to the battle front in what seemed at first to be a futile effort to halt the Communist ground offensive. Speaking on 28 July to the question of why tactical air power had not stopped the North Korean ground attack, Secretary Finletter explained: "Tactical air power must be in relationship to Ground Forces. Tactical air power alone cannot win a war — any more than Ground Forces alone could win a war. . . . A force of ground troops is a kind of composite power of ground elements and air elements which support them." If opposing ground armies have capabilities which "are at all even," Finletter postulated, "air superiority will decide the outcome, because the force which has air superiority will ultimately win. However, where there is such gross disproportion as there is and has been in Korea between the ground elements, tactical air superiority of its own cannot win the immediate battle."<sup>80</sup>

In late July 1950, when United Nations ground forces were building a defensive perimeter around the port of Pusan in southern Korea, General MacArthur authorized United Nations Command air units to begin a comprehensive

## SOVIET NUCLEAR WEAPONS

interdiction campaign against the enemy's overextended supply routes. In a six-week effort begun early in August, the B-29 groups easily smashed such war supporting industries as were to be found in North Korea. By 15 September, United Nations forces had been built up to a strength that they were required to attack northward from the Pusan defense perimeter. On that same day, an amphibious landing of a two-division force behind the enemy lines at Inchon was coordinated with the northward drive. "At this time," wrote Maj Gen Otto P. Weyland, who had come to Tokyo in July as vice-commander of the Far East Air Forces, "it became readily apparent that the air force had done its job well. The NKPA around the Pusan perimeter was nothing more than a skeleton which had been depleted by direct destruction and starved by the interdiction program." In three months of operations under conditions of virtual air supremacy, FEAF airmen were credited conservatively with having killed some 39,000 enemy personnel and with destroying 452 tanks, more than 6,000 vehicles, more than 1,300 freight cars, and some 260 locomotives. The number of hostile troops killed by air attack was surprisingly large: the 39,000 figure amounted to about one-third of the ten North Korean divisions that had attacked in June 1950.<sup>81</sup>

In the summer of 1950 the United Nations Command-Far East Command was under instructions to drive forward to the 38th parallel, thus clearing the Republic of Korea of invasion forces. In view of the impending United Nations offensive at Inchon, however, the National Security Council recommended a broader interpretation of the United Nations Security Council resolution of 27 June. "We regarded," stated Secretary of Defense Marshall, "that there was no . . . legal prohibition against passing the 38th parallel." Believing that the safety of the Republic of Korea would remain in jeopardy as long as remnants of the North Korean People's Army survived in North Korea, the National Security Council recommended that, if there was no indication of threat of entry of Soviet or Chinese Communist elements into Korea in force during the United Nations offensive, MacArthur should be authorized to extend his operations north of the 38th parallel. President Truman approved this recommendation on 11 September, and, following the recommendations of the United States, the United Nations General Assembly adopted a resolution on 7 October requiring that "all necessary steps be taken to ensure conditions of stability throughout Korea."<sup>82</sup>

Except for a logistical airlift and an airborne operation at Sukchon and Sunchon designed to trap retreating North Koreans, the United Nations ground forces required little air support during October as they drove forward against shattered remnants of the North Korean People's Army. Interdiction and attrition air strikes became less and less effective as Fifth Air Force and Seventh Fleet aircraft sought targets in a progressively narrowing strip of territory between the advancing grouped troops and Korea's northern boundary at the Yalu River. Free to build up their forces in the sanctuary north of the Yalu, the Chinese Communists moved air units equipped with Soviet-built MiG-15 jet fighters to airfields in Manchuria and began to fly combat sorties south of the international border on 1 November. The next night Chinese Communist ground troops attacked and encircled the

IDEAS, CONCEPTS, DOCTRINE

advanced elements of an American regiment near the Yalu. When the United Nations ground forces renewed their offensive on 26 November, the Chinese Communists launched a massive counterattack that shattered the United Nations forces and forced them to seek safety in a full-scale retreat from North Korea.<sup>83</sup> General Spaatz subsequently described what had happened: "When our Air and Navy . . . had sufficient area of operations, the force of the North Korean Army was finally stopped and we had the Pusan beachhead secure. Then we were able to launch a counterattack. As soon as we pushed forward to the Yalu River and closed up the area that our Navy and Air could operate in, our ground forces were in the impossible position of being met by an onslaught of Chinese Communists with our dominant air and naval power impotent. . . . If the air power could have gotten into play, and gone in to a depth of two or three or four hundred miles back along the line of communication, the condition at the Yalu River might not have obtained."<sup>84</sup>

**General Vandenberg on Air Power**

At a press conference in Washington on 30 November, President Truman stated that the United States would take whatever steps were necessary to meet the situation in Korea, including the use of "every weapon that we have." "Every weapon" included the atomic bomb. "I don't want to see it used," Truman added. "It is a terrible weapon, and it should not be used on innocent men, women and children who have nothing whatever to do with this military aggression." With conditions worsening, however, MacArthur informed the Joint Chiefs of Staff on 3 December that the United Nations Command was "facing the entire Chinese nation in an undeclared war." He called for "political decisions and strategic plans . . . adequate fully to meet the realities involved."<sup>85</sup> At the moment the only direction that President Truman and the Joint Chiefs could give to MacArthur was the terse message: "We consider that the preservation of your forces is now the primary consideration."<sup>86</sup>

General MacArthur was not satisfied with this directive. In a message to the Joint Chiefs and in conversations with General Collins in early December, he argued that the United Nations Command should be permitted to bomb military targets in Manchuria. At least one high-ranking air officer agreed with MacArthur. "I was all for the bombing of Manchuria," stated General O'Donnell, "and I wanted very badly to do it as soon as we recognized the Chinese Communist forces . . . as bona fide forces. . . . I think we could have gotten in and for a very small cost in casualties we could have really hit them hard and perhaps even stopped them." Explaining his ideas more fully to the Joint Chiefs in a long message on 30 December, MacArthur suggested that an active air and naval campaign be launched against Communist China. "Should a policy determination be reached by our government or through it by the United Nations to recognize the state of war which has been forced upon us by the Chinese authorities and to take retaliatory measures within our capabilities," MacArthur wrote,



## SOVIET NUCLEAR WEAPONS

we could: (1) blockade the coast of China, (2) destroy through naval gunfire and air bombardment China's industrial capacity to wage war; (3) secure reinforcements from the Nationalist garrison on Formosa to strengthen our position in Korea if we decided to continue to fight for that peninsula, and (4) release existing restrictions upon the Formosan garrison for diversionary action, possibly leading to counter-invasion against vulnerable areas of the Chinese mainland.<sup>87</sup>

In a few critical weeks in the winter of 1950-51, the United States made some fundamental decisions regarding the employment of nuclear weapons and about MacArthur's proposal that the limited Korean War should be expanded into a general war in Asia. Several factors affected the decision on nuclear weapons. A belief that the use of atomic weapons in Korea would result in a beginning of World War III was apparently very strongly held in Europe. President Truman's intimation that the A-bomb might be used in Korea brought Britain's Prime Minister Clement Attlee to Washington for hurried consultations on 4 December. The communiqué that marked the conclusion of the Truman-Attlee talks noted: "The President stated that it was his hope that world conditions would never call for the use of the atomic bomb. The President told the Prime Minister that it was also his desire to keep the Prime Minister at all times informed of developments which might bring about a change in the situation."<sup>88</sup> In later years Gen Frank F. Everest, who had been the Air Force's assistant deputy chief of staff for operations in the winter of 1950-51, stated that the original North Korean aggression probably could have been halted by the threat of the employment of the atomic bomb but that "the United States at that time was unwilling to use such a threat and, therefore, possibly increase the dangers of world conflict." Late in 1950 atomic weapons were still configured for strategic rather than tactical applications. Unlike the Soviet Union, which had many targets vulnerable to atomic attack, Communist China appeared to offer few targets for an atomic bombing campaign. The great strength of Communist China was manpower; the People's Republic of China was relatively independent of complicated logistical support facilities and was getting most of her weapons from the Soviet Union. According to General Everest, one other factor bore on the situation. In his opinion, the United States had accepted the position that atomic weapons would be used only when the issues to be resolved were vital to the United States. Everest said that these vital interests were not defined, but he was certain that an attack against the North American continent or against the North Atlantic Treaty Organization (NATO) allies would have been vital and would have been met with atomic firepower.<sup>89</sup>

During their conversations in December 1950, Truman and Attlee agreed that the United Nations should avoid a general war with China, primarily because of the threat of a global war. Much of the thinking lying behind this decision became apparent during Senate hearings in May and June 1951. Secretary Acheson believed that air attacks against Communist bases in Manchuria would "increase—and materially increase—the risk of general war in the Far East and general war throughout the world." The Joint Chiefs of Staff opposed the extension

IDEAS, CONCEPTS, DOCTRINE

of the war to China on military grounds. "It would be militarily foolhardy," they declared on 3 January, "to embark on a course that would require full-scale hostilities against great land armies controlled by the Peking regime, while the heart of aggressive Communist power remained untouched." At the Senate hearings, Bradley stated: "Red China is not the powerful nation seeking to dominate the world. Frankly, in the opinion of the Joint Chiefs of Staff, this strategy would involve us in the wrong war, at the wrong place, at the wrong time, and with the wrong enemy."<sup>90</sup>

Believing that the American people needed to know the facts about the nation's air power and the relationship of the Korean War to global Air Force responsibilities, General Vandenberg published an article entitled "The Truth About Our Air Power" on 17 February 1951. He further developed his thought in two days of testimony before the Senate committee investigating the military situation in the Far East. He wrote, as a basic principle, that air power was indivisible and could not properly be characterized as strategic, tactical, or defensive. "The overriding purpose of every plane, whether it is a bomber or a fighter," he declared, "is to win the air battle on which final victory on land or sea is predicated." In an atomic age the air battle had to be won by an air offensive since no amount of money, however great, could provide static air defense which could "keep out a determined enemy attacking in strength."<sup>91</sup> Looking backward at the nineteenth century, Vandenberg pointed out that the British navy had maintained a world balance of power and had given the world many years of peace. In the twentieth century, air power was the only force that could maintain a world balance of power. With this thought in mind, Vandenberg demonstrated that the Air Force had to be kept continuously balanced against the threat of the Soviet Union. "As the power of the Russian air force increases and their stockpile of atomic weapons increases," he said,

the job of the United States Air Force becomes roughly doubled. Whereas today it is a deterrent to war, because of its ability to devastate the industrial potential of any great nation on the globe, tomorrow, if the Russian air force has the atomic bombs and the ability to deliver them, we have to have an Air Force that can take the attrition that would be necessary to destroy that air force, and destroy it promptly; and after that, have a sufficient Air Force left to destroy the manufacturing potential of Russia, and do what we call policing action after that, to insure that it was not rebuilt

As he saw it, the Soviets were already reducing the margin of superiority of the Air Force to keep the world's peace. "Today," he said, "we have only one job that we would have to do if we got into a major war with Russia, and that is to lay waste the industrial potential of that country. Tomorrow when they developed their long-range air force and they have more atomic weapons, we have two jobs. We would have to put into first place the job of destroying the Russian air potential that could utilize atomic bombs, and lay waste the industrial potential."<sup>92</sup>

Turning more specifically to the situation in Korea, Vandenberg believed that the Air Force was the "one thing that has, up to date, kept the Russians from

SOVIET NUCLEAR WEAPONS

deciding to go to war." But, in view of its global responsibilities, the Air Force was "a shoestring air force." If the Air Force were called upon to bomb across the Yalu, it could "destroy or lay waste to all of Manchuria and the principal cities of China." In so doing, however, the Air Force would undergo an attrition that, "with our start from approximately 40 groups, would fix it so that, should we have to operate in any other area with the full power of the United States Air Force we would not be able to." Because of the low rate of military aircraft procurement in the postwar years, the American aviation industry would be "unable until almost 1953 to do much of a job toward supplying the airplanes that we would lose in the war against any major opposition." For these reasons, Vandenberg urged that the Air Force could not sacrifice its deterrent capabilities for the sake of "pecking at the periphery" of communist power in Manchuria and China.<sup>93</sup>

After outlining his reasons why the air war should not be expanded to Manchuria and China, Vandenberg laid out his view on the way in which an air war ought to be fought. "No successful operations on the surface," he said, "can be conducted until you get air superiority. And when you go against a hostile air force in order to gain that air superiority, you must first destroy the enemy air force at the place where he is most vulnerable, which is on the ground and in his nest. . . . If you don't do that, your attrition mounts in arithmetical progression." After air superiority was attained, Vandenberg declared:

Air power . . . should go to the heart of the industrial centers to become reasonably efficient. . . . In my opinion, the proper way to use air power is initially to stop the flow of supplies and ammunition, guns, equipment of all types, at its source. The next most efficient way is to knock it out along the road before it reaches the front line. The least efficient way is after it gets dug in at the front line. Nevertheless, there are requirements constantly where the utilization of air power in close support is necessary.

Because of peculiar circumstances in Korea, Vandenberg demonstrated that the Air Force could not adhere to its doctrine. The war materiel that came to the enemy within Korea originated in the Soviet Union, which could not be attacked. Consequently war materiel had to be destroyed somewhere south of the Yalu, and, as a rule, Vandenberg explained, the greater the length "of road and rail that you can get the enemy from his main source of supply, the more advantageous it is to the Air Force and, therefore, as you decrease it, it becomes less advantageous. . . . As the distance between the Yalu River and our troops decreases, the effectiveness of our tactical air forces decreases in direct proportion." For these reasons, Vandenberg favored a negotiated peace in Korea which would "reestablish the freedom of the South Koreans and . . . push the aggressor back." "I believe," he said, "our objective is to kill as many Chinese Communists as is possible without enlarging the war at the present time in Korea. I believe that there are reasonable chances of success in achieving a negotiated peace without endangering that one potential . . . which has kept the peace so far, which is the United States Air Force."<sup>94</sup>

## IDEAS, CONCEPTS, DOCTRINE

**Air Power Stalemates the Communists**

Even though the Washington leaders sympathized with the apparently desperate condition of the United Nations Command force in Korea, they felt compelled to view Korea in terms of the global defensive situation. Believing that attempts to unify Korea by military means would be to incur an unacceptable risk of an Asiatic or general world war, the Joint Chiefs of Staff recommended that the United Nations should seek a cease-fire in Korea. At the request of the United States, the United Nations General Assembly adopted a resolution on 14 December proposing that immediate steps be taken to end the fighting in Korea and to settle existing issues there by peaceful means. On 9 January 1951 the Joint Chiefs of Staff informed MacArthur that, while the war would continue to be limited to Korea, he would inflict as much damage upon the enemy as possible, subject always to the safety of the forces under his command. "In the worst case it would be important that, if we must withdraw from Korea," Truman told MacArthur on 14 January, "it be told to the world that that course was forced upon us by military necessity and that we shall not accept the result politically or militarily until the aggression has been rectified."<sup>95</sup> Apparently unable to accept the limited objective, General MacArthur was openly critical of the administration policy at intervals during the spring of 1951. On 20 March, he concluded a message to Congressman Joseph W. Martin with a statement of his fundamental belief: "There is no substitute for victory." Convinced that MacArthur did not agree with United States policy in Korea, President Truman relieved him from command on 11 April 1951. Truman explained to the American people that the military objective in Korea was "to repel attack . . . to restore peace . . . to avoid the spread of the conflict."<sup>96</sup>

As seen from the viewpoint of General Weyland, who assumed command of the Far East Air Forces on 10 June 1951, the principal task of the United Nations air forces in the winter of 1950-51 was to prevent the Chinese armies from enveloping the retreating United Nations ground forces. Air interdiction strikes and concentrated close air support retarded the Communist advance, worked heavy destruction on enemy personnel and materiel, and enabled the friendly ground troops to withdraw to defense lines in South Korea. If the Chinese Communist air force had been able to enter combat over the ground battle area, the story might have been different. However, the Far East Air Forces maintained local air superiority by a combination of combat air patrols and the threat of potential striking power. Rushed into combat in Korea, the F-86 Sabre fighter proved able to overcome Soviet MiG-15 planes in air-to-air combat. "The F-86 saved us in Korea," Gen Nathan F. Twining stated later. "If we had not had the top day fighter, those MiGs would have come down and ruined us over there, but the day fighter licked them." While United Nations airmen were not permitted to violate the Manchurian sanctuary, Vandenberg secured acceptance of one important proviso to the restriction. In the spring of 1951, the United States delegation in the United Nations passed the word that if the Reds launched massed air attacks against

## SOVIET NUCLEAR WEAPONS

United Nations forces in Korea, American airmen would destroy the airfields from which such attacks originated. Rather than jeopardize their sanctuary, the Communists attempted to build airfields within North Korea. But each time one of these airfields neared operational status, B-29s successfully neutralized it. The Communist air commander, Weyland said, was forced to learn "the basic lesson that an air force cannot be reconstituted or developed in an area where his foe has won air supremacy."<sup>97</sup>

"In a long-term war," Weyland remarked on 28 December 1950, "tactical air power will contribute more to the success of the ground forces and to the over-all mission of a theater air commander through a well-planned interdiction campaign than by any other mission short of the attainment of air supremacy." In times of crisis, the Far East Air Forces provided friendly ground troops with an extraordinary large amount of close air support. The FEAF Bomber Command developed radar-directed night-bombing techniques that permitted its B-29s to rain down proximity-fuze bombs on Red troops as they prepared to assault friendly ground positions. In the intervals between ground battles, however, United Nations air power was directed against the middle miles of the Korean transportation system that supported the Red armies. Constant air attacks against the overextended supply lines drained the Chinese Communist armies of their combat effectiveness. The massive Chinese ground attacks mounted in January and April 1951 failed because of a lack of logistical support. Seeking to exact heavy casualties upon the enemy rather than to defend geographical objectives, United Nations ground troops preserved themselves through maneuver during the Chinese attacks and launched counteroffensives when the Red assaults collapsed. During the period between November 1950 and June 1951, continued air assault against the enemy forward areas and supporting supply routes brought death to an estimated 117,000 enemy troops, destroyed 1,315 gun positions, 196 tanks, and more than 80,000 buildings used as troop and supply centers. The enemy's transportation system was crippled by the loss of over 13,000 vehicles, 2,600 freight cars, and 250 locomotives to air attack.<sup>98</sup>

Following the collapse of the vaunted Chinese Communist spring ground offensive, United Nations Command forces drove forward on all fronts in May 1951 to clear the Republic of Korea of hostile invaders. With their forces badly beaten and on the run, the Communists decided to take advantage of the willingness of the United Nations to negotiate a Korean cease-fire. The armistice talks began in Korea on 10 July 1951. At this time the conflict entered a new phase that ultimately would be concluded by accomplishing new undertakings, some of them remote from the Korean battleground. At the Kaesong truce talks, Lt Gen Nam Il, the senior Red delegate, gave a frank appraisal of the reason why the numerically superior Communist ground armies had not prevailed in Korea. "Without the support of the indiscriminate bombing and bombardment by your air and naval forces," he said, "your ground forces would have long ago been driven out of the Korean peninsula by our powerful and battle-skilled ground forces." At the juncture when the all-out ground battles were ending, Weyland also looked

## IDEAS, CONCEPTS, DOCTRINE

backward and drew lessons. "There is a tendency among many," he said, "to regard all . . . air operations against ground forces merely as support of the Army. . . . Would it not be better to recall that land, sea, and air forces are committed in support of the over-all mission of the theater commander? . . . If we take such a view, it should . . . be less difficult to see that over-all strategy must be geared to the air situation and the capabilities of the friendly air forces as much as to ground forces concepts of maneuver and fire. . . . If the objectives and situation are such that, in order to be successful, air power must be exploited to the fullest, then the ground forces must support the air forces."<sup>99</sup>

### Rebuilding the Worldwide Air Force

Viewing his service as secretary of the Air Force in retrospect, Thomas K. Finletter remarked that Korea was the stimulus that broke the logjam of fixed military budgets in 1950, but he also observed that the Korean War "had the unfortunate effect of emphasizing the importance of the weapons and tactics of the past."<sup>100</sup> General Vandenberg, however, saw four principal events as being instrumental in the substantial expansion of the Air Force that took place after 1950. The first was the explosion of an atomic bomb by the Soviet Union in August 1949. The second was the North Korean invasion of South Korea in June 1950, followed by the entry of the Chinese Communist armies into Korea in November. Both actions signified the willingness of the Communists to employ armed might for the achievement of foreign policy objectives. The third was the commitment of United States forces to assist in the defense of Western Europe. And the fourth was the calculation of the Joint Chiefs of Staff that by mid-1954 the Soviet Union would possess a stockpile of atomic weapons sufficient in size to mount a devastating attack against United States military installations, industry, and population centers.<sup>101</sup> Recognizing that the Air Force was on trial in Korea, Vandenberg ordered that every effort be made to give the utmost support to the Far East Air Forces; nevertheless, the reorganization and buildup of the United States Air Force was pointed toward the major threat presented by the growing atomic capabilities of Soviet air power.

Even though it had gained a high level of experience in the global air battles of World War II, the United States Air Force was still a new military organization in June 1950. Thus, at the same time that Vandenberg faced the problem of mobilizing larger air striking forces, he also had to speed decision-making capabilities in the Air Staff and to build a comprehensive field organization for the growing Air Force. The headquarters organization, field establishment, and force composition had to be tailored to new strategic concepts, since the strategy of minimum deterrence followed up until 1950 had not prevented the outbreak of conflict in Korea. In the House of Representatives, Chairman Vinson was openly apprehensive about Air Force capabilities for air defense and tactical air warfare. In the Senate, Paul Douglas urged that the internal organization of the Air Force ought to be established by law, as had long been the case with the Army and Navy.<sup>102</sup>

## SOVIET NUCLEAR WEAPONS

Although the Air Force began to reorganize its field commands in the autumn of 1950, it asked for more time to evaluate the global air situation—including Korea—before taking a stand on an Air Force organization act. At the request of General Stratemeyer, Vandenberg sent Col Ethelred Sykes, who had been serving as a special assistant to Secretary Finletter, to Tokyo early in August 1950 to analyze the air warfare lessons being learned there. Within the headquarters of the Fifth Air Force in Korea, Maj Gen Earle E. Partridge organized a tactical airpower evaluation (TAPE) section. On 6 October, General Norstad, the Air Force vice chief of staff, initiated an even larger evaluation project. "Regardless of . . . limiting conditions," Norstad said, "we must utilize the Korean experiences for future planning purposes." He sent Maj Gen Glenn O. Barcus and a team of senior officers to Tokyo to make a broad evaluation of the effectiveness of the Air Force in Korea. Believing that there also would be a requirement for an investigation by an informed but impartial civilian, Secretary Finletter sent Dr Robert L. Stearns, president of the University of Colorado, to the Far East to gather information that would be useful in making policy decisions. Stearns went to the Far East on 19 November, spent about 30 days in observing and gathering data, and returned to Washington, where he completed a study entitled "Korean Evaluation Project: Report on Air Operations" on 16 January 1951. The Barcus group continued to work in the theater until 31 December; its final report was printed in seven volumes with numerous appendixes on 12 March 1951.<sup>103</sup> In February the deputy chief of staff for development was designated as the staff monitoring agent to ensure that Air Staff agencies and field commands took action to meet deficiencies noted in the Stearns and Barcus reports. Following disbandment of the Barcus group, a small Korea evaluation group, headed by Colonel Sykes, was established within the Office of the Secretary of the Air Force to serve as a central clearinghouse for air studies and evaluations of the war.<sup>104</sup> One of the major values of these evaluations was the identification of the special circumstances prevailing in the limited war that would doubtless not be typical of general hostilities.

**Establishment of the Air Force Council**

In the autumn of 1950, while the Air Force was expanding and establishing new field commands, Vandenberg faced the fact that he could not as an individual handle the total direction of an institution as large and complex as the Air Force was becoming, especially since he had to spend at least three days a week with the Joint Chiefs of Staff and devote additional time to the Department of Defense and Congress. For this reason, he believed that command decisions ought to be made by any one of the officers who served as chief of staff, vice chief of staff, or a deputy chief of staff. He wanted each deputy chief of staff, in the conduct of business within the field of authority, to act as if he were the chief of staff. Each deputy chief, however, had to coordinate his actions with the members of the top command to prevent confusion; during the Air Force buildup, the deputies were frequently so

## IDEAS, CONCEPTS, DOCTRINE

busy in their own offices that they had no means for coordination other than by passing papers through a time-consuming interoffice pipeline.<sup>105</sup>

In an effort to speed the process of making basic policies and decisions, Vandenberg established the Air Force Council on 26 April 1951. At first, only the five deputy chiefs of staff served on the council, with their senior member acting as chairman. In July 1951, however, Gen Nathan F. Twining, who had become vice chief of staff, began to serve as permanent chairman of the council, whose membership now consisted of the five deputy chiefs of staff and the inspector general. The council met each Thursday and acted on an agenda that the members prepared prior to meetings. Vandenberg insisted that the council members were "wearing the hat of the Chief of Staff" and that they had to "leave the interests of their own particular shops back at their shops."<sup>106</sup> "The Air Council," General LeMay explained later when he had become vice chief of staff, "is a tool of the Chief of the Air Force, used to make sure that all major decisions that he has to make have been looked at and all the recommendations that have come to him have been looked at by the senior members of his staff."<sup>107</sup>

At the same time that the Air Force Council was formed to expedite the work of the top command, four other Air Force boards were formed at the directorate level of the Air Staff. The Aircraft and Weapons Board was established on 9 July 1951 to consider the matters that had been handled formerly by the Senior Officers Board. Shortly thereafter, the Force Estimates Board, the Budget Advisory Board, and the Military Construction Board were established. These directorate-level boards studied problems within their framework of authority and made recommendations to the Air Force Council. Although these four directorate boards and the Air Force Council would continue to be the top deliberative and advisory bodies during the 1950s, the secretary of the Air Force and the chief of staff continued to make the decisions that guided the Air Force.<sup>108</sup> "It should be noted," LeMay pointed out, "that the Air Force Council is not a decision-making body, but it is merely an advisory group to the Chief of Staff."<sup>109</sup>

#### Army-Air Force Accommodations on Air-Ground Doctrine

Based upon analysis of the contributions that air power could make to the national defense, the Joint Chiefs of Staff had charged the Air Force with responsibility for strategic bombing, the air defense of the United States, and the tactical support of surface forces. "Although those three jobs seemed pegged to different objectives," Vandenberg wrote, "it is impossible to separate them in practice because—and this is a principle ignored too often—air power is indivisible."<sup>110</sup> During the summer and autumn of 1950, the doctrine of the indivisibility of air power was a very real factor as the Air Force reconsidered its responsibilities and reorganized its forces.

Until the summer of 1950 the limited capabilities of the Strategic Air Command (SAC) were committed to preparing to execute a strategic air campaign against targets in the Soviet Union. However, the Strategic Air Command recognized that



## SOVIET NUCLEAR WEAPONS

its atomic capability was increasing, that it was important to find some new means of defense for Western Europe against Soviet attack, and that the Army and Navy were dissatisfied with the existing air war plan. For this reason, General LeMay submitted a revised war plan, which was additionally revised and approved at a higher level on 12 August 1950. Under a new plan the Strategic Air Command would seek to accomplish three specific tasks during a strategic air offensive: destroying vital elements of the Soviet war-making capability, blunting of the Soviet capability to deliver an atomic offensive, and retarding Soviet ground advances into Europe. At the time these tasks (subsequently referred to as the Delta, Bravo, and Romeo missions) were assigned, the Strategic Air Command possessed the nation's only significant nuclear capability; but provision was made in the approved plan for the eventual employment of Navy aircraft in the prosecution of the expanded air offensive.<sup>111</sup> Even though he accepted the mission to slow a Soviet land invasion of Western Europe, General LeMay was not entirely convinced that the Strategic Air Command should be charged to perform tactical air warfare missions. "If you have to employ strategic air power against tactical targets," he said, "you are not getting the full use of the weapon."<sup>112</sup>

Largely for economy, but also because existing fighter aircraft were sufficiently versatile to perform either air defenses or tactical air support, the Air Force had reduced the status of the Air Defense and Tactical Air Commands in December 1948 and had placed them under the Continental Air Command. The reduced status of tactical air was not popular with the Army; by June 1949 the Army Field Forces had informed the Tactical Air Command that it was no longer satisfied with the cooperative air-ground establishment visualized in Field Manual 31-35, *Air-Ground Operations*.<sup>113</sup> In an informal word of advice in May 1950, Representative Vinson told Maj Gen Thomas D. White, the Air Force director of legislation and liaison, that for its own protection the Air Force would have to meet the Army's requirements for air support. Vinson jokingly suggested that the air-support mission might have to be given to the Marine Corps if the Air Force did not pay more attention to it.<sup>114</sup> Representatives Vinson and Dewey Short, taking an unusual step that they said was meant to assist rather than criticize, wrote Vandenberg on 2 August that the House Committee on Armed Services was "definitely dissatisfied" with the lack of progress being made in the development of the nation's radar warning network and had "strong reservations about the efforts of the Air Force to deal with close air support for the Army."<sup>115</sup> In 1950 the Air Force realized that it would be very difficult to develop an all-purpose fighter which would have the supersonic capabilities needed to intercept and destroy future generations of hostile jet bombers and still have the relatively slow speed and long flight-endurance characteristics that the Army felt necessary for a close air support aircraft.<sup>116</sup>

Even without the significant technological developments that were impending, the mobilization of additional Army and Air Force units during the autumn of 1950 probably would have forced the Air Force to reestablish a major Tactical Air Command. Moving in this direction, the Continental Air Command, effective on

## IDEAS, CONCEPTS, DOCTRINE

1 August 1950, assigned the Ninth Air Force (Tactical) together with available fighter-bomber, troop carrier, light bomber, and tactical reconnaissance units to the Tactical Air Command. On 15 November the Air Force specified that the Tactical Air Command would "provide for Air Force cooperation with land, naval, and/or amphibious forces"; on 1 December it made the Tactical Air Command a major command directly responsible to the United States Air Force.<sup>117</sup> Recognizing that the Tactical Air Command would need strong leadership, Vandenberg assigned Lt Gen John K. Cannon to head it effective on 25 January 1951. In World War II, Cannon had commanded the Twelfth Air Force and the Mediterranean Allied Tactical Air Force in Italy.<sup>118</sup>

The vague wording of the Tactical Air Command's mission statement reflected a general uncertainty of Army-Air Force relationships. In 1947, General Collins had agreed with General Eisenhower's concept that the Air Force should furnish tactical air support to the Army. In November 1950, Collins still maintained that the Army had "no intention of attempting to take over the Tactical Air Force," but he informed Vandenberg that the Army was dissatisfied with the coequal status of air and ground forces. He specifically recommended that the Army commanders, down to corps level in some instances, should exercise operational control of close air support. He also recommended that the Army ought to participate in determining the requirements for close-support aircraft, which, he said, "should be designed primarily for close air support roles, to include types of missions and targets, necessity for all weather operations, reasonable operational endurance, and ability to operate from advance strips in combat zones." Collins stated that tactical air units ought to be provided overseas on a basis of one fighter-bomber group per field army.<sup>119</sup> In an article published in December, Gen Mark W. Clark, chief of the Army Field Forces, emphasized that the Army wanted a plane specifically designed for the close support mission. If the plane required protection from hostile fighters, the support plane could be escorted by Air Force high-performance fighters.<sup>120</sup> At a conference of Army and Air Force representatives, held in Washington on 7 February 1951 to discuss the development of a light close-support aircraft, Army representatives reportedly made the point that multipurpose tactical fighters frequently were diverted away from close-support operations, whereas a light, support aircraft that could do nothing but this mission would always be available when it was needed for air support.<sup>121</sup>

The Army proposals to attach supporting air groups to army units and to develop special close-support aircraft struck at the heart of the Army-Air Force air-ground doctrine that had emerged from World War II. General Cannon thought it significant that the concept of specially committed air support units had originated in the Central Pacific and had been fostered in Korea under conditions in which the maintenance of air superiority was quite different than it had been in Europe. In the event of a war with the Soviet Union, Cannon urged that all available aircraft initially be committed to gaining and maintaining friendly air superiority; he accordingly objected to the development and procurement of light close-support aircraft that would be too vulnerable to participate in an air war. "It

## SOVIET NUCLEAR WEAPONS

appears infinitely wiser to direct our efforts toward removing present obstacles to the accomplishment of the missions of tactical air by aircraft types which are inherently capable of such accomplishment," he said, "than to design aircraft of reduced utility and performance in order to accept basic inadequacies."<sup>122</sup> Cannon also insisted that the Army's proposal to allocate aircraft to the support of divisions was counter to the principles of concentration of force and centralization of control.<sup>123</sup> Brig Gen Homer L. Sanders, deputy chief of staff for operations of the Tactical Air Command, pointed out that more than 100 close-support groups would have been needed in Western Europe during 1944-45 to have supported Army divisions on a one-for-one basis. The cost of such a tactical air force would have been prohibitive, and, at any rate, this tremendous establishment had not been needed because the flexibility in control in the air support system had permitted a rapid concentration of any number of aircraft at a given point in accordance with the needs of local situations.<sup>124</sup> In an article published in an Army service journal in May 1951, Col Francis C. Gideon, Air Force member of the Joint Strategic Plans Group, summarized Air Force thinking on the command of tactical aviation. "If air power were nothing more than flying artillery or jet-propelled cavalry," he wrote, "it would properly be placed under the command of the ground forces. But air power, of which the forces designed for close combat support of ground operations are a part, is more than this. Air power is the sum of the means necessary to dominate the air. Viewed in this light, the reasons for establishing an integrated Air Force are logical and wise; its integrity must be guaranteed."<sup>125</sup>

From the beginning of the controversy, Secretary Finletter and General Vandenberg assumed that resolution of such a highly complex question as the command and control of tactical aviation ought to be handled by military men rather than by the Department of Defense or Congress. On 21 March 1951, General Collins, after evaluating the Air Force positions on the subject, sent Vandenberg a readjustment of his original position. He recognized that centralized control of tactical air units under a senior Air Force commander might be necessary in a war against an enemy nation that had a great superiority of air power, but Collins wanted this senior air commander to allocate air groups to the support of field armies if the tactical situation permitted. Once air groups were so allocated to the support of an army or an independent corps, their responsible Army commanders should be able to exercise operational control over them.<sup>126</sup> At this juncture, Secretary of the Army Frank Pace and General Collins agreed in a conversation with Finletter that the idea of a separate tactical close-support air force ought to be laid aside until such time as the Air Force could build up tactical air forces capable of performing the multiple functions of tactical air power.<sup>127</sup> Although the matter was postponed, General Clark had changed none of his thinking. Writing to Collins, Clark stated:

I consider that the traditional Air Force doctrine, which provides for coequal command status between ground and air at all but theater levels, constitutes a fundamental defect in command relationship. This doctrine of command by mutual cooperation is unacceptable because it reserves to the supporting arm the authority to determine whether

IDEAS, CONCEPTS, DOCTRINE

or not a supporting task should be executed. The theory of divided command in the face of the enemy is foreign to the basic concept of warfare wherein the responsible commander exercises undisputed directive authority over all elements essential to the accomplishment of his missions.<sup>128</sup>

At the same time that the Air Force leaders were discussing air-ground relationships, they had to make decisions as to the relationship between the Tactical Air Command and the Strategic Air Command. Even though the Tactical Air Command formed a Special Weapons Branch in its headquarters as soon as it learned that the development of atomic weapons which could be delivered by tactical aircraft was feasible, the assignment for the retardation mission to the Strategic Air Command in August 1950 beclouded the prospects of an atomic mission for the Tactical Air Command. Purely for test and development purposes, the Air Force permitted the modification of nine B-45s and seven F-84Es for atomic delivery and assigned them to the Tactical Air Command's 84th Bombardment Squadron (Light).<sup>129</sup> Early in 1951 a buildup of Soviet tactical air forces in Europe lent urgency to the reinforcement of air units in that theater. On 21 January, the United States Air Forces in Europe (USAFE) was made a separate command under the Joint Chiefs of Staff; USAFE activated the Twelfth Air Force in Germany to serve as the tactical air arm for NATO ground forces and activated the Third Air Force to exercise area command in the United Kingdom. The Strategic Air Command activated the 5th Air Division to command SAC units that would be deployed to bases being built in French Morocco and activated the 7th Air Division to command strategic air units in Great Britain.<sup>130</sup> At about this same time the Joint Chiefs of Staff made an allocation of atomic weapons to the defense of Western Europe.

As soon as atomic weapons were allocated to the defense of Europe, General Cannon informed the Air Force that the tactical air force ought to be charged to employ them. "A tactical fighter-bomber unit capable of delivering atomic weapons," he wrote in February 1951, "promises to be one of the most devastating striking forces that will be available to the military establishment." His position soon became quite clear. "I personally consider it extremely important," he said, "to have the strategic air forces tend to their own knitting, keep their minds on their own jobs and not be diverted from their primary mission." Cannon thought that the mission of strategic air forces was to effect the progressive destruction and disintegration of an enemy nation's morale and war-making capacity. At the outset of hostilities with the Soviet Union, he expected that the strategic air forces would be needed to help the tactical air forces to gain air superiority and interdict the advance of Soviet ground troops, but he maintained that such diversions ought to be as moderate as possible.<sup>131</sup>

In the Air Staff, officers who were looking for a means of augmenting theater air power in Europe before the spring of 1952 apparently looked with some favor on Cannon's thinking. In the Office of Assistant for Atomic Energy, Col John D. Stevenson authored a plan looking toward the establishment of tactical air division in the United Kingdom that would be equipped with atomic-capable B-45 and F-84

## SOVIET NUCLEAR WEAPONS

aircraft. Given authorization from the Joint Chiefs of Staff, the Air Force in July 1951 directed the necessary modification of aircraft and ordered the Tactical Air Command to organize the atomic air division. Even though they decided that an atomic-capable tactical air division would be fielded, the Joint Chiefs of Staff did not relieve the Strategic Air Command of its retardation mission, and the Air Force did not commit itself to provide a follow-up tactical bomber replacement for the old B-45. "It is my considered opinion," Cannon continued to insist, "that any planning basis that relies in the main upon the diversion of strategic air effort to tactical targets is inappropriate. Strategic air power must be conserved for its primary mission and tactical air must possess integral forces appropriate and adequate to its needs."<sup>132</sup>

Also, during the winter of 1950-51, the Air Force gave a good amount of attention to proposals for reorganizing military air transport and troop carrier aviation. During maneuvers in April and May 1950 in North Carolina, called Exercise Swarmer, troop carrier and military air transport elements were combined together in a provisional air transport force that was able to drop paratroopers to seize an airhead, to expand the airhead by the landing of transports with reinforcements, and to maintain resupply of troops surrounded by hostile forces.<sup>133</sup> Sent to Japan to take charge of theater airlift in September 1950, Maj Gen William H. Tunner organized available troop carrier and military air transport units together in the FEAF Combat Cargo Command (Provisional). Citing good experience with this organization, which could handle airborne operations and air-delivered supplies, Tunner proposed on 26 December 1950 that in the interest of both economy and efficiency the Air Force ought to unify all of its air transport organizations.<sup>134</sup> In October 1950, the Army Field Forces were reported to oppose any move to remove troop carrier aviation from the tactical air forces and to place it in a consolidated air transport command.<sup>135</sup> General Cannon also strongly opposed such a move. "Troop carrier units," Cannon insisted, "are combat units. The aircraft used by these units are weapons of war, just as are fighter-bombers, submarines, and tanks; therefore, troop carrier aviation is tactical aviation, and tactical aviation only. Any proposal to merge troop carrier and all air transport units into one air transport organization is basically in error in that it combines combat functions with service functions."<sup>136</sup>

Although the Air Force seriously considered the prospects for consolidating air transport and troop carrier aviation, final decisions allowed troop carrier units to remain under the Tactical Air Command and military air transport under the Military Air Transport Service. Effective 28 March 1951, the Tactical Air Command organized the Eighteenth Air Force to take over the training of all troop carrier wings in the zone of interior.<sup>137</sup> Although no change was made in basic organization, the experience of the Korean hostilities was such as to cause both the Army and Air Force to accord great importance to transport aviation. General Collins seldom made a speech without referring to the importance of airborne operations and of making the Army as air transportable as possible.<sup>138</sup> General Vandenberg pointed out that the Air Force was forced to prestock critical supplies

IDEAS, CONCEPTS, DOCTRINE

in overseas areas, a practice that not only was expensive but also committed the striking forces to operate from bases that might be denied to them at the outset of a war. "Airlift on the scale we visualize," Vandenberg said, "would make it possible to move logistic support with and as the bombers move. If the bombers are forced to divert to alternate bases, the logistic support would likewise be diverted. Without this type support the strategic bombing force is neither truly strategic nor potent. To have truly strategic striking forces, logistics must be as strategically mobile and flexible as the forces it supports."<sup>139</sup> And even after the Air Force decision had gone against him, General Tunner continued to insist that air transport capabilities should be consolidated into one operating command. "Air transport today," he wrote in the autumn of 1952,

is scattered among many commands of the Air Force as well as the Navy and Marine Corps, all of whom do not have the same standards of utilization and priority urgency for their use. I feel the consolidation of these aircraft into a single command is the most efficient way to do this job. This single command would be charged with the responsibility for airlift according to the urgency of the requirements of all the armed services—in other words, the first needs of the nation.<sup>140</sup>

In its roles and missions, the Air Force was charged to provide an air defense of the United States, but such an air defense required the integration of the Army's antiaircraft artillery battalions and the Air Force's interceptor groups into one operational organization. In the course of a long dispute, the Army Ground Forces had proposed in 1946 that the air defense mission actually ought to be divided: the antiaircraft artillery to be responsible for the air defense of local areas and the fighters to provide air defense beyond the range of the ground weapons. In 1949 the Air Force stated the doctrinal position that antiaircraft artillery battalions should be placed under the operational control of the Air Defense Command.<sup>141</sup> Until the spring of 1950 these disputes remained academic, since the Army meant to mobilize antiaircraft battalions from the National Guard and the Air Force intended to mobilize fighter interceptor groups from the Air National Guard—both actions to take effect in some future emergency. Following the Soviet atomic explosion, the Air Force stated immediate requirements for the establishment of an operational air defense system in the United States and Alaska by 1952, and the Army, which now budgeted for 48 regular antiaircraft artillery battalions, established an antiaircraft command to assume responsibilities for field air defense matters including air defense planning. In a memorandum of agreement signed on 1 August 1950, Generals Vandenberg and Collins decided between themselves that targets to be defended would be decided upon jointly by the departments of Army and Air Force; that the location of local antiaircraft artillery defenses would be "prescribed geographically" by similar agreements; and that Air Force air defense commanders would exercise operational control over antiaircraft artillery "insofar as engagement and disengagement of fire is concerned."<sup>142</sup>

## SOVIET NUCLEAR WEAPONS

The agreement between Vandenberg and Collins cleared the way for the integration of antiaircraft artillery into the growing air defense system, but it did not provide an overall air defense organization. In the latter half of 1950, the Continental Air Command, even though it was hard pressed to handle its multitude of duties, remained responsible for air defense matters. Seeking relief from overwork, Lt Gen Ennis C. Whitehead, the commander of the Continental Air Command, urged the Air Force to create a separate air personnel command to handle the mobilization of Air National Guard and Air Reserve units into the federal service, thereby allowing the Continental Air Command to concentrate on tactical air and air defense. Instead of accepting this proposal, the Air Force created the separate Tactical Air Command. Inasmuch as common fighter units would no longer be available for both air defense and tactical air, the Air Force additionally decided on 10 November 1950 to separate the Air Defense Command from the Continental Air Command. At this time, the Continental Air Command remained responsible for Air Reserve and Air National Guard affairs. General Whitehead accordingly relinquished his old command and moved to Colorado Springs, Colorado, where he assumed direction of the Air Defense Command on 1 January 1951.<sup>143</sup>

As its reestablishment as a major command, the Air Defense Command was assigned the Eastern and Western Air Defense Forces, together with the eight fighter-interceptor wings that had been assigned to the Continental Air Command. To spread the heavy burden borne by the two air defense forces, the Air Defense Command established a Central Air Defense Force on 1 March 1951. Operating in cooperation with the Air Defense Command, the Army Antiaircraft Command established its headquarters in Colorado Springs and established Eastern, Western, and Central Army Antiaircraft Commands adjacent to the respective air defense forces. Antiaircraft artillery brigades, groups, battalions, and batteries moved into the air defense system to complement the air divisions, defense wings, groups, and squadrons of the Air Defense Command.<sup>144</sup> Rounding out the defense organization, the Air Defense Command negotiated agreements with the Tactical Air Command and the Strategic Air Command during April and May 1951, whereby the forces of these organizations might be used for emergency air defense missions.<sup>145</sup> Even though a command organization for continental air defense had been established, Vandenberg felt it necessary on 23 April 1951 to warn that 70 percent of the hostile aircraft that might attack the United States would probably get through to their targets. "There has never been in the history of air warfare," he said, "anyone who has been able to maintain as high a percentage as 30 percent destroyed. In other words, 30 percent has never yet been attained. In fact I think the greatest percentage — this is over a period of time — that has ever been attained is 8 percent."<sup>146</sup>

## IDEAS, CONCEPTS, DOCTRINE

**Air Force Organization Act of 1951**

Because of the general language of the National Security Act of 1947, the Air Force was able to generate much of its own internal organization. Air Force leaders felt that this was advantageous for an essentially new service, but there was a disadvantage in that the Air Force had no specific authorization for its strength and was bound by old laws that provided that Army appropriations could not be carried over for longer than two years before being expended. In congressional hearings during 1949, Secretary Symington and General Vandenberg accordingly supported the Army and Air Force authorization legislation, which was designed to create a legal framework for the Army and the Air Force with regard to their military strength, their basic composition, and their appropriation authority. As enacted on 10 July 1950, the Army and Air Force Authorization Act established the strength of the Regular Air Force at 70 groups and 22 separate squadrons and allocated an additional 61 groups to the combined Air National Guard and Air Force Reserve. The act provided that funds appropriated to the Air Force for the procurement of technical military equipment and supplies, for the construction of public works, and for research and development should remain available until expended unless otherwise provided.<sup>147</sup>

Satisfied with the Army and Air Force Authorization Act, the Air Force leaders were in no hurry to see the enactment of more detailed organizational legislation. "My own view," explained Secretary Finletter on 10 January 1951, "was that it was better to let the Air Force evolve for a further period of time, and to establish its ways of doing things, especially during such a dynamic time as the present, and then to codify." In the House Military Affairs Committee, however, Chairman Vinson believed that "we should try to run an establishment by law, by statute as much as possible and not entirely by the whims and views of any one individual, because individuals come and go." When the Air Force did not offer proposed legislation, Rep Paul J. Kilday's subcommittee to the Committee on Armed Services drafted a bill designated as the Air Force Organization Act of 1951. This measure generally described the existing Air Force organization but provided that the chief of staff "shall have supervision of all members and organizations of the Air Force"; that the major commands would be the Continental Air Command, Strategic Air Command, Tactical Air Command, Air Materiel Command, and European Support Command; and that an air adjutant general, an inspector general, and a provost marshal general would be statutory positions. The bill provided that the Army's surgeon general and the Navy's Medical Department would serve the Air Force, and it charged that the Army's quartermaster general, chief of engineers, judge advocate general, and chief of chaplains with extending their functions and duties to meet the needs of the Department of the Air Force.<sup>148</sup>

When the House Committee on Armed Services began hearings regarding the Air Force Organization Act on 10 January 1951, Finletter stated that the Air Force ought to be permitted to attain more experience before its internal establishment was codified. However, out of deference to Vinson, he and Vandenberg would not



## SOVIET NUCLEAR WEAPONS

oppose the legislation if it was amended to remove restrictive provisions. Both Finletter and Vandenberg insisted that, under the direction of the secretary of the Air Force, the chief of staff should command rather than supervise the Air Force. The National Security Act of 1947 had authorized the chief of staff to command the Air Force. Although Vandenberg was willing to supervise support activities of the Air Force, he maintained that it was essential that he retain command over the strategic and the air defense forces. "When we are dealing with things like the type of explosives we have today, and . . . because half an hour may make the difference between the destruction of something and the saving of it based on information that Washington may have . . .," he explained, "I want to have clear command." Finletter and Vandenberg also opposed the legislative creation of adjutant general, inspector general, and other specialized corps within the Air Force. "Rather than having badges and differentiations," Finletter said, "what we are trying to get in the Air Force is one unified command without distinctions." He was willing to accept a unified medical service but maintained that the Air Force could not depend upon other services to provide medical, quartermaster, engineer, judge advocate, and chaplain support. "The Air Force," Finletter announced, "will not support something which singles out the Air Force and makes it a second-grade establishment." Believing that the legislation should not be so specific as to restrict organizational development, Finletter suggested that it should establish the Air Defense Command, the Strategic Air Command, the Tactical Air Command, the Air Materiel Command, and one other overseas command as might be directed established by the president, each command to be headed by a commander in the grade of general.<sup>149</sup>

Despite frequent meetings Air Force leaders were not able to persuade the House Committee on Armed Services to accept the principle that the chief of staff should command the Air Force. The committee recognized that the chief of naval operations commanded the nation's operational fleets, but it preferred the Army system wherein "the Army has for forty-some-odd years felt the Chief of Staff should act more or less as a coordinator or director of the Army Staff." Vinson was more than a little distrusting of the wide latitude the secretary of the Air Force wanted in order to organize the Air Force. The committee ultimately agreed not to recommend the legislative establishment of special corps and offices within the Air Force, while the Air Force agreed to accept a stipulation that established an Air Staff comprised of the chief and five deputy chiefs of staff. The committee also agreed to establish the Air Defense Command, the Strategic Air Command, and the Tactical Air Command by law, leaving additional commands to be established by the secretary of the Air Force.<sup>150</sup>

The amended Air Force organization measure passed by the House of Representatives on 24 January 1951 was generally acceptable to the Air Force, except that it specified that the chief of staff would supervise rather than command. In an appearance on 23 April, Finletter asked a subcommittee of the Senate Committee on Armed Services to accept the command concept. He argued that the Air Force chief of staff could not act independently of the constitutional powers

IDEAS, CONCEPTS, DOCTRINE

of the president or of the statutory authority of the secretary and that "the word 'command' is the more proper one to define the relationship of the chief of staff to the Air Force, especially to the fighting commands of the Air Force." Both Finletter and Vandenberg spoke of their desire to have a homogeneous family in the Air Force and accordingly opposed the legal establishment of a judge advocate general—the only special corps authorization that had not been removed from the House bill.<sup>151</sup>

In its version of the Air Force Organization Act (passed on 21 June 1951), the Senate accepted the concept that the chief of staff should command the Air Force. As a result, the legislation went to a conference committee, which prepared a measure that was enacted as the Air Force Organization Act of 1951 and was signed by President Truman on 19 September. This act specified that the Air Force chief of staff, under the direction of the secretary of the Air Force, should exercise command over the Air Defense Command, the Strategic Air Command, the Tactical Air Command, and such other major establishments as might be created in a war or national emergency to supersede one of the enumerated major commands. The chief of staff would supervise other portions of the Air Force. Apparently because of a high degree of importance attached to the military justice function, the act provided for the appointment of an Air Force judge advocate general by the president for a four-year term. Based upon a Senate amendment, the act also provided that the secretary of the Air Force would charge the under secretary or an assistant secretary to supervise all activities of the reserve components of the Air Force. The Air Force was generally satisfied with the Air Force Organization Act, but there were reports that some commands which had not been recognized as major commands did not like the implication that they must be minor commands. The Tactical Air Command viewed the act as a milestone in its struggle for status and recognition. Representative Vinson also commented that the organization act obviously would result in greater emphasis being placed on the tactical air mission within the Air Force.<sup>152</sup>

**Air Buildup: 95-Wing Program**

While the Air Force was reorganizing in 1950 and 1951 to meet worldwide commitments, Secretary Finletter and General Vandenberg confronted the problem of expanding its strength. Based on the requirements noted in NSC-68, the expansion of the Air Force was initially undertaken in context with the expansion of all of the military services. Early in July 1950 the Joint Chiefs of Staff approved the force compositions it thought were necessary to support the additional requirements of the Korean fighting and to commence a limited augmentation of American armed forces. On 24 July, President Truman offered a supplemental estimate of appropriations required for this purpose. As enacted on 27 September, the First Supplemental Appropriation Act of 1951 made \$11.7 billion available to the Department of Defense in addition to the \$13.3 billion carried in the Defense Appropriation Act of 1951. Finletter estimated that only

## SOVIET NUCLEAR WEAPONS

about \$4.5 billion of the supplemental appropriation was designed to cover the current costs of the Korean War and that the remainder was to provide for a basic buildup. For the Air Force, the supplemental appropriation included the costs of an expansion from 48 to 58 wings, or the addition of 10 tactical air wings that were mobilized from the Air National Guard and the Air Force Reserve during the summer of 1950. For the Navy the supplemental appropriation permitted the operation of three additional attack carrier groups, three antisubmarine carrier groups, seven patrol squadrons, and nine attack and ten escort aircraft carriers.<sup>153</sup>

In its postwar planning the Air Force had emphasized a requirement for a minimum peacetime strength of 70 groups and 22 separate, autonomous squadrons. This objective had been stated at a time when Russia did not have an atomic bomb and possessed very little air power. During July and August 1950, however, it was obvious to air planners that 58 wings or even 70 wings would be insufficient to the tasks then confronting the United States. Studies as to the requirements within the Air Force finally firmed up at a figure of 163 wings (138 combat and 25 troop carrier), but Air Force planners feared that a request for such an authorization would be rejected out of hand as the project of air power extremists. In August 1950 Vandenberg accordingly forwarded a requirement to the Joint Chiefs for the augmentation of the Air Force to a strength of 130 wings—114 combat and 16 troop carrier. Acting at the time of the initial United Nations' reverses in Korea, the Joint Chiefs on 1 September 1950 approved a buildup of the Air Force to a strength of 95 wings—80 combat and 15 troop carrier—by 30 June 1954. In the emergency created by the entry of the Chinese Communists into the Korean War, the National Security Council (NSC) on 14 December recommended that the Air Force attain a strength of 87 wings by 30 June 1951 and 95 wings by June 1952. The NSC also directed establishing an expanded military production capacity that would considerably reduce the time required for a full mobilization of military forces. To cover the additional costs of the Korean War and the expansion of military forces during the balance of fiscal year 1951, funds in the amount of \$16.8 billion were approved in the Second Supplemental Appropriation Act of 1951, which became law on 6 January 1951. In the Fourth Supplemental Appropriation Act of 1951, which became law on 31 May 1951, Congress voted the Department of Defense an additional \$6.4 billion to cover deficiencies in the pay and support of the increased forces. The appropriation brought the total amount appropriated to the Department of Defense for fiscal year 1951 to \$48.2 billion.<sup>154</sup>

In the summer of 1950 both the Air Force and the Navy recognized that the aircraft industries of the United States were in a very critical position because of the limited orders for military aircraft that had been placed in the late 1940s. In August 1950 Adm Forrest P. Sherman, chief of naval operations, stated that the requirement for a greatly augmented production of military aircraft was even greater than it had been in early May 1940, when the United States had markedly increased aircraft production to meet the needs of an impending World War II.<sup>155</sup> Under Secretary of the Air Force John A. McCone also explained that the Air

## IDEAS, CONCEPTS, DOCTRINE

Force wanted an immediate increase in aircraft production. "The Air Force policy," he said, "has been to build up to maximum acceleration irrespective of the fact that by so doing we could look forward to the time when, in the absence of a further appropriation, production would drop off very precipitately."<sup>156</sup> Quickly implementing the National Security Council's directive to establish a military production capacity that would considerably reduce the time required for full mobilization if a decision was made to do so later in 1951, Secretary of Defense Marshall issued orders on 18 December that the Department of Defense would follow an extraordinary broad-based procurement policy. Marshall specifically directed that contracts were to be spread across industry as widely as possible; additional contractors instead of extra-shift or overtime operations were to be used whenever time permitted; open industrial capacity would be used to the maximum before the expansion of facilities was authorized; and the prime contractors were to be encouraged and, if necessary, required to subcontract in order that the fullest use would be made of small business.<sup>157</sup>

Given the acceptance of this broad-based production concept, which would permit a potential doubling of production in an emergency, the Air Force could agree to the relatively low strength of 95 wings.<sup>158</sup> Nevertheless, Vandenberg warned that "an Air Force of 95 wings cannot be considered sufficient to win a major war by defeating superior strength both in the air and on the ground. A force of this size is intended primarily as a deterrent. It is hoped also that such a force might be able to stave off defeat if the enemy should decide to risk the consequences of all-out warfare."<sup>159</sup> Finletter also supported the 95-wing program, but only as a means of preventing disaster.<sup>160</sup> The 95-wing program called for establishing and modernizing 95 Air Force wings, 34 separate squadrons, 30 military air transport squadrons, 11 Air National Guard wings, plus a war reserve of 3,578 modern aircraft.<sup>161</sup> As finally programmed, the composition of the 95-wing force included four heavy bombardment, 22 medium bombardment, three fighter escort, three heavy strategic reconnaissance, and five medium strategic reconnaissance wings for the Strategic Air Command; 20 wings of fighter interceptors for the Air Defense Command and theater air forces; and four light bombardment, 15 fighter-bomber, four tactical reconnaissance, three heavy troop carrier, and 12 medium troop carrier wings for the Tactical Air Command and theater air forces. The initial thrust toward attainment of the 95-wing strength came from the mobilization of reserve units; by the end of May 1951 all Air Force Reserve wings—20 troop carrier and five light bombardment—had entered the federal service, as had 22 Air National Guard wings—17 fighter, three light bombardment, and two tactical reconnaissance wings. Many of the Air Reserve wings were short of personnel; only 13 of them could be retained as units—the other 12 had to be broken up for fillers and replacements. One of the 22 Air National Guard wings ordered into active service was converted into a light bombardment combat crew training school.<sup>162</sup> In his specific comment regarding the allocation of units under the 95-wing program, Vandenberg was most dissatisfied with the air defense allocations. "The fighters that we have now," he said, "are spread very thinly and

## SOVIET NUCLEAR WEAPONS

there are many holes. In the 95-group program, the provision of defense will still be, in my opinion, inadequate.<sup>163</sup> To bulwark continental air defense, the 95-wing planning called for the rebuilding of 11 Air National Guard wings and their equipment with jet fighter-interceptors.<sup>164</sup>

In comparison with fiscal year 1950, when only 1,246 aircraft had been authorized for its procurement, the Air Force's expanded aircraft procurement funds of fiscal year 1951 permitted it to place orders for 8,578 planes. Included were 44 B-36Hs, 39 RB-36Hs, 532 B-47s, 52 RB-47s, 3,993 jet fighters, 130 RF-84F tactical reconnaissance planes, 22 SA-16A search and rescue amphibians, 231 KC-97 tankers, 656 cargo aircraft, 2,373 trainers, 182 helicopters, and 111 liaison aircraft.<sup>165</sup> Even though the procurement program was greatly expanded, the Air Force had not been able to lay down a single new basic aircraft design since 1947, and the fiscal year 1951 procurements did not represent any substantial increases in the state of the aeronautical art. The B-47 jet bombers—ordered in substantial quantities as successors to B-29s—could cruise at 500 miles an hour, but their limited combat range would force them to operate from overseas bases.

The fighter-interceptors that were procured in quantity—the F-89, F-86D, and the F-94—were designed to counter a Soviet Tu-4 capability that probably would not be a major threat after 1954. The only long-range escort fighter that could be provided to the Strategic Air Command was the F-84F, which would have in-flight refueling capabilities. However, because of a pressing requirement for fighter-bombers in autumn of 1951, most of the Strategic Air Command's fighter-escort wings were reassigned to the Tactical Air Command.<sup>166</sup>

During fiscal year 1951 the Joint Chiefs of Staff were no longer limited by a dollar budgetary ceiling given to them in advance. Instead, as Finletter pointed out, "as the Air Force went from 48 wings to 95, the number of Army divisions and of Navy warships went up apace. The Division-by-Services method continued to rule."<sup>167</sup> In June 1950 the Army possessed 10 divisions, but during fiscal year 1951 it was authorized to expand to 18 divisions and separate combat elements equivalent to six additional divisions. The augmentation of the Army reflected war requirements in Korea, but on 9 September 1950 President Truman announced that the Army would send four divisions to Europe to bolster the two divisions that were already assigned to the North Atlantic Treaty Organization.<sup>168</sup> In fiscal year 1951 the Navy increased its operating force of large carriers from seven to 12 and its force of light and escort carriers from eight to 15. This immediate increase returned reserve fleet units to active service. But, recognizing that converted World War II carriers could not well accommodate the heavier aircraft that the Navy was developing, Congress authorized the construction of a 57,000-ton aircraft carrier that would serve as a prototype for future development. The Marine Corps also increased to a strength of two and one-third divisions and two air wings.<sup>169</sup>

IDEAS, CONCEPTS, DOCTRINE

**Added Requirements for Air Power**

In discussing the Department of Defense buildup, Secretary Finletter was convinced that "the time is past when we can any longer go on with the idea that if one service gets something the other services must get, roughly speaking, a like amount."<sup>170</sup> The Air Force accepted the 95-wing program only because it included a broadening of the nation's industrial base to support a future all-out mobilization. "We believe," Finletter explained, "that we cannot afford now to build up a standing military establishment which will be able to fight the war through. We believe that any such military establishment would run into fantastic sums of money which would be a drain on the economy which the country should not be asked to bear."<sup>171</sup> Although Finletter and Vandenberg believed that the Air Force's strength should be increased to something on the order of 138 to 140 wings, they agreed to accept a force objective of 95 wings during fiscal year 1952. The national defense budget submitted to Congress early in 1951 called for an expenditure of \$20.8 billion for the Army, \$15.1 billion for the Navy, and \$19.8 billion for the Air Force, plus additional amounts for military construction.<sup>172</sup> While Finletter and Vandenberg were willing to agree with administration policy, they were subjected to heavy pressure from forces outside the Air Force to come out in favor of large increases in air capabilities.

Alarmed by President Truman's intention of committing six US divisions to the North Atlantic Treaty Organization and favoring a buildup of the Air Force for the defense of Europe rather than the employment of ground forces, Sen Kenneth S. Wherry introduced a resolution calling upon the Senate's Armed Services and Foreign Relations Committees to report whether the Senate ought to adopt a policy on the movement of ground troops to Europe. Joint hearings conducted by two committees during February 1951 turned into an examination of the nation's strategy and particularly the contributions that air power could make to the defense of NATO. In common with the other members of the Joint Chiefs, Vandenberg supported the administration's plan to augment the NATO surface forces. "If we do have a strong strategic air arm," he explained,

we would be able to knock out the industrial potential of an enemy country. The effect of that would take some time. In other words, down on the front lines, where there have been stockpiles of ammunition, food, gasoline, transportation, in the short distance that we are viewing in Western Europe I am of the opinion that without a delaying force it would be possible [for the Soviet forces] to move to the coast in spite of the fact that we did or were able to knock out [their] industrial potential . . . The greatest effect, in my opinion, from that strategic effort would be if we had a force in place that was adequate to insure that they used up their stockpile of equipment and held them so that Western Europe could be saved from being overrun.<sup>173</sup>

In an interview in January 1951, de Seversky favored giving all possible assistance to European nations to permit them to rearm, but he wished to ensure that European rearmament would be orderly. "Russia will not sit passively by and

SOVIET NUCLEAR WEAPONS

tolerate our building a European army that eventually will be able to challenge it," he said. He noted further that

Russia will nip that undertaking in the bud, unless we find means of deterring Russia while the reconstruction of European strength is going on. Only American long-range air power which has the vitality to denude Russia of its sinews of war, operating directly from the United States and partially from Great Britain, from bases inaccessible to Russian armies, can deter Russia from interfering with the rearmament of Europe . . . Our present Strategic Air Force is well conceived, well manned and well led, but it is only a token force. The Strategic Air Force will not be able to destroy the Russian industrial complex until it destroys the Russian Air Force and wins command of the air.<sup>174</sup>

Writing in April, General Spaatz called upon the United States to provide the minimum divisions required to give Western Europe the courage to build up its strength; but he decried the acceptance of the "wall of the flesh strategy," which he said was "the prevailing philosophy in Washington today." Spaatz stated that the Soviet Union had built up a 10-to-1 superiority in jet fighters over the United States. "While we pursue the wall of flesh philosophy," he said, "we are losing the first and crucial battle in any possible war with Russia—the battle for command of the air."<sup>175</sup>

Many Republican senators opposed the commitment of American ground forces to the defense of Europe. However, on 3 April 1951 Sen Henry Cabot Lodge, Jr., led a bipartisan effort that defeated a joint resolution that would have forbidden Truman from sending more than four divisions to Europe. Another resolution calling upon Truman to send no ground troops until the Joint Chiefs certified that "sufficient air strength will be available to control the air over western Europe to the degree necessary to assure the safety and effectiveness of US ground troops" was also defeated. On 4 April the Senate passed a resolution approving the commitment of the four additional divisions to Europe, but only if the Joint Chiefs of Staff certified that this was an essential step in strengthening the security of the United States.<sup>176</sup> Writing to Lodge on 6 April, Prof W. Barton Leach agreed that the additional divisions ought to be sent to Europe; however, he asked Lodge to consider that the placing of so many troops and their dependents in "a fight-to-the-death combat zone" would be "a very serious matter unless a counterpoise to Soviet air power in this area is provided."<sup>177</sup> In a speech in the Senate on 30 April, which he credited Leach with inspiring, Senator Lodge called attention to the fact that published reports set the strength of the Soviet tactical air force at between 16,000 and 20,000 planes, of which some 9,000 were available for an attack in Western Europe. Based on his appraisal that air defense and strategic air forces ought to be increased in size and that the NATO air forces ought to have a two-to-one numerical superiority over Soviet tactical air forces, Lodge stated his conviction that the United States Air Force ought, as soon as possible, to be increased from 95 to a minimum of 150 groups. "Some say," Lodge remarked, "that to be certain of our superiority and not leave our destiny to the fortunes of

IDEAS, CONCEPTS, DOCTRINE

battle, we should have 175 groups. Certainly 150 groups will get us started off the present dead center of disastrous military inadequacy."<sup>178</sup>

According to Leach, Finletter and Vandenberg were embarrassed to learn of his correspondence with Senator Lodge. Finletter had taken a strong position within the Air Force against end runs to Congress, and both he and Vandenberg felt that they should not communicate with Lodge unless he requested it. According to Leach, they also feared that a buildup of tactical air power in Europe might result in a reduction of the proper emphasis on the Strategic Air Command. They doubted that production would be adequate to sustain the larger Air Force, and they feared that the cost of building tactical air bases in Europe would require an excessive expansion of Air Force infrastructure.<sup>179</sup> Appearing before the Senate Subcommittee on Military Appropriations on 13 July, Senator Lodge made an extensive statement favoring an Air Force of 150 combat wings. At this time Finletter agreed that the proper way to allocate defense funds was to identify the tasks to be performed and make recommendations to carry them out. Both Finletter and Vandenberg pointed out the limited capabilities of a 95-wing Air Force, but Finletter proposed that any action to expand further than this ought to await a Department of Defense review, which would take place in the autumn. Other than for answering specific questions, neither Air Force official committed himself to Lodge's proposals. However, Finletter remarked: "The existing power of the Russians is such that it would probably be impossible to hold them if it were not for one factor, and that is at the moment the United States has a great superiority in atomic weapons and in the ability to deliver them." And Vandenberg noted that "within the limits of the money given to us we should endeavor to free the Air Force as much as possible from the requirement for overseas bases in the hands of other powers." Vandenberg also explained his rule for measuring the proper size of the Air Force:

There is only one valid measure of the adequacy of our own strength in the air, and that is the air strength of a potential enemy. If he decreases his air strength-in-readiness, our requirements may be reduced. But as he increases his ready air forces ours must be correspondingly increased if we are to guard against the swiftest kind of military disaster.<sup>180</sup> Whatever our plan or policy we have no choice but to maintain superiority in the air.

Taking his case for expanded air power to the American people, Senator Lodge published an article entitled "Let's Face It—We're in a Jam" in the *Saturday Evening Post* on 28 July 1951.<sup>181</sup>

The "great debate" over the dispatch of American ground divisions to Europe produced many reasons for the expansion of American air power, but both the Truman administration and Congress remained committed to the balanced forces included in the original fiscal year 1952 budget. When the appropriations for fiscal year were totaled, Congress appropriated \$59.4 billion of the \$60.7 billion requested and subsequently provided another \$1 billion to meet additional costs arising from combat operations in Korea.<sup>182</sup> Granted a total obligational authority of \$21.6 billion, the Army increased its force level from 18 to 20 combat divisions.



## SOVIET NUCLEAR WEAPONS

With \$15.6 billion in new obligational authority, the Navy continued the construction of its large aircraft carrier, which was now named the USS *Forrestal*, and began its sister ship, which Secretary of the Navy Dan A. Kimball indicated would be the second of the fleet of 12 modern carriers that the Navy would require. In August 1951 the Navy awarded a contract for the construction of a prototype nuclear submarine to be named the *Nautilus*. The Marine Corps organized and started training the Third Marine Division and the Third Marine Aircraft Wing.<sup>183</sup> With \$22.2 billion in new obligational authority for fiscal year 1952, the Air Force completed the activation of its 95 wings in June 1952 and placed orders for 6,944 aircraft during the year. Most of these planes were already familiar types. But for the first time in several years the Air Force instituted procurement of new types of improved aircraft, including three B-52As and 17 RB-52Bs; the latter could serve as intercontinental jet bombers when their reconnaissance pods were replaced with bomb racks. In response to the Tactical Air Command's requirements for a night intruder and night tactical reconnaissance aircraft to replace obsolete B-26 types, the Air Force issued purchase orders for 110 B-57s and 67 RB-57s, these planes to be an American version of the British Canberra jet. Designed to replace RB-45 aircraft, the Air Force ordered a test quantity of five RB-66A jet aircraft from Douglas. The principal jet fighters on order were F-84s, F-86s, F-89s, and F-94s, but the Air Force issued an order for two YF-100As and a production quantity of 23 F-100s — these aircraft being improved F-86s, which would be known as the Super Sabre. Marking realization of the decision made in 1950 to abandon the use of powerless gliders in future airborne operations, the Air Force ordered 244 C-123s, which would be used as assault transports and would be capable of landings and takeoffs from short and rough strips.<sup>184</sup>

**Air Objectives Expand to 143 Wings**

During his tenure of office, Secretary Marshall had sought to meet immediate military requirements and to broaden the nation's mobilization base. When Robert A. Lovett became secretary of defense, he called upon the Joint Chiefs of Staff to make decisions as to the force levels beginning in fiscal year 1953 that the United States would require for the next several years. "We must try to do first things first," stated Lovett, "and not everything at once."<sup>185</sup> When they surveyed national requirements and capabilities during October 1951, the Joint Chiefs of Staff evidently were impressed by the growth of Soviet air capabilities as compared with those of the United States. The notion that the United States could easily and cheaply achieve qualitative superiority over a technically inept enemy was dispelled by the appearance and performance of MiG-15 aircraft in the air over Korea.<sup>186</sup> Vandenberg pointed out that the Soviet Union had engaged in a forced-draft development and expansion of its air power, with the result that the Red air force not only was quantitatively larger than the US Air Force but also converting to modern jet equipment more rapidly.<sup>187</sup> Speaking "not in prophecy but from facts," General Twining stated that the commander of the Soviet long-range air force had

IDEAS, CONCEPTS, DOCTRINE

several hundred Tu-4s at his disposal and that a new Soviet bomber of original design had been observed over Moscow in 1951. According to best estimates, the Soviet atomic stockpile would soon reach a level that could critically cripple the war-making capabilities of the United States. In 1950-51 the Soviets also rapidly expanded the radar-intercept and antiaircraft artillery defenses of their homeland. In addition to these augmentations, the Soviets increased the strength of their already powerful tactical air armies. As a result of a prodigious postwar effort plus aircraft remaining from World War II, the Soviet Union had about 20,000 aircraft in organized air units and an equal number in various forms of reserve.<sup>188</sup> Unless the size of the US Air Force and its rate of development were increased, Vandenberg predicted that the narrowing margin of air superiority it held "will shrink to nothing in another 6 years, and control of the air, with all that it implies, will then be within the grasp of the Soviet Union."<sup>189</sup>

After what General Bradley described as "a very long study," the Joint Chiefs of Staff concluded that the Air Force was "assuming more than its share of the calculated risk" and agreed that the United States must increase its combat air power.<sup>190</sup> More specifically, the Joint Chiefs recommended that the Air Force should maintain a force level at which, in the event of a general war, it could accomplish the following essential D-day tasks: (1) defend, by both offensive and defensive air operations, critical areas in the western hemisphere, with particular emphasis on defense against atomic air attack; (2) conduct a strategic air offensive designed to destroy the vital elements of the enemy's war-making capacity; (3) assist in the defense of the NATO area and critical areas in the Far East, including the maintenance and defense of essential base areas and lines of communication; and (4) provide such aid to the nation's allies as would be essential to the execution of their responsibilities. The Joint Chiefs recognized that the missions of air defense and strategic air warfare were essential D-day tasks. Vandenberg stated the corollary rule

that the No. 1 priority task of the Strategic Air Command, in event of war, is to attack the enemy's atomic delivery capability at the outset of hostilities. We place such high priority on this task because we know that our continental air defense system, however good, could not stop all the bombers that might be sent against us. Hence our long-range atomic counterattack against enemy air forces must of necessity provide the principal means of our air defense of American cities and centers of production.<sup>191</sup>

"In spite of the fact that air power alone can never be decisive in total war," said General Bradley, "the air battle must be won if a war is to be won."<sup>192</sup> Reflecting the importance of air power and the principle of putting first things first, the Joint Chiefs unanimously recommended that the Army be stabilized at a force level of 20 divisions and the Navy at 409 major combat ships with three Marine divisions and three Marine air wings and that the Air Force be expanded to 143 wings, including 126 combat and 17 troop carrier wings. Although 1954 had previously been mentioned as the year of maximum danger, the Joint Chiefs now officially accepted that date as being the threshold year in which the Soviet Union would

## SOVIET NUCLEAR WEAPONS

attain the capability to inflict critical and possibly fatal damage to the war-making capabilities of the United States. They also expected that the buildup of North Atlantic defenses after 1954 would be such that the Kremlin's chances of overrunning Europe would begin to decrease. The Joint Chiefs did not assume that a war would begin in 1954, but they believed that the year would be a very dangerous period. Based on projection of America's industrial capabilities, the Joint Chiefs stated that the increase of the Air Force to 143 wings could be accomplished by 1 July 1954 and, from a military point of view, recommended that the 143-wing program ought to be accomplished by that date.<sup>193</sup> The Joint Chiefs submitted these recommendations to Secretary Lovett in October 1951. After the recommendations had been studied by an ad hoc committee chaired by Prof James R. Killian of the Massachusetts Institute of Technology, Lovett approved them and successfully defended the program before the National Security Council. President Truman approved the military buildup at a meeting in the White House on 28 December 1951, but he directed Lovett to stretch out the program in order that the armed forces budget, including military assistance for fiscal year 1953, would be less than \$60 billion.<sup>194</sup>

Since the Air Force had stated requirements for an expansion to 155 wings (138 combat and 17 troop carrier), the acceptance by the Joint Chiefs of only 143 wings committed the Air Force to a program that Finletter described as having no fat in it. Except for "a very small number of wings" to be left in the Far East at the end of the Korean War, Finletter stated that the 143-wing program contained "no wings capable of fighting anywhere else outside of the air defense of the United States, the strategic air operations against any aggressor, and the tactical air operations in Europe."<sup>195</sup> As established, the 143-wing objective placed emphasis upon the strategic air force and the air defense force, which Vandenberg stressed as being "complementary parts of the air weapon system and . . . each . . . essential to the air defense of the United States." The Strategic Air Command's share of the 143-wing strength included seven heavy bombardment, 30 medium bombardment, 10 strategic fighter, four heavy strategic reconnaissance, and six medium strategic reconnaissance wings. Representing a substantial increase, 29 fighter-interceptor wings were programmed, most of them to be assigned to the Air Defense Command. Designed "to operate where the Army operates," the tactical air units of the 143-wing program were computed in terms of training requirements in the United States, a heavy commitment to the NATO area, and a minimal establishment in the Far East. Tactical air units would include two tactical bomber, five light bombardment, six day fighter, 22 fighter-bomber, five tactical reconnaissance, four heavy troop carrier, and 13 medium troop carrier wings.<sup>196</sup>

Secretary Finletter hailed the 143-wing authorization as "a decision of great moment" that broke the division-by-services defense funds allocation pattern, but Truman's decision to hold military spending below \$60 billion delayed the earliest date of readiness of the modernized Air Force to 30 June 1955.<sup>197</sup> Even with the delay of the readiness date, the 143-wing program could be achieved only by the most stringent manning standards and economies of allocation of first-line aircraft,

IDEAS, CONCEPTS, DOCTRINE

including the elimination of any combat reserve, the cancellation of a planned modernization of the 11 Air National Guard wings, and the equipping of no more than half of the Air Reserve wings with first-line aircraft.<sup>198</sup> The decision to eliminate the hoary old requirements for a combat reserve of aircraft and aircrews was not made lightly. "We are doing it," Finletter explained, "because we are trying to concentrate the dollar on the striking power on D-day. It is an enormous saving. . . . It is possible that we have made a mistake, but I do not think so. I think the important thing is to concentrate on striking power on D-day, even though the forces may be attrited downward sharply thereafter."<sup>199</sup> General Twining noted that the deficiency in war reserves would be felt in five ways.

First, our capacity to continue long-range atomic attack would be sharply reduced after the crucial initial phase. . . . Second, our capacity to make good the attrition of our air units in Europe would remain slight for some time after the outset of hostilities. Third, our capacity to make good the attrition among Allied air units using American equipment would be extremely limited. . . . Fourth, our capacity to augment our air strength in the Far East in the event of a general war would be severely limited. Fifth, in the light of these realities the force contemplated. . . . is down to the "bare bones."<sup>200</sup>

In view of the prominence accorded to the Air Force in the defense budget for fiscal year 1953, Air Force leaders fully presented their concepts of air power to Congress early in 1952. Finletter related air power to deterrence. "What we are trying to do," he said, "is to create and maintain a military force sufficiently strong—with relationship to a possible enemy's capability—to be able to persuade him not to attack us—and then back off this protective shield of strength to work to achieve peace. Nothing must be held back in terms of money or national effort which would prevent us doing the very best we possibly can to prevent the happening of such a catastrophe."<sup>201</sup> In view of the wide interest in the subject, Vandenberg again explained the meaning of air superiority. "The most inefficient way to operate one's air force against another force," he said, "is to try to destroy it in the air. . . . The main defense of the United States lies in the strategic air arm's ability to destroy the bases. That is the only efficient way to knock a possible air force out of the air and get air superiority. In the meantime, however, you must utilize also as much as possible planes to cause them attrition in their attack; to blunt their attack against us." Referring to the situation over North Korea, where neither side had destroyed the other's air bases, Vandenberg showed that local air superiority fluctuated between the Communists and the United Nations air forces according to which side put forward the most effort at a particular time. Under these circumstances, Vandenberg continued: "Air superiority is a fleeting thing. . . . until either the factories that produce the aircraft or the oil and/or the airfields and the airplanes are eliminated. Anyone with a small force can get local air superiority at times."<sup>202</sup> Later on General Bradley was asked to comment on Vandenberg's explanation of air superiority. "In my opinion," Bradley said, "air superiority should be talked about only in relation to certain areas. You gain it over

## SOVIET NUCLEAR WEAPONS

one area, and lose it over another one. Apparently, he was talking about over-all superiority of aircraft.<sup>203</sup>

Despite a very thorough presentation of national defense requirements, the Department of Defense had trouble getting the total amount of the fiscal year 1953 budget approved by Congress. As recommended by its Committee on Appropriations, the House made a \$4.2 billion cut in requested appropriations, including a \$1.6-billion cut in funds requested for the Air Force. "Some way must be found," stated the House committee, "to shock the people in the Department of Defense from top to bottom into the full realization that the Congress and the American people will not tolerate flagrant waste in money and manpower." Strong arguments offered by Finletter, Vandenberg, and Bradley resulted in the Senate Committee on Appropriations and subsequently the Senate restoring most of the requested Air Force funds. Approved during July 1952, the Department of Defense Appropriation Act for 1953 and the Supplemental Appropriation Act of Defense for 1953 covering military construction made \$46.9 billion of new obligational authority available for the Department of Defense, including \$13.2 billion for the Army, \$12.6 billion for the Navy, and \$20.6 billion for the Air Force.<sup>204</sup>

Under the ground rules adopted within the Department of Defense, the Army and Navy maintained their existing force levels but continued force modernization during the year following 1 July 1952. For the Navy this force modernization included the continued construction of the second large aircraft carrier (the *Saratoga*) and the start of a second nuclear submarine.<sup>205</sup> After attaining its 95-wing strength in June 1952, the Air Force began to build toward the 143-wing objective. The controlling factors in the Air Force's augmentation were the availability of personnel, equipment, and facilities, especially in overseas areas where airfield construction did not go as rapidly as anticipated. At the end of fiscal year 1953, the Air Force possessed 106 activated wings and an authorized total strength of 1,019,000.<sup>206</sup> In placing orders for aircraft procurement from fiscal year 1953 funds, the Air Force was affected increasingly by growing inflation — which accounted for an increase in dollar costs of 15 to 20 percent over 1950 levels — and by the high cost of complex modern aircraft.<sup>207</sup> Upon meeting its requirement for large conventional strategic bombers, the Air Force ordered no additional B-36s, but placed 500 B-47Es, 65 RB-47s, and 43 RB-52Bs on order for the Strategic Air Command. The RB-52Bs ordered with fiscal 1952 and 1953 funds would later be redesignated as ZB-52Bs. The Air Force ordered 26 B-66Bs, 73 RB-66Bs, 191 B-57Bs, and 80 RF-84Fs for service in tactical air units. It also issued orders for 2,510 jet fighters, 262 KC-97G tankers, 418 cargo aircraft, 1,158 trainers, 193 helicopters, and 20 liaison aircraft.<sup>208</sup>

#### Tactical Air and Air Defense Studies

Following the beginning of hostilities in Korea, Secretary Finletter and other Air Force leaders continued to give first priority to the development of the

## IDEAS, CONCEPTS, DOCTRINE

Strategic Air Command; even though military appropriations were much larger, Finletter ruefully remarked that with the public and within the Department of Defense "the fashion moved away from strategic air in favor of tactical air and air defense."<sup>209</sup> Given the fact of life that total Air Force appropriations would continue to be a finite quantity calculated in terms of the economic product of the United States, the subtle downgrading of the Strategic Air Command was evident both in the proportional force composition of the 143-wing program and in the elaborate interest in tactical air and air defense that was manifest in studies conducted within the Department of Defense during 1951-53.

Following the same research pattern that was being used to study national air defense requirements, the secretaries of the Army, Navy, and Air Force early in 1951 asked the California Institute of Technology to study some of the problems of ground and tactical air warfare, especially as they would relate to the defense of Western Europe, and to report suggestions as to how the military establishment might improve its weapons, techniques, and tactics. To accomplish this study, called Project Vista, California Institute's president Dr Lee A. DuBridge, who served as chairman of the project, and William A. Fowler, who acted as the project's scientific director, built a scientific and technical staff of 113 members, of whom 39 were from the institute's faculty. Several retired military officers, including Generals Wedemeyer and Quesada, participated in the nine-month study before it was completed and forwarded to the secretaries of the Army, Navy, and Air Force on 4 February 1952.<sup>210</sup>

According to the Vista report, "any battle of Western Europe will ultimately be won or lost on the ground." Believing that it would be possible to defend Western Europe successfully prior to 1954, Vista recommended an augmentation of Army capabilities there and the adoption of ground tactics to force attacking enemy forces into concentrations that would make attractive targets for massive air strikes with atomic or conventional explosives. Despite this emphasis on the ground mission, Vista recognized that "the successful defense of Western Europe may hinge mainly on the extent to which United States and Allied tactical air power is effectively employed." Taking consideration of the increasing size of the American atomic stockpile, Vista recommended a substantial increase in tactical nuclear weapons and the building of NATO tactical air units to a strength of approximately 10,000 aircraft, to include 1,500 air-superiority fighters, 3,500 all-weather interceptors, 3,000 fighter-bombers, 1,500 attack aircraft, and 500 tactical bombers. Vista also recommended that the United States Army ought to have two airborne units of corps strength by 1954—one to be stationed in the United States and the other in Europe—and that 400 C-124 and 850 C-123 transport aircraft should be procured to transport and support this airborne force.<sup>211</sup>

In its description of the air power mission in Europe, Vista contemplated that the battle for air superiority would be of "overwhelming importance" during the period immediately following the outbreak of war—a period which might "last only a few days and will probably not exceed a few months." In a special study on air superiority included in the Vista report, Albert C. Reed advanced the proposition:

## SOVIET NUCLEAR WEAPONS

"Air superiority has two parts, freedom and denial, both of which must be accomplished. . . . It is important to note that we are not attempting to deny the USSR the use of the air; but rather, we are trying to prevent the damage that their operations might do to our war effort. In turn, we are not asking for freedom to fly, but rather for freedom to inflict damage upon the USSR." Reed proposed that the criteria for air superiority were the principles of concentration, surprise, and versatility; he argued that air superiority could not be attained by a concentration of tactical atomic aircraft against Soviet airfields at the outset of hostilities. He further proposed that anti-aircraft artillery would be useful chiefly for defense of point objectives, that air-to-air fighting did not promise to be very effective, that NATO air and ground forces should emphasize passive air defense measures, and that bomber aircraft should depend upon high-speed and low-altitude attacks, weather, darkness, and countermeasures rather than fighter escort and defensive armament as protection against hostile interceptors. He noted that during World War II when strong fighter escort was employed, the 8-percent loss rate that US daylight strategic bomber forces otherwise sustained was cut roughly in half. However, he argued that some part of this reduction in losses was attributable to the heavy air attacks mounted against German airfields prior to Normandy and to a shift of sizable numbers of German day fighters to the Russian and Normandy fronts. "There is strong reason to believe," he said, "that the escort fighters might have been much more effective as fighter-bombers used against German fighter bases."<sup>212</sup>

Based largely on the analysis of air superiority requirements, Vista recommended that the United States should assume responsibility for developing a NATO tactical air force—including a tactical atomic air force—and that Great Britain should assume responsibility for the operation of a NATO air defense force, the latter to operate in the zone beginning 150 miles behind the front lines. Vista proposed to recognize air transport and air reconnaissance as missions of essentially equal importance for planning purposes to the classical tactical air power missions of air superiority, interdiction, and close air support. In the initial stage of war, the tactical air force would be concentrated against Soviet air facilities, with secondary importance to be given to attacks against enemy forward supply depots, petroleum-oil-and-lubricant dumps, and high command headquarters. After the air battle had reached a conclusion, Army support operations and interdiction would be of major importance. Since the close integration of air and ground weapon systems would be important, Vista recommended major changes in air-ground doctrine. Although it recommended that the joint operations center at the tactical air force-field army level be retained as an allocating agency, Vista proposed that detailed control functions should be exercised by tactical air direction centers at the corps levels. The project report also proposed that, at a time directed by the supreme commander, approximately one squadron from the tactical atomic air force should be allocated to the mission control of each field army commander to accomplish ground support atomic delivery and reconnaissance missions. This mission control authority was to include

## IDEAS, CONCEPTS, DOCTRINE

detailed target selection, attack timing, and "go" and "no-go" commands. Although the major contention of the report was that a sufficient tactical air force should be built to accomplish basic theater air missions, Vista recommended that the Supreme Headquarters Allied Powers Europe (SHAPE) should be authorized to coordinate Strategic Air Command and naval air operations in the NATO theater.<sup>213</sup> "We believe," Vista concluded, "that the United States, in collaboration with its allies in the North Atlantic Treaty Organization, can prevent the military conquest of Western Europe by the Soviet Union—and can do this in 1952 if necessary—if we try."<sup>214</sup>

According to an understanding between the Air Force and the Massachusetts Institute of Technology, the university had conducted an initial study, Project Charles, of the nation's air defense requirements, which were to be further explored at a new electronics laboratory. The Air Force put up the money for the building of physical facilities near Bedford, Massachusetts; the Army, Navy, and Air Force jointly agreed on a charter for the laboratory, designated as Lincoln Laboratory; and the university was to be responsible for the day-to-day supervision of the laboratory. Much of the work of Lincoln Laboratory lay in the development of electronic equipment and techniques; but, in the summer of 1952, the laboratory's steering committee invited a study panel, called the Summer Study Group, to take a look at air defense problems that might be encountered in the period 1960-70. The Summer Study Group included a number of scientists who had been on the staff of Project Vista. In its report, which was presented simultaneously to the National Security Resources Board and the Department of Defense in late August 1952, the Summer Study Group foresaw no effective defense against intercontinental missiles. However, it believed that the establishment of an air defense "of a kind and scale not hitherto required" could result in the interception and destruction of 85 to 95 percent of such hostile aircraft as might attempt to attack the United States. Such a defense required three to six hours of early warning of approaching jet aircraft, and the Summer Study Group called for the establishment of a northward defense in depth. Included would be a distant early warning line—or DEW line—of radars to be sited as far north as the 75th parallel. Behind this line would be the double perimeter warning and control network that already was being established. At first the Summer Study Group estimated that the DEW line would cost \$370 million plus \$106 million in annual maintenance costs, but it later placed a \$20-billion price on a total project that would include computerized air direction centers. The group recommended an all-out program to make the expanded air defenses operational by the end of 1954.<sup>215</sup> During the summer of 1952, there was evidently some interchange of concepts between the Summer Study Group and the concurrently active Project East River, a civil-defense oriented study jointly sponsored by the National Security Resources Board and the Air Force. This latter study project was administered by Associated Universities, Incorporated, and was headed by Lloyd V. Berkner, a naval reserve captain who had been a member of the wartime Research and Development Board. Issued on 1 October 1952, the Project East



SOVIET NUCLEAR WEAPONS

River report concluded that the critical factor in civil defense would be to get enough advanced warning of an enemy air attack to permit civilian evacuation measures. Specifically, an hour or more of early warning was required if a civil defense program was to be effective.<sup>216</sup>

The net effect of projects Vista and East River and of the Summer Study Group was to focus a substantial amount of attention upon the national defense strategy and inferentially upon the role to be played by the Strategic Air Command. The reports challenged the Strategic Air Command indirectly. "We raise the question whether," stated Vista,

if the United States prepares to counter Soviet aggression *solely* through the use of strategic air power, we will not be weakening rather than strengthening the political and psychological positions of the free nations. The Western European nations surely fear that a strategic air attack on the USSR would result in a retaliatory attack on their cities—and would at the same time not stop the march of Soviet armies before they overran all of Europe . . . On the other hand, if we plan also to use our air power (including strategic, tactical and naval units) to destroy the march of Russian armies, we can win the confidence of the NATO nations, stimulate their cooperative efforts on the political and economic fronts, increase their strength and thus discourage a Soviet attack.<sup>217</sup>

Neither the Summer Study Group nor Project East River had any occasion to be concerned with the Strategic Air Command, but Berkner was critical of the strategic striking force. "The crux of our present danger," he stated,

is in our complete dependence upon the "Strategic Striking Force" as the principal element in our defense. This Maginot-Line type of thinking can be out-manuevered by an intelligent enemy by any one of a number of ways. Opposed to the Maginot-Line concept of "putting all our eggs in one basket," is the balanced and flexible force. Because a balanced force cannot be achieved at tolerable cost through conventional means, we have ignored both the vital need for such a force and the possibility of achieving it through new and unconventional measures.<sup>218</sup>

The Department of Defense and the Air Force already had implemented many of the concepts contained in the Vista report several months before it was completed, but the report did require action by the Defense Department. Many of the ideas presented in Vista continued to show up from time to time. The findings of the Summer Study Group, on the other hand, received immediate and intensive attention at the highest levels. On 24 September 1952 chairman Jack Gorrie of the National Security Resources Board recommended that the National Security Council accept the requirement for the DEW line. Rather than acting immediately as Gorrie desired, the National Security Council remanded the problem to the Department of Defense and the Air Force for study. Asked for its opinion on the DEW line, the Rand Corporation pointed out that the air defense system visualized by the Summer Study Group probably would cost far more than \$20 billion and that the costs of air defense would have to come out of some other part of the Air Force. The Air Staff did not oppose establishing the DEW line but

IDEAS, CONCEPTS, DOCTRINE

questioned the cost estimates for it, and invited attention to the fact that the radar equipment which would be needed was not far enough developed to warrant a crash construction program. With the approval of the Department of Defense, the Air Force allocated \$20 million to accelerate research and development of early warning radar equipment suited for employment in an arctic environment. Lovett and Finletter opposed Gorrie's repeated demands for a policy statement authorizing the DEW line. In view of the continuing disagreement, Lovett appointed a Citizens Advisory Committee early in December. He asked the committee, which was headed by Dr Mervin J. Kelly, president of the Bell Telephone Laboratories, to make an independent evaluation of the possibilities of an improved warning system, the relationship of the warning system to other major continental defense measures, and the overall policies and programs needed to achieve a more effective defense of North America against airborne attacks. Without awaiting the additional study, President Truman accepted the National Security Resources Board recommendations on 31 December 1952 and ruled that a continental defense system capable of withstanding any eventuality should be ready for service by the end of 1955. Following this declaration of presidential policy, Lovett informed all concerned in the Department of Defense that the early warning line would be built.<sup>219</sup>

After taking office on 20 January 1953, the new administration of President Dwight D. Eisenhower wished to make a full evaluation of air defense requirements. It accordingly authorized the continuation of the Kelly study and named two other study committees, one under retired Lt Gen Harold Bull and another headed by Lt Gen Idwal Edwards, Air Force deputy chief of staff for operations. While these high-level studies were progressing, Air Force thinkers gave close attention to the theoretical aspects of air defense. The chief question troubling the Air Force was attaining a proper relationship of money allocations between offense and defense within the resources envelope available to the Air Force. Gen Benjamin W. Chidlaw, commander of the Air Defense Command, asserted that "true air defense is not . . . confined solely to the erection of a fortress-type weapons system around a critical area. . . . The tremendous countering power represented by our strategic air arm is . . . a most powerful element of our national defensive structure and warrants continuing high priority consideration." Based on this assessment, Chidlaw reasoned:

Atomic and hydrogen bombs plus a means of delivering them to a target add up to an overriding need for insuring national survival as to the first step in any nation's military strategy. . . . This being so, it seems to me that the number one task — chronologically — of each service is to make certain that after the initial attack there remains the means and the reason to accomplish its assigned missions. . . . We must, with accuracy and timeliness, make a true estimate of the threat facing us, then build sufficient defense to insure that our counter offensive can be launched with crushing impact.<sup>220</sup>

Speaking from retirement about his old air defense speciality, General Saville cautioned that a proper defense of the nation required a system designed to ensure

## SOVIET NUCLEAR WEAPONS

the detection, identification, interception, and destruction of attacking air vehicles well before they reached a bomb-release line. "We dare not," Saville said, "concentrate our air defense on merely warning the population to take shelter to save their lives from direct attack." As he had done before, Saville continued to emphasize that air defense was, in the language of the poker player, "an ante-raising operation." "Only a fool would run into a hornet's nest of opposition," he went on to say, "with aircraft too slow or so poorly armed that they would be shot down before they reached their objective. . . . So the first and greatest dividend of air defense is its ability to keep a war from starting by making an attack a difficult and unattractive venture."<sup>221</sup> Unlike other Air Force thinkers who assumed that there was a diminishing utility in expenditures for air defense, Maj Gen Frederic H. Smith, now the Air Defense Command's vice commander, asserted: "There appears to be no leveling off of the curve of cost versus capability which would require the expenditure of enormous sums of money for a small increase in kill. The curve seems to be a relatively straight line, with air defense capability increasing proportionately as additional money is used." As an absolute minimum, Smith urged that sufficient funds should be allocated to provide "that defense necessary to ensure survival of our retaliatory air arm, our industrial potential, and our people's will to fight. . . . It will be fatal if we rationalize ourselves out of providing a defense which will assure survival of our offensive forces and the nation's will to fight."<sup>222</sup>

After five months of study in close association with Army, Navy, Air Force, and Weapons Systems Evaluation Group representatives, Doctor Kelly's Citizens Advisory Committee completed its report in May 1953 and proposed an orderly development of an integrated air defense system for the North American continent. The report emphasized that the principal element of the air defense of the United States, both as a deterrent to war and as a counter to Soviet long-range air power, was the Air Force strategic air arm. It held that an air defense system could best be created by steady technological development supported by a stable and sustained research and development program. It warned that the technical resources for a near perfect air defense were not yet at hand. "So far as can now be foreseen," the Kelly committee reported, "any such level of protection is unattainable and in any case is completely impractical, economically and technically." Even though no system could provide a complete air defense that would destroy all attacking aircraft, the committee found an urgent need for a system "much better than that which is assured under present programs." It specifically recommended that a distant early warning line should be built. Early warning of the approach of hostile aircraft was declared to be the "first essential of an effective active air defense and of a civil defense capable of avoiding a large loss of life." The estimated cost for the full implementation of the Kelly report recommendations ranged from \$20 to \$25 billion over six years. As a result of the Kelly committee's recommendations, the DEW line would be built, but not as a crash project. The electronic fence would be sited along the 70th parallel, not as far north as recommended by the Summer Group.<sup>223</sup>

## IDEAS, CONCEPTS, DOCTRINE

**Secretary Finletter's Assessments**

Spurred on by the Soviet atomic explosion and the local war in Korea, the United States made progress in rebuilding a worldwide air force. But as Secretary Finletter went out of office in January 1953, he was uncertain whether the United States would face up to defense requirements that would exist in about 1955, when the Soviets would possess an "absolute air atomic capability." To counter this threat, he urged that "the first and cardinal job of military planning must be to create a strategic air arm capable of accepting a sneak and devastating attack by assault and sabotage and to have enough left over to go back and utterly devastate Russia." When he spoke of the strategic air arm, Finletter had in mind both the Strategic Air Command and the atomic air units of the Tactical Air Command. Following this concept, he would soon advocate the consolidation of the whole atomic air potential under a single command that he proposed to call the strategic-tactical air command (STAC). In place of the old counter-industry concept for strategic air power, he urged acceptance of a front-to-rear attack concept that would make all enemy targets—from the front lines through communications and supply lines, airfields, and storage back to the sources of production and government direction—the objective of atomic air strikes. In November 1953 Finletter tentatively suggested that Navy atomic aircraft might be included in the nation's strategic air arm. But by August 1954 he had decided that "the whole responsibility for the Atomic-Air mission should be placed on the Air Force's STAC." He reasoned that aircraft carriers would be an increasingly vulnerable and expensive weapon system in a time of plentiful hydrogen bombs. Finletter also opposed the assignment of any "super priority" to air defense, and, because it lacked "powerful deterrent value," he recommended that air defense be put in a second priority immediately after the strategic-tactical air command.<sup>224</sup>

In his valedictory thoughts, Finletter attached priority importance to strategic air and air defense but charged that "the truth of the matter is that . . . both strategic air and air defense are being treated in the same fashion—namely they are both being neglected in favor of lower priority forces." While the requirements for air defense had been extensively studied, no similar attention had been focused on the future requirements of the Strategic Air Command. "My main point about the strategic air arm," he said, "is this: it is neglected." Looking to 1955, when the Soviets would have an absolute air atomic capability, the Strategic Air Command would need to be widely dispersed at many operational bases and would require a high-speed refueling capability superior to the conventional KC-97 tankers. Although the Air Force had awarded a development contract for the supersonic-dash B-58 Hustler jet bomber in 1952, Finletter felt that the nation was "failing to move as rapidly as we should into the successors of the B-52." There were indications that the Russians might be leapfrogging bomber development from subsonic aircraft equivalent to B-47s and B-52s to a force composed of bombers equivalent to B-58s. If this development were true, the United States would lose its quality advantage over the Soviets in bomber aircraft.<sup>225</sup> In summary, Finletter

## SOVIET NUCLEAR WEAPONS

recommended that the number one and number two national priorities for defense funds should be assigned to strategic air and air defense. He proposed that the third priority should be given to Army, Navy, and Air Force units needed to provide a force in being in NATO and in the "gray areas," his definition for the Asiatic perimeter running from Turkey to the Aleutians. He recommended that the last priority should be given to other general purpose forces, which would not be needed for A-day tasks but would be useful during the course of a general war or a limited war.<sup>226</sup>

### Global Air Power and the Korean Armistice

At the start of the Korean conflict in June 1950, General Vandenberg ordered that the Air Force do its best to meet the requirements of the Far East Air Forces, but he insisted that the Korean War be viewed as a part of a global problem rather than as an isolated situation. From the very beginning, the Korean War was fought under the shadow of the global atomic air capabilities of the Air Force, particularly those of the Strategic Air Command. In July 1950, before Military Air Transport Service planes were fully committed to the trans-Pacific airlift, two Strategic Air Command medium-bomber groups joined another already in England. Early in August, an atomic-capable B-29 group went to Guam and another group augmented by two aerial refueling squadrons deployed to Northeast Air Command bases in Labrador and Newfoundland. At Vandenberg's request, the Joint Chiefs of Staff authorized the temporary movement of four B-29 groups to the Far East to augment firepower in Korea in July and August 1950. In September and October, SAC fighter pilots delivered 180 F-84E aircraft to American air units in Germany.<sup>227</sup>

According to General LeMay, the dispatch of the four Strategic Air Command B-29 groups to participate in the Korean conflict represented a severe reduction in general war deterrent capabilities. LeMay explained Air Force decisions to invest in modern aircraft rather than supply stocks—particularly aircraft engines—had made the Strategic Air Command "a one shot outfit, incapable of sustained operations."<sup>228</sup> Following the strategic bombing campaign against North Korea, two of the SAC B-29 groups returned to the United States in October 1950, but the sudden appearance of Communist MiG-15 jet fighters demanded the hurried movement of a SAC F-84 jet fighter-escort wing and an Eastern Air Defense Force F-86 fighter-interceptor wing to Korea in November 1950. Once again this emergency deployment reduced SAC's global combat capability and badly depleted the air defense of the United States. Early in December 1950, when the Chinese Communists were attacking, General MacArthur asked the Joint Chiefs of Staff to return the two SAC B-29 groups to the Far East. However, the Joint Chiefs proved unwilling to risk the groups on forward airfields that might be exposed to an all-out Communist air attack.<sup>229</sup> As the war conditions darkened, the Strategic Air Command dispatched a fighter-escort group to England in December. On 15 January 1951 six new B-36s took off from Limestone Air Force

## IDEAS, CONCEPTS, DOCTRINE

Base in Maine, bombed targets on a range on Helgoland Island in the North Sea, and then landed at a poststrike recovery base in England.<sup>230</sup>

The flexing of these global air capabilities did not escape the notice of the Soviet Union and the Chinese Communists. After an extended tour in North Korea and a trip to Moscow, a special aviation inspection group from Red China's general staff described the reasons why the Chinese Communist air force was unable to gain air superiority in the months between March and September 1951. "The US has repeatedly declared that any attempt by the Red Air Force to bomb the US troops," stated the inspection group, "would be retaliated with relentless bombing of the Northeastern Provinces by the USAF. For this reason, the Red Chinese air force has not dared to make such an attempt in the past and may not make it in the future. The conservative policy adopted by Red China has apparently ensued from the high-handed policy of threats of the enemy." In this same report, the inspection group was openly critical of the Soviet decision to equip the Chinese Communist air force with MiG-15 defensive fighters. It noted that this action was doubtless the result of the mistaken Soviet policy of giving first production priorities to fighter aircraft. "With regard to the air defense of the homeland," the group stated, "the strategy of using intercepting fighters has become a thing of the past. The homeland cannot be adequately defended without long-range attacking air power."<sup>231</sup> The Red Chinese assumed that the Soviets outfitted them with MiG-15s out of necessity, but the decision might well have been based upon Soviet desires to prevent the expansion of the Korean conflict. Speaking frankly at a later date, Soviet Foreign Minister Vyacheslav M. Molotov inferred that the Soviet Union had made determined efforts to prevent the Korean conflagration from spreading. "When all facts are known," Molotov said, "you will realize that we acted as a restraining influence."<sup>232</sup>

## Air Power and Armistice Negotiations

"The beginning of the Korean truce negotiations between United Nations and Communist delegates at Kaesong in July 1951," General Weyland observed, "ushered in a new phase of the war. . . . Both the enemy and we had abandoned our identical political objectives of unifying all of Korea by force, and both had given up the military objectives of capture and control. The political and military objectives of each side became the same—the accomplishment of an armistice on favorable terms."<sup>233</sup> When he assumed command of the Far East Air Forces in June 1951, Weyland noted that his command, employing a "minimum force which, for the most part, has been equipped and manned below authorized levels" had already "clearly indicated that air operations have been one of the most decisive elements in stopping the enemy's offensives and reducing his capacity to wage ground warfare." Making another strategic estimate on 12 July, Weyland pointed out in a message to Vandenberg that the Communists might well take advantage of the armistice negotiations and attempt to seize control of the air. In this event, he argued that Vandenberg should provide the Far East Air Forces with "the

## SOVIET NUCLEAR WEAPONS

capability to absorb initial Chinese Communist Air Force attacks and immediately launch effective counterattacks." "The Korean war," Weyland concluded, "has demonstrated that air superiority is essential and the key to the success of military operations regardless of the numerical strengths of opposing surface forces and that air power is the most efficient weapon" for destroying opposing ground forces.<sup>234</sup>

The Air Staff received Weyland's requirements for additional forces sympathetically but had to continue to spread limited Air Force capabilities across a global spectrum. The rapid buildup of Chinese Communist air force strength to 1,050 aircraft including 415 MiG-15s posed an admitted threat to United Nations air superiority, but this force appeared to be intended for defense rather than for offense.<sup>235</sup> On the other hand, the buildup of NATO forces was going to be in a crucial stage early in 1952; those forces would be getting large enough to threaten the Soviet Union without being large enough to defend the NATO allies against a Soviet attack. The only way the Air Force could provide Weyland with the four additional fighter wings he required would be to take them from the Air Defense Command, the Strategic Air Command, or projected deployments to the United States Air Forces in Europe. Weyland could not be given the additional B-26 light bombers that he needed to bring his two light bombardment groups to war strength without robbing the night tactical reconnaissance wing and the light bombardment wing that were being readied for deployment to Europe. After studying the competing requirements, the Air Staff decided that in order to augment NATO, the Tactical Air Command would have to have the 49th Air Division with its atomic-capable B-45 light bomber and F-84 fighter-bomber wings in place in Great Britain by April 1952. On 17 July, Twining informed Weyland that Japan's air defense would be augmented by the movement there of one F-84 wing that had been preparing to go to Europe. This action was all that the Air Force could do to meet Weyland's requirements. "The vital object under the present conditions," Twining wrote Weyland, "is to maintain air superiority over Korea."<sup>236</sup>

Unable to secure the additional air forces that he needed, and faced with the prospect of continuing to wage an air war during the ground stalemate, Weyland could see only two potential employments for United Nations air power. It could either be committed to close support strikes along the front lines where the enemy had dug in and was relatively invulnerable, or it could be concentrated against interdiction targets in the enemy's rear areas. Weyland favored the latter employment and obtained agreement from Gen Matthew B. Ridgway, the commander in chief, United Nations Command, who was apprehensive that the Communists might take advantage of the respite in ground fighting during the truce negotiations to build up frontline stocks of supplies to be used in launching and sustaining a renewed ground offensive. Lt Gen James A. Van Fleet agreed to the interdiction campaign, provided his Eighth Army received 96 close support air sorties each day. At their headquarters in Korea, the Fifth Air Force and the Eighth Army collaborated in planning a comprehensive air interdiction campaign against North Korea's railways. Now commanded by Lt Gen Frank F. Everest, the Fifth

## IDEAS, CONCEPTS, DOCTRINE

Air Force undertook to neutralize the greatest portion of the rail lines supporting the Communist ground force. He asked that Naval Forces Far East employ its carrier aircraft against sections of Korea's east coast railways, while the FEAF Bomber Command maintained a continuing interdiction of four key railway bridges. Begun suddenly on 18 August 1951, the United Nations Command's comprehensive railway interdiction campaign evidently took the Reds completely by surprise and initially was very successful. Fighter-bombers destroyed railway track much faster than the Reds could repair it, and night-flying B-26 intruders took a respectable toll of the motor truck convoys that jammed the roads in a desperate effort to supply frontline Communist divisions.<sup>237</sup>

During the summer of 1951 the Communists had been busily expanding their Manchurian airfield complex around Antung; the Communist air forces were apparently galvanized into action by the initial success of the United Nations railway interdiction campaign. Displaying flying skill that left no doubt in Weyland's mind that they were Russians,<sup>238</sup> MiG flight leaders led their formations in determined assaults against F-86 Sabre barrier patrols south of the Yalu. Enjoying superior numbers, other MiG formations evaded the Sabres and penetrated well southward into Korea to pounce on rail-cutting fighter-bombers. On 15 September, Weyland warned Vandenberg that the Communist air forces were getting out of control. "If the present trend continues," he said, "there is a definite possibility that the enemy will be able to establish bases in Korea and threaten our supremacy over the front lines." Near the end of September, Fifth Air Force reconnaissance pilots discovered that the Communists had begun building three major jet airfields within North Korea. Supported by F-86 barrier patrols and escorted by F-84s, FEAF Bomber Command B-29s began a series of daylight strikes against these airfields on 22 October. Until this time the FEAF Bomber Command had lost only six B-29s in combat over Korea; but in late October, over the Communist airfields, the Reds destroyed five B-29s and inflicted major damage on eight others. At 20,000-foot altitudes, the straight-wing F-84 Thunderjets could not fend off attacking MiGs without losing flight control, and the MiGs appeared in too great numbers to be handled by the few available Sabres.<sup>239</sup>

"Almost overnight," Vandenberg stated after making a fast trip to the Far East, "Communist China has become one of the major air powers of the world." In terms of the damage that they could do with iron bombs, the old B-29s had taken prohibitive losses. But the pessimistic predictions that the old B-29s would not be able to operate any longer did not reckon with the operational versatility of the FEAF Bomber Command. The command already possessed a small shoran bombing capability and soon converted all of its aircraft to operate only at night with this electronics guidance. Safe from Communist interception, the night-flying B-29s successfully neutralized the Communist airfields during November. Earlier in the summer, Vandenberg had refused to convert one of the Fifth Air Force's fighter-bomber wings to F-86 fighter-interceptors on the grounds that the Air Defense Command ought not to be weakened and that the Air Force did not have enough supply support to maintain two F-86 wings in active combat in Korea. On



## SOVIET NUCLEAR WEAPONS

22 October, however, Vandenberg directed the Air Defense Command to send 75 F-86s to Korea; on 1 December the Fifth Air Force's second F-86 wing went into action. In mid-December the Communists abruptly abandoned their air-superiority campaign. The United Nations Command received reports that the Chinese Reds were moving their experienced air divisions from Antung and replacing them with new air divisions. The Reds had apparently decided to rotate new classes of MiG pilots through limited air operations over North Korea to give them training in active air combat.<sup>240</sup>

After two months of success the United Nations Command comprehensive railway interdiction campaign became less successful. The Reds emplaced a growing amount of automatic weapons along their rail lines and exacted an increasing rate of losses and damages on attacking aircraft. Forced to fly at night and to give their attention to the enemy airfields, the B-29s were unable to keep their bridge targets interdicted. The conversion of the F-80 fighter-bomber wing into an F-86 interceptor wing reduced attack capability. On the ground, Communist rail-repair crews impressed local workers and were soon able to repair damaged rail track virtually as fast as the fighter-bombers could cut it. On instructions from Washington, the United Nations truce negotiators agreed to a proposition whereby the existing battle line would become the line of demarcation in any armistice agreement signed within thirty days after 27 November. Not wishing to lose lives taking territory that would be given up, Ridgway directed the Eighth Army on 15 November to cease local offensives and begin an active defense. Confident that they had little to fear on the ground, the Reds withdrew troops to rearward positions where they could be supplied more easily, while along the inactive ground front they were able to regulate their supply requirements by varying their expenditures.<sup>241</sup>

By the end of December 1951 the Fifth Air Force recognized that the comprehensive railway interdiction program was reaching a point of diminishing returns. On 5 January 1952 Brig Gen James Ferguson, vice commander of the Fifth Air Force, requested authority to attack North Korea's extensive hydroelectric power generating plants—facilities that had gone virtually undamaged and which were providing power to factories in both Manchuria and North Korea. On 4 January, however, Ridgway had informed the Joint Chiefs that he did not want to discontinue or reduce the air interdiction activity, since in such an event the Reds would be able to accumulate sufficient frontline supply stocks to launch and sustain a major offensive. During this same month Brig Gen Jacob E. Smart came to Tokyo as deputy for operations of the Far East Air Forces. He soon agreed that air power ought to be employed in a manner that would maintain effective and positive pressure upon the Communists to compel them to accept armistice terms. Given the task of determining how to conduct a campaign of air pressure, Col Richard L. Randolph and Lt Col Ben I. Mayo proposed that the Far East Air Forces give first priority to maintaining air superiority and then use its remaining effort to accomplish "the maximum amount of selected destruction, thus making the Korean conflict as costly as possible to the enemy in terms of equipment, supplies, and

## IDEAS, CONCEPTS, DOCTRINE

personnel." Weyland liked this concept of waging air pressure through selective destruction. As long as United Nations air power had been limited to strikes against the usual tactical targets in North Korea, the Reds had been willing to stall the truce negotiations. But, through selective attack against economic and military targets in North Korea, the Far East Air Forces possessed an opportunity to make the effect of a local air campaign felt as far away as the seats of power in Moscow and Peking. Whether such a vigorous air campaign could be authorized would depend upon the state of the armistice negotiations, the inclinations of General Ridgway, and an augmentation of the Far East Air Forces' capabilities, which had suffered unreplaced losses during the 10 months of comprehensive railway interdiction.<sup>242</sup>

**Air Pressure as a Strategy**

Beginning in the early summer of 1952, the United States possessed the worldwide air force that was needed to back up more forceful measures in Korea. Serving as forward deployment stations for Strategic Air Command medium bombers, Nouasseur and Sidi Slimane Air Bases in Morocco had become operational in July 1951, while Thule Air Base in northwestern Greenland—only about 900 miles from the North Pole—was considered operational in November 1952.<sup>243</sup> Following a schedule that allowed it to expand and modernize while simultaneously maintaining combat readiness, the Strategic Air Command possessed five heavy bomber, 18 medium bomber, three heavy reconnaissance, four medium reconnaissance, and three strategic fighter wings at the end of 1952. The three heavy reconnaissance and four of the heavy bomber wings were equipped with intercontinental B-36s; although they were not yet operational, two of the medium bomber wings were converting to B-47 jet bombers.<sup>244</sup> Although the NATO air forces had not reached levels specified as necessary by Gen Dwight D. Eisenhower as supreme allied commander, Europe, the arrival of the atomic-capable 49th Air Division in England on 5 June 1952 added realism to the SHAPE mission. "We now had," said Maj Gen Dean C. Strother, commander of the 4th Allied Tactical Air Force in Central Europe, "the beginnings of a real tactical offensive capability. Employed with SAC's growing potential in one indivisible air effort, sense could now be made of the tactical situation."<sup>245</sup> The successful detonation of a thermonuclear test device in Operation Ivy on 1 November 1952 promised an almost incalculable increase in strategic bombing power. "We need no longer to argue," pointed out Bernard Brodie, "whether the conduct of war is an art or a science—in the future it will be neither. The art or science will come only in finding out . . . what not to hit."<sup>246</sup>

On 28 April 1952 United Nations truce negotiators in Korea offered a proposal for resolving all disputed questions on the agenda, and, when the Communists refused the solutions, the truce negotiations were at a complete impasse. On this same day in Washington, President Truman announced the appointment of Gen Mark W. Clark as commander in chief, United Nations Command-Far East

## SOVIET NUCLEAR WEAPONS

Command, in place of General Ridgway who became supreme allied commander, Europe. When he reached Tokyo on 12 May 1952, Clark already believed that "only through forceful action could the Communists be made to agree to an armistice the United States considered honorable." With approval from Clark and from the Joint Chiefs, the Far East Air Forces and the Naval Forces Far East, in a four-day action beginning on 23 June, launched a campaign of applying pressure through the air that successfully neutralized North Korea's hydroelectric generating plants. Beginning in July 1952, the United Nations air pressure operations were related closely to the state of the truce negotiations at Panmunjom and, when these were suspended, to diplomatic soundings of Sino-Soviet relations. With Weyland serving as coordinating agent, Far East Air Forces and the Naval Forces Far East aircraft made a massive 1,254-sortie day-long attack against military targets in the North Korean capital city of Pyongyang on 11 July. For several months after this, Far East Air Forces planes attacked industrial plants that either had been overlooked or had been rebuilt since the strategic air attacks of 1950. In a change of tactics, the Fifth Air Force flew streams of B-26 night-bombers laden with incendiaries against Communist towns and villages that served as storage or transshipment points on the main Red supply routes. At the same time that Sino-Soviet talks were under way in Moscow in late August and early September, United Nations air units prosecuted a series of air attacks against targets near the Manchurian and Siberian borders; on 29 August, these units teamed up for another massive assault against military targets in Pyongyang. When the Moscow talks ended and produced no apparent change in Communist attitudes at Panmunjom, the United Nations delegates suspended further negotiations on 8 October. Seeking to increase military pressure as the truce talks recessed, Clark directed the United Nations Command to intensify air operations, to begin limited ground offensives, and to undertake simulated airborne and amphibious operations against the east coast of North Korea. Begun on 15 October the intensified United Nations operations failed to evoke a response from the Communists. And the Eighth Army's attacks against the limited objectives of Triangle Hill and Sniper Ridge touched off a bloody see-saw battle that saw this terrain change hands several times. As a result of these experiences, Clark judged that an amphibious operation against North Korea's eastern coast "would have been most difficult." "We should not unless absolutely necessary," he told General Van Fleet, "initiate another action which may be a repetition of the bloody battle of Triangle Hill and Sniper Ridge."<sup>247</sup>

"I concur in the concept," Clark informed the Joint Chiefs of Staff, "that maximum pressure, within the capability of my means and which can be justified by results, should be applied and maintained against the Communists. The capability for such pressure without unacceptable cost, lies in the air arm."<sup>248</sup> As commander of the Army Field Forces, Clark had insisted that an Army field commander should have operational control of the tactical air elements that were provided for the execution of a ground campaign. Looking toward such an organization on 1 July 1952, General Van Fleet proposed that three squadrons of Marine fighter-bombers should be placed under the operational control of the

## IDEAS, CONCEPTS, DOCTRINE

Eighth Army and that these squadrons would be further controlled by the three corps commanders, each of whom would thus have an attached squadron to provide close air support.<sup>249</sup> Despite his earlier arguments, Clark turned down Van Fleet's proposal. "With a specific job to do," he explained, "I had to maintain an air-ground team working as efficiently as possible."<sup>250</sup> After a careful study, Clark made his views on air-ground operations in Korea known on 11 August 1952. He concluded that "the theater commander, rather than any single service, bears over-all responsibility for successfully prosecuting the Korean war. Each component contributes its own specialized capabilities to the attainment of the theater commander's overall mission and in so doing assists the other components; however, no single service exists solely or primarily for the support of another." Generally endorsing existing Army-Air Force doctrine, Clark did not wish to see any far-reaching or drastic changes made, based solely on the often unusual conditions prevailing in Korea.<sup>251</sup>

Although Weyland and Air Force evaluation boards had long argued that United Nations Command air power could not be effectively employed as a unitary strength in the absence of a proper joint headquarters staff in the United Nations Command-Far East Command (UNC-FEC), Generals MacArthur and Ridgway had preferred to depend upon a staff that was predominately Army. The UNC-FEC headquarters staff also doubled in duty as the theater Army headquarters. General Clark, however, held that his staff "should be a joint tri-service operation, rather than an Army project," and on 20 August 1952 he announced that he intended to organize a joint staff and establish a headquarters for Army forces in the Far East. According to plan, the Army Forces Far East was activated on 1 October 1952; the reorganized Headquarters UNC-FEC began to function on 1 January 1953. "A truly integrated staff of the three services, in which men were picked for their ability rather than the color of their uniforms," Clark later observed, "is the answer to combined operations."<sup>252</sup> As the theater air commander, Weyland also established a new means of integrating the capabilities of the Fifth Air Force and the FEAF Bomber Command. Comprised of representatives of the Far East Air Forces, the Fifth Air Force, and the FEAF Bomber Command, the FEAF Formal Target Committee began to meet biweekly in July 1952 to study target opportunities and to recommend operational employments. After Weyland approved them, the committee's recommendations were distributed within the Far East for information. Weyland would have liked a Navy representative on the Formal Target Committee, but felt that he had no authority to order it. Very late in the war, a Navy air officer was invited to attend the committee's meetings. Except for its lack of authority over naval air operations, the FEAF Formal Target Committee became the basic theater agency for target selection and the medium through which basic air tasks outlined by Clark and Weyland were translated into planned air campaigns.<sup>253</sup>

In terms of numerical capabilities, the Communist air forces in the Far East posed a continuing obstacle to the success of the United Nations air pressure strategy and to the safety of the United Nations Command. In June 1952 these

## SOVIET NUCLEAR WEAPONS

forces reached their apparent authorized strength: the Communist Chinese possessed some 1,830 aircraft (including 1,000 jet fighters)—some 1,115 of the Chinese planes were based in Manchuria; the Soviet air units possessed approximately 5,360 aircraft; and the reconstituted North Korean air force had about 270 planes. This Communist air order of battle dwarfed the United Nations air force; the Reds also conducted a vigorous modernization program. By November 1952 the Red Chinese obtained 100 of the latest model Il-28 light jet bombers and based them in Manchuria. An extensive radar network fed information to a Red aircraft control center at Antung. In defending their fixed installations within North Korea, the Reds employed some 786 antiaircraft artillery guns, 1,672 automatic weapons, and 500 mobile search lights during the winter of 1952-53.<sup>254</sup> Several factors, nevertheless, continued to work in favor of the United Nations Command. The Fifteenth Air Force maintained an atomic-capable medium bomber squadron and tanker detachment on continuous alert at Andersen Air Base on Guam. In December 1952, following the arrival of the hostile Il-28s in Manchuria, one of the Fifth Air Force's most proficient fighter-bomber squadrons was pulled back to Japan to be equipped and trained for the delivery of tactical atomic weapons.<sup>255</sup> Early in 1953, moreover, the Fifth Air Force was able to reequip two of its fighter-bomber wings with F-86F fighter-bombers (which could double as fighter-interceptors if needed), thus doubling its air-to-air fighting potential.<sup>256</sup> In spite of their numerical superiority, the Red air forces operated under restrictions; although MiG flight leaders—many of whom were believed to be Russians—were frequently proficient, the majority of MiG pilots were poorly skilled in air combat. Only in the night skies over northwestern Korea during the winter months of 1952-53 did the Reds seriously challenge the operation of Far East Air Forces planes—once again the old B-29s. In November 1952 two Soviet night fighter squadrons operated over northwestern Korea; the FEAF Bomber Command lost five B-29s between 18 November 1952 and 30 January 1953. Vigorous mission study and analysis enabled the bomber command to keep operating. The Fifth Air Force also provided F-94C Starfire and F3D-2 Skynight all-weather fighters to fly cooperative barrier and overhead cover for the B-29s. Had the Reds seen fit to employ electronic-equipped all-weather fighters, they probably could have terminated B-29 operations. As it was, FEAF Bomber Command's countermeasures were effective and no more medium bombers were lost to hostile night defenses after 30 January 1953.<sup>257</sup>

When the truce negotiations indefinitely recessed in Korea on 8 October 1952, the arena of armistice discussion shifted to the United Nations General Assembly and to diplomatic discourse. In the autumn of 1952 Ambassador Chester Bowles warned India's foreign office that an extension of hostilities would be inevitable unless some satisfactory cease-fire was soon reached. The only substantial point that blocked the cease-fire was the Communist position that all prisoners of war should be repatriated forcibly at the armistice, which would mean that many Koreans and Chinese who wished freedom would be returned to bondage.<sup>258</sup> In his successful campaign for the presidency in the autumn of 1952, General

## IDEAS, CONCEPTS, DOCTRINE

Eisenhower expressed his determination to seek an honorable end to the war in Korea. In his state of the union message on 2 February 1953, he indicated that the United States was ready to act more forcefully and specifically announced that American naval forces would no longer shield Red China from attacks that might be launched by Chinese Nationalist forces from Taiwan. During a visit to New Delhi in May 1953, Secretary of State John Foster Dulles told Prime Minister Jawaharlal Nehru that the United States wanted an honorable peace in Korea, but that the United States had decided to attack Communist bases in Manchuria if an agreement on a truce was not soon reached. Dulles hoped that this warning would reach Peking, and it doubtless did.<sup>259</sup>

Benefiting from new force capabilities, Lt Gen Glenn O. Barcus, who commanded the Fifth Air Force in the last year of the Korean hostilities, made efforts to provoke reluctant MiGs into air battles. Toward this end, General Clark offered a reward of \$50,000 and political asylum on 26 April to any Communist pilot who would deliver his MiG to an airfield in South Korea. Possibly to avoid defections, the Soviets seem to have withdrawn their pilots from combat; the Chinese and Korean airmen who swarmed out of Manchuria proved pitifully incompetent. In May and June 1953 the Sabres shot down 133 MiGs at a cost of only one F-86.<sup>260</sup> Finding special targets in North Korea became more difficult as the air pressure operations continued. However, as a standard fare, the bomber command attacked and destroyed 30 to 40 Red supply centers each month. In April 1953, moreover, air targets planners discovered that impounded irrigation water was the key to North Korea's substantial rice production. On 13 and 16 May, United Nations fighter-bombers released swirling floodwaters as they cut irrigation dams at Toksan and Chasan. "The breaching of the Toksan dam," Clark informed the Joint Chiefs, "has been as effective as weeks of rail interdiction." The Communist forces also were subjected to attack, since Red personnel encampments and logistical dumps back of the front lines proved to be small but collectively profitable targets for air attack.<sup>261</sup>

At the same time that he was willing to entertain stronger actions to attain an honorable truce, Eisenhower also took steps to renew truce negotiations. Following the new administration policy, the Joint Chiefs instructed Clark on 19 February to propose an immediate exchange of all sick and wounded prisoners of war. While the Reds were considering this proposal, the whole Communist bloc was shaken by the death of Joseph Stalin. At Stalin's bier, Soviet premier Georgi Malenkov spoke of the need for peaceful coexistence between Communist and capitalist nations. On 28 March the Communists agreed to the repatriation of sick and wounded prisoners. But, when the Panmunjom talks began again on 26 April, the Reds were still determined to haggle, particularly over the length of time that prisoners would be held in custody by a neutral nation's repatriation commission. On 4 June, following presentation of final United Nations terms and the start of the attacks on the irrigation dams, the Reds capitulated and accepted the proposal that prisoners who did not willingly accept repatriation within 120 days would be released as civilians. All outstanding truce issues were now resolved, but the

## SOVIET NUCLEAR WEAPONS

Communists continued to stall for time. They mounted last-gasp ground offensives in mid-June and mid-July in order to lend credence to a claim that the truce was signed while the Reds were winning and to dampen the ardor of South Korea's President Syngman Rhee, who still wanted to get the unification of Korea by military force. Employed all out, United Nations air power contributed in full measure to the exceedingly high casualties inflicted on the attacking Red ground armies. After trading casualties for a few miles of worthless terrain, the Reds signed the armistice agreement on 27 July 1953, thus ending active hostilities in Korea.<sup>262</sup>

## Evaluations of Air Power's Effects in Korea

In view of the importance of the Korean conflict to American military thought, it would have been helpful if the Communists had seen fit to disclose the factors that led to their capitulation. Members of President Eisenhower's administration took a global view of the matter. Secretary of State Dulles stated that hostilities ended in Korea "because the aggressor, already thrown back to and behind his place of beginning, was faced with the possibility that the fighting might, to his own great peril, soon spread beyond the limits and methods he had selected."<sup>263</sup> Secretary of Defense Charles E. Wilson held much the same view. "I will always think," he said, "we got an armistice because they thought if they did not really do something, after all of the talking for a couple of years, something was going to happen. In other words, the war was either going to toughen and we were going to dive in and win it, or there was going to be an armistice."<sup>264</sup> Writing in 1955, Col Ephraim M. Hampton, the Air War College's deputy for evaluation, argued that the global activities of American air power had had profound effects upon almost every aspect of the war in Korea. "It would be almost impossible," he wrote, "to pinpoint the precise degree to which our global air base system, with its substantial elements of our national air power in position in the NATO area and the Far East and with its facilities for swift and massive redeployment of our air power, had on the course of events in Korea. Certainly the Soviets had to weigh these factors, [which] . . . certainly . . . must have been the compelling consideration in their decision as to just how far and in what ways they dared support their junior partner in the Korean war."<sup>265</sup>

Other American military men attached greater significance to the local circumstances in Korea. Clark suggested that the Communists yielded "only because the military pressure on them was so great that they had to yield. . . . In the end we got the ceasefire only because the enemy had been hurt so badly on the field of battle."<sup>266</sup> Speaking in January 1954, Brig Gen Don Z. Zimmerman, deputy for intelligence of the Far East Air Forces said: "We established a pattern of destruction by air which was unacceptable to the enemy. The degree of destruction suffered by North Korea, in relation to its resources, was greater than that which the Japanese islands suffered in World War II. These pressures brought the enemy to terms."<sup>267</sup> Tersely summing up his views in February 1954, General Weyland stated: "We are pretty sure now that the Communists wanted peace, not because

## IDEAS, CONCEPTS, DOCTRINE

of a two-year stalemate on the ground, but to get air power off their back."<sup>268</sup> After a conversation with Molotov at Geneva in the spring of 1954, Under Secretary of State Walter Bedell Smith suggested that the Soviets eventually gave up in Korea because the hostilities there were forcing them to "send more materiel into China than they wanted to send" and because "there was too great a drain on the Soviet economy." "The terrain in Korea," Smith added, "was against them and it was the one place in Asia where we were able to fight at an advantage because we controlled the sea and most of the air. They wanted to stop there and they will probably want it to start elsewhere a little later on."<sup>269</sup>

In the autumn of 1950 General Stratemeier had warned that the Korean conflict presented so many unusual aspects as to make it a very poor model for planning future operational requirements. Issued under Weyland's authority on 26 March 1954, the *FEAF Report on the Korean War* repeated Stratemeier's earlier conclusion that lessons drawn from Korea had of necessity to comprehend many unusual factors.<sup>270</sup> In his personal writings, Weyland agreed that the Korean air war had been very complex; he considered that it had been "a laboratory study of limited military action in support of a very difficult political situation" and that it provided the Air Force with "an opportunity to develop concepts of employment beyond the World War II concepts of tactical and strategic operations."<sup>271</sup>

In writing on the major lessons that emerged from Korea, Weyland stated that:

One thing that should be clear to everyone by now is that air power is indivisible. It can put at risk all important elements of a national structure. Attempts to classify it by types of aircraft, types of operations, or types of targets have led to confusion and misunderstandings. For that reason I have tried to think of it in terms of objectives, threats, and opportunities. The results desired, balanced against threats and opportunities, determine the weight, timing, and phasing of air attacks.<sup>272</sup>

In the *FEAF Report*, Weyland attributed most interservice problems affecting the employment of air power in Korea to the continuing lack of a properly established joint headquarters at the United Nations Command-Far East Command level.<sup>273</sup> On 9 April 1951, however, Weyland had been more critical of the lack of an overall theater control for available air power, and he had recommended that the final FEAF war report would carry the lesson that "all aircraft operating in a theater, except those performing Naval missions, be placed under the command of the air commander."<sup>274</sup> Although carrier-based air forces represented an important theater air force potential, Navy commanders in the Far East were slow to commit themselves positively to the collateral missions they believed might hinder their ability to maintain control of the seas. Thus, the agreement for air coordination in defense of the Far East theater signed on 26 March 1951 gave the Far East Air Forces air defense commander operational control over all shore-based Navy and Marine fighter aircraft in an air defense emergency. However, it provided that carrier-based fighter aircraft were an integral part of the fleet and normally could not be precommitted to any emergency operational control of the air defense commander. Marine Corps land-based



SOVIET NUCLEAR WEAPONS

aircraft were successfully integrated into the Fifth Air Force-Eighth Army air-ground system, but Seventh Fleet aircraft could not be positively committed to ground support as long as the Naval Forces Far East had a mission in the Taiwan Straits. When relieved of this mission, the Seventh Fleet established a naval member in the Joint Operations Center in Korea in June 1953 and thereafter participated integrally in the support of the ground forces in Korea.<sup>275</sup>

The same concern that organizational diffusion might lead to a loss in air power's inherent flexibility caused Air Force thinkers to question the division of the Air Force into strategic and tactical air arms and to reexamine the mission of tactical air forces. As engrossed in the *Joint Training Directive for Air-Ground Operations*, issued jointly by the Tactical Air Command and the Army Field Forces in September 1950, the mission of tactical air power was related to the strategy and maneuver of ground forces. Late in 1950, however, a study prepared by the Office of Assistant for Evaluation, Deputy Chief of Staff for Development, Headquarters USAF, suggested that tactical air power need not be related directly to the maneuver of friendly ground troops. Tactical air power might be employed directly against enemy forces in the field without any friendly ground forces being present. "In this new concept," stated the study,

tactical air power will be entering into direct combat with enemy ground forces—not only supporting our ground forces in their fight against the enemy ground forces. . . . Clearly, it is not acceptable to relegate tactical air to only a supporting role. It is no longer sufficient even to declare that tactical air and ground forces cooperate equally. Rather, tactical air must now be conceived as having a role in the battle against enemy ground forces at times completely on its own.<sup>276</sup>

The Air Force officially accepted the concept on 29 June 1953 when it issued a revised regulation governing the organization of the Tactical Air Command. This regulation defined tactical air operations

as the application of all air power, under the command or operational control of a theater or area commander, against an enemy's military potential and capabilities in being, normally only within the theater area of responsibility. Restricted only by limitations of equipment and capabilities of designated units, tactical air operations may encompass any task necessary in the furtherance of the theater mission.<sup>277</sup>

In explaining the change in tactical air doctrine Brigadier General Ferguson noted that tactical air power

was considered a supporting arm until recently when new weapons were introduced which in themselves produce decisive results. . . . The formidable nature of this new source of firepower, in fact, reverses the orthodox relationships of air and ground forces. Specifically, it is quite reasonable to say that we should look for a modification in our tactics and in our concepts of war . . . which would point toward the exploitation of tactical air atomic attacks by highly mobile ground forces.<sup>278</sup>

Many Army officers who served in Korea insisted that the ground forces ought to possess their own organic close-support aviation, but the several joint evaluation

## IDEAS, CONCEPTS, DOCTRINE

boards that met in the Far East Command during and at the end of the Korean hostilities generally endorsed the organizational concepts of extant Army-Air Force doctrine. A Joint Eighth Army-Fifth Air Force air-ground operations board, which reported on March 1951, found that "the Joint Training Directive for Air-Ground Operations . . . is sound and adequate and is applicable to the Korean theater of operations."<sup>279</sup> In his study on air-ground operations issued in August 1952, General Clark held that any comparison between the Army-Air Force and Marine systems of close air support was faulty because the two systems were designed for completely different types of functions and had different allocations of forces.<sup>280</sup> A conference of Fifth Air Force, Eighth Army, Seventh Fleet, and 1st Marine Aircraft Wing representatives that met in August 1953 for the war's end review of air-ground operations stated: "Little attempt has been made . . . to reiterate previously published doctrines and techniques which have been found fundamentally sound and workable."<sup>281</sup> "I don't think we ought to be in tactical air support. I don't know anybody at the top of the Army who is pressing for it," stated Under Secretary of the Army Earl D. Johnson in October 1953.<sup>282</sup>

Although the Department of the Army did not seek to undertake its own close air support, it vastly expanded the Army's organic aviation. According to a joint readjustment agreement of 20 May 1949, Army aviation was categorized as fixed-wing aircraft not exceeding 2,500 pounds in weight and rotary-wing aircraft (helicopters) weighing no more than 4,000 pounds. Such organic aircraft were to be used to expedite and improve ground combat procedures in forward areas of the battlefield. In addition to these planes, the Air Force would continue to provide liaison squadrons to support Army units. Based upon experience in Korea, both the Army and the Air Force effected new plans and ordered helicopters in larger numbers. Most Army helicopters were committed as organic aviation, but the Army also planned to establish helicopter transport companies, each able to lift an infantry rifle company. Since it was responsible for air-assault airlift, the Air Force planned to organize assault transport wings, each to include one conventional troop carrier group and one rotary-wing aircraft group. When not employed in air assault work, the helicopter group would accomplish frontline air transport functions. Early in 1951 the Army wanted to secure larger aircraft and helicopters, but the Air Force believed that such planes would infringe upon the Air Force's air transport mission. Seeking to settle this controversy, secretaries Frank Pace of the Army and Finletter of the Air Force signed an agreement on 2 October 1951 that omitted references to the weight of Army aircraft and stated that the Army would possess organic aircraft required "as an integral part of its components for the purpose of expediting and improving ground combat and logistical procedures within the combat zone." The combat zone was understood to be an area from 60 to 75 miles deep behind the battle line.<sup>283</sup>

In view of the Pace-Finletter agreement as well as a demonstrated need for increased Army mobility in Korea, General Ridgway recommended in November 1951 that the Department of the Army should procure enough cargo helicopters to allocate 10 helicopter battalions, each with three companies, to a typical field

## SOVIET NUCLEAR WEAPONS

army. The Department of the Army was favorable to Ridgway's proposal, but it approved a lesser allotment order by which four helicopter battalions, each with three companies, would be assigned to each field army. The Air Force, however, demurred, arguing that such an allotment of Army helicopters would duplicate the helicopter services that could be provided by the rotary-wing groups of assault transport wings. Gen John E. Hull, deputy chief of staff of the Army, pointed out on the other hand that the Army had never cited any requirement for support by Air Force rotary-wing aircraft within the combat zone against which the Air Force was justified in programming units.<sup>284</sup> This jurisdictional controversy remained deadlocked until 4 November 1952, when, after intervention by Secretary Lovett, a second memorandum of understanding was jointly approved by the Army and Air Force. This understanding fixed the maximum weight of Army fixed-wing aircraft at 5,000 pounds but prescribed no weight limit for helicopters. It specifically recognized that Army aviation would have the function of transporting Army supplies, equipment, personnel, and small units within the combat zone, an area precisely defined as extending 50 to 100 miles deep behind the front lines. The Air Force remained responsible for airlifting Army supplies, equipment, personnel, and units between points outside the combat zone to points within the combat zone and also for the air movement of Army troops, supplies, and equipment in the assault and subsequent phases of airborne operations.<sup>285</sup>

While the Korean hostilities provided new lessons looking toward a future employment of theater air forces, those battles also reemphasized old air power lessons, which, albeit, tended to be obscured by the peculiar circumstances prevailing in Korea. The Strategic Air Command demonstrated well the flexibility and versatility of its force by employing medium bomber wings as a tactical bomber force, by committing one of its escort fighter wings for a time to an air-ground attack role, and by rotating fighter wings to the theater for the air defense of Japan. But the local peculiarities of the limited war did not permit a full exploitation of the strategic bombing function. Because of the artificial boundaries of the conflict, most of the production facilities that the Communists used to support their war effort could not be attacked. In the early months of the war, the few war-supporting industries of North Korea were easily destroyed; after this, very few targets could be found that would warrant a medium bomber formation large enough in size to provide the old B-29s with mutual self-protection. Early in the war many Air Force officers chafed at the employment of so-called strategic bombers in tactical air roles and vexed themselves over the question as to whether strategic targets even existed in Korea. General Stratemeyer had occasion to remark that strategic bombers could be freely diverted to ground-support purposes because the B-29s were available and because the ground situation was threatening, but he warned that it should not be assumed that such diversions superseded the real purpose of strategic aircraft. This same admonition held true throughout the war.<sup>286</sup>

"There is little doubt in my mind," wrote General Weyland, "that the outcome of the conflict would have been vastly different had enemy domination of the air reversed the positions of the Communists and the United Nations Command."<sup>287</sup>

## IDEAS, CONCEPTS, DOCTRINE

At least one Navy officer concluded that the Korean War "clearly demonstrated that land battles can continue to be waged successfully in the face of complete air control,"<sup>288</sup> but few authorities questioned the Air Force assertion that "the first and most important lesson" of the Korean conflict was that "control of the air is a prerequisite for any large-scale military operation."<sup>289</sup> Free from the danger of hostile air attack, outnumbered United Nations ground forces were able to maneuver at will during daylight hours, while the Communists were compelled to move and to fight at night. Although the Communist armies proved able to exist in a battle zone covered by conventionally armed United Nations air power, these forces were unable to use their superior strength to accomplish their military objectives. In the autumn of 1950, General Stratemeyer feared that the relative ease with which the Far East Air Forces gained air superiority might lead to an erroneous conclusion that such a feat could be duplicated at will in a future conflict. In the course of the war, a small band of Sabre pilots successfully shielded the United Nations Command against much larger numbers of Communist aircraft. In the course of their barrier patrols, the Sabres met and destroyed 810 enemy aircraft (including 792 MiGs) at a cost of a combat loss of 78 of their own number. But the fact that this smaller Sabre force was able to maintain air superiority had to take into consideration a recognition that the Communists were unable to use their superior air capabilities effectively.<sup>290</sup>

"At any time since possibly the middle of 1951," stated Col James B. Tipton, an experienced Fifth Air Force wing commander, "I have seen no cogent reason why the Red Air Force Commander did not wipe out the United Nations Air Forces opposing him."<sup>291</sup> Some part of the inability of the Communists to employ their superior numbers in all-out air battles was attributable to a lack of skilled aircrews, but the controlling circumstance of air superiority in Korea was better summed up by Colonel Hampton, when he concluded: "The Communists feared to use their local air forces decisively because the United States had warned that any extension of the Korean war might bring down upon the aggressor the awesome force of the US Global air-atomic power."<sup>292</sup> "The second lesson," General Ferguson said in a discussion of the employment of tactical air power in Korea,

was the most profitable attacks were those made deep in enemy territory where supplies, materiel, and personnel are fairly well concentrated. As supplies and men are moved closer to the line of contact, dispersal greatly reduces the effectiveness of air attacks. Consequently, where it is operationally feasible, tactical air should place the major emphasis for its interdiction program against those lucrative and concentrated targets which necessarily lie deeper in enemy territory.<sup>293</sup>

Few of the United Nations air actions in Korea drew more criticism than the comprehensive railway interdiction attacks prosecuted between August 1951 and May 1952, the air campaign which was popularly described as Operation Strangle. Gen Lemuel C. Shepherd, commandant of the Marine Corps, stated that Operation Strangle was "recognized as a fizzle." And Vice Adm J. J. Clark, the Seventh Fleet's commander, observed: "The interdiction program was a failure. It

SOVIET NUCLEAR WEAPONS

did not interdict.<sup>294</sup> In retrospect, Weyland admitted that Strangle was a poorly conceived name because it gave critics who did not understand the real objective of the railway interdiction a vehicle for proclaiming its failure. He insisted, however, that the railway campaign "was an unqualified success in achieving its stated purpose, which was to deny the enemy the capability to launch and sustain an offensive."<sup>295</sup> "No one can be foolish enough," stated Colonel Tipton, "to claim 100 percent effectiveness for any interdiction effort; to freeze all movement within complex areas of thousands of square miles is impossible." He, nevertheless, observed, "We can conclude that the unique features of the Korean operation have not changed the concept of air operations in the interdiction task."<sup>296</sup>

With regard to close support by the Air Force of Army troops, Gen Maxwell D. Taylor stated, "I would first say that dissatisfaction would not apply to the attitude shown by the Air Force in Korea. I was never more loyally supported by anyone, even by my own people, than by the Fifth Air Force when I commanded the Eighth Army."<sup>297</sup> Recognizing that the outnumbered United Nations ground forces in Korea never possessed a proper amount of organic artillery, Weyland noted that "FEAF and Fifth Air Force leaned over backward to provide more than adequate close air support."<sup>298</sup> But the final report of the Far East Air Forces, nevertheless, warned: "Because FEAF provided UNC ground forces lavish close air support in Korea is no reason to assume this condition will exist in future wars." In a future conflict the fighter-bomber forces would be hard put to attain air superiority and attaining air superiority would be more vital to the success of the mission of all forces than close support would be.<sup>299</sup> Speaking of his experience in Korea, General Ferguson outlined the potential worth of close air support under various battle conditions. "In my opinion," he wrote,

close air support is of little use unless the associated army is on the offensive. When the army is holding along a riverline, or waiting for a supply buildup, or for strategic or political decisions to be taken, close air support does little more than keep the state of the art alive. . . It should and must be used under such conditions as we faced in April and May 1951 when great hordes of Communist Chinese poured in against soft points in our lines. But, given relatively static conditions along a line of resistance, the most effective employment of tactical air is to range forward and seal off the projected battle zone, while maintaining control of the air and conducting long-range interdiction. When the day does come for the all-out attack by our troops, every airplane of every category would participate in breaking the initial line of resistance and getting the offensive underway. From then on close support, close-in interdiction, and airfield sweeps all combine to keep the enemy off balance and to make the offensive an ultimate success.<sup>300</sup>

IDEAS, CONCEPTS, DOCTRINE

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SOVIET NUCLEAR WEAPONS

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IDEAS, CONCEPTS, DOCTRINE

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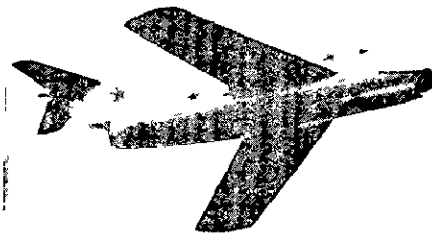
Lt Gen O P Weyland, commander,  
Far East Air Forces,  
1951-54



Gen John K. Cannon, commander,  
Tactical Air Command,  
1951-54



Gen Nathan F. Twining, Air Force  
chief of staff, 1953-57



MIG-15.



B-58 Hustler



Charles E. Wilson, secretary of  
defense, 1953-57



Thomas K. Finletter, secretary of the  
Department of the Air Force,  
1950-53



Maj Gen Gordon P. Saville,  
commander, Air Defense Command,  
1948-49, deputy chief of staff,  
Development, 1950-51