

Report No. AU-ARI-CP-90-3

The Fabric of Air Warfare; Doctrine, Operational Experience, and Integration of Strategic and Tactical Air Power from World War I through World War II.

by

Dr James A. Mowbray

Air University Press

Maxwell Air Force Base, Alabama 36112-5532

April 1991

Scanned copy October 2001  
Document format changed from original printed version

# Report Documentation Page

Form Approved  
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>JUN 1992</b>		2. REPORT TYPE <b>N/A</b>		3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>The Fabric of Air Warfare; Doctrine, Operational Experience, and Integration of Strategic and Tactical Air Power From World War 1 Through World War 2</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Air University Press Maxwell AFB, AL 36112-6615</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>UU</b>	18. NUMBER OF PAGES <b>47</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

## **DISCLAIMER**

This publication was produced in the Department of Defense school environment in the interest of academic freedom and the advancement of national defense-related concepts. The views expressed in this publication are those of the author and do not reflect the official policy or position of the Department of Defense or the United States government.

This publication has been reviewed by security and policy review authorities and is cleared for public release.

CADRE Papers are informal, occasional publications sponsored by the Airpower Research Institute (ARI) of the Air University Center for Aerospace Doctrine, Research, and Education (AUCADRE). They are dedicated to the advancement of the art and science of applying aerospace power. Selected papers are prepared in the CADRE Paper format and distributed throughout the Department of Defense and related nongovernmental institutions. All military members and civilian employees assigned to Air University as either students or permanent party are invited to contribute unclassified manuscripts. They must deal with aerospace history, doctrine, or strategy; domestic or international politico-military affairs; or joint or combined service matters bearing on the application of aerospace power. Papers should be as brief and concise as possible. Those exceeding 60 double-spaced pages will be considered by exception only, while long pieces may be reviewed for publication as monographs or books. Submit five copies of a double-spaced, typed manuscript along with a brief (200-word maximum) abstract of the paper to AUCADRE/RIC: ATTN: Dr L. B. Ware, Editor in Chief, CADRE Papers: Building 1400, Maxwell AFB AL 36112-5532.

For a listing of previous CADRE Papers and procedures for ordering them, see the last pages of this publication.

## INTRODUCTION

There presently exists a real and growing interest in questions of how air power can and should be employed in warfighting. One of the more pressing questions in recent years in the US Air Force has been the matter of how best to achieve the “integration of tactical and strategic air power” in the employment arena. These concerns over the employment of the elements of air power which are frequently described as tactical and strategic are not new, for they precede World War II. However, during World War I and World War II, airmen learned a great deal about how best to employ air power, and because we spend so little time in studying to any depth these issues, the Air Force has seemingly “forgotten” its own history. Indeed, the integrated employment of the tactical and strategic elements of air power has been very much the norm in war.

It has often been *observed*, and commented upon, that the Air Force has an a historical corporate mind-set. Billy Mitchell may have been the architect of that mind-set inasmuch as he once said that, “In the development of air power, one has to look ahead and not backward and figure out what is going to happen, not too much of what has happened.”<sup>1</sup> Subsequent to Mitchell, many Air Force officers have come to identify very strongly with that position. By the 1970s the matter had reached such a point that the Clements Commission urged that senior service school like the Air War College should return to the teaching of military history. There were other reforms which followed. But, unlike the US Army, where the study of military history is an essential ingredient to success for the professional officer, the modern Air Force has seemingly carried the Mitchell tradition to a fault. It was, perhaps, the desire to combat the overemphasis on technology, and always having to reinvent the wheel, that led a recent Air Force chief of staff to establish Project Warrior, and an Air Force President of the National Defense University, to say:

In working future air power issues, we need to understand the lessons of the past-- from the early days of air combat right through the most recent operations.

Reinventing wheels is a terrible waste of the intellect, and reinventing wheels in a crisis almost certainly invites disaster.<sup>2</sup>

Nevertheless, that a historical mind-set has played a significant role in allowing Air Force professional officers to easily justify their own frequent lack of historical knowledge about the past employment of air power in an integrated fashion, in spite of an overarching Air Force experience with that very kind of integration. In an effort to help redress the lack of historical attention to this matter, this paper will survey the heritage of the Air Force in employing air power in war in an integrated manner in order to achieve the best possible results.

There are a number of lessons to be learned from such an examination. Perhaps one of the most important things that can be learned from that experience, however, is that the flexibility of air power is a proverbial two-edged sword. It is not only the greatest attribute of air power, but it is also potentially the greatest liability--when misunderstood and misused, as by a theater commander. The defect is that in the face of crisis the theater "boss" may turn to his most flexible weapon, air power, and take any or all of it for use in the crisis of the moment. And any commander faced with a crisis might use any air power to which he can gain access, to the point that flexibility so misused equates to dispersion of effort. The forte of the air component commander should be thorough understanding of the proper use of integrated air power, in part to avoid such misuses by his "boss," if possible. The air component commander's understanding, of the factors which affect the employment of integrated air power, of air and ground doctrine, and of past air warfare experience, of all of these threads, which he must pull together through his "insight," allow him to perceive "the fabric of air warfare" which is his professional responsibility. It is the thesis of this paper that a complete and proper understanding of warfighting experience in the use of integrated air power to obtain optimum combat results is essential for the modern air leader. Since one of the best places to study thoroughly such employment of integrated air power *is* to be found in the large scale examples of the numbered air forces of the Second World War, it is that heritage upon which we will focus.

## **Part I: Definitions**

In order to offer some clarity to the ensuing discussion the following are the definitions, which will be used throughout this paper.

Doctrine is the cornerstone, the very foundation if you will, of successful warfighting. In recent years there has been a great deal of ink spilled on the subject in the Air Force, but the best thought-out definition of doctrine is one offered by Maj. Gen. I.B. Holley in the old Air University Review. He defined doctrine, with an eye to avoiding conflict with the definitions of concept and principle, as a avoiding conflict with the definitions of concept and principle, as a “precept, an authoritative rule, a method officially taught, a maxim for Action.”<sup>2</sup> This appears to be a relatively clear and useful definition which avoids the problems raised by the conflicts between JCS Pub 1 and AFM 1-1 for example- Moreover, Holley’s definition comports with the thoughts of operators such as Gen. Curtis E. LeMay, who wrote:

At the very heart of warfare lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilization of men, equipment, and tactics. It is the building material for- strategy. It is fundamental to sound judgement.<sup>3</sup>

Consistent with LeMay’s view that doctrine is the building material for strategy, a definition of that term is our next way--station. For the purposes of this paper it is best to limit the discussion of strategy to the realm of “pure,” or “military” strategy. A useful starting point is with an accepted definition, in this case one offered by Sir Basil Liddell Hart, “the art of distributing and applying military means to fulfill the ends of policy.”<sup>3</sup> Liddell Hart considers, briefly, Clausewitz’s definition of strategy as “the art of the employment of battles as a means to gain the object of war” This he rejects as entering improperly upon the sphere of policy and as improperly narrowing strategy to the conduct of battles as the only means to a strategic end. As a qualifying factor, Liddell Hart perceives strategy as a war plan,” but finds that definition in and

of itself to be inadequate.<sup>4</sup> Based on this, the most useful definition of military strategy may be: a war plan for the distribution and application--of military means designed to accomplish a military objective in harmony with specific policy. Since grand, or national, strategy includes nonmilitary means of power, this should offer us ample clarity. And, although this definition, as with most any other one, will not be agreeable to everyone, it does give a common frame of reference for the ensuing discussion and it is conceptually familiar to the military war planner.

Having dealt with this important preliminary, it is important to lay down the definitions which are essential for the, following discussion, those for tactical and strategic air warfare. I would argue, not unlike Gen. Bennie Davis, former CINCSAC, that “indivisible air power” is a key concept for air warriors,<sup>5</sup> and that strategic and tactical air warfare are in point of fact missions, which may be accomplished with any available assets. Moreover, the history of United States air operations supports the concept that you may employ aircraft designed for either role in the other one, often with excellent results and with great economy of effort. While it is true that strategic air power has more often been used in the tactical role, Vietnam demonstrated that the reverse could be true is well. This flexibility is one of the key attributes of air power inherent in all of its forms.

The classical “strategic air campaign may be defined as the destruction of the enemy nation’s capacity and/or will to make war by aerospace attack on toe enemy homeland, targeting its capacity to receive, generate, and transport the manpower, materiel and services to make war. Any attack upon an enemy heartland will be a political decision, rather than one -made by the military leadership. However, once the decision is made, and the military must prepare a “war plan” by which such a strategic air campaign might he successfully conducted, we have entered the realm of military strategy. ‘Strategic air power” is those aerospace forces employed in the conduct of such an air campaign, whether that campaign is conducted in a single theater of operations, across an entire theater of war, or on a global basis.

The “tactical” air mission, on the other hand, may be defined as theater aerospace operations aimed at the defeat of enemy armed forces in the field. Those operations are aimed at

forces in contact with, or in proximity to, friendly forces, or those which may be brought to such a position in the near future. Such operations by aerospace assets may be offensive or defensive, and anywhere along the spectrum of myriad TACAIR; missions.

It is important to stress that, properly conducted, these operations are in fact at the operational level of war, rather than being truly “tactical.” They are examples of operational art. The principal basis for this argument lies in the fact that to be successful, as we shall see, such operations must be on a large scale, but are invariably sub-theater of operations in their character. That is, they seemingly never encompass the form of a single “theater of operations-wide” effort under a single commander. “Tactical” air power is composed of those aerospace forces employed in the conduct of campaigns within a theater of operations.

A recent Air University publication on the indivisibility of air power put the current thinking in a way which tends to dispel at least some of the myths about what is “strategic” and what is “tactical” air power. Referring to the current AFM 1-1, Basic Aerospace Doctrine, it says:

...the new manual ignores the traditional strategic and tactical... compartmentalization and emphasizes the inherent flexibility of aerospace forces to accomplish a multifaceted mission. . . there are no strategic or tactical weapons, just strategic and tactical actions that can be accomplished in numerous ways by a variety of weapon combinations. It is what is done...that is important to this determination, not how far it goes, how big it is, or even the size of its payload.<sup>6</sup>

But these definitions of “strategic” and “tactical” air power, with which some may find reason to disagree, are almost without meaning in the hands of anyone who has not heeded the words of General Hosmer and studied the extensive past of aviation and air power history and operations thoroughly. What is required for real understanding is to spend a great deal of time in the professional study of warfare and especially aerial warfare, until one develops that type of professional “insight” that allows the examination of a given application of air power and enables one to say, with the conviction born of knowledge and insight, that the particular case in point is a “strategic” or a “tactical” application of aerospace power. It is that insight which will finally allow the air leader to find and know the enemy’s “center of gravity,” to perceive his

intentions, and to understand how to develop a “war plan,” or strategic air campaign, which will yield victory.

To try and give some idea of the necessary depth, breadth, and scope required to gain that vital and intrinsic “professional insight,” look at an analogy with at least a few may identify. It is said among practitioners of the martial arts, warriors of a different kind if you will, that what separates those who are Masters from those below them is a level of mental achievement. Masters hold that beyond all of the practice, effort, study, mental conditioning, and work, there must come a day, when everything suddenly comes together in the mind of the practitioner, often in a blinding flash. From that moment he “understands” how everything works together, it has become so “ingrained” as to be virtual “instinct.” That is what the military man must achieve in the way of “insight” if he is to realize his full potential. It is that type of “insight” which made the kind of men whom Napoleon urged professionals to study, Alexander, Caesar, Adolphus, or Turenne, for example. It is that type of insight which they possessed, and it is that for which the warrior must study and strive if he is to be more than just a passable practitioner of his profession.

## **Part II: Factors Affecting the Integration of Tactical and Strategic Air Power**

Historically, the “integrated,” or indivisible, application of air power is very much the norm for air force operations in war, both in the United States and abroad. For the purposes of this paper we will concentrate on the American experience in the Second World War, with some references to British experience, from which so much was learned in both world wars. In the AAF in World War II, the integration of tactical and strategic air power in war took two forms. First, was the use of both fighter and bomber aircraft in conjunction with each other, frequently to accomplish a mission which met only one of the definitions provide above. That is, fighters and bombers operating in tandem to accomplish a strategic mission, or a tactical mission, but not designed and organized at the onset to do both. Second, was the employment of both fighters and bombers in an “integrated,” or composite, organization, intended to accomplish all of the missions required in a theater of operations.

Of thirteen air forces deployed overseas and committed to combat operations in one theater or another, from the Caribbean to Europe and the Far East, all but one were integrated to some greater or lesser extent. Six were designed as “single mission” air forces, intended for either tactical or strategic purposes primarily. The other seven air forces were truly integrated air forces, designed for the total range of air force missions. Post-world War II, as highly specialized commands, such as TAC, SAC, and MAC came to predominate in the structure of the new, independent, United States Air Force, the efficacy of integrated commands was forgotten. However, it is intended in this section to examine, through the use of historical examples, the chief factors which drive whether or not an air force organization is designed and employed to achieve essentially one mission only, but using both “tactical and strategic assets,” that is, aircraft designed for one or the other of the two missions, or whether the organization is designed and employed to execute the complete range of air force missions doctrinally prescribed.

Any application of air power is very much scenario dependent. It is interesting to see that the exceptions to the pattern of integrated employment of air power in World War II are generally much better known in the USAF than are the cases of complete integration. The

reason t that the exceptions to the normal pattern of organization and employment of AAF air power in World War II are well, known, compared to the examples in keeping with the norms of that pattern, has to do with the situational constraints which forced the adoption of the exceptions, and the size of the theaters of operations in which those exceptions are to be found.

In the Second World War, the US Army divided the world into three very large geographical areas, called “theaters of war.” Those were the American Theater, the European-African-Middle Eastern Theater, and the Asiatic-Pacific Theater. In turn, these were divided into numerous sub-theaters, which were called “theaters of operations.” The European-African-Middle Eastern Theater, the scene of the war against Germany, the national priority for the US and UK, included the European and Mediterranean Theaters of Operations, which required the commitment of vast resources and were, in their broadest sense, the largest land theaters to which American forces were committed on any appreciable scale. The result of this was that resources for the A/IF were so vast that they required a highly specialized force structure. Unlike many smaller theaters of operations, the AAF were forced to commit more than one numbered air force in order to command and control the vast array of assets required to carry on the air war in each of these theaters of operations.

This was partially the result of the fact that long before substantial ground forces could be committed to either of these theaters of operations, the AAF were able to begin the commitment of air forces specifically structured to carry on a “strategic air war” against Germany. The “Mighty 8th” was formed in the UK in 1942, at first on the plan of a multipurpose air force. Before long, however, and consistent with the prewar “bomber doctrine,” the doctrine of high altitude, daylight, precision strategic bombardment, the 8th Air Force began to “specialize.” The 15th Air Force, the second American strategic air force aimed at Germany, was organized at the end of 1943 on the emerging pattern of the 8th in England. Each of these air forces was structured as a specialized strategic air force, only gaining a fighter command with the realization of the utter necessity of long-range escort fighters, and their ensuing availability.

It is worthy of note that the “strategic fighter” which emerged, the P-51B, started life as a low-level reconnaissance and ground attack aircraft built to an RAF specification. It was a true tactical fighter in that first iteration. Thanks to the early recognition of the versatility of the airframe by Leigh-Mallory, Barney Giles, and Ira Faker, it evolved into a nearly perfect long-range escort for the European arena. The escort fighter, heretofore believed by most to be technologically impossible, grew out of the marriage of a versatile airframe to an exceptionally efficient and powerful engine, the one American and the other British. The subsequent inclusion of these specially designed strategic escort fighters in the two American strategic air forces, does not make those air forces, the 8th and 15th, example of integration of tactical and strategic assets, in spite of Davis’ apparent assertion to the contrary.<sup>6</sup>

Both of these air forces tend to be seen as “strategic” air forces because of their predominantly heavy bomber forces structure, and the mission to which they were committed, except in cases when the ground force commander diverted them to tactical operations of an “emergency” type. They are among the most closely studied cases of USAF history, and in spite of their clear specialization, Gen. Davis, in his article on the indivisibility of air power, cites the joint bomber--fighter organization of the 8th as an example of that indivisibility concept.<sup>7</sup> While that is undoubtedly an example of the “indivisibility” of air power, it does not equate to the “integration” of tactical and strategic assets, since both the bombers and the fighters were designed as strategic assets and employed in that role, short of emergency cases. Further, it is clear that victory in the air battle over Germany was won only after the AAF had relearned the necessity of escort fighters to support penetrating bombers from World War 1, which had been forgotten after 1923. It must be mentioned, however, that in other air forces we will see the P-51 being employed as a purely tactical fighter.

By the time of the invasion of the continent in 1944, additional numbered air forces, this time of a “tactical” nature, had also been fielded. These air forces represent yet another exception to what was the normal pattern of organization of numbered air forces in the AAF in the Second World War. The 9th Air Force was established in the UK to support 12th Army Group on the continent, and 12th Air Force had been established in Italy to support US Fifth Army in that

theater of operations. The result of this is that we tend to remember each theater of operations as having two separate air forces, one tactical and one strategic. That is not quite true, for a second tactical air force was established in the ETO in October 1944 when the 1st Tactical Air Force (Provisional) was created to support 6th Army Group. Each of these tactical air forces had a fighter force of one or more “tactical air commands,” plus a light/medium bombardment formation of one or more wings. These tactical bomber forces were precisely that, tactical forces for the tactical mission of the tactical air forces, not strategic assets assigned to a nominally tactical force structure. Just as the force structure of the 8th and 15th Air Forces does not represent “integrated” tactical and strategic assets, so the mixed fighter-bomber organization of the 9th, 12th, and 1st Tactical Air Forces does not represent an integration of those commands. These were highly specialized air forces, which could be, and sometimes were, diverted to missions other than those for which they were primarily organized, equipped, and trained. The employment of these air forces demonstrates the “flexibility” of air power generically, rather than provides examples of truly “integrated employment of strategic and tactical assets.

Before we turn to look at examples of integrated employment of air power in the Second World War, it seems important to establish factors of importance, besides the nature of the scenario. As we shall see in a brief discussion of Facker s role in the development of an escort fighter, and as we shall see in other instances, leadership is a crucial element in the equation. Indeed it is the first component of three in the triple core of this argument. Doctrine, growing out of study and analysis of the entire history of air operations is the second part of the triple core around which this argument is wrapped. The third component of this triple core is strategy and operations, at the theater campaign level.

Force structure, has already been mentioned, and it is in fact driven by a combination of the geographical nature of the theater and the mission to which the air force is to be committed. Thus, we find the 20th Air Force in the Pacific in 1944 taking on the look of the 8th in 1942: that of an all heavy bomber force. Like the 8th, the 20th evolved from an all (very) heavy bomber force into an air force which included long-range strategic escort fighters. When it took over the part of the Fighter Command from 7th Air Force in the spring of 1945, and re-equipped it with

P-51s for the long-range escort role over Japan, it again followed the course of the 8th in England. The use of the P-51s over Japan was made possible by the acquisition of Okinawa as a base for VII Fighter Command, since P-51s could not make the round-trip to Japan from the Marianas, as could the very long-range B-29s of XXI Bomber Command.

This is an example of yet another feature which drives force structure, the threat. In this case, the B-29s could survive against Japanese fighter defenses, but the cost was growing and could be reduced, by restructuring the 20th Air Force into a more rounded strategic air force with the addition of a fighter command and the provision of escorts over the target. Thus, in areas where air supremacy, complete and absolute air dominance, does not prevail for the offensive forces, air superiority, the ability to at least temporarily dominate the enemy air force in the contested area, can suffice, as was the case over Japan in the spring of 1945. When 20th Air Force took over the control of VII Fighter Command it was operating in a fashion consistent with central command and control of air power are essential to achieve maximum results with a limited force.

### **Part III: Doctrine, Operations, and the Integration of Tactical and Strategic Air Power, 1919 to 1941.**

If the reader is prepared to accept the submission that doctrine, if it is to be effective guidance for warfighting, must develop from operational experience, it follows that only by a close objective analytical study of experience can doctrine be developed which will be useful to the warrior. It is that objective analytical study which is, therefore, the most important item after the acquisition of the experience itself, and it is that objective analytical study which is the heart of the doctrinal “process.”<sup>8</sup>

Even before the Air Service had “doctrine’ per se, analysis began to give shape to the lessons of World War I. A reflection of that thought process is found in a lecture which Billy Mitchell gave to the Army War College, on 22 Nov 1922. In that presentation he gave the opinion that in a future war the RAF would have to resort to night boating because they had not

developed, nor were they in the process of developing, escort fighters. He further argued that day bombardment forces would require escort fighters if they were to reach their targets when opposed by another air forces. In his own way, he argued for “integrated tactical and strategic air power,” for at that time fighters were always “tactical” and bombers were becoming “strategic” assets. In retrospect, it is an amazingly prescient discourse upon the future. But whether consciously, or not, in light of his earlier quoted views on looking at the past, he was drawing on the lessons of the late war. Moreover, the evolving doctrinal concepts, only to be identified as “doctrine” with the publication of a draft doctrine manual the following year, reflected much the same line of thought as Mitchell put forward that winter day, so long before the AAF would have to relearn those lessons of cooperation in the skies over Germany, and those of integration of assets in other theaters.

As early as 1919 the first doctrinal ideas about aviation’s primary arm, pursuit aviation, were drafted in a provisional manual. These ideas stated Mitchell’s position, a position generally accepted throughout both the Air Service and the Army. The position was that pursuit was the dominant arm of aviation, that like the infantry in the Army (ground forces), it was the battle winner. Its principal role, or mission, was air superiority. Specifically advanced was the position that no bomber, or bomber force, could defy pursuit aviation’s efforts to control air space because pursuit aviation could effectively concentrate its firepower from any direction against the bomber force. Only pursuit aviation could contend with pursuit aviation, hence the need to escort day bombardment forces. In short, one of the first lessons of World War I was the usefulness, if not the absolute requirement, for “integration of fighter and bomber aviation,” if not the organizational and operational integration of tactical and strategic air power. Further, the pursuit aviation arm could be expected to attack personnel, equipment, airdromes, troop concentrations, naval vessels, and debarkation operations.<sup>10</sup>

The doctrine for the second part of “tactical air power,” attack aviation, was strikingly similar to that which would grow out of our World War II experience, and quite dissimilar to current concepts of “close air support.” In the 1920s Army and Air Service leaders agreed that the aim of attack aviation was to support the troops in the field, by attack upon targets such as

troop columns, tanks, roads, communications, airdromes, and cantonments. Army commanders wanted attack assets under their control, and Air Service leaders opposed the dispersal of air forces. Moreover, Army commanders wanted attack aviation to focus upon frontline operations, which would boost morale, including enemy trenches, concentrations of troops, and gun positions. Airmen believed such attacks were inherently wasteful and inefficient, stating that the proper targets for aviation were beyond the range of artillery, and should be supply and communications systems in the enemy rear areas.<sup>11</sup> Unstated, but as yet not forgotten, were the lessons extracted from the Air Services s World War I experience with air attacks on trenches. Airmen argued that air attacks upon the frontlines, the trenches, were not only inefficient, hut excessively dangerous because of the weight of fire which could be brought to bear on low flying aircraft. The “golden bee-bee” is not new.<sup>12</sup>

In 1923, in the immediate wake of the Great War, Air Service bombardment doctrine as published in the first postwar doctrine manual was centered around four key points:

1. Limited strategic bombardment (industrial attack) was possible.
2. Action in the theater of operations would he aimed at field target.
3. Attack of naval vessels (surface fleet units) was a viable mission.
4. Both day and night bombardment operations were feasible, but day operations would require pursuit superiority in order to achieve accurate bombing with acceptable casualties.<sup>13</sup>

It is interesting to look at the doctrinal positions of the Army Air Corps on bombardment aviation in the middle 1920s, for time seems to have dimmed men s memories of what operational experience had taught in the Great War. By 1926 bombardment had begun to replace pursuit as the dominant form of military aviation in the US Army. The experience of bombers requiring escort in daylight, as reflected in Mitchell’s 1922 lecture, was beginning to be disregarded. In spite of the clear statements in the World War I Bombing Survey that morale attacks in the form of indiscriminate bombing of enemy cities had no noticeable affect upon morale, that form of attack was advocated, albeit as a by-product of attacks upon targets of

military importance. These attacks were to be principally at night for reasons of lack of escort and to diminish the efficacy of the defenses generally.<sup>13</sup>

By 1933 the idea that the bomber was the principal aircraft of the future was on the way to being well-established at the Air Corps Tactical School (ACTS) at Maxwell AFB, just as Trenchard and Douhet had established it in their own air forces. In fact, “the (unescorted) bomber, once launched, will always get through” became an article of faith at ACTS, despite the arguments to the contrary by Chennault and a few others.<sup>14</sup> The lessons of World War I were, in fact, forgotten.

By 1941, when AWPD 1 was written, in only eight days in August, the bomber so dominated airmen’s minds in the Army Air Forces that all thoughts of “integration” of fighters with bombers were ruled out on grounds that “escort fighters were not technologically feasible,” a view particularly advocated by Air Chief Marshal Portal, then chief of the Air Staff in Britain.<sup>15</sup> This view was generally accepted in the AAF, albeit some fighter pilots had a rather different view. In fact the man who would form and fight the 8th Air Force until Dec 1943, Ira C. Eaker, had written a book before the war in which he argued that fighters could deny unescorted bombers the ability to operate in a given area.<sup>16</sup> Moreover, he was an advocate of escort fighters before the US entered the war. Following a trip to the UK, and conversations with the RAE about their operational experience to date, he pushed “Hap” Arnold as early as the autumn of 1941 towards the development of escort fighters. Arnold resisted, even after the 8th Air Force’s losses began to mount in late 1942. In the end, operational experience prevailed and the escort fighters became a top priority because of Eaker’s determination to abandon a doctrinal position which made no sense in the face of reality. “Integrated” fighter and bomber forces made no operational sense, but 8th Air Force had “reinvented a wheel.”<sup>17</sup>

It is clear that operations in World War I gave airmen in the US series of clear lessons, including the requirement that the several arms of aviation should work cooperatively together, in an integrated manner. From these lessons they developed doctrine for pursuit, attack, and bombardment aviation in the postwar years. It is equally clear that as the interwar years rolled on

towards the outbreak of the Second World War, many of the most important lessons were ignored, forgotten, or disbelieved. There appear to have been at least three reasons for this phenomenon.. First, one suspects it happened because of the growing preoccupation with available technology. The advent of the B-17 in the middle to late 1930s persuaded airmen to either disregard or disbelieve some of the lessons of the past. Since the B-17 gave the appearance of being indefatigable, especially because the US aircraft industry was slow to translate technological improvements into the pursuit/attack aviation world, the error is at least understandable. However, this error, committed in the face of resistance by men like Chennault, should not obscure the fact that the doctrine of high-altitude, precision, daylight bombardment of key components of the enemy's "industrial web" as a war-winning strategy was a brilliant conclusion by that collection of keen intellects at ACTS. Second, the contribution which strategic bombardment could make to the "hidden agenda" of achieving a separate service status was great indeed, but it should never have allowed men to divorce the realities of the operational past. I suspect that it did do so, but only to a limited extent. It cannot explain, for example, why escort fighters were viewed as no longer required. Only the preoccupation with technology, and the absence of appropriate fighter technology to go with the developing bomber technology would seem to account for that problem.

Third, the intimate connection between operational experience in World War I and the development of air doctrine weakened as airmen got further and further away from that experience. Those who had the experience became fewer in numbers, and those who were left had been young officers, men least concerned with doctrine and lessons at the time the war ended. The close cooperation between arms of air power, pursuit and bombardment aviation was also disregarded or forgotten as time passed. One consequence of all of this was the relegation of attack aviation to the role of "Skeleton in the closet," at least until "blitzkrieg" made its debut. The other, and more important, consequence of all of this was that the Army Air Forces would enter the Second World War with faulty doctrine, faulty force structure, and a strategy for winning the war which would take so long to execute, because of the seriousness of these faults, that its efficacy would remain in doubt---with serious consequences for thirty years after V-J Day.

Army Air Forces doctrine in 1941 was laid down in FM 1-5, dated 15 Apr 40, entitled Air Corps Field Manual: Employment of Aviation of the Army. In Para. 3, Combat Aviation was defined as pursuit and bombardment aviation, together with reconnaissance aviation units equipped with bombardment aircraft. Paras. 8 and 9 specified that the commander of aviation units in the field was the staff officer for aviation to the commander of the organization to which his aviation unit was attached for operations. Para. 9 stressed that, “control of air operation was vested in the higher authorities, presumably ground force commanders. 18 Generally, the manual reflected what might be described as “conventional wisdom” about air operations, expressed at the simplest level. Primarily it focused upon the roles and missions of the various aviation arms, pursuit, bombardment, training, and so on. Pursuit aviation as seen as an “antiaircraft defense,” that is, as a defensive counter air force in current terminology, to which three pages of the six page chapter on pursuit aviation were devoted.

With FM 1-5 firmly tucked in his baggage, the air warrior of 1942 went to the United Kingdom and North Africa to test his mettle in the arena of the Luftwaffe. Bombardment aviation spent 1942 and 1943 relearning the lessons of 1917-18 and the need for the technologically impossible escort fighter and the efficacy of “integrated fighter and bomber assets.” Pursuit aviation, renamed Fighter Aviation by January of 1943, when a revised FM 1-5 appeared on the reading racks of squadrons, earned its spurs in North Africa under circumstances so well known as to not bear detailed retelling here.

Suffice it to say that at Casablanca in Jan 1943, just as the new, more “offensively” worded, FM 1-5 was appearing, the Allied leaders decided that central control of air power, hence the integration of air power assets described as tactical and strategic, was the only way to win the counterair battle over Tunisia. The British Chiefs of Staff put forward the proposal which was ultimately adopted, and it was modeled on the organization of the Royal Air Force in the United Kingdom, and counted to the Western Desert Air Force s doctrinal ideas.<sup>19</sup> These latter were transferred to the AAF by “Mary” Coningham, who became the commander of the 1st Tactical Air Force. This was better known to Americans as the Northwest African Tactical Air

Force (NATAF), a component of Spaatz's Northwest African Air Forces (NAAF), a composite air force including both a strategic and a coastal air force in addition to the tactical air force. In this command arrangement a theater air commander coordinated and commanded tactical, strategic, and coastal air forces, each equipped with air assets and units deemed appropriate, regardless of the type of equipment they used.

In the wake (47 the North African campaign, and the success of the theater air forces command structure, there appeared the now famous doctrinal publication, FM 100-20, Command and Employment of Air Power, dated 21 Jul 43. Once again, operational experience gave birth to air power doctrine, by reinventing the World War I wheel. The salient points in the new doctrinal statement may be summarized thusly:

1. Air forces and land forces are coequal and interdependent.
2. Air superiority is the first task of air power.
3. Central control of air power allows its concentration on successive targets and maximizes its flexibility.
4. Air force commanders will exercise control over the air forces in a theater, under the direction of a "superior commander."<sup>20</sup>

Of the greatest importance to us, in considering the concept of integrated air power, is Chapter 1 "General," Section III. "Organization," which says:

In a theater of operations, there will normally be one air force. . . ( for which there is no set organization I. However, the normal composition of an air force includes a strategic air force, a tactical air force, an air defense command, and an air service command.<sup>20</sup>

This organizational concept was the basis for the examples of integrated air power which were the normal and standard approach to the employment of air power by the AAF in the Second World war.

## **Part IV: Doctrine, Operations, and Integration in World War II**

The nomenclature of the Army Air Forces in the Second World War is an interesting phenomenon which requires some comment for the sake of clarity. It will be remembered that in FM 100-20, dated 21 July 43, normally one air force per theater of operations was specified. And, it will also be recalled that said “air force” was generally to be composed of “a strategic air force, a tactical air force, an air defense command, and an air service command.” It further stated that such an air force might also contain troop carrier and/or photographic aviation. It is to be noticed that an air force” could include other “air forces” of strategic or tactical character. To solve this confusion two solutions were adopted, one for the “combined arena,” and one for the “national arena?”

### **THE COMBINED ARENA SOLUTION: NORTH AFRICA AND THE MEDITERRANEAN**

In North Africa, where we first worked in a combined theater with true “combined forces,” the first attempts were made, largely on an experimental basis, to develop a combined air force operation. The influence of that solution appears in the passages of FM 100-20 dealing with the organization of a US theater air force. The solution in the North African trial case was to call the theater air commander’s headquarters an “air forces” command, and its subordinate components “strategic air force,” “tactical air force,” and “coastal air force.” Thus, Tooey Spaatz’s theater air force was the Northwest African Air Forces, composed of the Northwest African Tactical Air Force, the Northwest African Strategic Air Force, the Northwest African Coastal Air Force, the Northwest African Troop Carrier Command, the Northwest African Training Command, and the Northwest African Photographic Reconnaissance Wing, plus appropriate service components. The US 12<sup>th</sup> Air Force was committed to that theater as a “composite” air force, that is, one with “integrated” strategic and tactical assets.<sup>23</sup> Its components, XII Fighter Command, XII Air Support Command, and XII Bomber Command, were ultimately absorbed into the Northwest African Air Forces structure. The Western Desert Air Force and the (British) Eastern Air Command, which had respectively been organized to

support British 8th and 1st Armies, were also absorbed into the Northwest African Air Forces under Spaatz.<sup>24</sup>

American units were committed to each of these six “air forces/commands” as were appropriate, and by the close of the campaign the force structure was fairly elaborate. Northwest African Strategic Air Force (NASAF) controlled three AAF bomb wings, each equipped with a single type of bombardment aircraft and a single type of fighter aircraft, under the command of Doolittle (American). The 42nd Bomb Wing had three B-26 medium bomb groups and one P-40 fighter group for escort work. The 5th Bomb Wing controlled the four B-17 groups, as well as two P-38 groups for escort missions. The 47th Bomb Wing contained the two B-25 medium bomb groups and one P-38 fighter group for escort operations.<sup>25</sup>

Northwest African Tactical Air Force (NATAF) controlled the Western Desert Air Force, the Tactical Bombing Force (TBF), including the US 47th Bomb Group equipped with the A-20, a twin-engine light bombardment aircraft, and the XII Air Support Command, all under the command of Coningham (British). The XII Air Support Command was intended, under existing US nomenclature, to provide air support to ground forces, what we might describe as CAS, BAI, and possibly AI. It was composed of one Spitfire group and one P-40 group, two A-36 (Allison-engine Mustangs designed as dive bombers) groups, called fighter-bomber groups, and a single observation (reconnaissance) squadron. This force structure allowed the NATAF to conduct a wide range of ground support missions, including relatively deep interdiction with the twin-engine aircraft of the 47th BC, and the RAF units of Sinclair’s TBF.<sup>26</sup>

The Northwest African Coastal Air Force (NACAF) included three US fighter groups, two with P-39s and one with Spitfires, under the command of Lloyd (British). It also came to include three US night fighter squadrons, equipped with the British built Beaufighter.<sup>27</sup>

The Northwest African Troop Carrier Command (NATCC) included two AAF troop carrier wings, each composed of three C-47 equipped troop carrier groups, and it was under the command of Dunn (American). The Northwest African Photographic Reconnaissance Wing

included the US 3rd Photographic (Reconnaissance) Group, and the wing was under the command of Roosevelt (American).<sup>28</sup>

It is worth noting that the British provided a larger command structure in the Mediterranean, with the creation in February of 1943 of the Mediterranean Air Command, encompassing the whole of the Northwest African Air Forces, Middle East Air Command, based in Cairo, and RAP Malta Air Command. This, in effect, was a “theater” command in a larger sense, for it then encompassed both US and British air assets over the whole of southern Europe, North Africa, and the Middle East. It came pretty close to including all of the US theater called the European-African--Middle eastern Theater, save it excluded the US forces then in the UK, as well as the RAE there. It was, in short, a command much larger than a US theater of operations; hut smaller than a “theater” proper. By our standards it was a command too large, and the British seem to have finally come to that conclusion, based on its later dissolution.<sup>29</sup> During the Kasserine battles XII Air Support Command flew close air support missions and the tactical bombing force flew battlefield air interdiction, with some of their A-20s sustaining damage due to flying through the radio aerials on German armored vehicles. P-38s from the NASA? were diverted to close air support, as were reconnaissance aircraft of the 154th Observation Squadron. In short, the day was prolonged, if not saved, by central command and control of theater air power in an “integrated’ air force.<sup>30</sup>

It was this North African experience with integration of tactical and strategic assets which gave rise to the provisions of FM 100-20 and AAF doctrine for the balance of the war. In North Africa the AAF, and the Army, had to learn that the counter-air battle had to be fought and won before air power was free to employ its flexibility, range, and firepower against enemy ground forces. Once air power could do that, it was very much a battle winner. But it was integrated air power which could do that best, just as it was integrated air power which gave the flexibility and capacity to concentrate the effort. The requirement to win the counter-air battle first allows stress upon another, perhaps more important lesson. No matter the target set in the target array selected by command as the priority, it must be the enemy’s center of gravity, and once embarked upon its destruction, air power must stay with it until it is destroyed. Then sir

power must stay on that original target set to keep it “down,” even after the second, and subsequent, target sets in the target array are taken under attack. The second combined arena experience can be dealt with in much less detail, for it is a direct outgrowth of the North African experience. When it was decided to carry the war into Europe from the south, prior to an invasion of France, it was clearly going to be another combined effort. In the wake of the invasion of Italy, the Northwest African Air Forces were reorganized and redesignated Mediterranean Allied Air Forces, under the command of Ira C. Eaker, late commanding general of the 8th Air Force. The strategic air force, Mediterranean Allied Strategic Air Force (MASAF), was commanded by Nathan Twining (US), after Doolittle went to the 8th Air Force. Twining, it is worth noting, had formerly commanded the 13th Air Force in the South Pacific Theater of Operations, a composite, or integrated, air force. In the Mediterranean, Twining was also commander in his own right of the chief component of MASAF, 15th Air Force, which would finally grow to five heavy bombardment wings, of 21 heavy bomb groups, and a fighter wing of seven escort fighter groups (all P-38 and P-51-31 aircraft). The British component was a heavy bomber group, No. 205.<sup>31</sup>

When Northwest African Tactical Air Force became Mediterranean Allied Tactical Air Force (MATAF), Coningham was succeeded by John K. Cannon, also the Commanding General of 12th Air Force, the American component of MATAF.<sup>32</sup> The Desert Air Force, now under Harry Broadhorst, and later the Balkan Air Force, were the other components of Mediterranean Allied Tactical Air Force, for the duration of the war.<sup>33</sup>

Northwest African Coastal Air Force became Mediterranean Allied Coastal Air Force, under the command of AVM Sir Hugh Lloyd, and absorbed Malta Air Command and US XII Fighter Command, then under Pete Quesada, later commander of IX Tactical Air Command in the ETO. It also included No. 242 Group, RAE to round out its order of battle.<sup>34</sup>

Although Eaker’s strategic air force was committed to the Combined Bomber Offensive, as with the 8th Air Force and Bomber Command in the UK, from time to time it was required for intervention in the tactical arena. Thus, the advantages of an “integrated” air command were

available when needed, to “influence” the ground battle. Eaker’s view of such intervention is interesting, since he had commanded an essentially “pure” strategic air force in the UK, and because he believed in the bomber offensive, even though he now commanded an “integrated” air force. In the aftermath of the Salerno landings, a near-run show at best, and the decisive intervention there of naval gunfire and an all-out effort by theater strategic air power, Eisenhower sent a signal to the Combined Chiefs of Staff proposing a “principle.” He urged that in the wake of an amphibious landing that all forces, land, sea, and air, be committed to support of that landing until its successful establishment ashore was assured. At Anzio, in the early months of 1944, this principle was followed. In the later Cassino battles it was applied again, albeit the assault operation was not one of an amphibious nature. Eaker, in the light of these operations summarized his views, a commentary upon the integration of strategic and tactical air warfare in his experience.

Heavy bombers should, as a matter of principle, never be employed in close support operations where there is an adequate Tactical Air Force present for the task... This does not mean that heavy bombers will not and should not join in a defensive situation...to save heavy casualties or the loss of a battle... Commanders must, however, have a clear conception of the difference between emergency defensive measures and normal offensive operations. The general principle, which is believed to be sound, is that all arms and weapons should be kept to their normal roles, for which they are trained and equipped and diverted to other tasks only in rare instances of real emergency.<sup>35</sup>

In the combined arena then, a solution British in its origins, was adopted for use in the AAF for purposes of organizing air forces in a theater of operations, and on a larger scale as well. Moreover, most of the doctrine adopted for the implementation of operations by that air force organization, was of British origin, growing out of their wealth of combat experience. Only in the matter of strategic bombardment, the one area in which the prewar Air Corps had done a great deal of long and hard doctrinal development, did the AAF and RAF part company to a significant degree. Other departures were largely of little importance, and often were rooted in intrinsic differences of national outlook.

## **THE NATIONAL ARENA SOLUTION: SELECTED “CASES APPROPRIATS”**

In the cases where American air forces were going to fight without the direct and immediate involvement of other national air forces, or where the involvement of other national air forces was minimal, the AAE adopted a solution similar to that for the combined arena. Since this “national solution” was very widespread, we will examine only two cases in any detail. The “composite” or “integrated” air force was, however, the norm in virtually every case.

Worldwide, the AAF deployed all of the numbered air forces from 5th through 15th, plus 20th. We have already met several of these in the Mediterranean and European theaters of operations, and the 20th in the Pacific. We have seen how the 8th, 15th, and 20th were all specialized strategic air forces, but with both fighter and bomber assets due to force of circumstances. The two tactical air forces which we have seen, the 9th and 12th, were also mixed fighter and bomber forces, though the bombers were of a “tactical type,” as opposed to the heavy “strategic” bombers. The six truly “integrated” air forces were deployed in the huge Asiatic-Pacific Theater. The 5th Air Force was formed in and deployed to the Southwest Pacific, the 7th to the Central Pacific, and the 10th to Burma. The 11th Air Force served in the North Pacific, the 13th Air Force fought in the South and later Southwest Pacific, and the redoubtable 14th Air Force served in China. All of these air forces were composite, or integrated, air forces for virtually all of their existence. We will look at the 5th Air Force, in the Southwest Pacific, as being somewhat typical of the four “Pacific” (Oceanic) air forces which saw combat. The 11th, base chiefly in Alaska, fits this pattern least completely. That fit is less than perfect, for fairly obvious reasons of dissimilar geography, proximity to friendly homelands, inaccessibility of the enemy, and so on. The other choice is 10th Air Force in Burma, to represent the two “Asiatic” (mainland) air forces, which faced rather different problems than the Pacific air forces found, and because it is the single example of an air force only partially “integrated,” while having the simplest organization of all.

The composite air force organization in the AAF predated the development of the combined arena solution, which included a “coastal air force” in the examples we have already

seen. The division of labor in a composite air force was usually a fighter command and a bomber command, normally with only one of each. There existed the possibility of an air support command, a rather unique US concept to provide air cover to the ground troops. Further, there were often troop carrier, or other commands, but these latter varied in most of the deployed integrated air forces contingent upon some of the same factors which affected the integration question. Those other commands were, quite naturally, mission contingent.

### **THE 5th AIR FORCE: WAR AMONG THE ISLANDS**

The organization of 5th Air Force as an integrated air force developed over the course of the war in the Southwest Pacific. Its peak strength came in November 1944, but its shape was complete while fighting in New Guinea was nearing its height during the summer of that year. Under Major General George C. Kenney, CG of 5th Air Force, were a series of commands. These were the V Fighter Command, V Bomber Command, 54th Troop Carrier Wing, a pair of reconnaissance groups forming, for some of the time, a reconnaissance wing, three night fighter squadrons, and at least one combat mapping squadron.<sup>35</sup>

Kenney formed the 5th Air Force from the AAF units he found in Australia on his arrival there in the spring of 1942. After an inspection of parts of the command and a review of unit performances to date, he concluded that things were in “a mess.” He sought out officers to command the components of his new 5th Air Force, including Wurtstnith, CO of the 49th Fighter Group, for V Fighter Command, Ken Walker for V Bomber Command, and others. He sought men who were, in his turn of speech, “operations,” an expression still in vogue in the USAF. But his operators, such as Walker, were often bright and intellectual men who had studied war thoroughly, as well as being keen and capable pilots themselves.<sup>36</sup>

Kenney was an innovator himself, and had a keen appreciation for others of the same bent. He recognized that his available fighter aircraft were below the standards of available Japanese airframes, and so, resolving to contest control of the sky over northern Australia and New Guinea, he set to work. He used his best fighters, the P-40s, over Darwin, for air defense. In

order to open the battle for air superiority, he resorted to one of his favorite approaches, the use of attack aviation. By reworking the noses of A-20, B-25, and other light and medium bombardment aircraft, by placing 4-6 heavy machine-guns from wrecked or unusable fighter aircraft in them, he created formidable ground-attack aircraft for use in offensive counter-air and anti-ship roles. Remembering an experiment he had conducted in 1928, before he left the US he asked to have the remaining 3000 “parafrags” made that year sent to Australia. These were 23-lb. fragmentation bombs on a small parachute, to be dropped at low-altitude. They could “cover” an airfield and create havoc among unsheltered aircraft. They were virtually an “area clearing” weapon. Once he had the attack aircraft rigged with special bomb-bays to handle them, they proved an extremely efficient offensive counter-air weapon.<sup>37</sup>

He opted to separate his AAF units from Austral tan units, even though he was an “Allied air forces commander. He later used RAAF Spitfires, under RAAF command, to defend Darwin, as he moved 5<sup>th</sup> Air Force into offensive battle over New Guinea. His new commanders were aggressive in carrying the fight to the enemy, in improvising to cope, and in raising the “sortie generation rate,” almost astronomically, as compared with what had happened before his arrival. With great persistence, he sought, and began to receive, P-38s to redress the air-to-air balance. In spite of its problems in Europe, the warm climate of the Southwest Pacific was heaven for the P-38s “blowers” and engines, and it performed like a champ in its “envelope.”<sup>38</sup>

The V Fighter Command controlled two fighter wings, 85th and 86th, each of two or three fighter groups. At peak strength, roughly November 1943 to February 1945, there were six fighter groups in V Fighter Command, which owned all of 5th Air Force’s fighter assets. These included the 547th, 418th, and 421st Night Fighter Squadrons equipped with the P-61E, modified by the removal of the top turret.<sup>39</sup>

The V Bomber Command had three bomb wings assigned, 308th, 309th, and 310th, which controlled a total of nine (9) bomb groups. These groups included two light (A-20) groups, three medium (8-25) groups, and four heavy (B-24) groups. At various times some of these groups, or others, flew E-17s, A-24s, or B-26s. Near the end of the war one light group was

re-equipping with the very heavy 8-32, and a medium group with the A-26. Of great interest is the fact that these three bomb wing headquarters were more often known by their “other names,” the 1st, 2nd, and 3rd Air Task Forces, operating as “integrated” commands to control all of Fifth Air Force’s aircraft in a particular area of operations. In effect, they were most often used as miniature tactical air commands, usually under the direct control of the Advanced Operational Nucleus (ADVON), Fifth Air Force (advanced HQ)<sup>40</sup> The 54th Troop Carrier Wing, near the end of the war augmented by the 322nd Troop Carrier Wing, controlled four C-47 troop carrier groups, and later a combat cargo group. Late in the war several of these groups began to re-equip with C-46 aircraft. The 5th Air Force also had the 91st Reconnaissance Wing, formed in MAR 44, consisting of the 6th Photo Recon Group (F-5/F-7) and the 71st Recon Group (P-38/B-B-25) [Tac Recon Grp May 44-May 45], the former including the 20th Combat Mapping Squadron which was attached and later made organic to the 6th Group.<sup>41</sup>

This integrated air force fought through the early stages of the New Guinea campaign, slowly building its strength, skills, and savvy about warfare in the “bush.” Its initial fighter strength was built around the P-39 and P-40 aircraft, which simply could not contend with the Japanese Army and Navy Air Forces flying much better aircraft. This led Kenney, a leading proponent of attack aviation, to build his counterair effort around his A-20, 3-26, and B-25 type aircraft. They struck Japanese airfields, bases, depots, sea lines of communication, and any other appropriate target set. They flew interdiction missions, and close support of a type which might best be described in today’s terminology as battlefield air interdiction. Close air support was hardly ever flown, due to the difficulty in distinguishing between troops in contact in the mountainous jungles of New Guinea.<sup>42</sup>

With the few B-17s, and later B-24s, available, heavy units joined the attacks, chiefly to increase the weight of bombs or reach targets hard to get at with shorter-range aircraft. Rabaul, a major node on the sea LOCs, an air base, and harbor, was often a target of the heavies. It was on one such raid that V Bomber Command’s CG, Ken Walker, of the old ACTS staff, was lost (5 Jan 43).<sup>43</sup>

Later in the war missions of a “strategic” character, against oil fields in Borneo and the Dutch East Indies, were flown by the heavy bomb groups of V Bomber Command. The bombardment aircraft of the 5th, along with those of the 7th and 13th Air Forces, made major contributions to the cessation of shipping movement along 35 of the 47 regular convoy routes from the Empire to the Japanese home islands by early March of 1945.<sup>44</sup> Of course, the other major player, the dominant influence in that cessation, was the submarine service. The two forces, tactical air forces, including carrier aircraft, and the submarine force, were reinforced by the efforts of XXI Bomber Command, which laid more than twelve-thousand mines in Japan’s “inland” waters, in four and a half months.<sup>45</sup> The strategic impact of these efforts by the three Pacific based “integrated” air forces, was very substantial indeed, when coupled to the strategic air attack upon Japanese industrial centers by the 20th Air Force itself. These “strategic efforts” by the 5th Air Force demonstrate the wide-ranging abilities of a balanced, well employed, integrated air force.

Early in the New Guinea campaign the fighters flew ground support operations, but primarily engaged in escort of troop and cargo transports over the Owen Stanley Range. The early equipment of the fighter groups, as noted above, did not permit anything like equal combat with tan enemy air-to-air. When the P-38s began to reach the fighter groups the air-to-air scenario changed quite rapidly, with the AAF Faring much better in the exchange ratio. As attrition took an increasingly heavy toll of Japanese fighter pilots, and American training facilities produced huge numbers of well-trained pilots, that exchange ratio steadily worsened for the enemy. In fact, the 5th Air Force could boast the two highest scoring American aces early in 1945, in Ira Bong (40 victories) and Tom McGuire (38 victories), both P-38 pilots, respectively of the 35th and 475th Fighter Groups. But throughout the life of the 5th Air Force in World War It, it was attack aviation which predominated as the chief weapons system for offensive operations.<sup>46</sup>

On 15 Jun 44 HQ Far East Air Forces (FEAF) was created at Brisbane, Australia, with General Kenney as Commanding General. FEAT included both 5th (MG Ennis C. Whitehead) and 13th (MG St. Clair Street) Air Forces from that date. Two field armies were available to

MacArthur's GHQ Southwest Pacific, the 6th and the 8th Artnies. Generally, the 5th Air Force supported Kreuqer s 6th Army and the 13th Air Force supported Eichelberger's 8th Army, in the ensuing campaigns, just as the 5th had been supporting the 6th Army, or Alamo Force, in New Guinea since it entered operations in 1943. This relationship between armies and air forces resembled that effected in the ETC and PITO between Tactical Air Commands and field armies. In point of fact, the relationship was not only very similar, but the structure of the integrated" air force was close to that of a TAC.

In the final months of the war in the Pacific, Far East Air Forces under George Kenney commanded three separate composite air forces , the 5th Air Forces and 7th Air Forces based on Okinawa and Iwo Jima, and the 13<sup>th</sup> Air Force supporting 8<sup>th</sup> Army in the final clearing of the Philippines. A part of 7th Air Force, VII Bomber Command, was under the command of the US 10th Armys "Tactical Air Force,' on Okinawa. That tactical air force was commanded by a Marine air general, as "air component commander," to use the modern term.<sup>48</sup>

The 5th Air Force experience demonstrates one of several methods for the organization and employment of integrated air assets in a theater of operations, which required a wide-range of air power applications. Its operations are strongly marked by innovation in the form of employment, with great success, of aircraft in roles for which they were not originally designed. The diversity of operations, and the employment of a wide-range of aircraft types in those diverse activities, demonstrates the flexibility of air power. The degree, to which the theater commander left the air component commander to fight the air war and to be there when the ground forces needed air efforts, is an essential to the success. A rather different, but equally successful approach by the theater "boss" is to be found in our next example, that of the 10th Air Force in Burma, working for a British theater commander.

### **THE 10th AIR FORCE: WAR ON THE ASIAN MAINLAND**

In 1942, as the Japanese over ran the Philippines, the American air force there, Far East Air Force,<sup>49</sup> was forced to retire to Java. From there, large elements moved to Australia, and

formed part of those forces, which Kenney inherited when he arrived there. The balance of the FEAF, under MG Lewis H. Brereton, withdrew to India for assignment to the incoming Headquarters. 10th Air Force activated 12 Feb 42 at Patterson field, Ohio.<sup>50</sup> When Brereton arrived in the China—Burma—India Theater and assumed his new command, 5 MAR 42, it was assuredly the world's smallest air force. The 9th Bomb Squadron was his only combat unit, and it had only five airframes, being equipped with 2 LB-30s, 2 B-24s, and 1 B-17. The first mission of the 10th Air Force was to fly a British rifle battalion from Bengal to Magwe, Burma, between 8 and 13 MAR 42, a harbinger of things to come.<sup>51</sup>

The experience of the 10th Air Force is, in some respects, very much like that of the air forces in the Mediterranean Theater of Operations early in the war, inasmuch as it was committed to a “combined” theater of war. Although we will look at its organization and command structure, as well as the type of operations to which it was committed, after 20 JUN 44,<sup>52</sup> its parts frequently were assigned for tactical purposes to other, often temporary, commands, and its own commanding general was often dual-hatted, commanding a strategic air force, or a tactical air force, as circumstances might dictate. Nonetheless, the 10th was always under the command of its own CG because these arrangements were relatively short-term, loans, which often changed with changing circumstances. The parts returned from time to time, so that he might own only some, or all, of his air force, at any given point in time. It might be fair to say that the 10<sup>th</sup> Air Force was organized as an integrated air force early in the campaign, took on many aspects of the “combined arena solution,” and later, at the end of the campaign, returned to the “national arena solution.” In this respect, at least, it is an extremely interesting organization, the changes to which we have not adequate time to study in the detail required to achieve real understanding of the factors driving the changes. This example might best be termed a look at a “partially integrated” air force, in a theater which required constant changes in organization, command assignments, and related arrangements. It may be a most useful example of how a great deal may be achieved by very bright commanders who are themselves as flexible as air power is reputed to be.

After MG George E. Strateineyer arrived in the 031, in August, 1943, assuming command of Eastern Air Command, the headquarters which controlled operations in Burma, the Tenth Air Force found itself increasingly committed to joint, that is, “combined,” operations, and the command structure in the theater came more and more to resemble command structures in the European-African-Middle Eastern Theater.<sup>53</sup> Sometime before Strateiueyer’s arrival, the China Air Task Force of 10th Air Force, commanded by PG Claire Chennault, became 14th Air Force (MAR 43), and thereafter, the 10th devoted all of its efforts to operations in India and Burwia.<sup>54</sup>

The structure and missions of the 10th looked very much like those of the 5th Air Force in its island campaigns, with some interesting exceptions. There were no “commands,” or “wings,” between the Air Force HQ and the flying groups. HQ 10th Air Force directly controlled its fighter forces, which never exceeded three fighter/fighter-bomber groups, the 33rd, 91st. and 80th Fighter Groups, and the 311th Fighter-Bomber Group being under command at various times. Since the CBI, later the India-Burma Theater, was never very high in the logistical prioritization scheme, until mid-1944 the 10th Air Force s fighter equipment was poor in comparison with other theaters, or even the British fighter forces in Burma, which carried much of the air-to-air battle with their Hurricanes, and Spitfires from Sep 43, limited though their numbers were.<sup>55</sup> The 10th Air Force also controlled directly its three bomb groups, the 7th with B-24s, and the 12th and 341st equipped with B-259s and Js. The 8-259 was an outgrowth of Kenney’s attack aviation philosophy, with Sx.50-cal heavy machine-guns and a 75mm cannon in the nose, plus being able to carry some thirty-two hundred pounds of bombs. The 1st Liaison Group (Provisional) was equipped with L-1, L-4, L-5, and C-64 aircraft for work behind the front, or in cooperation with long-range penetration forces behind enemy lines. The 8th Photographic Reconnaissance Group, with a peak strength of four squadrons, was equipped with F-4, F-5 (both P-38 airframes), F-6A (P-51s), and F-7A (B-24s set-up for combat mapping) aircraft. This group was the backbone of the theater PR effort, without which intelligence would have had a most impossible task in trying to keep track of the Japanese in a timely way.<sup>56</sup>

Perhaps the most unique aspect of the 10th Air Force's operations in Burma came in the area where the majority of its assets were concentrated, the tactical airlift business. The 10th owned no less than six troop carrier, combat cargo, and air commando groups at peak strength. They are a story unto themselves, but aside coin tile two air commando groups which each possessed a pair of P-51A equipped fighter squadrons, their assets do not fall into the "tactical vs. strategic 'pattern of interest here.<sup>57</sup> It is also important to note that the airlift forces were generally operated under a British commander, as part of a combined Anglo-American tactical airlift forces, to support XV Corps in the Arakan and 14th Army in the Central Burma campaign of 1944-5.

In the 10th's tighter community, the 51st Fighter Group flew P-40E and P-401 (aircraft its entire time in Burma, moving with that equipment to China and 14th Air Force in October 1943. The 80th Fighter Group first flew P-40N aircraft, but re-equipped with P-47D (razorback) aircraft in mid-1944. The 33rd Fighter Group arrived in Burma in FEB 44 equipped with P-470s (razorback), which it took to China Lb.' next month. However, it returned to 10th Air Force later that same year, and re-equipped with P-38Ls. The 311th Fighter-Bomber Group arrived in Burma in SEP 43 equipped with A-36As. Before long its first two squadrons began to re-equip with P-51As, one of the earliest versions of the redoubtable Mustang, but still Allison-engined, as was the A-36 variant. Only in the summer of 1944 did the group receive a full complement of P-51Bs. The two independent fighter squadrons in the 10th were the 459th, with P-38s of several marks, Hs, followed by Js, and then Ls, and the 427th Night Fighter Squadron with P-61As, the late model without the four 20mm cannons in a top turret.<sup>58</sup>

How were these fighter and bomber, especially the heavy bomber, forces employed by 10th Air Force? The single heavy bomb group was employed in operations of a "strategic" character, that is attack upon theater "strategic" targets. However, it was usually under the command of the theater Strategic Air Force, rather than under the 10th per se. At one point, however, the 10th's commanding general was the SAF commander also. 'The B-24s were committed to strikes, for example, on Thailand, Rangoon and Port Blair in the Andaman Islands, including significant Imperial Japanese Navy fleet units in the harbor there. Attacks were

mounted against sea lines of communication, including mining operations, logistical centers and nodes, railways, and key bridges. In this latter regard the 7th Bomb Group's 493rd Bomb Squadron employed a "guided bomb," the Azon bomb. The Azon bomb, for Azimuth only, was an M-65 1000 lb. bomb with a fin assembly that permitted a bombardier to visually sight the bomb and guide it on to a target by radio signals, which could change the Azimuth, but not the range, of the weapon. It proved very successful in "bridge busting" operations, especially where the target had proven to be very difficult to hit, or to hit with sufficient frequency as to keep it out of action. In an effort to impact Japanese theater resources, raids were made as far away as the Malay peninsula, striking the railroads running from Singapore to the Burma front. These strategic raids received fighter escort if the targets were expected to be defended, as, for instance, when the heavies went to Rangoon. Other targets were generally not defended, for the Japanese had no radar in theater, nor did they have the capacity to mount a coordinated air defense effort. If a target could be expected to be defended, the heavies might opt for a night mission, as was the case with the very first attack upon Port Blair, on 2 Apr 42, which was a 1600 mile round trip mission.<sup>60</sup>

The tactical forces, the medium bombers and fighters, were chiefly employed in A forts which were closely akin to modern concepts of "battle air interdiction" or air interdiction missions. Mediums, usually in concert with the tactical fighters, struck railways close behind the front, as well as roads, waterways, which were a significant mode of transportation in Burma, for both sides, and any traffic, which could be discovered. The mediums, like the heavies, often required at least some protection from Japanese fighters, particularly when offensive counterair efforts took the attackers into airfields which might have some prior warning from ground observer posts. These tactical fighters were often diverted to support the theater strategic bombing effort, and a number of P-51As were lost this way. In spite of being designed as low-altitude "fighter-bombers," P-51As were used for a wide range of other tasks, such as bomber escorts.<sup>61</sup> An interesting aside is the conversion of a small number of P-38s to a "bombardier nose" arrangement to allow them to drop the 1000 lb. AZON bomb used by the B-24s. This cross-fertilization within the 10th Air Force shows some of the advantages of even the partially integrated command structure of the organization during the campaign.<sup>62</sup>

The fighters in the air commando groups were often used to escort cargo aircraft, as were any other fighters, which might be available to the 10th. The tactical airlift was a theater strategic weapon, for the 14th Army, in its advance into the Irrawaddy valley, and on to Rangoon, received 77% of its daily consumables by tactical airlift. Its divisions had been organized to operate on about 130 tons of consumables per day of operations. Thus, fighter escort of these forces, which flew very close behind the moving front, made a major strategic contribution.<sup>63</sup>

In summary, the integrated, or at least partially integrated, 10th Air Force covered a full range of air force missions, with limited assets, often flying missions with a particular type of aircraft other than one which had been designed for the mission. It was a small air force, with fewer layers of command between AFHQ and the cockpit than almost any other air force committed to combat overseas during the war. Its force structure was the most balanced, albeit the weight was on tactical airlift, to use a modern turn of phrase. Its mission profiles ranged from long-distance over water operations, “strategic bombardment,” strategic mining of sea lanes, theater and battlefield interdiction, long-range escort missions, for bombers and transports, close support, tactical and strategic reconnaissance, to puddle-jumper liaison work and glider operations. It flew the first YR-4 helicopters in a combat theater, under the original air commando organization. It employed the earliest “smart munitions,” and fought a war, which looks, in some respects, very much like a more recent war in southeastern Asia. It was, in many respects, a uniquely “integrated” air force, employing tactical and strategic assets over an amazingly wide range of missions and conditions, and what such a force might accomplish is exhibited in its results, in its contribution to an Allied victory.

The 10th Air Force, in concert with the Royal Air Force and the Indian Air Force, won the air superiority battle over Emma, chiefly in the spring of 1944. Finally they drove the Japanese 5th Air Army from the skies over Burma, the extent that the latter could do little or nothing to interfere with forward resupply of the advancing ground forces, strategic attacks upon Japanese theater resources, or even tactical support for Allied troops. At the height of these offensive, in Spring of 1945, the 14th Army was able to fly entire formations of ground troops

into landing zones besieged by the enemy, essentially in contested areas, if not actually behind enemy lines, with no air threat available to Japanese commanders capable of contesting the airlift. The value of an integrated air force, especially in a small theater of operations, should be clear and apparent. This campaign demonstrates the best aspects of flexibility of air power, which is the greatest single attribute of an integrated air force. To a great extent this came to pass because the de facto theater air component commander, Stratemeier, had the confidence and support of the theater “boss,” Mountbatten, who took the time to know and understand air power’s potential, as well as its weaknesses, better than many other ground commanders.

The campaign was planned, from the onset, as a joint air-ground strategic effort, and Mountbatten’s view of that effort, reflected in his memo of 17 Jun 44, “The Principles of Joint Land/Air Action Defined by the Supreme Commander, South-East Asia,” echoes the doctrine of the Allied air forces on the other side of the world. It called for equality between air and ground forces, viewed them as interdependent, accepted flexibility as the greatest attribute of air power, but stated clearly that “the whole weight of available air power [is] to be used in selected areas in turn,” since that use was “a battle-winning factor.” Centralized control in air channels was required, but the plan of campaign had to be a “Combined Army/Air plan,” albeit, the “Army Commander,” was to command the whole. This latter clearly meant time senior officer, such as the army group commander, or theater commander, neither of whom were air force officers. Since the theater air planning headquarters was far from the location of 14<sup>th</sup> Army HQ and the “army commander,” this statement seems more one of philosophy than real-world planning guidance.<sup>64</sup> This wartime effort in Burma shows a great deal about one of several methods for the successful employment of integrated air assets. In this case the method was the use of an organization which has been described here as that of a “partially integrated” air force. A model unique to the India-Burma Theater and its peculiarities of forces and conditions.

## **Part V: Conclusions**

The United States Air Force, from the Air Service to the Army Air Forces, has an operational and doctrinal heritage of employing its tactical and strategic air assets in an

integrated organization designed to achieve the optimum results from the resources available. Integration of tactical and strategic assets, if by those terms we mean fighters and bombers, started in France in the Great War. Although the early lessons were obscured by theory, an absence of systematic historical study, and a great many other factors, including “hidden agendas,” the Army Air Forces relearned the lessons of the past.

In the Second World War tactical and strategic assets were operated with success in integrated organizations of several types, as we have seen. Missions were flown with assets, which could accomplish them, regardless of the original intent of the design. Fighters operated in maritime roles, as with XII Fighter Command in the Northwest African Coastal Air Force; they operated in a strategic role with 8th and 15th Air Forces in Europe; they operated in the purely tactical role in 9th and 12th Air Forces, as well as 5th and 10th Air Force on the other side of the world. In those roles they often were teamed with light, medium, and/or heavy bombers, sometimes in purely tactical close support operations, sometimes in interdiction, battlefield or deep, as circumstances warranted. Just as a large variety of factors drove the nature of the organization of the numbered or combined air forces, so too did a large number of factors drive the allocation and allotment of resources, irrespective of type of airframe. With the single exception of the very heavy bombers of 20th Air Force, all types of strategic assets in the AAF were integrated with tactical assets to execute tactical or strategic missions. If one chooses to include the use of fighters in the escort role with 20th Air Force, then the very heavy bombers can be included in the integration scheme of things.

Integrated strategic and tactical assets were employed on any mission, which they could accomplish. The missions were dependent upon the requirements in that theater. However, the organization varied with the degree of involvement of allies. In Northwest Africa a “coastal air force” was established to fight the over water battles off of the coast, largely because that is the way the British preferred to do the business. The same types of assets were used in the Southwest Pacific, and in Burma, for the same types of missions, without organizing a “special” maritime air force to execute those missions. Perhaps more of an idiosyncratic national perspective counts here than does operational imperative. All missions were, of course, theater dependent, in the

sense that if a theater requires a mission to be executed, then such assets as are available will be employed. No theater air force is going to organize or prepare to fly a mission not required by the circumstances in that theater. On the other hand, as we have seen, the specific organization for war varied from theater to theater with the intrinsic view of the air force commander in the theater at the heart of the decision cycle.

Thus, George T Kenney, an attack aviation proponent, went about his business, of gaining air superiority, supporting the “strategic” requirements of his theater commander, and generally fighting the air war in a way uniquely his own. Strateineyer, in Burma, organized in a different fashion to fight his war, with the same basic missions in front of him. And so too, did each of the other theater air commanders in World War II organize to fight their war in a way, which was often “idiosyncratic,” personality dependent if you prefer, hut nonetheless quite consistent with the prevailing doctrine of the service.

The Army Air Forces fought and won their share of the Second World War with the doctrine of air superiority, interdiction, and close support, in that order of priority, and most often organized in an “integrated” air force structure to some greater or lesser extent, contingent upon circumstances. Whether in a combined, national, or other arena, success most often rewarded the “integrated” employment of assets, which was virtually always observed. We have noted the exceptions in very large theaters. FM 100-20 was the essential doctrinal source for the AAF, and everyone knew it and observed it, though nit quite with religious fanaticism. Doctrine was never “dogma” As already noted, theater air commanders had latitude, not least of which is found in their organizational approaches. Thus, the 10th Air Force in Burma showed no headquarters between the groups and the Air Force EQ. Fifth Air Force, on the other hand, used commands to control wings, which controlled the groups, albeit the wings were not interposed until the size of the force required a redefinition of the span of control problem. In the Mediterranean Allied Air Forces, functionally organized commands called “air forces” were present from the onset, inherited from the Northwest African Air Forces. In addition, those air forces were functionally organized, just as were the commands in the 5th Air Force, however, there were more functions in Mediterranean Allied Air Forces with specific commands for each,

than was the case in the 5th. Mediterranean Allied Air Forces had, in turn, below its air forces another command level, such as XXII Tactical Air Command under Mediterranean Allied Tactical Air Force control. Below that level came wings, which controlled the groups. Compared to the 5th Air Forces V Fighter Command controlling a couple of wings, which in turn controlled the fighter groups, Mediterranean Allied Air Forces was a complicated organization. The more so when compared with the 10th Air Force organization in Burma. The size of the force and of the theater, as well as the complexity of working with an ally, had much to do with the organization. The number and types of missions required in the theater also played a key role.

Although space has not permitted discussion of basing and logistics factors, beyond some comments about the logistical arrangements in Burma, one or two observations may be in order here. The integrated air forces usually found it necessary to base homogeneous organizations on a field, and wire the logistic structure to suit the locations of its forces. Logistic centers, then as now, were rarely single purpose, unless the scale and scope of the theater and its forces required it. Some theaters requested and used unique munitions to accomplish their missions, as with Kenney's "parafrags," or the AZON bombs in Burma. Maritime mining operations were executed both by the 20th Air Force as a purely "strategic" air force, and by the 10th Air Force as a partially integrated air force. Those missions required unique munitions essentially unknown to the 8th or 9th Air Forces in their roles in the ETO. The production of munitions, parts, replacements, and essential materiel was on a scale, which ensured that the only shortages after about 1943 were due almost entirely to mal-distribution within a theater of operations, or the inability to get the materiel to forward operating locations. In the matter of missions flown, and almost as an aside, it is worth stressing an important theme, which has been observed by most successful air forces over these years. "Close support" in the AAF in the Second World War was largely, though not exclusively, what would today be termed "battlefield air interdiction (BAI)," rather than what e would today call "close air support (CAS)." This is most easily seen in 9th Air Force and the war-experience of its fighter groups, but just as Mitchell argued against attacks on trenches, and their boards of machine-guns, so too did the AAF prefer to avoid CAS in World War II, except in an emergency situation. In the heat and fog of battle all ground troops in contact look alike, whether you going 100 knots or 500 knots, against machine-quilts or SAMs,

the circumstances, seem to alter things only a little. The AAF in World War II knew that, and their close support, as per FM 100-20, was largely BAI. A point worth noting, and an interesting parallel with other successful air forces, such as the Israeli air force in 1973.

The Second World War offers a great many lessons about the effective integration of tactical and strategic air assets, from the single purpose examples of purely tactical or strategic air forces employing both tactical and strategic assets to accomplish their missions, or the missions normally assigned to the other, through the near integration of the 10th Air Force to the true integration of the 5th Air Force. Worldwide the AAF fought under almost every imaginable condition, in theaters of operations from Arctic to Desert, to Urban, to jungle-clad mountains. The lessons are there, if the modern Air Force can overcome its predilection towards an “a historical” mind-set it can and will understand “the fabric of air warfare” in a way that will lead to *success* in battle, and it may not have to relearn those lessons in the next war--for, to quote General Hosmer, . . .reinventing wheels in a crisis almost certainly invites disaster.

## END NOTES

1. Brig. Gen. William (Billy) Mitchell, Win2~ Defense (New York, 1924).
2. Lieut. Gen. Bradley C. Hosmer, President of the National Defense University.
3. Maj. Gen. I. B. Holley, Jr., “Concepts, Doctrines, Principles: Are You Sure You Understand These Terms?”, Air University Review, Vol. 35, No. 5, Jul—Aug 84, pp. 90—3.
4. Gen. Curtis E. LeMay’s definition is widely quoted, but the location of its first appearance has not been found.
5. Basil Henry Liddell Hart, Strategy, 2nd ed. rev. (New York, 1974), p. 321.
6. Ibid., p. 319.
7. Gen. Bennie L. Davis, “Indivisible Airpower,” Air Force Magazine, Vol. 67, No. 3, MAR 84, pp. 46—50. His thesis is that “strategic” and “tactical” describe missions, not assets; hence, it follows that an operator may use whatever assets are available to accomplish the required missions.
8. Grover E. Myers, Aerospace Power: The Case for Indivisible Application (Maxwell AFB, AL, 1986), p. 52.
9. Davis, pp. 46-50.
10. Ibid.
11. See I. B. Holley, Jr., “The Doctrinal Process: Some Suggested Steps,” Military Review (1979), for a review of the “process.”
12. Donaldson D. Frizzell, “Early Theories of Air Strategy,” Military Strategy, Vol. 7 (Carlisle Barracks, PA, 1973), pp. 11-33. Published as the strategy text for use at the US Army War College for AY 73-4.
13. Ibid., pp. 36-7
14. Ibid., pp 39.
15. Maurer Maurer (ed) , The US Air Service in World War I (Washington, DC, 1978 ) , Vol I, pp293 and 338, lead to this conclusion with remarks about the targets: “Reserves were broken up, and transport columns were dispersed.” (p. 338)
16. Thomas H. Greer, The Development of Air Doctrine in the Army Air Arm, 1917—1941 (Washington, D.C., 1985), p. 38.
17. Ibid., pp. 41—2 and 53; Maurer Maurer (ed), The US Air Service in World War I (Washington, D.C., 1979), Vol. IV, p. 502.
18. Greer, pp. 55-60.
19. Quoted in James Parton, “Air Force Spoken Here”: General Ira Eaker and the Command of the Air (Bethesda, MD, 1986), p. 123.
20. Quoted in Parton, p. 119 are Eaker’s views published in Winged Warfare (New York, 1941), wherein he said, “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,”
21. For a discussion of this controversy, and Eaker’s role in it, see Parton, pp. 121-4, 173, 164-5, 273-4, and 279.
22. US Army, FM 1-5, Air Corps Field Manual: Employment of Aviation of the Army, 15 April 1940, pp. 3, 7-8.
23. W. F. Craven and J. L. Cate (ed.), The Army Air Forces in World War II (Chicago, IL, 1949), Vol. II, pp. 106—14. At Casablanca the Combined Chiefs of Staff

established the Northwest African Air Forces' organization, based upon a proposal made by the British Chiefs for a structure resembling the RAF home commands set-up.

24. US Army, FM 100-20, command and Employment of Air Power, 21 July 1943, passim. The entire manual is very short and pp. 1-2, and 6-8 are the crucial doctrinal statements in its fourteen pages.

25. Ibid., p. 4.

26. Ibid.

27. Ibid.

28. It was the North African experiment, decided upon at Casablanca, at the insistence of the airmen, and heartily approved by Eisenhower, which led to the doctrinal position later found in FM 100-20.

29. Ken C. Rust, Twelfth Air Force Story in World War II (Temple City, CA, 1975), p. 17; also see I.S.O. Playfair and C.J.C. Molony, The Mediterranean and Middle East (HMSO, London, England, 19xx-1973) Vol IV (1966), pp. 496-7.

30. Rust, Twelfth Air Force Story, pp. 4 and 17; see also Craven and Cate, Vol II, p. 109.

31. Ibid.; see also Maurer Maurer (ed.), Combat Squadrons of the Air Force: World War III (Washington, D.C., 1982), p. 353 (154th Weather Reconnaissance Squadron).

32. Ibid.

33. Ibid.

34. This discussion is largely based upon Rust, Twelfth Air Story, pp 4, 16-7, and wide background reading and analysis.

35. Ibid., pp. 4, 15-7.

36. C.J.C. Molony, The Mediterranean and Middle East, Vol V (1973) pp. 863-66; and Ken C. Rust, Fifteenth Air Force Story (Temple City, CA, 1976), pp. 4-7.

37. Molony, pp. 865-66.

38. Ibid.

39. Ibid.

40. Ibid., p. 853.

41. Ken C. Rust, Fifth Air Force Story (Temple City, CA, 1973), pp. and Maurer Maurer (ed.), Air Force Combat Units of World War II (Washington, D.C., 1961), each wing and command has a separate entry.

42. Steve Birdsall, Flying Buccaneers: The Illustrated Story of Kenney's Fifth Air Force (New York, 1977), p. 8, 13-17; Edward Jaolonski, Airwar, Vol. 3: Outraged Skies (New York, 1971), o. 13.

43. Birdsall, p. 20.

44. Ibid., pp. 7-18.

45. Rust, Fifth Air Force Story, p. 6.

46. Ibid.; and, for the Air Task Force organization see: J.V. Crabb, Fifth Air Force: Air War Against Japan September 1942-August 1945 (No Place Given, 4 February 1946), Chain of Command Chart following p. vii.

47. Ibid., pp. 6, 60; Birdsall, pp. 28-32 Maurer, Air Force Combat Units of World War II, pp. 410—11.

48. Ibid.

49. Ibid.

50. Wilbur H. Morrison, Point of No Return (New York, 1980), p. 234.
51. Ibid., p. 237.
52. Rust, Fifth Air Force Story, p.64; Birdsall, pp.39-44, 293-4.
53. Kit C. Carter and Robert Mueller (comp.), The Army Air Forces in Combat Chronology 1941-1945 (Washington, D.C., 1973), p. 372.
54. Ken C. Rust, Seventh Air Force Story (Temple City, CA, 1979) p.32
55. This headquarters should not be confused with Kenney's later Far East Air Forces, formed in New Guinea in June 1944 5th and 13th Air Forces.
56. Ken C. Rust, Tenth Air Force Story (Temple City, CA, 1980),p.5
57. Ibid.
58. Ibid., p.32
59. S. Woodburn Kirby,1961-5), Vol III, The War Against Japan (HMSO, London England 1961-5) Vol III, pp. 468-71, and Vol IV, pp. 441-6; and Rust, Tenth Air Force Story, p.18
60. Rust, Tenth Air Force Story, p.9
61. See Woodburn Kirby, op. cit.
62. Rust, Tenth Air Force Story, p.4
63. Ibid.
64. Ibid., pp. 38-47.
65. Ibid., pp. 34-6.
66. Ibid., pp. 6.
67. Ibid., pp. 18-9. The 459<sup>th</sup> Squadron, with P-38s, was often used for escort of B-24s due to the P-38's better performance, at least at Certain altitudes, especially if long range missions required escort.
68. Craven and Cate, Vol V, pp. 195.
69. Woodburn Kirby, Vol IV, pp. 508-17.
70. Craven and Cate, Vol V, pp. 179-99. This covers the problem in a concise form, but deeper study is required.
71. Woodburn Kirby, Vol IV, p. 439.

## **Part I: Definitions**

In order to offer some clarity to the ensuing discussion the following are the definitions which I support as most strongly giving the correct character to the matters at hand. These tend to be rooted entirely in the experience of the US Air Force, albeit the Royal Air Force, which shares such a large common body of experience and outlook with us, may readily find these concepts close to their own. That may be true of other western air forces as well, but almost certainly it is not true of the Soviet air forces. They have such a different starting point, different experience base, and such very different biases and outlooks, that I think these cannot be seen as applicable to their frame of reference, save by inference.

Doctrine is the cornerstone, the very foundation it you will, of successful war fighting. In recent years there has been a great deal of ink spilled on the subject in the Air Force, but I think that the best thought-out definition of doctrine is one offered by Maj. Con. I. B. Holley in the old Air University Review. He defined doctrine, with an eye to avoiding conflict with the definitions of concept and principle, as a “precept, an authoritative rule, a method officially taught, a maxim for action. “(3) This appears to be a relatively clear and useful definition which avoids the problems raised by the conflicts between JCS Pub 1 and AFM 1-1 for example. (4) Moreover, Holley’s definition comports with the thoughts of operators such as Gen. Curtis F. LeMay, who wrote:

At the very heart ...sound judgment (4).

## Previous CADRE Papers

Any of the previous editions of CADRE Papers listed below can be ordered in reasonable quantities by writing AUCADRE/PTP, Maxwell AFB AL 36112-5532, or by calling AUTOVON 875-2773/6452 (Mr. Hipps).

- “Optimizing the Post-START US Strategic Nuclear Force Mix.” Lt Comdr David Allan Leary. USN. 1990. Public release. Commander Leary examines the current force mix, the effect that the Strategic Arms Reduction Talks (START) will have on existing forces, and the changes that this agreement would have on targeting priorities. His proposed post-START force mix would put more emphasis on submarine-launched ballistic missiles and less on the intercontinental ballistic missiles and manned bomber legs of the Triad. (AU-ARI-CP-90-2)
- “Realities of Revolutionary Violence in Southeast Asia: Challenges and Responses.” Dr Lawrence E. Grinter. 1990. Public release. This paper compares and contrasts responses of the Indonesian, Philippine, and Cambodian governments to violent revolutionary political challenges from the perspective of the three societies’ historical, political, and socioethnic patterns of development. Dr Grinter also examines the attitudes of these societies toward authority, their legacies of violence, and the comparative legitimacy and cohesion of their armed forces. (AU-ARI-CP-90-1)
- “Operational Art and Aircraft Runway Requirements.” Lt Col Price T. Bingham, USAF. 1989. Public release. The author examines the importance of air bases to the exercise of operational art and shows why aircraft runway requirements are the key to the availability and operability of air bases during a campaign. In a review of World War II, Korea, and Southeast Asia, Colonel Bingham shows how important air base availability and operability have been to the effectiveness of fighter/attack aircraft. Looking to the future, the threat posed by the Soviets promises to make air base availability and operability even more important to success. (AU-ARI-CP-89-4)
- “Defending against a Space Blockade.” Maj Tom Blow, USAF. 1989. Public release. An exploration of the strategic implications of space-based weapons beyond those generally discussed in the Strategic Defense Initiative debate. (AU-ARI-CP-89-3)
- “Ground Maneuver and Air Interdiction in the Operational Art.” Lt Col Price T. Bingham. USAF. 1989. Public release. Colonel Bingham reviews campaigns in World War II, Korea, and Vietnam to show that air interdiction’s effectiveness depended on whether it forced the enemy to choose between experiencing unacceptable losses from air attack or moving too slowly for his ground forces to succeed. (AU-ARI-CP-89-2)
- “Studying Soviet Low-Intensity Conflicts.” Dr Stephen Blank. 1989. Public release. This paper is a brief discussion of Soviet political and military strategy applied in low-intensity conflict environments, with lessons for American LIC planners. (AU-ARI-CP-89-1)

- “Insurgency and Counterinsurgency: American Military Dilemmas and Doctrinal Proposals.” Col Dennis M. Drew, USAF. 1988. Public release. The author provides a reasoned, balanced, and very basic look at low-intensity conflict from a military point of view. (AU-ARI-CP-88-1)

- “Countering Terrorism in the Late 1980s and the 1990s: Future Threats and Opportunities for the United States.” Dr Stephen Sloan. 1987. Public release. Brief overview of the terrorist threat, the types of terrorist groups, and the alternatives for countering terrorism. (This paper is a revision of a presentation made on 4 April 1987 at the program—titled Threats and Opportunities Facing the United States in the 1990s—that was held under the auspices of the Consortium for the Study of Intelligence, National Strategy Information Center, Washington, D.C.) (AU-ARI-CP-87-5)

- “The Changing Western Alliance in the South Pacific.” Wing Comdr Brian U Kavanagh, RAAF. 1987. Public release. Examines the Western alliance, its history and objectives, and the issues confronting it. The author analyzes current policies of Australia, New Zealand, and the United States (ANZUS) and these nations’ perceptions of the ANZUS Treaty. A blueprint for change is suggested. (This paper was originally a research report submitted to the Air War College faculty in fulfillment of the research requirement for Wing Commander Kavanagh of the Royal Australian Air Force.) (AU-ARI-CP-87-4)

- “Aerial Refueling: The Need for a Multipoint, Dual-System Capability.” Maj Marck R. Cobb. USAF. 1997. Public release. Investigates the possibility of using multipoint, probe, and drogue refueling to alleviate tanker shortfall and to increase the effectiveness of tactical fighter operations. (AU-ARI-CP-87-3)

- “Air Power and the Defeat of a Warsaw Pact Offensive: Taking a Different Approach to Air interdiction in NATO.” Lt Col Price T. Bingham, USAF. 1987. Public release. A penetrating look at the present US Air Force approach to air interdiction in NATO. Its flaws, and its weaknesses, An alternate approach, the use of the family of air scatterable mines (FASCM) integrated with the intelligent maneuver of NATO land forces for an air interdiction campaign, is presented along with a look at the problems to be overcome before the US Air Force could effectively use FASCM for air interdiction. (AU-ARI-CP-87-2)

- “The Swords of Armageddon: A Discussion of the Strategic Mystique.” Maj G. E. Myers. USAF. 1987. Public release. This discussion attempts to dispel the continuing mystique linking strategic bombardment with nuclear holocaust. It addresses the relevance of individual strategic actions to large, small, nuclear, and nonnuclear wars and of our bombers and intercontinental missiles as viable force options in a variety of scenarios. (AU-ARI-CP-87- 1)

- “Rolling Thunder 1965: Anatomy of a Failure.” Col Dennis M. Drew, USAF. 1986. Public release. Illustrates how US air power was not prepared for the conflict in Vietnam because of its emphasis on strategic bombardment and how the war’s outcome may not have been any different even if the military had been allowed to carry out its desired intensive bombing campaign. (AU-ARI-CP-86-3)

- “Policy and Strategy Foundations for Low-Intensity Warfare.” Jerome W. Klingaman. 1986. Public release. Addresses the need for establishing a policy framework on the internal dynamics of revolution to serve as a foundation for developing defense strategies, doctrines, and force structures for this type warfare. (This paper was originally presented on 21 June 1986 to an international forum on Low-Intensity Warfare in Paris, France.) (AU-ARI-CP-86-2)
- “Nuclear Winter: Asymmetrical Problems and Unilateral Solutions.” Lt Col Fred J. Reule. USAF. 1986. Public release. Through analysis of the asymmetries of nuclear winter, this study uncovers the nature of the problem we face and why joint efforts to solve it are in tire best interests of both superpowers. (AU-ARI-CP-86-1)
- “Study War Once More: Teaching Vietnam at Air University.” Maj Suzanne Budd Gehri. USAF. 1985. Public release. A penetrating look at how Air University's professional officer schools teach the lessons from the Vietnam War and a comparison of their approach to those employed by civilian institutions of higher learning. (AU-ARI-CP-85-7)
- “Project Control: Creative Strategic Thinking at Air University.” Lt Col David J. Dean, USAF. 1985. Public release. A unique review of a little-known strategic research project conducted at Air University during the early 1950s. (AU-ARI-CP-85-6)
- “A Possible Fallback Counteroffensive Option in a European War.” Dr Richard B. Remnek. 1985. Public release. A new look at the European situation and a new proposal for countering a possible Soviet attack. (AU-ARI-CP-85-5)
- “Some Observations on Islamic Revolution.” Dr Lewis B. Ware. 1985. Public release. A knowledgeable look at Islamic fundamentalist revolutions, their roots, and their implications. (AU-ARI-CP-85-4)
- “Military Art and the American Tradition: The Vietnam Paradox Revisited.” Lt Col Dennis M. Drew. USAF. 1985. Public release. Brief examination of the American strategy in Vietnam and traditional American military views about the art of warfare. (AU-ARI-CP-85-3)
- “Marlborough’s Ghost: Eighteenth-Century Warfare in the Nuclear Age.” Lt Col Dennis M. Drew, USAF. 1985. Public release. An essay examining the similarities between limited warfare in the eighteenth century and the age of nuclear weapons. (AU-ARI-CP-85-2)
- “Air Power in Small Warn: The British Air Control Experience.” Lt Col David J. Dean. USAF. 1985. Public release. A brief examination of the concept of “air control” as practiced by the RAF in the Middle East between the two world wars. (AU -ARI-CP-85-1)