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EVOLUTION OF U.S. TACTICAL
FIGHTER DOCTRINE

by

Donald E. Jones
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A RESEARCH REPORT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE CURRICULUM

Advisor: Dr James A. Mowbray

MAXWELL AIR FORCE BASE, ALABAMA

APRIL 1993

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ABSTRACT

Tactical fighter doctrine has remained relatively resilient from World War I to the present time. However, we have failed to maintain that doctrine on several occasions--Korea and Vietnam, in particular--and the price has been paid in blood on both occasions. The new AFM 1-1 is a good document for understanding basic Air Force doctrine but is not by any means as thorough as it must be--particularly in meeting our doctrinal needs as we move further away from the cold war era. New technology has finally fulfilled the promise air power has always claimed--but we must continue to refine our doctrine to ensure we continue to make the best use of all our assets.

BIOGRAPHICAL SKETCH

Lieutenant Colonel (Colonel Select) Donald E. Jones (M.S., Air Force Institute of Technology) is a Command Pilot with over 2500 flying hours in tactical aircraft including over 1200 in the F-16. He participated in the Gulf War as operations officer of the 612th Fighter Squadron, part of Joint Task Force Proven Force located at Incirlik Air Base, Turkey and has been a squadron commander. He flew 26 combat missions in the F-16 during the Gulf conflict. He holds the Distinguished Flying Cross, Air Medal, Meritorious Service Medal and Commendation Medal. Lieutenant Colonel Jones is a graduate of the Air War College, class of 1993.

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I. INTRODUCTION

"Those who are possessed of a definitive body of doctrine and of deeply rooted convictions upon it will be in a much better position to deal with the shifts and surprises of daily affairs than those who are merely taking short views, and indulging their natural impulses as they are evoked by what they read from day to day."

Winston Churchill
(24:171)

"One might say that doctrine is the school of thought on war which is in vogue at any one time."

Dale O. Smith
(24:171)

"Doctrine is like a compass bearing; it gives us the general direction of our course. We may deviate from that course on occasion, but the heading provides a common purpose to all who travel the way."

I.B. Holley, Jr.
(24:172)

"Military doctrine is what we believe about the best way to conduct military affairs. Doctrinal beliefs are not immutable physical laws but are interpretations of changing evidence."

Dennis M. Drew
(10:195)

"Doctrine is congealed truth."

Jim Engle, AWC Class 1993
Seminar 10

My favorite definition of doctrine is the last--probably for sentimental reasons since Jim was a classmate. But the definition is deceptively simply. Underlying is the implication, as Drew also said, that doctrine is based primarily on experience--the congealing process. (10:163) In our seminar, we added the phrase "doctrine is not dogma." Again, following along with Drew that doctrine is constantly

evolving and must adapt to changes in thinking or technology or whatever necessitates a change. (10:163) There are two failures of doctrine that always occur to me whenever I think about the subject. Both involve the French. First, the French doctrine of "attack is everything" at the beginning of World War I. Second, the French doctrine of "defense is everything" at the start of World War II. In both cases, the French either ignored the lessons of recent history or incorrectly interpreted it. The result was an embarrassingly easy defeat early in each war.

My purpose in researching this paper is to examine the evolution of tactical airpower doctrine from World War I to the present time. I want to look at how we started, what changes we've made (and why), and where we might possibly want to go in the future. My thesis is that tactical fighter doctrine has remained relatively resilient since World War I. We, the United States Air Force--in whatever form--have failed to follow our doctrine, allowing tactical capability to wither in several cases, but have eventually returned to basically the same doctrine after each failure.

The methodology for the paper will be to break the past 75 years into several "periods" of interest. The first period will be World War I and shortly thereafter. The "interwar" years, as they are referred to, will come next followed by the period of World War II through the Korean War. Next will come the Vietnam Conflict followed by a chapter that takes us through the Gulf War.

Doctrine will be discussed on two levels--the strategic/operational level and the tactical level. These distinctions are adequate for discussing tactical fighter doctrine since strategic and operational are, for all intents and purposes, identical in that limited case. Tactical doctrine will almost certainly seem to border on tactics at times but the difference should rest on employment concepts (doctrine) versus employment specifics (tactics). For instance, the concept of two ship formations for concentration of firepower and mutual support is a doctrinal decision. How to employ that same two ship to meet the goals described is the tactic(s).

The last portion of the paper will attempt to "look into the future"--for possible changes that might be needed and for potential pitfalls that might be waiting for us--the best Air Force in the world!

II. WORLD WAR I

On our entry into World War I, we (the U.S. Air Service) pretty much accepted the doctrine, training and tactics that had been developed by our Allies because we had none of our own. (16:7)

In order to guide the U.S. air effort in World War I, Colonel Billy Mitchell wrote a paper which has been called the Air Service's first formal statement of doctrine. In the preface, he stated that the mission of the Air Service was to help the other arms to accomplish their missions. (14:22)

Mitchell divided aviation into two categories--strategic and tactical. Mitchell went on to define tactical aviation as consisting of pursuit, observation, and tactical bombardment (or attack). (14:22) Observation consisted of visual and photographic reconnaissance and adjustment of fires. Pursuit was responsible for mastery of the air through air battles and, to a lesser extent, light ground attack. Tactical bombardment was defined as bombardment within 25,000 yards of friendly forces and was employed to undermine enemy morale and attack airfields. (14:22)

Use of air power for the purposes of liaison and observation/reconnaissance was readily acceptable to both ground and air officers throughout World War I. Such was not necessarily the case with the pursuit and attack roles. (16:7) Air Action in support of U.S. 1st Army action in the Saint-Mihiel and Meuse-Argonne offensives served to illustrate the value of concentrated air forces--at least to airmen.

However, even after these operations, employment of air forces continued to be planned in terms of the ground mission. (14:23) As a general rule, the employment of tactical airpower throughout World War I was in accordance with the plan of the ground battle. (14:24)

Some conclusions were drawn from this phase of the war. First, it was determined that it was "desirable" to attain aerial supremacy, but that it was feasible only in certain sectors for limited times--a relatively good definition of local air superiority. Second, the major pursuit mission was to "keep clear of enemy airplanes an area approximately 10,000 yards deep in front of the line of battle." Third, escort, the concept of tying pursuit directly to bombers, was not the best use of pursuit assets. The resulting losses were unacceptable--reaching as high as 60 percent. Using the concept of sweep, in conjunction with bombardment, cut the losses to about 8 percent. (14:23)

The tactics/doctrine for pursuit quickly progressed during the war from single combat--the medieval joust--to mass formations, of squadron size or larger, employed for mutual support. The technology of the day supported pursuit by providing speed, maneuverability, and firepower from aircraft mounted machine guns. (16:7)

Attack really received little attention in World War I from the United States--possibly due to a lack of technology on our part but more likely due to a lack of commitment to develop the capability required to provide adequate firepower

and defensive armor. When attack was done by the U.S. Air service, it was usually incidental to the activities of pursuit and observation. (16:12)

Observation was the preferred role for aviation as far as the non-airman was concerned. "Experience," said Gen Mason M. Patrick, Chief of Air Service, AEF, "had clearly demonstrated the fact that the work of the observer and observation pilot is the most important and far-reaching which an Air Service operating with an Army is called upon to perform." (14:24) Colonel Frank P. Lahm, Chief of Air Service, Second Army, added: "The main function of aviation is observation and all hinges on that Program." (14:24)

Airmen, in contrast to Army officers in charge of Air Services, generally agreed that air supremacy was the primary aim of an air force. (16:8) Airmen generally recognized the need and desire for observation but felt that the indispensable role of pursuit in relation to all other aviation activities was clearly established by 1918. (16:36)

The stage was set now for the doctrinal battles that were to take center stage so much during the next twenty years--commonly called the "interwar years." Airmen were convinced that the non-airmen were intent on preventing air power from realizing its full potential. Non-airmen were not convinced that air power really had the potential to do what the airmen claimed. (14:19-26; 16:3-13) The battle that would rage in the 1920s and 1930s (and some say today) was vigorously contested and, at times, acrimonious.

For the tactical fighter airman, the key roles that would continue to evolve in the coming years had already been validated. As shall be seen, the missions of pursuit fighters--air superiority, light attack and close support--will continue to evolve in the interwar years and through World War II.

III. THE INTERWAR YEARS

The early part of the interwar years, basically 1919 - 1926 has been called the "heroic" age of doctrinal development by Greer. (16:14) A review of the little material on the subject of Air Service doctrine during the period makes it clear that it was a time of great contention between the airmen of the Air Service and the Army leadership and staff. (14:27-44; 16:14-43) While not a lot of what occurred is directly related to tactical fighter doctrine, we must examine some key points or lose perspective on doctrinal development as it proceeded in the Air Service.

James L. Cates observed that a major problem of the time was that control over the formulation and dissemination of air doctrine was the purview of the General Staff--composed almost exclusively of ground officers. This led to air manuals that were really devoid of the thought of the airmen of the time. (4:13) The post-World War I air manuals emphasized the observation role of tactical air forces--"the greatest value of the Air Service to date has been in gathering information of the enemy and our own troops." (14:29) That same manual went on to observe that "the morale effect on ground troops is out of all proportion to the material destruction wrought." (14:29)

Airmen, Mitchell in particular, were advocating that organization and training of units should be based on the fundamental doctrine that their mission is to aid the ground forces to gain decisive success. (4:14) Based on this

premise, Col Mitchell stated that "our doctrine of aviation should be to find out where the hostile force is, to concentrate on that point with our pursuit, attack, and bombardment aviation, to obtain a decision over the hostile air forces, and then attack the enemy's armies on the land or navies on the water and obtain a decision over them."

(20:15)

In looking at the two positions, one might reach the conclusion that there really was not too much difference in the position--and one would probably be correct. Except for one very significant detail--who would control the tasking and execution of the air forces. The doctrinal battles in the 1920s and 1930s appear to have revolved around the issue of unity of command. That is, the airmen were convinced that unifying air assets under the overall command of an airman, who was in turn responsible to the overall commander--joint force commander for lack of a better term--was the only way to ensure that air assets were exploited fully. (14:33) Most non-airmen appear to have held the opinion that air power was only useful when doled out in small packets and controlled directly by the ground force unit commander. (14:29) The non-airman cannot be totally discounted for holding this opinion. Up to this point, air power had not played the role that airmen insisted it would--and there was only small indication that it would in the future.

It seems to be clear from the airman perspective at the time that airmen were not seeking total autonomy. Foulois

said, "In time of war there is no question but that, in order to get maximum efficiency of all elements of a military command, air service units as well as any other units, must come under the command of the supreme military commander in the field." (14:33)

So, if the two sides were not too terribly far apart, what caused this battle to go on for 30 years--or more if you contend its not over yet as some do? Stubbornness seems to be as good an answer as any. Once the groups had staked out their positions there simply was no backing down. The unity of command issue would really not find an answer until World War II in North Africa.

The "official" view on the use of airpower in the mid-1920s was embodied in TR 440-15, Fundamental Principles for the Employment of the Air Service, dated 26 January 1926. TR 440-15 represented the traditional Army view of airpower. While recognizing that there were some unique aspects to airpower, the regulation held to the view that airpower was simply an adjunct to ground forces--the mission of the Air Service was to aid the ground forces by destroying enemy aviation, attacking surface forces and protecting friendly ground units. (16:40)

There were a couple of tactical doctrine issues that surfaced in the early to mid-30s that need to be touched on. First, and possibly of most importance, is actually bomber doctrine--"the bomber will always get through." (16:55) This "doctrine" led to a corollary: "pursuit cannot destroy

bombers." Claire Chennault vehemently disagreed with this tenet and spent a great deal of thought at the Air Corps Tactical School on the subject of how to best employ pursuit as a defense against bomber formations. (16:55-57) He saw the problem as consisting of three parts. First, he felt that formation doctrine, as practiced in World War I and the interwar years, was non-existent in content. Chennault was convinced that development of formation flying techniques was essential to mass the firepower necessary to down heavy bombers. (22:10) Second, he felt the firepower used on pursuit aircraft of the early 30s--primarily the .30 cal--was totally inadequate. He was convinced that .50 cal machine guns--as a minimum--were an absolute necessity. (22:13) Finally, he felt that the assumption that pursuit was ineffective against bombers because of inadequate warning time was actually just a dodge to avoid developing adequate warning nets. He knew the biggest problem for interception of bombers by pursuit (given adequate speed and firepower) was timely, accurate, and continuous intelligence on the bomber formation. (22:13; 7:21)

Chennault worked on all three aspects of the pursuit/bomber problem. He, with others, really fathered the concept of formation teams of two or three aircraft--just the right size to provide simplicity, maneuverability, flexibility, and ease of control. (23:20) Chennault emphasized two points for individual techniques as part of these formations. First, he emphasized the need to

aggressively press the attack by each pilot. Second, each pilot had to concentrate on the most vital areas--such as personnel and vulnerable equipment like engines. (16:63) The sum effect for Chennault was that teamwork was the basis of his entire concept of employment for pursuit aircraft. Effective teamwork provided the essential concentration of firepower needed while also providing added protection for each pilot due to the mutual support garnered from flying within the formation. (3:44) Chennault's pioneering work with the tactical doctrine of employing in formations spread throughout the tactical fighter world and is still very much in use today. The sum of a formation was, and still is today, greater than the individual parts.

As it turned out, the need for greater firepower in the fighter airplane was easily accomplished which brings us to the knottiest problem Chennault faced in the battle between pursuit and the heavy bomber--intelligence. Without belaboring the point, the real need was for a ground network "in depth" to continuously track hostile formations and an effective way of transmitting this information rapidly and accurately to the intercept controllers and pilots. (6:15-20) The "depth" was primarily dictated by the speed of the hostile aircraft and since the flow of information needed to be near continuous, the net had to extend at least from the general target area to at least a point which would allow the fighters time to react and intercept. (6:19) During a peacetime exercise, Chennault convinced himself that such a

system was practical. The exercise involved an offensive force of bombers and a defensive force of fighters and antiaircraft artillery. Despite some shortcomings, the results were still very good. (6:24-36)

Chennault was to make good use of his experiences during his time in China where the results he and his pilots obtained were truly spectacular. (7:48-51,112; 23:32; 22:31-32)

What Chennault was to pursuit, George C. Kenney was to attack aviation. However, attack aviation never really received the attention it probably deserved for several reasons. (16:66) The major reason was undoubtedly the emphasis that was placed on strategic bombardment in the mid to late 30s. There simply were no resources available to put into the development of the type of aircraft that would be ideally suited for the attack role. (16:66-67) Kenney, while at the Air Corps Tactical School, developed tactics, techniques, and some weapons which he later put to good use in the Southwest Pacific campaign. (16:66) Essentially, after Kenney left the ACTS, nothing further was done on attack theory.

Chennault probably best outlined the doctrinal feeling of tactical aviators in his Pursuit Aviation text of 1933: (5:61)

1. Attainment of air supremacy depends upon success of the pursuit force.
2. The primary function of pursuit is to gain air supremacy.

3. The first objective of pursuit is to destroy the enemy pursuit.
4. Success of pursuit depends upon, equipment, selection and training of pilots, numbers, tactics, and organization in units large enough to provide effective concentration of force.

The thrust of attack aviation was similar in some respects--the enemy air force was considered a proper target. (16:67) Other targets included lines of communication and supply. The greatest deficiency of attack was the lack of a viable attack airplane. (16:67)

With a tactical doctrine intact--although subservient to the "bomber is invincible" school--we are ready to move into the next phase--World War II up to the Vietnam War.

IV. WORLD WAR II TO THE VIETNAM WAR

The Army Air Corps, as mentioned in the last chapter, had a tactical doctrine as we approached World War II. The major problem for the "fighter guys" was that their thoughts on doctrine were generally not accepted by either the Army General Staff or the Air Corps heavyweights. While the strategic bomber supporters certainly were strong advocates of unity of command of air assets under the command of an airman, they did not see any real future for any air forces other than the strategic bombers. (17:8) They discounted both pursuit and attack as more or less meaningless and observation as too subservient to the ground forces. (14:92-95; 15:23-25) On the other hand, the Army ground commander saw the tactical airplane only as an extension into the vertical of his forces. He would only conceive of the employment of tactical airpower in his immediate vicinity under his absolute control. (15:25-26) The net result was that the tactical airman was left with the sure knowledge (at least to him) that he knew how to best employ his assets but without any ability to make the decision to properly use the assets available. The stage was set for disaster--and it was not long coming at Kasserine Pass in North Africa in February 1943.

The Army Air Corps support for ground operations in North Africa in late 1942, early 1943 was founded in the doctrine contained in FM 31-35. That doctrine, as applied in North Africa, was to provide an "air umbrella"--a continuous

top cover for every Army unit. (15:27) This type of employment is an extremely inefficient use of airpower resources and almost guarantees failure by the air force attempting it. (14:173) Several reasons argue against this type of use. First, this type of defensive "crouch" denies air forces the ability to concentrate or mass their forces at crucial times. Second, air units tied directly to individual ground units and their commanders reduces another inherent aspect of airpower--flexibility. (15:27-28) The net result of these actions were that the tactical air forces were totally ineffective--a fact that came as no surprise to any air power advocate. On 5 February 1943, Brig Gen L.E. Oliver said, "The air arm was unable to protect allied ground troops from dive-bombers and strafing or to attack enemy ground troops holding up the allied advance." (15:28)

In mid-Feb 1943, the problem came to a head at Kasserine Pass where Rommel's forces defeated the American forces holding the pass. Ground commanders at Kasserine Pass were quick to lay the blame on the poor showing by the air forces. Brig Gen Paul M. Robinett, commanding general of Combat Command B of the 1st Armored Division:

My regiment has fought well, has had rather severe losses, but can go on. I have talked with all ranks possible and am sure that men cannot stand the mental or physical strain of constant aerial bombing without feeling that all possible is being done to beat back the enemy air effort. News of bombed cities or ships or ports is not the answer they expect. They know what they see and at present there is little of our air to be seen. (15:28)

Assistant Secretary of War John J. McCloy:

It is my firm belief that the Air Forces are not interested in this type of work (CAS), think it is unsound, and are very much concerned lest it result in control of air units by ground forces. (15:29)

Fifty years later it is difficult to understand their positions given that the employment of air assets at that time was the decision of the ground commander! Instead, it appears they were attacking air force employment outside of North Africa as if they were somehow related. These types of comments were especially subversive because they truly questioned the caliber and courage of American airmen. (15:29)

At this point in the development of the air corps things could have really turned nasty--even nastier than they were at the time--but for a fortunate circumstance. That fortunate circumstance was the experience of British air and ground commanders. Without going into great detail, the British experience in integrating their Air Force had gone vastly different from the American experience. The British had actually formulated doctrine that fulfilled the needs of both forces. At Casablanca, we basically assimilated British tactical doctrine--much of which was incorporated in the development of FM 100-20, Command and Employment of Air Power. (15: 29-30)

FM 100-20 was arguably one of the most important doctrinal documents ever written for the airman. A truly outstanding piece of work, most of this document is just as applicable today as 50 years ago, particularly in the tactical arena. FM 100-20 was signed by Gen G.C. Marshall,

Army Chief of Staff, on 21 Jul 1943, about six months after the Casablanca Conference. The tone for the manual is set in the first sentence:

Land power and air power are co-equal and interdependent forces; neither is an auxiliary of the other. (13:1)

The opening page goes on to state that air superiority is the first priority for the success of the land campaign. Without that air superiority, the land forces must spend so much effort on security from hostile air attack as to make the land campaign futile. (13:1) The opening page must have been music to the ears of the airmen of the time--it finally looked as if they might be able to employ their assets in a manner that made sense to them.

FM 100-20 defined the types of tactical aviation as: bombardment (attack), fighter, reconnaissance, photographic, and troop carrier. (13:3) The mission of the tactical air force in a theatre was defined as consisting of three phases: (13:10-12)

- 1) First priority - to gain the required degree of air superiority by attacks against enemy aircraft in the air and on the ground. Commonly called Offensive and Defensive Counterair now.
- 2) Second priority - prevent the movement of troops and supplies. Commonly called Interdiction now.
- 3) Third priority - participate in the combined effort of the air and ground forces on the immediate front of the ground forces. Commonly called Close Air Support now.

Employing the doctrinal concepts outlined in FM 100-20 had the potential to address the theatre air campaign in a manner that would allow concentration of force and make good

use of the inherent qualities of airpower such as speed, range, and flexibility. So, by mid-1943 we had learned (or re-learned) that the control of the air is a prerequisite for any large-scale military operation. (12:30) This lesson seemed to carry over into the Korean War where we were able to gain air superiority twice--from the North Koreans and from the Chinese. (12:30)

Remember that the second priority was interdiction. Most air and ground leaders seemed to be able to agree that attacking supplies and troops before they reached the front was a sound idea. The biggest difficulty lay in determining what were the best targets for the interdiction campaign and who would determine those targets. Often we, the U.S. military seem to have difficulty solving the targeting problem. We can agree that the best targets may be rail or oil or troop concentrations--but assigning priority for a coordinated interdiction becomes difficult because of the old "who's in charge" syndrome. (12:30-33) Gen Earle E. Partridge thought it to be simple: the boss man says "Do it." (19:21) Higher headquarters provides the policy guidance and then the planning is completed.

Gen John W. Vogt, Jr, outlined his tasking on D-Day over Omaha beach as being first responsible for air superiority over the beach and then, if no enemy air opposition appeared, they were to interdict the area where the total operation was taking place to isolate the invasion area. (19:23) Clearly, both Gen Partridge and Gen Vogt subscribed to the philosophy

of the overall commander being in charge of the priorities. But, who does the supreme commander select to choose targets? That is the crux of the problem. In the southwest Pacific, it was clearly Gen Kenney. In Europe, it was really a combined effort between the British and American staffs. In Korea, it was a "board"?! Who should it be? Shortly after his arrival in Australia, Gen Kenney had a confrontation with Gen MacArthur's chief of staff over some orders for a particular mission. Gen Kenney asked him "... if he prescribed for the Navy what their cruising speed should be and what guns to fire if they got into an engagement?" (18:53) This question seems to me to hit at the heart of the issue! The Army would not dream of attempting to dictate to the Navy nor vice versa. But, both were more than willing to tell professional airmen how to employ their resources.

The issue of close support to the ground troops, or CAS, was even more divided. Some airmen, such as Brig Gen James Ferguson, felt that close air support was of little use unless the associated army was moving ahead--on the offensive. (12:31) An exception (according to Gen Ferguson) was the obvious dire need such as April and May of 1951 when the Chinese poured into Korea. (12:31) Even after World War II ended, some Army ground commanders did not agree that air forces functioned best when unified under a single air commander. Gen Mark Wayne Clark, commander of the U.S. Fifth Army in Italy said in 1949:

"The command setup was never satisfactory from my point of view and it is still not satisfactory...I believed then, and my experiences in Italy did not change my view, that ground troops cannot be successful in battle unless adequately supported by combat aviation, and that such planes as are used for this purpose are necessarily auxiliary weapons, as is the artillery, and that they should come under the direct orders of the ground commander." (14:177)

In World War II, we also learned a hard lesson about unescorted daylight bombing. The pursuit advocates were correct--fighter aircraft could intercept and destroy heavy bombers and in large numbers. (17:8) As a direct result of our lack of vision, we had no long range escort fighters available at the start of our strategic bombing campaign in Europe. As Gen Holloway noted "...the myth of bomber invulnerability was exploded over Schweinfurt, Regensburg, Kiel, and other targets..." (17:8) Losses on some missions ran as high as 50 per cent. We first attempted to alleviate the situation with drop tanks for extra fuel to extend range but a satisfactory answer really did not arrive until the P-51 appeared. (17:8)

As closure to the World War II through Korea phase, we can say that the three primary functions and one "secondary" function of the tactical fighter forces was laid out during this formative period.

- 1) Air superiority was established as the highest priority for tactical air forces in World War II. Then re-learned/re-enforced in the Korean conflict.
- 2) Interdiction was established as crucial to the "campaign" or long term development of the war. Tactical interdiction (as opposed to strategic bombing) was oriented on the ground effort and affecting the longer term capability of the enemy to conduct tactical warfare.

- 3) Close Air Support was established as the "red haired stepchild." Everyone acknowledged it was required (at least in some cases) but no one really wanted to do it. Why? Once again, it was the problem of who owned it.
- 4) To the above missions must be added one other secondary mission--escort--the need for which was learned over the skies of Germany where we took such terrible bomber losses.

In the next chapter, we will look at the effect of the Vietnam War and its aftermath on the development of tactical fighter doctrine.

V. THROUGH VIETNAM AND ITS AFTERMATH

To this point, we have really concentrated on three missions of primary importance to the tactical fighter community: air superiority, interdiction, and CAS. We will continue along this track for the rest of this paper and fold in other "support" type missions as we move further towards the present time.

The period from Korea to Vietnam saw little change in the basics of what composes the primary missions of the tactical fighter force. It is true that we have neglected our tactical doctrine at least twice--after World War II and after the Korean War--and have subsequently paid a premium in blood for that neglect. However, the doctrine we have returned to was, and is, essentially the same. In the cases of Korea and Vietnam, it was not a tactical doctrine failure but, rather, a failure to sustain the wherewithal to fulfill our tactical doctrine.

Subsequent to the Korean War, the air superiority doctrine in essence became a "defense of the homeland" doctrine as we placed most of our effort and resources on the strategic nuclear bomber. (17:8) Shortly after the Cuban missile crisis, Gen Curtis E. LeMay said to Congress: "If you have the power to stop a big war, certainly the same power ought to be capable of stopping a small war." (21:19) His remark was typical of the way we approached conventional war at the time--as a nuclear power. However, even as he was making his remarks, the pendulum was swinging. We began, as

a nation, to see that future armed conflicts would be most likely of a limited nature that would not involve the employment of nuclear weapons. Therefore, our national military strategy changed from the concept of massive retaliation to flexible response--or response in kind. (8:45) We came to the realization that we would not go around "nuking" anyone and everyone who upset us.

Still, the primary mission for fighter aircraft moved from the air superiority mission to the attack mission--aircraft capable of multiple roles including nuclear strike. (17:8) Therefore, as we approached the Vietnam war, we were without an aircraft that was purely an air superiority weapon. Some felt this to be a huge drawback (Gen Holloway, 17) but history does not seem to support this contention. We maintained an adequate air-to-air kill ratio during the Vietnam war and denied enemy air support to ground troops throughout the conflict--without a dedicated air superiority aircraft. (17:8-10) However, having said this, there is one area where we were sorely lacking as we entered the Vietnam conflict--that area was air-to-air combat tactics training. From 1954 to 1962, as we envisioned the tactical fighter as primarily a nuclear weapons delivery platform, the USAF training program included very little training in air-to-air combat. (17:9) The end result was that we were definitely not prepared for air-to-air combat when we entered the Vietnam conflict.

USAF CAS came into its own in the Vietnam conflict. The stage was set in 1959 when the Air Force received total responsibility for the CAS mission. JCS Pub 2 assigned the Air Force the responsibility to develop CAS aircraft, doctrine, and procedures. (15:51-52; 8:46) The problem of CAS was/is not that air or ground forces disagree on its need but, rather, that the task is difficult to accomplish due to the necessarily close coordination required between the air forces and the ground forces. (9:24) These problems are compounded if the ground battle is highly fluid or if the air defense threat is great. The potential for fratricide and for failing to acquire the target rise seriously under those conditions. (9:24-25)

During the Vietnam conflict, we saw numerous problems in the tactical arena but, for the most part, those problems were not with the aircraft or the pilots or, even, the service doctrine. (8:45) Instead, the major problems appear to have been the lack of an integrated plan for the employment of airpower, interservice differences, and command and control differences. (21:27-46) Looking back now, it is apparent that we had pursued at least a limited doctrine for employment of tactical fighter aircraft in low-intensity conflict during the Vietnam timeframe. (2:72) However, since that time we have really not continued to develop our low-intensity conflict capability in the tactical air power area including doctrine, equipment and training. (2:72-73)

For the first time in Vietnam, we saw a new player in the air defense game that did impact the way we executed missions--the surface-to-air missile. The SAM particularly impacted missions flown over the territory of North Vietnam and, to a lesser extent, Laos and South Vietnam. We had to begin integrating support aircraft such as defense suppression and standoff electronic countermeasures support to try to ensure survival of the strike packages. (9:30-31, 43)

Another "new" occurrence was the use of traditional aircraft in non-traditional roles. Specifically, in Vietnam we saw B-52s used in quasi-CAS roles and tactical fighters used in strategic attacks on North Vietnam. (21:118-119; 1: 156-157)

The bottom line for tactical air forces is that we need to have a better idea just what it is we are expected to do or we find ourselves accomplishing little. What did Vietnam change in the tactical fighter world?

- 1) Air superiority remained a primary mission but as a secondary role. That is, while air superiority was just as important as ever, the mission was done using aircraft capable of more than one mission. A trend that was not changed until the advent of the F-15.
- 2) Interdiction received even greater emphasis as airman and non-airman saw it as a way to "strike back" at an almost invisible enemy. However, the advent of the SAM made this mission much more dangerous than it

might of been in the past and led to the development of the defense suppression and standoff ECM support assets which were then integrated into the strike package.

3) Possibly the greatest change was the growth of CAS.

It must be noted that the growth was somewhat reluctant but entirely necessary due to the nature of the ground conflict.

In the next chapter, we look at the developments leading through the next full scale employment of tactical air forces--Desert Storm.

VI. THROUGH DESERT STORM

To this point, we have concentrated the look at tactical fighter doctrine on three primary mission areas. In this chapter, we will continue in that vein through the Gulf War. To meet that end, we will examine two facets of this period. First, we will examine the effect of technology and, second, we will examine what changes, if any, occurred in Air Force doctrine during this period.

Technology

In the area of technology, there were two major technological advances and at least two minor advances which impacted tactical fighter doctrine. The first of the minor changes was the development of two very specialized aircraft for two of the three mission areas on which we have concentrated. First, was the development of the F-15--a pure air-to-air fighter as envisioned by those who saw a need for such a fighter during and in the aftermath of the Vietnam conflict. (17:10,14) Second, was the development of the A-10--a pure close air support fighter as envisioned by those who saw the need for a fighter dedicated to the Army's needs. (15:55-56) Both aircraft are superb for the tasks for which they were designed and have performed extremely well when called upon.

However, I see one problem, primarily with the F-15, that I cannot but comment on. In my opinion, the development of the F-15, as a single role fighter, was not driven by real military necessity. I am aware that many felt during Vietnam

that Soviet aircraft were overcoming our capability to ensure air superiority. (17:8-12) While the results in Vietnam do not bear out this contention, I still freely concede the need to ensure our capability to ensure air superiority in any future conflict. My disgruntlement is based on the limitation imposed by making the F-15 a single mission aircraft. Even in the days of larger defense budgets such a limitation was a waste of resources--what do they do when we have won air superiority and do not need them flying every mission in the air-to-air role? They continue to fly every mission in the air-to-air role! The simple fact is, it would not have been a terribly costly process to make the F-15 multi-role--and it would have been superb in the interdiction as the F-15E has turned out to be. The reason the F-15 could have assumed the interdiction role easily and cheaply is based on the fact that it was built with underwing hardpoints already installed. The only real costs associated with converting the F-15 to a multi-role aircraft would have been with software for weapons delivery and some minor additions or modifications to cockpit weapons delivery hardware. The cost of these changes would have been miniscule.

Certainly the air-to-air purists would take umbrage at this point--but it appears to me that it would be just as easy to make certain F-15 Eagle squadrons pure air-to-air and use others as multi-role and thereby meet the purist's need for an air superiority fighter. Note that I am not criticizing the F-15 as unable to do its mission--rather, I

disagree with an aircraft with its capability being used in a single role.

So, why was the F-15 developed as a pure air-to-air fighter only? Because air-to-air is fun! Of course, we did need the F-15 for the air superiority role but when the time came for a new multi-role airplane, it should have been a derivative of the F-15 rather than the F-16 (although I dearly love the F-16). The fact is the F-15 would have provided just as accurate a bombing platform but with a substantially greater weapons load.

On the other hand, the A-10 was ideally designed to fulfill the CAS role for low-intensity conflicts. Many would say even high-intensity conflicts, but it does have at least one serious defect in that arena--speed. Nonetheless, it has proven itself an extremely capable fighter and was superb in the Gulf.

A second minor (but only slightly less than the major) technological advance was in the area of suppression of enemy defenses and electronic countermeasures. I don't want anyone to confuse my meaning about "minor." I do not consider the effect of these support systems to be minor. In fact, they are crucial for the survival of non-stealthy strikers. I refer to them as "minor" only in the context of technology development. The technology employed is not the jump that is involved in the major technological advances.

The first major technological advance is, of course, the advent of stealth technology. The second major technological

advance really builds on the first--the tremendous increase in accuracy of weapons delivery provided by precision guided munitions and their targeting systems. Combining these two technologies has resulted in a leap in performance that has really brought airpower within eyeball distance of the performance envisioned for it from the early days of airpower.

Changes in Doctrine

With the foregoing technology changes in mind, we must examine the impact of the period from the end of the Vietnam conflict to now on Air Force doctrine. There are several factors that impacted on how we looked at each of the major mission areas that we have been examining. First, there was the Central European mentality that dominated our approach to tactical warfare. By "Central European mentality," I mean the huge air, ground and naval threat held to be the core of any future conflict in Europe. Next, tied in with the first factor was the commitment of large portions of our tactical fighter force to nuclear missions. Another factor was the commitment of large numbers of A-10s to support the Army in a very inhospitable environment.

How have these factors affected our doctrine? First, in the air superiority arena we really see no change to our FM 100-20 statement about air superiority. AFM 1-1, published in February 1979 reiterated the premise that air superiority is essential to the successful conduct of combat operations--

air, land or sea. (9: 30) AFM 1-1, Vol 2, published March 1992, says the same thing in a slightly different manner:

Aerospace control normally should be the first priority of aerospace forces. (1:135)

AFM 1-1 goes on to say that aerospace (for our purposes--air superiority) should normally be a commander's campaign priority and gives three reasons why that is the case. First, control enables reconnaissance and surveillance missions while denying those same missions to the enemy. Second, control permits interdiction and CAS missions with relative impunity. Third, control permits freedom of movement and action for the surface forces. (1:136)

AFM 1-1, March 1992, lumps together the missions of interdiction and close air support. While at first glance this might be considered as a diminution of those roles, it is in fact more correctly a realignment of the intent of the two mission areas. AFM 1-1:

The ability of air interdiction and close air support to destroy and disrupt enemy forces, as well as the burdens posed by these aerial threats, gives these missions the potential to make an especially important contribution to the success of a campaign. (1:162)

The intent, clearly, is to tie the interdiction and close air support campaigns to the surface effort to ensure a harmony of effort.

AFM 1-1 has added another dimension to our three "pillars" of tactical fighter doctrine--the area of strategic attack--where technology and a leap in doctrinal thought has made a major change.

Strategic attacks are defined by the objective--not by the weapon system employed, munition used, or target location. (1:147) (emphasis added)

Therefore, it is now okay to use B-52s in the CAS role and F-16s in a strategic attack role. The mission is the determiner rather than some other less distinct criteria such as the label of "strategic bomber" or "tactical fighter-bomber."

In the final chapter, we will discuss the future and any doctrinal changes that may be necessitated by what we see upcoming in the years ahead.

VII. SOME THOUGHTS OF THE FUTURE

From my research, I conclude that tactical fighter doctrine has remained amazingly resilient. The major factors influencing change have been the doctrine of unity of command from North Africa--although not adhered to in either Korea or Vietnam--and the advance of technology. Basic doctrine, as outlined in AFM 1-1, Vol 1 and 2, is established and in a very readable form--for a change! However, we have not necessarily reached closure on tactical fighter doctrine with our new AFM 1-1. The question of this final chapter is 1) are changes required in our tactical fighter doctrine and 2) what may the future pitfalls be?

Stealth. It would be easy to follow the path of the "bombers are invincible" group by simply changing the phrase to "stealth is unstoppable." The only problem may be that when (not if!) a technological defense is found for stealth we may be unable to replace the capability lost by stealth aircraft no longer being stealthy.

Defense Suppression. Of major concern is our lack of commitment to development of a follow-on defense suppression aircraft. Defense suppression is not needed by stealth aircraft--in fact it is a detriment. However, if the stealth advantage is lost, we will have to have defense suppression capability--but from where? Additionally, much of our current interdiction forces are not stealthy and, therefore, heavily reliant on defense suppression assets.

Money and Force Structure. Another fear is tied to money and force structure in two ways. First, doctrine must lead to the correct employment of the assets we have available at any given time. But, budgetary constraints cannot be allowed to be the only determinant of doctrine. Fiscal shortfalls cannot be permitted to stifle new doctrinal thought nor doctrinal changes which may loom on the horizon in the form of technology. One only has to look back at the lesson learned during the Civil War--that frontal assault was really a way to get soldiers killed fast--and then realize that it was not learned in Europe 50 odd years later--World War I "over-the-top" charges. Obviously, many other failures could be found as well. Money alone cannot drive what our doctrine ought to be even though scarce resources may drive us to a doctrinal approach that is not optimum.

Second, we cannot be stupid about the force structure we buy. In the future, I cannot see us being able to afford a single-mission aircraft in light of the constrained budgets. Future fighters will, of necessity, have to perform more than one role--even though a particular unit might not train to all the roles the aircraft is capable of fulfilling.

Dogma. Doctrine cannot be allowed to become dogma--the only way to do something. We must never forget that dogma does the exact opposite of what we wish doctrine to accomplish. Dogma stifles thought! Doctrine should guide thought but not constrain it.

Low-intensity Conflict. AFM 1-1 cannot be said to be deep in doctrine on the conduct of low-intensity conflict. In fact, probably the most telling aspect of AFM 1-1 is its failure to discuss what Air Force doctrine for low-intensity conflict should be. In the segment that discusses the subject in AFM 1-1, only joint and Army doctrine are mentioned. (1:53-54) Based on our current expectations of the types of conflict in which we can expect to engage, low-intensity conflicts are much more likely than general or even regional war. Doctrinally, the Air Force is not prepared for such conflicts.

Need for Change

I have said that AFM 1-1 is overall a good doctrinal document. However, having said that, there are some doctrinal shortfalls that must be addressed in the future.

- 1) We have no written operational level doctrine for several very important facets of the tactical air forces: a) low-intensity conflict, b) employment of composite wings, and c) other operations short of war such as peace-keeping or humanitarian operations. These are just three examples--I am certain there are probably others as well.
- 2) We have failed to involve operators in the doctrinal development process to the extent we should--particularly junior officers. I cannot help but note that during the doctrinal heyday of the interwar years many of those working on doctrine were captains--Chennault and Kenney to name two. We must continue the involvement of those who currently work on doctrine while involving operators more deeply in doctrine development.
- 3) We do not introduce our young pilots early enough to doctrine. Basic, operational and tactical level doctrine need to be an integral part of the education process for our developing pilots. These doctrinal lessons are essential for the continued growth and

development of Air Force capability--and are an area in which we have failed to fulfill the need.

Conclusion

Tactical fighter doctrine has evolved since World War I and, hopefully, will continue to evolve as innovative thought and technological change dictate modification. However, for the most part, the doctrinal lessons learned have built upon each other rather than causing extensive revamping of thought. That is, doctrinal change is generally evolutionary rather than revolutionary. The challenge to our military leadership, in the face of the vastly changed (and changing) situation of the 1990s, is: how can we ensure our doctrine remains flexible and continues to evolve, our technology remains on the leading edge, and our minds remain open to innovative thought so we can ensure our capability to meet any threat to the national interests of the United States?

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