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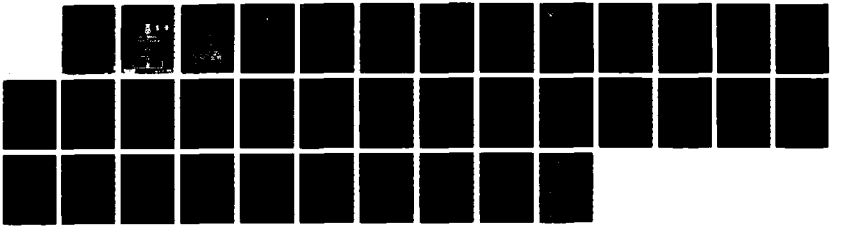

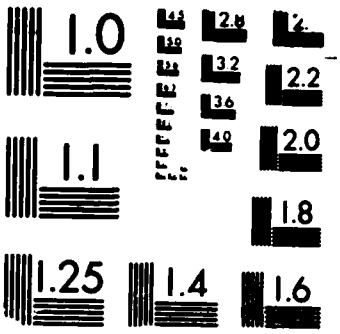

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NIGHT FIGHTER SQUADRONS: A LOOK AHEAD

Major David L. Fleming 88-0925

"insights into tomorrow"

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TITLE NIGHT FIGHTER SQUADRONS: A LOOK AHEAD

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Recent technological developments and initiatives from senior Air Force officials indicate the Tactical Air Forces will be striving for a more credible night fighting force in the near future. The focus of the study involves organizational and training requirements needed for a more credible night fighting force. The study evaluates night fighter squadrons as one possibility. The study concludes that, with proper emphasis and guidance, a credible night fighting force is possible.

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PREFACE

The subject of night flying is not new, nor is it unique. Recent technological developments and initiatives from senior Air Force officials indicate the Tactical Air Force will be striving for a more credible night fighting force in the very near future. The author feels that this concept can be attained, but not without some difficulty. The organizational and individual skills required to fly and fight at night are much more demanding than those required in the day.

This study will focus on night flying in terms of the organizational and training requirements needed to maximize aircrew proficiency and capability. It will attempt to provide a plan or roadmap in order to achieve the beginnings of a true night fighting capability. The efforts of this study are not intended to undermine the views of the Tactical Air Force concerning the employment of this night fighting capability.

ABOUT THE AUTHOR

Major David L. Fleming received his commission in June 1975 through the United States Air Force Academy. After graduation from Undergraduate Navigator Training, he was assigned to TAC and PACAF units as a Weapon Systems Officer in the RF-4C. In 1979, Major Fleming completed Undergraduate Pilot Training and was assigned to TAC and USAFE where he flew the F-111D and F-111E aircraft. During those assignments, Major Fleming served at both squadron and wing levels as a flying scheduling and training officer, weapons and tactics officer, flight commander, and executive officer.

Major Fleming has accumulated over 1800 hours of flying time in the RF-4 and F-111 aircraft. Additionally, he has flown over 650 hours of that time at night during normal continuation training and numerous night tactical exercises.

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EXECUTIVE SUMMARY

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"insights into tomorrow"

REPORT NUMBER 88-0925

AUTHOR(S) MAJOR DAVID L. FLEMING, USAF

TITLE NIGHT FIGHTER SQUADRONS: A LOOK AHEAD

I. Purpose: To investigate the validity of Night Fighter Squadrons as a way for the USAF Tactical Air Forces to organize for a credible night fighting force.

II. Problem: With the development of LANTIRN and radar technologies, night flying and fighting has the potential to become a viable force. Acceptance of the concept requires a new perspective in organization and training.

III. Data: Historical data from World War II and Korea demonstrates the effectiveness of Night Fighter Squadrons as an effective night fighting force. Well established Soviet doctrine demonstrates their willingness and capability to fight at night and in adverse weather conditions. To counter this ever increasing threat, the TAF must prepare for night operations and look for ways to develop better tactics and training. Today, avionics and radar technology allows man to fly and fight safely and effectively at night. Senior Air Force officials have also indicated a desire to develop better training for night operations. This can be accomplished but not without some difficulty. Research shows some night work can be detrimental to the health and welfare of the worker, but with proper foresight and planning, many of the anticipated problems can be eliminated or reduced. To establish a credible night fighting force, the

subject of proficiency must be addressed. Historical data shows that fighter crews could not be proficient both in day and night operations. Organizing into Night Fighter Squadrons could help develop that proficiency.

IV. Conclusions: The concept of organizing into Night Fighter Squadrons can establish a credible night fighting force with true capability. Acceptance of this concept will dictate that emphasis be placed on night fighting and its employment.

V. Recommendations: The Tactical Air Force must establish realistic training methods in order to achieve a night fighting force. The concept of Night Fighter Squadrons offers one such method. An alternative method could be found in the establishment of a Night Tactical Warfare Center. This concept could work in conjunction with Night Fighter Squadrons or as a separate organization in lieu of Night Fighter Squadrons. The Tactical Air Forces need to examine current night training and night capabilities in order to develop a credible night fighting force for the future.

We are of night, and night hugs close her own,
The long black caverns of her sleeves are thrown
Around us, and she bids the circling clouds
Encompass us with vapour as with shrouds.
O.C. Chave
from Night Take-Off (5:i)

In times of war and conflict, the hours of darkness have long been considered a period of rest or sanctuary from the normal confusion of daylight warfare. Simply stated, this was because one cannot effectively fight what one cannot see. However, today's aviation technology allows man to fly and fight at night effectively and efficiently.

The advent of radar technology, as well as, the development of Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) systems are examples of this increased capability. Today, senior Air Force leaders foresee these technological advances towards night operations as having "the same radical impact on tactical conventional warfare as did the tank, the machine gun, and the parachute" (10:52). Recently, these technological advances and increased capabilities were the subject of a Tactical Air Forces Conference where General W.L. Creech, then Tactical Air Command (TAC) Commander, emphasized, "We must get into aerial operations at night . . . we are still where we were in World War II in night operations" (15:42). No doubt, the Tactical Air Force (TAF) will get more

involved in night operations but not without some difficulty. These difficulties, however, can be minimized with proper foresight and planning.

In order to demonstrate the importance of night training to tactical aviation, this paper attempts to foresee and plan for night operations by beginning with an examination of yesterday's accomplishments and today's achievements in night flying. Then, by outlining anticipated difficulties associated with training at night, a better understanding of the need for careful planning and organization can be realized. Finally, and most importantly, this discussion offers a plan or roadmap for how night training can be better accomplished in the future. This paper should demonstrate the gains that can be made by conducting flying operations solely at night.

- WHY TRAIN AT NIGHT?

Lessons from the Past

The first incident of night aerial attack probably occurred during the Italo-Turkish War of 1911-1912 when the Italians used aircraft to drop small bombs and grenades in Libya (2:1). From this somewhat simple beginning, night fighter operations were, no doubt, born.

Following World War I, aviation and its application to war

was recognized as a rapidly developing technology. Recognized, too, was the importance of conducting aerial operations at night while the enemy slept. Instrumentation such as gyroscopic instruments and accurate altimeters were developed during the post war years enabling weather and night flights to become routine and safe (27:14).

World War II saw further development and recognition of night operations. Squadrons were activated and aircraft were designed specifically for night operations. A total of twenty two USAAF Night Fighter Squadrons were formed during this time serving in Belgium, France, Italy, China, the Southwest Pacific, and the Marianas (6:ix). The European theater of operations saw the RAF Beaufighter and Havoc as well as the German Me 109 engaged in night combat. The P-61, Black Widow, was the first US aircraft designed as a night fighter from the start, making its debut in the Pacific (18:24). The Japanese, in response to the heavy Allied night bombing, developed their version of a night fighter, the Gekko (7:vii). These aircraft displayed varying degrees of success but, most importantly, by the end of World War II, all major air forces in the world had recognized the tactical application of fighting a war at night. However, no one had developed a technique or plan for performing precision attacks against ground targets under night conditions (27:15).

The post war years saw technology once again take great strides in aviation. Jet fighter aircraft were developed and

every effort was taken "to ensure its attack effectiveness in clear daylight conditions" (27:17). Thus, night operations and night ground attack issues were never seriously considered in fighter development and training programs. Instrument and night flying training were emphasized only for proficiency and safety (27:17).

The Korean War brought about a significant change for night operations. It was soon realized that due to continued heavy pressure from advancing North Korean forces, most of the enemy's combat and support force movements were occurring at night (27:19). Once again, the sanctuary of night became important. Two B-26 light bomber squadrons, two F-82 all weather squadrons and a single Marine F-4U Corsair squadron formed the nucleus of night interdiction during the Korean War (27:19). The initial results of those aircraft were not spectacular, however, due to serious navigation and night visibility problems. The multi-crewed B-26 emerged as the workhorse of night interdiction and provided the greatest success of any type aircraft for night attack (27:20). In addition to its multiple crew, it could carry a wide variety of munitions, had a relatively long endurance, and was capable of being modified with updated instrumentation and electronic gear. For these reasons, the B-26 became the primary aircraft for the night interdiction campaign and was the most effective system throughout the Korean War (27:20). Jet operations

however, remained predominantly daylight and clear weather (27:23). At the end of the War in 1953, tactical fighter aircraft were generally no better equipped to perform night operations than they had been at the end of WWII (27:25).

The Vietnam conflict saw night operations again become increasingly important to tactical planners. Night interdiction and ground attack were being recognized as necessary and desired forms of air combat. The introduction of the F-111, which was developed as an all weather attack aircraft, made significant contributions to Southeast Asia (SEA) and the night arena. The overall assessment of the F-111's role during night operations in SEA is that it was an effective night attack system having flown over 450 sorties at night into North Vietnam with more favorable results than any other attack system (27:41).

Over the years of aviation history, flying to fight at night has evolved into a safe and effective means of defeating enemy operations. From the North African desert to the jungles of North Vietnam, the enemy's sanctuary of darkness has been steadily disrupted. The importance of night ground attack can now be understood. This has been a brief lesson from past combat experiences in night ground operations, but what about today? What do our adversaries think about night operations? Are they striving for an effective night capability?

Lessons Today

One only has to recognize the geographic location of the Soviet Union in order to realize that, generally, much of the Soviet pilot's day will be spent flying during the hours of darkness. As a matter of fact, meteorological studies show that much of European Russia (excluding Siberia and Soviet Central Asia) averages only one hour of daylight during the winter months while the months of summer usually average only eight to ten hours per day (8:430). Therefore, it should not be surprising to learn the Soviets place a great deal of emphasis on night operations and training. "Soviet doctrine, history, and training programs indicate a capability and willingness to fight at night or in adverse weather conditions" (24:11). This willingness to conduct night operations stems from experience. "Their experience in night operations during World War II has formed the foundation for continued emphasis on around-the-clock operations, and there are no indications that they will accept anything less than an effective night capability" (26:3).

Soviet experts show a definite belief in the principle of uninterrupted combat activity. This concept of "military operations must be pursued without interruption or letup in any weather or season of the year and at any time of the day till the enemy's utter defeat" (11:12). In observing this doctrinal approach, the US must prepare for night operations on the

tactical battlefield. Soviet training provides special emphasis to night training in support of their night offensive doctrine. Today, studies indicate that Soviet night training comprises 30 to 40 percent of their total training (24:10).

To counter the ever increasing Soviet threat and principle of uninterrupted combat activity, the TAF must prepare for night operations and look for ways to develop better night tactics and training. The only way for the US to stay ahead is to be innovative in its approach to night attack training. All indications point to the fact that the "Soviet Union is learning to fight at night, and since the US has the edge in technology, it should be exploited to counter the USSR capability" (15:42).

Lessons for the Future

Presently the US does have the edge in technology, but continued advancement in Soviet technology indicates they may very well match our capabilities in night warfare in the very near future (15:42). The only way the US can stay ahead is to be innovative in its use of this technology. "Night all weather operations have been possible for years on air-to-air missions, but except for F-111 crews, air to ground practitioners have been restricted for the most part to daytime and reasonably clear weather" (13:55). The F-111 has proven itself in combat and remains the only true night all weather

capable interdiction aircraft in the TAF inventory (16:61). However, as senior Air Force officials recently stated, there are only 200 of these aircraft in the tactical force today and that is not nearly enough to provide a credible night fighting force (16:62). Today though, the Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN) system is at the point of full scale production (10:53). This technology will give the pilot "nighttime scenes outside of his aircraft as if they were actually visible to him in the adequate light of early evening" and will be installed in all 392 F-15E and some 300 F-16C aircraft in the very near future (10:53). These new aircraft, combined with the planned transfer of SAC's FB-111s to the tactical forces in the early 1990's, would more than double the TAF's present night warfare capability (20:29).

Historically, night operations are effective if applied correctly. The enemy is training to fight at night and believes that "neither darkness nor any other limited visibility conditions should be allowed to affect high combat activity" (11:13). Today, LANTIRN and radar technology enable man to fly and fight safely and effectively at night. This night capability can deny the enemy the sanctuary of darkness that he once enjoyed, but not without proper thought and planning by today's TAF.

CHALLENGES TO NIGHT WORK

Some thought and proper planning can alleviate some of the immediate conclusions that come to mind involving night work. The concept of working only at night immediately brings to mind the cliche, "it's too hard to do". Working at night is a difficult situation but not insurmountable, if given some thought.

Man is conditioned to work in the day and sleep at night. This conditioning is due to circadian rhythms which govern many biological variables in the human body, such as pulse, blood pressure, and temperature. Researchers believe these rhythms are hereditary and form part of the genetic heritage of man (1:14). To reverse what nature has programmed requires the recognition of several potential problems or challenges. Motivation and fatigue are two prevalent problem areas that can affect an organization dealing with work activity at night (1:--).

It should not be surprising that motivation can be a major problem in dealing with night workers. Night work is not a new concept and quite often the night worker's performance is taken for granted as few actually see their work. This leads to a motivational challenge. However, researchers indicate night workers generally "feel that they belong occupationally to a special group within which relations with fellow workers are particularly close" (1:52). It has been found that there is

more cohesion among workers during night than in the day. Additionally, studies indicate there appears to be a special responsibility in ensuring continuity of production and output (1:52). These findings, however, do not eliminate motivation as a problem area that could affect a night organization, but it does bring to mind the potentially debilitating effects of night work. Equally debilitating are the effects of fatigue on a worker if not thoroughly understood.

Fatigue is obviously due, in part, to lack of sleep. This lack of sleep stems from the often fragmented or shortened sleep cycle of a night worker caused by the rhythm of appetite for food interfering with sleep (1:23). This fatigue appears to be due to the discordance of phase between two circadian rhythms (1:23). Scientific tests have demonstrated this factor by indicating workers at night perform "in a state of nocturnal de-activation and . . . sleep in a state of diurnal re-activation" (1:24). Subsequently, fatigue can often impact performance. Performance studies indicate an increase in reaction time and a decline in performance occurring, generally, between the hours of 4 a.m. and 6 a.m. concurrent with a fall in body temperature (1:22). However, very recent studies by chronobiologists (experts in the natural rhythms that govern virtually every body function) have proven that taking biological clocks into account can actually improve employee health and productivity. These researchers found that

only eight percent of those on night work for long periods of time were overcome by sleepiness and fatigue (17:108).

The overall conclusion which emerges from these seemingly conflicting thoughts is that night work can be fatiguing and is liable to affect the physical and mental health of the worker. Regardless, the need to protect the physical and mental health of the worker at night must be understood and not be underrated (1:10).

These are only a few of the challenges involved with night work. What has been mentioned thus far concerns research and studies involving primarily blue collar factory workers. Flying units are made up of highly motivated and dedicated personnel, but as one senior Air Force official noted in his work on the subject, "dedication may not last long, however, when there are no rewards or incentives for so much extra effort, and working at night is an extra effort" (25:29). Therefore, the TAF must recognize these challenges before implementing night operations on a continuous basis. The effort made in correcting or alleviating as much hardship as possible could very well lead to a better and more capable fighting force.

This paper has thus far discussed why the TAF must train at night and what challenges to night operations can be expected. However, no written material appears to offer a plan or discussion as to how forces should organize and train at night. A squadron organization dedicated to flying night

sorties may be the solution. Should the TAF activate these night fighter squadrons and, if so, how should they train?

NIGHT TRAINING--A PLAN

In order to suggest an organizational and training plan for night fighter squadrons, certain requirements must be recognized. First, there must be a commitment to night fighter operations in order to begin development of night fighter squadrons. This commitment must begin with senior Air Force leaders. The concept of night operations and night fighter squadrons can only be established with the backing of senior leaders. If there are only a few proponents of night fighting in the senior ranks, then funding and training will be lacking and inadequate (14:29). Recently US Army and Marine Corps leaders restated their beliefs in night operations. "If we can fight as well at night as in the day, attack rather than just defend, we will have the toughest, most combat ready army in the history of warfare" (14:29). The doctrine of the US military has changed and senior planners must realize the need to "learn to use the night as a weapon" (14:29).

In learning to use the night as a weapon, a second requirement must be recognized. That is, proficient night fighter forces require specialization in night operations. After studying the results of night fighter squadrons during

WWII, it was discovered that "the skills needed for night bombing were best developed when the crews specialized in night bombing" (23:252). More specifically, in reviewing the results of the 7th Air Force during 1944, documents stated "there was too much difference in piloting, navigating, and bombing by day and in carrying out these same duties at night. Crews could not be equally proficient night and day" (23:253). This assumption would remain true today because although technology has changed, man remains essentially the same.

Assuming the recognition of commitment and specialization for night fighter squadrons is established, a certain amount of reorganization in the TAF will be necessary. The establishment of night fighter squadrons will require recognition of the following organizational, operational, and support requirements.

Organizational Requirements

To establish the concept of night fighter squadrons in the TAF, senior leaders should practice a "walk before you run" mentality in organizing these squadrons. Rather than activating or designating one-half or one-third of all tactical fighter squadrons as night fighter squadrons, the TAF should only designate a few such squadrons. Based on the development of LANTIRN and present night capable aircraft, it would be feasible to establish only three such squadrons in the

beginning. One night fighter squadron, in each wing of F-111D, F-15E, and F-16C aircraft, would be a reasonable starting point. These aircraft represent the TAF's present and future night capability and would then form the nucleus of the night fighter force.

In creating these squadrons, the crews and flying personnel should be carefully selected. As was determined in the past, highly skilled crews are a necessity (23:252). Of course, all flying skills are needed for tactical operations in the day, but these skills are even more in demand at night. "If flying is a calculated risk, night flying, too, is a calculated risk and to a fractionally greater degree. And if flying . . . is not very forgiving of sloppy performance by the pilot, night flying is considerably less so" (3:18). Night operations require greater teamwork and crew coordination. At night each plane is alone and there can be no dependence on simply following the flight leader, as too often is the case in daylight (23:252).

As was previously stated, morale and motivation could be a hindrance to this type of flying operation. The lack of glamour that night operations seems to offer could be detrimental if not confronted early and properly. Every effort must be made to minimize these effects. Incentive pay for night flying may not be feasible, however, other incentives could be effective. A distinctive Air Force Specialty Code (AFSC) could be established for each member of a night fighter squadron.

This could take the form of a specific suffix or a prefix to the 1115 and 1555 career fields. This may not be considered much of an incentive but it would contribute to the feelings of elitism and fraternal order. As was found during WWII, the "crews who consistently flew night missions built up an espirit de corps not always found on day bombers" (23:252).

Another incentive to offset any morale and motivational problem would be in the form of length of assignment to a night fighter squadron. Typically, flying assignments are 36 months in length. So as not to disturb the normal assignment cycle, selected personnel could be assigned to a night fighter squadron for only 18 months of their 36 month assignment. This "limited" time frame would provide incentive in that individuals would know they are not being relegated only to night operations for the remainder of their careers. During this assignment, they would gain expertise and provide a credible capability for the TAF and tactical operations. This concept would have an added benefit in that when normal permanent change of station (PCS) rotations occur, other squadrons would then benefit from these personnel with "specialized" experience and expertise in night operations. This would increase the overall night capabilities of the TAF. However, after completion of an initial 18 month assignment, subsequent selection for duty in a night fighter squadron should require a volunteer status. It has to be assumed a

small percentage of individuals will, no doubt, desire to remain in night operations. But more importantly, the requirement for a volunteer status for subsequent assignments to a night fighter squadron would help alleviate any negative feelings about such organizations in the TAF.

Operational Requirements

Obviously, night aircrews need realistic training standards and requirements in order to become proficient night fighters. Specifically, TACR 55-50, Night Flying for All TAC Aircrews, outlines that "in short, potential enemies will be equipped and prepared to fight at night. Thus, TACAIR must have the versatility, adaptability, and capability for night employment" (22:1).

In keeping with this philosophy, the TAF has created regulations and manuals to ensure aircrews maintain night proficiency and capabilities in a safe and effective manner. However, these manuals and regulations were written for a tactical force that trains predominantly in daylight hours. Consequently, these same regulations and manuals must be reviewed, re-evaluated, and edited for the aircrews of night fighter squadrons. Realistic guidelines are necessary for a credible night fighting force.

Presently, TACM 51-50, Tactical Aircrew Training, defines a night sortie as one "which the takeoff or landing and at

least 60% of flight duration or one hour flight time, whichever is less, occur during official hours of darkness" (21:3-2). Further, the official hours of darkness are defined by AFR 60-16, Flight Rules, as the time between official sunset and official sunrise (19:15). Consequently, by definition, an aircrew can log a night sortie with very little time spent in actual conditions of darkness. This same aircrew legally can update their currency but certainly not their proficiency. The regulations must be written with night operations in mind and in a realistic manner in order to be effective. Realistic regulations will bring about realistic training for aircrews.

Another operational requirement in need of adjustment is the scheduling of operations. Obviously, a night fighter squadron cannot operate as a tactical fighter squadron does due to the difference in time. Rather than the typical 5 day work week, a night fighter squadron would operate on a 4.5 day work week. The squadron would fly Monday through Thursday and work one-half day on Friday, primarily involving administrative related duties and specialized ground training. This type of scheduling would allow an adjustment of circadian rhythms on Friday so that off duty time could be spent recreationally with families, thus helping reduce any morale related problems.

Providing the proper guidance and training environment for night operations can help establish a credible and capable night fighting force, but learning to operate at night is a constant learning experience. Consequently, steps should be

taken to learn from other organizations who deal with night operations. The Military Airlift Command (MAC) employs a wide variety of aircraft and equipment to 19 units supporting special operations throughout the US and overseas (9:15). Special operations quite often deal with night flying and night related training activities. Excluding the mission, equipment, and aircraft differences, much can be learned from these organizations pertaining to scheduling, morale, motivation, flying safety, and training programs involving night operations. Learning from others can never be underestimated. In order to build a credible night fighting force for the TAF, command parochialism cannot be allowed to stand in the way or interfere.

Support Requirements

Because a night fighter squadron would be operating and conducting its operations while the majority of the base population is off duty, consideration must be given to proper support arrangements for a night fighter squadron. Support organizations cannot be expected to extend their hours of duty to accommodate night fighter squadron personnel, however an adjustment or modification of their hours of operation could easily serve both tactical fighter squadron and night fighter squadron personnel. This area of discussion requires caution as a motivational and morale problem could easily become

exaggerated if night fighter squadron personnel can not accomplish normal base-wide administrative needs due to their hours of operation. Special consideration may be all that is required of a tactical fighter wing's organization in accommodating a night fighter squadron, not necessarily special treatment.

Support, operations, and organization are three basic requirements needed in developing the concept of night fighter squadrons in the TAF today. The aircraft and equipment are capable of performing ground attack at night, but is the man? Careful planning and thought can produce a change in the TAF's mode of operation and thus provide a credible night fighting force in the form of night fighter squadrons. Flying to fight at night is difficult and not without problems, yet night fighter squadrons may be the solution to increasing the TAF's night capability, but are there other recommendations?

FUTURE ALTERNATIVES

The concept of a night fighter squadron represents one solution to the TAF's need for increased night capability and training but also presents significant problems in administration and conduct. The examination of possible integration of night fighter squadrons into the TAF leads to other feasible alternatives.

One such alternative could be found in the establishment of a Night Tactical Warfare Center (NTWC). A NTWC could be developed as the center for night operations rather than individual night squadrons where night 'expertise' could not be realized until PCS rotations occur. This would provide the TAF with a single headquarters for night operations. This concept would eliminate the need to "convert" three established tactical fighter squadrons into night organizations, thus lessening the burden of organizational support of night activities. The NTWC could be conducted and manned specifically with "experts" on night operations. These personnel would consist of tacticians, psychologists, sociologists, and flight surgeons trained specifically for dealing with problems and solutions for night operations in the air to ground environment. The NTWC concept would provide a focal point of expertise in night fighting in the tactical environment. An added benefit of the NTWC could be realized if it were to act as a complementary organization to the present Red Flag operations. The TAF would then have two major organizations devoted to day and night tactical operations.

Another alternative is the integration of night Red Flag exercises on a continual basis. Presently, Red Flag operates principally in daylight conditions but it is feasible that night operations could be included on a regular basis. On the surface, the Las Vegas location of Red Flag would allow

night flying operations to have a minimum impact on the community and environment.

Still another possible alternative to night fighter squadrons in the TAF could be found simply by increased emphasis on night operations. If regulations and manuals were rewritten with this increased emphasis in mind, a credible night fighting force could be attained. Proficiency would, no doubt, remain limited since all flying would not be accomplished solely at night as in a night fighter squadron, but the importance of night fighting could be realized with a genuine increase in emphasis in the field.

CONCLUSION

Flying at night is, at best, difficult and demanding, but as the author of Night Fighters stated, "All flying is uplifting and exciting . . . but flying to fight by night reaches pinnacles of human experience that are touched but rarely" (5:7). Today's technology allows man to reach those rarely touched "pinnacles of human experience", but technology alone does not create a credible night fighting force. The TAF and senior Air Force leaders must be innovative with this technology in order to create such a force. This paper has demonstrated that the concept of night flying and training is not unique, nor is it without difficulties, problems, and

risks. There is "no question that the higher risks of night flying are manageable. But it takes training, proficiency, and study . . . to identify the factors that are different from day flying" (12:50). As the present TAC commander, General Robert D. Russ, recently stated, "there is a risk-reward ratio in realistic training and our training must be realistic" (28:--). The "risk" of night fighter squadrons may very well produce the "reward" of a very credible night fighting force for today's Tactical Air Forces.

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