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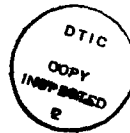
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RED FLAG: AFTER SIX YEARS, WHAT NEXT?

BY

COLONEL ROBERT H. SCIBLE
USAF

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15 APRIL 1982

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CHAPTER I

INTRODUCTION

The author served as the Director of Operations of the 4440th Tactical Fighter Training Group (Red Flag) from July 1979 to June 1981. While this is only two of the five plus years of Red Flag's existence, I also participated in four exercises in the two years prior as the Commander of the 428th Tactical Fighter Squadron, also based at Nellis AFB, Nevada. This association has allowed me to observe Red Flag from two perspectives and to note the many pressures exerted on the organization for change. While each intended change is made in good faith, they are often made without the "big picture" in mind.

My purpose in writing this essay is to evaluate Red Flag today compared to its original concept and to make recommendations on where I feel it should go in the future. In order to accomplish this objective, I will discuss the organization, the exercise process, the environment at Nellis, recent trends, limitations and finally my analysis and recommendations. These will necessarily be based on my perceptions and, therefore, do not represent any official position within the U.S. Air Force.

CHAPTER II

BACKGROUND

In order to develop an understanding of what Red Flag is all about and how it got started, an audit trail needs to be established. This short study of history should give the reader a feeling for the level of effort and level of interest devoted to Red Flag in its formative years.

The Development of a Concept

During the period immediately following the war in Vietnam, the Tactical Air Forces came to the realization that a major change in their orientation had occurred. Prior to Vietnam, the emphasis had been on tactical nuclear weapons. Tactics and training in the air-to-ground environment were primarily oriented to the nuclear battlefield, at the expense of conventional warfare. Vietnam changed that concept to a major degree and forced the tactical forces into the realization of the need for conventional tactics and training to meet the growing conventional threat in Europe.

In 1973 and 1974, AF/X00 was receiving many reports from the field indicating a need for more realistic training programs that would integrate the many facets of tactical aviation on the modern battlefield. A concept was developed within the air staff and briefed to then Brigadier General Gabriel, AF/X00. He subsequently had the concept presented to

Major General Knight, TAC/DO. The concept was refined and sequentially presented to AF/XO, Assistant SECAF for Research and Development, and the Secretary of the Air Force. A tentative green light was given to the program, and it was presented to General Dixon, TAC/CC. He directed that the program be implemented at Nellis AFB, NV.¹

The original concept was envisaged as a two phase program. Phase one was a "workup" program at home station for the units involved. Tactical Fighter Weapons School personnel, Threat Training personnel and Aggressor Squadrons would deploy to the TAC units for academics and relatively "low key" flight training. Phase two would involve deployment of the TAC units to Nellis for full scale tactics integration, a sort of graduation exercise. Due to resource constraints, phase one quickly became a responsibility of the home units without any outside help. Phase two has evolved into Red Flag as we know it today.

The basic mission of Red Flag was (and is) to provide a realistic training environment for TAC and other DOD units.² This realistic environment was composed of operating airspace, target arrays, surface and air threats, command and control, feedback systems and academics. Unique to Red Flag, and unlike major DOD exercises, the orientation was on individual crew members, flight leaders and unit commanders. Their real challenge was to integrate the forces at their disposal to accomplish specific missions. Emphasis was placed on tactical innovation. Integral to the program was feedback on success and failure, with the lessons learned to be preserved and passed on to others. This issue will be dealt with to some extent later in this paper.

Each exercise is structured around a primary unit, which deploys 18-24 aircraft. Supporting units with detachments of 6-10 aircraft are also deployed to flesh out the scenarios and provide total force inte-

gration capability. The scenario is tailored to the primary unit's capabilities and wartime tasking. Typical missions would include close air support, interdiction, defense suppression, tactical resupply, air superiority/defense, search and rescue, and special operations.

A typical exercise is six weeks long (some are four weeks). Equipment is left in place for the duration of the exercise to reduce mobility costs, but aircrews and support personnel are rotated each two weeks to maximize exposure. In addition to TAC personnel there is extensive intercommand participation from Air Training Command, Air Defense Command, Air Force Reserve, Air National Guard, Military Airlift Command and Strategic Air Command. Interservice participants include Army, Navy and Marine Corps. Allied participation has grown slowly, but, now includes participants from twelve different nations. Growth in these latter areas was envisioned from the outset of the program.³

Growth Trends

Red Flag I was conducted at Nellis AFB, NV in December 1975. The total exercise involved 43 aircraft of six different types, 80 aircrew and 552 sorties.⁴ In comparison, in June-July 1980 the largest Red Flag to date was held. Designated the first "RDF Red Flag," it was shortened to only 22 flying days yet the following was accomplished: 146 deployed aircraft, 16 different types, six separate operating locations, 751 deployed aircrew and 5,107 sorties.⁵ While the sortie rate and number of operating locations were less, Red Flag 81-3 (a six week exercise) involved 217 aircraft and 1,302 aircrew⁶ The accomplishments over the years offer some staggering numbers when reviewed in the aggregate. Up through Red Flag 82-1 which ended in November 1981, the totals for all

Red Flags are: sorties-102,217; flying hours-174,453; aircrews deployed-19,753; aircrews flying from home station-23,391.⁷

The growth in participation is only one aspect of the changes that have occurred over the years. The first Red Flag used the briefing room of a Nellis based squadron for an operating area. The current facility for operations has over 25,000 square feet, with construction in progress to triple that floor space by the end of 1983.

Red Flag has also become big business financially in Tactical Air Command. The operating budget for exercise execution has grown from \$2.0 million in FY 76 to \$13.7 million in FY 82.⁸ The manpower associated with putting this effort together has not entirely kept pace with the growth in other areas. With the addition of four new manpower authorizations in 1981, the total strength stood at 36 officers and 18 enlisted.⁹

In addition to the permanent staff assigned from Tactical Air Command, liaison offices have been established by other commands/services to assist in coordination. So far, the following have established permanent Red Flag liaison offices at Nellis: Military Airlift Command; Air Training Command; Strategic Air Command; US Army FORSCOM; and Aerospace Rescue and Recovery Service.¹⁰

CHAPTER II

ENDNOTES

1. Wynn Lawrence, Maj., "Red Flag History", HO TAC/DOOOR Talking Paper, 27 November 1979, p. 1.
2. James C. Woods, Col., "USAFTFWC Mission Directives," 4440 TFTG/CC Memo, 12 November, 1981, p. 3.
3. Wynn Lawrence, Maj., "Red Flag", HO TAC/DOOOR Talking Paper, 10 January 1980.
4. Wynn Lawrence, Maj., "Red Flag History," p. 2.
5. "Red Flag Statistical Summary" 4440 TFTG Working Paper, Undated.
6. Ibid.
7. Ibid.
8. "Red Flag/Maple Flag Program" HO TAC/DOO Briefing, Undated.
9. Woods, p. 7.
10. Woods, p. 2.

CHAPTER III

WHAT MAKES A RED FLAG?

In order to plan and execute an operation the size of Red Flag, particularly to do it seven or eight times a year, with only a two week break between each exercise, considerable resources and effort are expended. In this chapter I will examine how Red Flag is organized to do the job and look at certain aspects of how it is accomplished. the purpose of this essay, I'll examine four major categories: Facilities and Support, Operational Planning, Execution, and Reports.

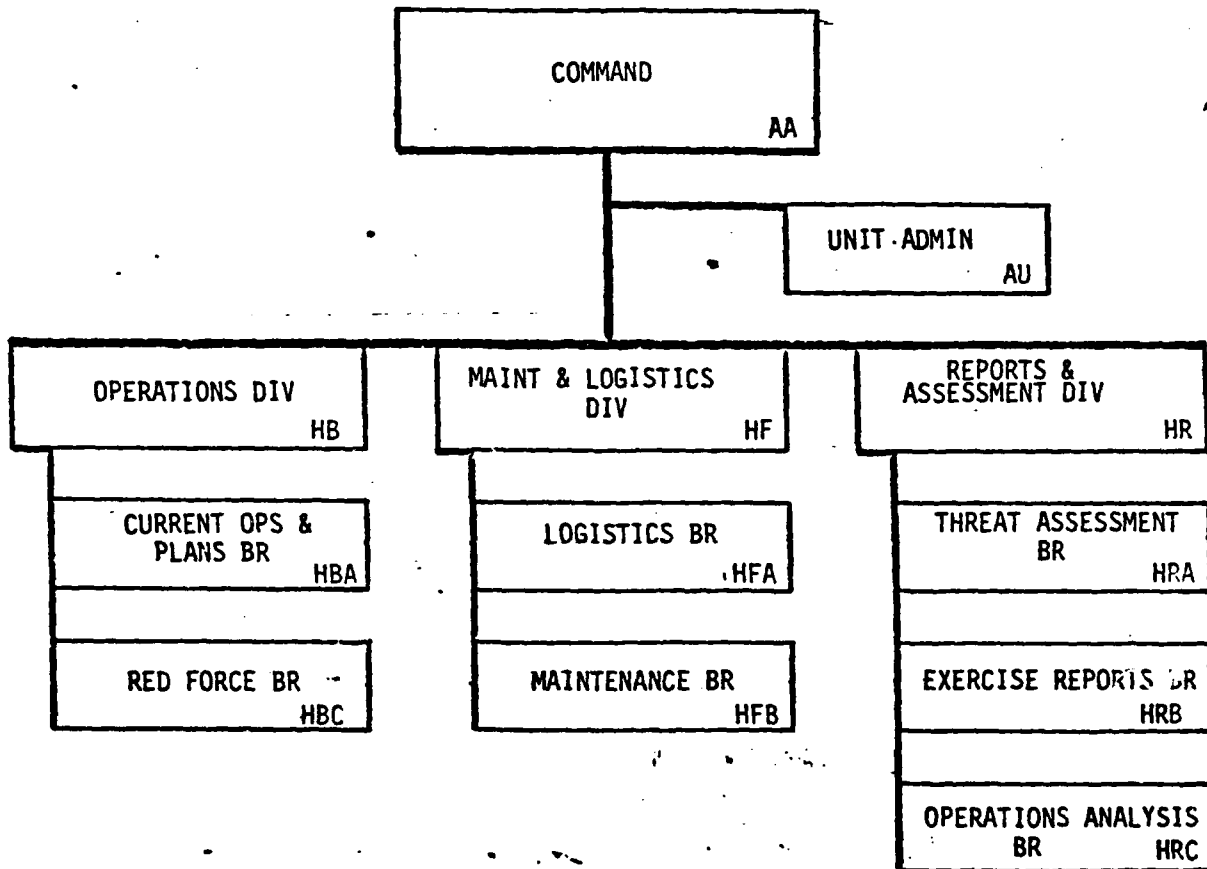
Organization

The organization and mission of the 4440 Tactical Fighter Training Group (Red Flag) is specified in TAC Regulation 23-24.¹ Three divisions are established under the command section to perform the functions of operations, maintenance and logistics, and reports and assessment. (See Figure 1.) Each division is subdivided into branches as shown. The correlation of each functional agency to the mission of Red Flag will appear in the discussion that follows.

Facilities and Support

Nellis AFB is probably the busiest Air Force Base in the USAF. To put the support and operational tasks into perspective, the reader needs

4440 TFTG (RED FLAG)



to understand the day-to-day activity level that competes for scarce resources, even before Red Flag appears on the scene. With over 9,000 people assigned, Nellis is TAC's largest base.² However, numbers of people don't convey the required picture on level of activity. Besides Red Flag, there are two major flying organizations at Nellis. The 57 Fighter Weapons Wing has seven flying organizations with approximately 110 aircraft assigned. The 474 Tactical Fighter Wing, a tenant TAC unit, has three squadrons of F16s with over 72 aircraft. When Red Flag is in session the combined fighter assets operating out of Nellis exceed 270 aircraft.

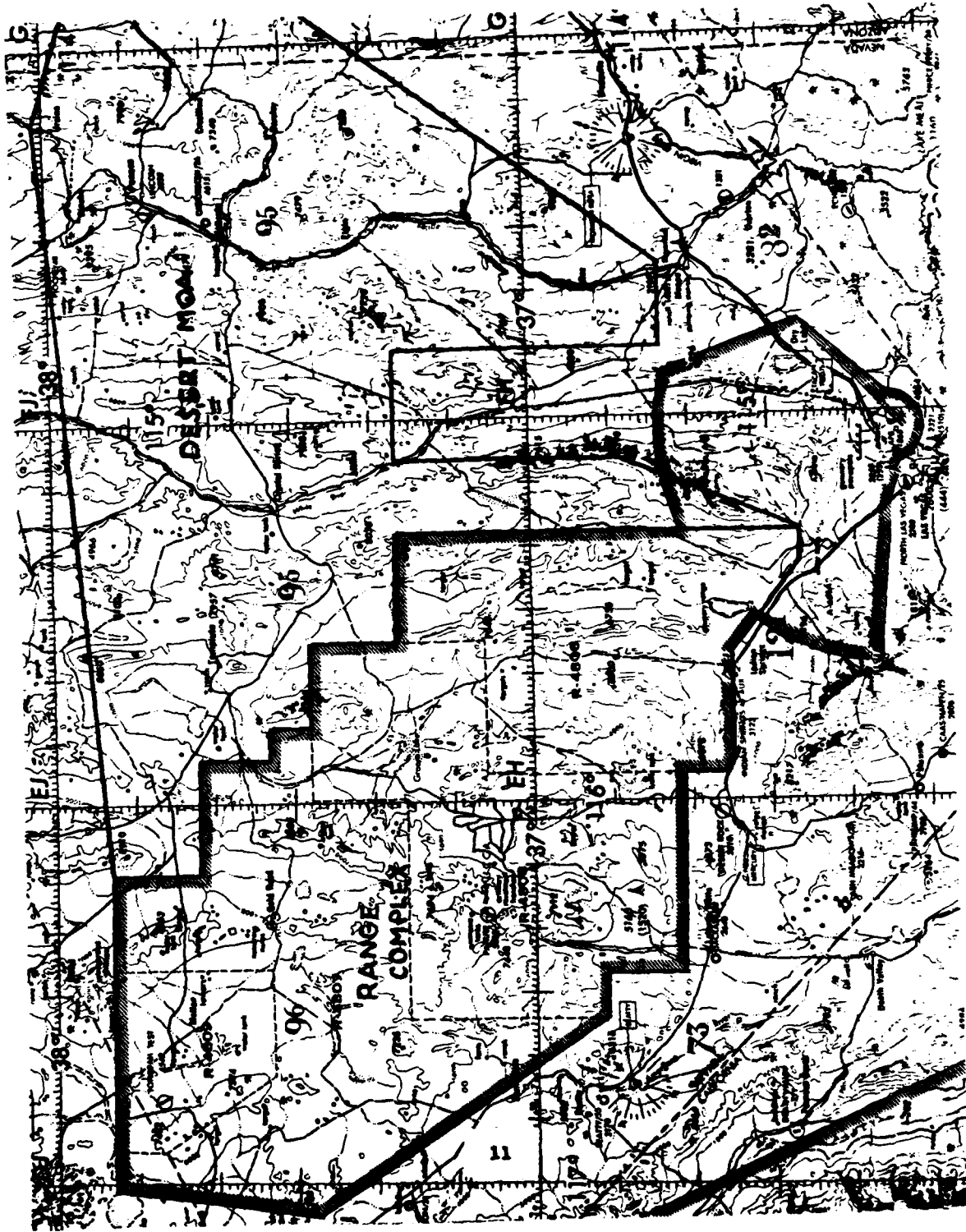
Red Flag moved into its current operations facility in early 1977. At that time the average size of Red Flag was 60 to 65 aircraft and the facility was quite adequate. Current exercises average over 90 aircraft and deployed crews about 180 to 190 each two week period. Serious overcrowding and lack of operations facilities hamper operations to a major degree. This deficiency will be rectified in 1983 with the completion of the building addition which will triple available floor space.

Maintenance space and aircraft parking have the same crowding problem, however no real relief is in sight. A new aircraft maintenance building was opened in 1981, but units must still share space for maintenance activities. As an example, Red Flag has less than half the space for maintenance that the 57 FWW has for about the same number of aircraft. Aircraft parking is maximized at current levels. Navy units have had to park with folded wings just to accommodate the total number of aircraft. Live ordnance capability is limited by available revetments (ten). Long range scheduling for live ordnance is required and aborts or weather cancellations wreak havoc with follow-on missions.

Red Flag maintenance has been authorized a limited set of ground handling and support equipment (AGE) to support deployed units and reduce mobility costs. A total of 111 pieces are authorized.³ Major long term cost savings could be realized by increasing this level, since airlift costs are the major item of expenditure for each exercise. However, as long as funds permit units to deploy with the necessary support equipment, AGE is not a serious limiting factor.

The logistics branch is responsible for seeing that everyone deployed to Red Flag has a place to sleep. This is no small task considering that only about half (90) of the officers and half of the enlisted personnel (700) can be accommodated on base. Each two week period requires approximately 800 beds be contracted for in Las Vegas. In a city which thrives on tourism this is no small feat. Costs are also high. In FY 81 \$1,133,109 was spent on contract quarters for TDY personnel.⁴

It is impossible to have a major flying exercise without the bombing and gunnery range on which to do it. In this respect, Nellis is by far the best equipped. Just to the north and west of Nellis is the largest TAC range complex in the United States. (Figure 2.) Managed by the USAF Tactical Fighter Weapons Center and the Department of Energy, the land space alone covers over three million acres. Adjacent to the range is an additional three and one half million acres which is not owned by the government, but over which the airspace is designated a military operating area for exclusive use by military aircraft. Within the range complex itself are an impressive array of tactical targets, ranging from missile sites and trains to a FEBA array containing over one thousand mock vehicles. There are 36 separate target complexes on which ordnance can be expended, many of which permit live ordnance



delivery. As might be expected, the demand for this range is great.

This subject will be addressed in detail later.

Operating in conjunction with the target array is the world's most sophisticated simulated threat array. There are currently over 45 simulators on the two electronic warfare ranges incorporated within the Nellis Complex. Most of these emitters, are video camera equipped and tied via microwave to a command center at Nellis. They accurately simulate the radar signature of most Soviet tactical systems including the SA-2, SA-3, SA-4, SA-6, SA-8, 57 mm and ZSU-23-4. This unique capability places additional utilization demands on an already overstressed system. Since most threats are tied via microwave to a computer system at Nellis, correlation via radar return is possible to provide feedback to aircrews about who is shooting who and when. This capability, coupled with video displays made available the following day, permits crews to accurately assess their success or failure.

Operational Planning

The operational planning process, or scenario development, is rather involved and lengthy. The process begins about eight weeks prior to the exercise start date. As a matter of reference however, most JCS exercises involving a comparable number of sorties start some two years in advance and involve ten times the number of planners.

The planning process is an overlapping one, such that three separate exercises are being dealt with at any one time. The following arbitrary time line in weeks illustrates the overlap:

Week#	1	2	3	4	5	6	7	8	9	10	11	12
Team #1 Exercise 1	Report											
Team #2 Exercise 2	Plan	Scenario										Execute
	Conf.	Development										
Team #1 Exercise 3	Scenario	Execute									Report	
	Development											
Team #2 Exercise 4											Plan	Scenario
											Conf.	Development

Approximately eight weeks prior to execution, operations and maintenance personnel from each unit come to a planning conference. At that time general guidelines for scenario development, maintenance requirements, ordnance needs, and support requirements are decided. Each exercise has an operations team of three planners assigned to it. These two teams alternate exercises, such that at the completion of one exercise the following week they begin planning for the next. This planning continues throughout the next eight weeks while their opposite team is in the execution phase.

Following the planning conference is a period of extensive "green eyeshade" work. Flying schedules are constructed for each day of the six week period to include targets, call signs, missions, airspace deconfliction and ordnance loads. All information is loaded into a computer for air tasking order generation. Each schedule is cross checked by three individuals to prevent scheduling conflicts and possible safety violations. The potential for the latter is high, with over 160 sorties traversing the range in two hours.

When the exercise starts, crews deploy to Nellis on the Saturday prior to Monday flying. On Sunday they receive a four hour inbriefing on local area procedures and exercise constraints. Prior to their arrival each unit has been sent copies of "Special Instructions and

General Information for Red Flag XX-X". This 75 page information document is published for each exercise and contains information vital to safe and efficient operations from Nellis AFB and within the range complex.

For the next six weeks, the team responsible for that exercise publishes the daily Air Tasking Order, the Daily Intelligence Summary, monitors the conduct of the exercise and attends the daily mass debriefings. Throughout the execution phase the current operations and plans staff must react to requests for changes from units, schedule changes, weather changes, changes in ordnance loads, and many other minute-to-minute requirements. Three days after the last debriefing, the planning conference for their next exercise begins.

Unlike the real world, Red Flag intelligence is responsive to the needs of the exercise. Based on the training needs and desires of the units involved, scenarios and missions are constructed. After this process is complete, the intelligence scenario is developed to fit the exercise. While the overall play is predetermined, daily adjustments are made to account for the success or failure of specific missions. Threat arrays are tailored to the specific mission scenario and the results of previous days activities.

Execution

While the previous section discussed some aspects of the execution phase of Red Flag, the orientation was primarily from the point of view of the Red Flag staff. In this section a brief discussion of the exercise play from the participant point of view is presented to round out the overall picture.

The commander of the primary unit is tasked with the responsibility

of managing the administrative aspects of the exercise for all participants. His efforts are key to the smooth functioning of day-to-day activities such as scheduling, debriefings and information flow. How and when to accomplish the myriad of administrative tasks is spelled out for the primary unit through a series of headquarters operating instructions published by Red Flag.⁵

For each scenario to be flown, a mission commander is designated from one of the units, usually the primary unit. His responsibility is to integrate all available forces assigned to that mission in a tactically sound manner. He utilizes the advice of experts from each weapons or support system to determine how best to employ each system to achieve the required effect, but he is ultimately responsible for developing and integrating the overall attack plan. This is no small challenge in itself, since the Air Tasking Order and Daily Intelligence Summary only assign the mission and define the threat. They do not tell him how to do it.

Coupled with this overall planning responsibility, the mission commander must analyze his plan for peacetime safety constraints and real world potential problems such as aborts, delays, weather and radar outages. After he has considered all the potential problems he can conjure up, the mission commander will conduct a mission briefing for all participants to insure every player understands his part in the overall attack plan. Considering that a given scenario may include upwards of 70 aircraft, the need for thorough planning and clear guidance becomes obvious. One of the more difficult aspects of this process is the integration of participants that are flying from locations other than Nellis. Coordination and briefing via telephone is difficult and time consuming.

As the scenario unfolds during execution, the mission commander must maintain an overall situational awareness of the progress of the mission and make any necessary adjustments. This problem is compounded in flight by extensive communications jamming and deception by the adversary.

Following the scenario execution, all crew members are debriefed by unit intelligence, with reports being fed back into Red Flag intelligence for integration into the scenario. Several hours after all aircraft have recovered, a mass debriefing is held to analyze the mission for positive and negative results, and most importantly, lessons learned. Both sides of the "war" debrief from their point of view, Blue from the offense and Red from the defense. Lessons learned are then incorporated into future attack plans.

Normally two scenarios are flown each day, one in the morning and one in the afternoon. Dependent upon range time availability there is usually five hours from the start of one range period to the next. With the planning and briefing time on the front and debriefing after, the normal duty day requires the full twelve hours permitted for aircrew members. This presents potential problems which will be addressed later.

CHAPTER III

ENDNOTES

1. James C. Woods, Col., "USAFTFWC Mission Directives", 4440 TFTG/CC MEMO, 12 November 1981, p. 8.
2. Tactical Air Command, "TAC Statistics" October 1981, p. 63
3. "Aerospace Ground Equipment Status". 4440 TPTG Working Paper, 6 January 1982.
4. "Billet Renovation", 4440 TPTG Talking Paper, undated.
5. "Headquarters Operating Instruction Summary," 4440 TPTG Working Paper, undated.

CHAPTER IV

RECENT TRENDS

Over the four year period of my association with Red Flag, several trends have been observed. Some of these have been evolutionary and rather subtle, while others have been conscious decisions that have had major impacts on the conduct and direction of recent Red Flags. These trends need to be recognized and commented upon before going on to what I feel should be in Red Flag's future.

Aircrew Perceptions

Each crew member is asked to submit a critique of the exercise at its completion and to compare Red Flag to their own local training program. While the critiques are anonymous, experience level, job level and combat experience are requested. All data is computer input into a Red Flag data base.¹ After reviewing two years worth of these critiques, several trends became apparent.

The first and most obvious trend noticed was that many participants felt that Red Flag had gotten too large. They felt that the scenarios were so big that an inordinate amount of time was being spent on planning and coordination at the expense of developing and refining more basic tactical skills. This criticism became more frequent in the less experienced crews, the primary focus of the training program.

A second criticism was a perceived overemphasis on command and control play.² Many felt that the increased use of C² in the exercise stifled real time play and did not reflect a real world ability on the modern battlefield. Coupled with this was a feeling that C² should only be used if a "real" decisionmaker was actually performing the duty. This was not the case in Red Flag where most of the C² inputs were scripted for safety considerations.

A third factor noted in the critiques was an inverse relationship between frequency of participation in Red Flag and its perceived value.³ Granted, almost all rated the program high in relation to home station training. But, those who had previous experience in Red Flag gave it lower marks. The significance of this trend is a matter of conjecture, since reasons are not stated. I feel, however, that it is somewhat related to past Red Flags that were smaller and less complex. The "familiarity breeds contempt" idea cannot be discounted, however.

Specialization and Testing

A recent development in Red Flag planning has been the incorporation of specialized scenarios for specific Red Flags. Beginning in the Summer of 1980, the first of the Rapid Deployment Force Red Flags was held. Since then, a second RDF Red Flag plus two Green Flag/Red Flags which concentrate on electronic warfare have been held. The RDF Red Flags went very well and were well received by almost all participants. The initial Green Flag/Red Flag was less well received, but I feel that this was primarily due to the Green Flag staff's inexperience with operational exercises and attempting too much.⁴ Although I have no firsthand experience, conversations with the Red Flag staff indicate that although it wasn't without problems, the second effort went some-

what better. If this trend stops at only two of the seven exercises per year being specialized, no harm will be done. If it continues to increase however, some units could end up being excluded from any participation by other "special" units being "required".

The incorporation of test programs into the Red Flag schedule is rather new, but is showing a marked increase recently. The first of these major tests was conducted in conjunction with the Electronic Warfare during Close Air Support Joint Task Force (EWCAS JTF). A slice of a Soviet FEBA array was constructed to replicate the Soviet air defense and EW capability. Specific mission packages were then flown under very controlled conditions to try to measure success when certain variables were changed. The test was very valuable to the three services concerned and Red Flag was used as a vehicle to hold down costs. The major concerns of the Red Flag staff related to constraints placed on the participants in a test environment that are counter to Red Flag's training charter.⁵ There is little doubt that valuable training was received, but constraints such as no live ordnance deliveries, dictated tactics, no air threat and repetitive scenarios run counter to Red Flag's concept and charter. To the degree that future tests are tied to Red Flag, training at the grass roots level will undoubtedly suffer.

Range Improvements and Utilization

In 1974, TAC embarked on a major range improvement program throughout the command. The TFWC range complex, because of its size and accessibility has received a large share of the dollars devoted to the program. This modernization program has involved three major areas: targets, threats, and instrumentation. The length of this essay precludes

any lengthy discussion on the subject, for an entire treatise could be written on this alone. However, a flavor of the scope of effort needs to be imparted to the reader to provide a basis of understanding for the recommendations that follow.

The development of the target arrays within the range complex has shown a great deal of thought and planning. Old targets that were randomly scattered throughout the complex without regard to the "big picture" are being replaced with targets of current significance and arrayed so as to present an integrated battlefield. A FEBA is located to the east, with BAI and interdiction targets located deeper to the west. The electronic threat associated with the Soviet order of battle are appropriately located within or around the target array. The realism is unsurpassed anywhere in the world, with accurate models and actual vertical development. The only negative aspect of this program is the increasing limitation on live ordnance delivery necessitated by the cost of target construction vs. destruction caused by actual weapons. The tradeoff between the two factors is a judgement call, and the line can be drawn in many places. I feel that live ordnance has been restricted too much. There is no substitute for operating an aircraft at maximum weights in simulated combat and having to do everything right to get the desired results. Others could make the case in the opposite direction depending on their own perception.

The electronic threat array on the range has undergone a marked improvement in recent years. The number of threats has grown dramatically, in no small measure due to the EW/CAS test which will leave many pieces of equipment on the range at the completion of their test. The quality has also improved, more accurately than ever replicating Soviet systems. Command and control of the threats has been improved and tied

to GCI capability to present a true integrated Air Defense System for the Red Flag participants to try to defeat. Short of actual combat, there is nothing more realistic anywhere in the free world.

The third, and perhaps the most potentially rewarding of the range improvement program involves instrumentation. For some years a limited capability has existed to track aircraft on the range by call sign and correlate a limited number of engagements by threat sites in real time from the Nellis Range Control Center. The process was not very satisfactory since it is manpower intensive and not very accurate. Video tapes from threat sites provide valuable feedback to aircrews, but the data was not available until the next day and the impact was generally lost in the necessity of preparing for the current mission. Incremental plans include aircraft pods and ground monitoring stations which will provide accurate, real time, timespace positioning information correlated to threat engagement data. Eventually, aircrews should be able to walk in from their mission, sit down at a computergraphics console, and get an entire replay of their mission, complete with detailed displays on threat engagements and ordnance delivery. Full capability under this system is two to three years away.

As pointed out earlier, several large units on Nellis, in addition to Red Flag, compete for a finite number of available range hours each day. In addition, units from George AFB, CA., Mountain Home AFB, ID., and Hill AFB, UT. use the TFWC range complex. Since the range is a DOD resource, other outside agencies also compete for range time on an equal footing.

Two sections of the range comprising approximately one third of the area are owned by the Department of Energy. They also have a very high

demand for range time; however, their projects enjoy such a high priority that other users are forced to accept the time that remains. Recent increases in DOE utilization have forced Red Flag to scale down the size of two separate exercises due to non-availability of range time.⁶ Extensive negotiations between users has produced little relief. It appears that negotiation between the Air Force and the Department of Energy at policy making levels will be required if Red Flag and other users are to regain previous levels, or increased levels, of utilization. This single factor is probably the most inhibiting force in future Red Flag growth.

CHAPTER IV

ENDNOTES

1. "Cumulative Red Flag Critique," 4440 TFTG Computer Data Base, 4 January 1982.
2. "Red Flag 80-4 Critique Summary", 4440 TFTG Working Paper, 15 July 1980.
3. "Red Flag Exercise Critique Summary", 4440 TFTG Computer Data Base, 7 January 1981.
4. "Red Flag 81-3 Critique Summary", 4440 TFTG Working Paper, 23 April 1981.
5. James C. Woods, Col., "USAFTFWC Mission Directives", 4440 TFTG/CC Memo, 12 November 1981.
6. James C. Woods, Col., "Status of Command Briefing", 4440 TFTG Briefing Slides, 15 Jan. 1982, p. 12.

CHAPTER V

THE FUTURE

The Red Flag staff is implementing an improvement program beginning in FY 82 entitled "Quality Red Flag."¹ This phased program is primarily designed to improve the quality of training without impacting size or sortie rates. Secondary goals involve improved integration of planning, execution and assessment, inclusion of academics and several hardware and software programs to improve the timeliness and quality of mission feedback. The program is ambitious and will require the dedication of additional manpower and money to accomplish.

Several factors will mitigate the efforts of this and any other attempts to increase the quality or size of Red Flag. Hardware and software programs that are planned for the future are state of the art, but workable. The EW/CAS test used many of the techniques planned for use in Red Flag, but operated in a sterile, fully instrumented environment. Even then, the data was only partially valid. EW/CAS employed a large staff whose number equalled that of Red Flag just to monitor, track and correlate aircraft and threat pairing data. A sizeable increase in Red Flag staff personnel will be required to support this effort on a continuing basis. The ability to work in a non-sterile environment will have to be developed. If not, size and tactics limitations will have to be imposed.

Crew duty day at Red Flag now occupies the full twelve hours permitted by regulation. By more formally structuring the same scenarios, planning and coordination time can be reduced, but at the expense of tactical initiative and flexibility. The addition of an academic program without a reduction in sortie rate would probably require crews to work over the middle weekend. Experience with RDF Red Flag demonstrated that after ten days without a break, aircrew fatigue levels were very high. Past guidance from TAC HQ has not concurred with proposed reductions in sortie rates, so this initiative may require command guidance.

While not directly affecting the quality issue, range availability may be the single most important factor in Red Flag's future. The finite number of daylight hours and the number of priority users vying for it make range scheduling the number one problem. Long-range accommodation between TAC, DOE and other users must be reached to permit orderly programming of assets into Nellis. A six week Red Flag now costs almost \$2 million, far too much to not get full measure of training out of each deployment.

A final factor in Red Flag's future is the potential impact of test programs on training. EW/CAS participation in Red Flag 82-1 was virtually universally disliked by participants due to constraints and artificialities introduced by testing. Decisions to include future tests into the Red Flag program are made at the highest levels of command. The reasons are not always readily apparent to those responsible for conducting Red Flag training. Beyond making decisionmakers aware of the tradeoffs involved, little can be done except to support the decision once made, and work hard to reduce any adverse impacts.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Most of the conclusions and recommendations about where Red Flag should be headed in future years have been mentioned or alluded to in the previous discussion in this essay. It is impossible to discuss the how and why of Red Flag without drawing attention to some of the issues which impacted on past operations. Where these issues have been previously discussed, I will only mention them and expand my comments as required to insure that the reader understands my recommendations.

The Case of Command and Control

In recent years there has been pressure from several sectors, primarily those involved in the C² business, such as airborne warning and control and airborne command and control wings, to place more emphasis on C² in Red Flag. While I was director of Operations of Red Flag, I resisted these overtures and incorporated only a limited amount under very controlled circumstances. My resistance was based on several factors: who gets trained, safety, and manpower constraints. All of these factors are interrelated.

Some would contend that a fighter pilot who can operate effectively in an unconstrained and dynamic environment, making his own decisions, can adapt easily to a controlled environment. A counter to this argument is that complying with control is tougher, even more complex.

I feel there is some truth to both sides, but with the exception of airborne diverts, I lean toward the former. Canned diverts were employed in several Red Flags successfully, but the C² personnel complained that they did not receive full training benefits. This argument leads me to the second factor, safety.

Every air tasking order in Red Flag is quality control reviewed no less than six times prior to it being dispatched. Other than correcting obvious errors, the major focus is on deconfliction of targets, ordnance, time on target and aircraft flow. With over fifty aircraft expending ordnance, much of it live, within a period of an hour, the potential for an accident is high. As the Red Flag Commander used to tell me, "If you don't want a riot, don't schedule one." Changing targets after the mission is airborne requires an intimate knowledge of targets, range restrictions, aircraft flow, delays, reattack plans and many other factors. A crew TDY to Nellis is not familiar enough with these factors to accomplish this task effectively and safely in a training environment. The "big sky" theory just won't work in a training environment.

There are several options for working the problem. The canned divert works for fighter crew training, but does not solve the C² training issue. A second option would be to place a Red Flag operations staff member on the C² aircraft. This option would require that a minimum of three additional personnel be assigned to Red Flag operations. A third option would be to bring the battle staff commander to Red Flag several weeks prior to execution to learn the exercise intimately. This would entail extensive TDY.

I would suggest the third option as the most viable solution, but would stipulate that a "real" decisionmaker such as an O-6 be on board

to make the real time decision based on the recommendation of the battle staff commander (usually a Lt. Colonel). This way we could train actual decisionmakers and really exercise the system.

The Question of Priorities

The days of Red Flag having adequate range time and space for the asking appear to be over. I have discussed this issue elsewhere, and I'm not sure that there is a fully satisfactory solution available. It appears certain that the conflict of interest problems will not be solved at the local level. I recommend that this issue be elevated to the level of negotiation required to reach agreed upon division of assets. Once this apportionment is established, Red Flag should tailor its yearly program to efficiently, but realistically utilize the time available to it. The source of information on force size should come from the exercise planning level and once decided, be jealously guarded. Outside agencies should be held equally accountable for their programs. Inefficient use of such a scarce resource as the Nellis range complex cannot be afforded.

To Test or Not to Test

The impact of the EW/CAS test on Red Flag 82-1 was extremely negative in the opinions of the participants. Any activity that places constraints on the quality or quantity of training runs against the basic charter of Red Flag. As pointed out earlier, those decisions are beyond the purview of the Red Flag staff. Small scale efforts that do not have major impacts on exercise conduct can usually be accommodated and can be efficient use of resources. If large scale tests are to be

held in the future, TAC should make it clear to participants that the purpose of the exercise is testing. While training should also be maximized, the true purpose should be focused upon. Ideally, Red Flag will remain what it was designed to be, the best tactical training program in the world, unencumbered by outside influences.

The Quality Versus Quantity Issue

From 1978 through the present, the thrust from TAC HQ has been to increase participation in Red Flag over each previous year. Up through 1979, facilities, ranges and support workarounds permitted this to happen, but with associated costs. The previously mentioned 800 contract quarters in Las Vegas and a bill of \$50,000 to lease 50 contract vehicles per exercise are typical examples. Overcrowded operations facilities will eventually be fixed by building expansion. Too many sorties in too little range time and aircraft parking problems have no foreseeable solution. Red Flag staff members who have been close to the problem are in general agreement that under present circumstances, the saturation point has been exceeded and the quality of training is being degraded by trying to do too much with too little.

It would appear that the size issue will be driven in the future by range availability. If this is the case, then the yearly program should be constructed with this reality as the pacing factor, not like it's done now, where a program is designed and then the resources to support it must be scrambled for, and not always successfully. I recommend that the yearly program be designed only after the priorities issue is settled as outlined previously.

Quality is very much in the eye of the beholder. One man's junk is another's treasure. The original concept for Red Flag was valid and has

served us well. Red Flag did not gain the reputation as the finest training program in the world by failing to do its job. But that certainly doesn't mean that improvements could not and should not be made. The current "Quality Red Flag" program being pursued by the staff would appear to meet those short-term improvement needs. The success of the program will depend upon the recognition by TAC that some trade offs will be required. Possibly fewer participants, possibly fewer sorties is the cost of a better, more comprehensive program. With time and patience, the hardware improvements can be made to work. The real tie-breaker will be the understanding and support of Tactical Air Command.

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