

Red Flag

The world famous combat training exercise is 25 years old this month.

By Walter J. Boyne

FROM the very start—and that date was Nov. 29, 1975—Red Flag has been at the forefront of the Air Force drive to dominate the enemy in air combat operations.

The first Red Flag exercise, which took place 25 years ago this month, opened the pathway to a radically new type of fighter training, one that in no small way helped forge the professional Air Force that today sets the world standard. It also changed the thinking of airmen around



USAF photo by SSGT Kevin Guenwald

As recently as the Vietnam War, USAF fighter pilots conducted air combat maneuver training against similar aircraft. Red Flag changed that. Last year, six MiG-29 Fulcrums played the aggressor force for the first time in Red Flag. These F-16s are from the 414th Combat Training Squadron. The MiGs are from the 73rd Steinhoff Fighter Wing, Laage, Germany.

the world, including those in adversary air forces, and it has influenced the training of the US Army and Navy air arms.

Red Flag, which was developed to help the Air Force “train as it fights,” is a simulated combat training exercise that pulls in the air forces of the United States and allies. Conducted over a huge range north of Nellis AFB, Nev., Red Flag is managed by the Air Warfare Center through the 414th Combat Training Squadron.

Most of the deployed aircraft and personnel are part of the “Blue Forces.” These use a variety of tactics to attack targets such as airfields, missile sites, and tanks. The targets are defended by an enemy “Red Force,” which electronically simulates anti-aircraft artillery, surface-to-air missiles, and electronic jamming equipment. In addition, Red Force “Aggressor” pilots, flying the F-16C, closely emulate known enemy tactics.

A typical Red Flag exercise involves a wide variety of aircraft. Thorough mission debriefings are based on the Red Flag Measurement and Debriefing System along with TV ordnance scoring and threat video. Participants can replay the mission and learn exactly what was done correctly and what needs work.

Over a quarter century, Red Flag has become one of the greatest of Air Force success stories. Like many successes, Red Flag can trace its



Staff photo by Guy Aceto

F-16 “aggressors,” like this one launching, were part of a Red Forces air package during a recent Red Flag. The Red Baron study in the 1970s pointed out the need for more complete, realistic training for USAF fighter aircrews.

roots to an earlier failure. It came in Southeast Asia in the 1960s.

Goodbye to 10-to-1?

During the Vietnam War, it became apparent that the overwhelming concern about flying safety in peacetime compromised air-to-air combat training to an unacceptable degree. The most tangible symptom of this failure was the decline in the exchange ratio (enemy losses vs. US losses) between USAF and enemy forces. The exchange ratio obtained in the Korean War had been a highly satisfactory 10-to-1. Re-

cent research has cast some doubt on this figure, but for many years 10-to-1 was not only widely accepted as historically accurate but also was held out as the standard in any subsequent contest.

In the Southeast Asian conflict, however, that exchange ratio fell to less than 1-to-1 during a period in the spring of 1972. There were reasons for this. Air warfare was focused on the air-to-ground dimension; American aircraft were employed in integrated strike packages designed to get bombs on important targets. They were opposed by a sophisticated defense system that incorporated anti-aircraft artillery, surface-to-air missiles, and interceptors operating under ground control.

More important in regard to the exchange ratio was the change in enemy tactics. In the Korean War, the enemy forces made repeated attempts to contest US superiority in the air. The North Vietnamese never did that, for Hanoi had another agenda. Its main goal was to prevent American bombs landing on North Vietnamese targets. The task of their fighters was not to engage in air-to-air combat but to force US fighter-bombers to jettison their bomb loads en route to the target.

When that was done, North Vietnam’s fighters essentially had accomplished their mission.

Whenever possible, USAF and Navy fighters sought out air combat. That is because they operated under



Staff photo by Guy Aceto

Weather, range area, and ramp space—they all played a big part in the selection of Nellis AFB, Nev., as the home of Red Flag. The series of exercises now involves more than 12,000 sorties annually.

rules of engagement generally which prohibited attacks on MiG airfields, and that meant that the only way to eliminate the fighter threat was to destroy it in the air. The enemy usually had to be lured into battle. However, once a North Vietnamese fighter engaged, it was a formidable opponent.

The MiG-17 fighter, though frequently written off as an upgrade to the obsolete, Korean War-vintage MiG-15, proved to be highly effective at the altitudes and airspeeds at which the North's pilots would engage. They also carried powerful cannons. The supersonic MiG-19 appeared later and in smaller numbers, but it had roughly the same characteristics as the MiG-17. The modern delta wing MiG-21 was much faster and armed with the effective, heat-seeking Atoll missile. In the designated areas in which they worked, Navy fighters typically encountered MiG-17s and MiG-19s. USAF fighters usually ran into MiG-17s and MiG-21s.

Dissimilarity

The Communists' aircraft had characteristics (speed, turn rate, sustained turn rate, rate of roll, climb rate) that were totally different from USAF's F-4s. Yet, up to that time, the Air Force had conducted almost all air combat maneuver training by matching identical aircraft—F-4 against F-4. Not only that, but USAF's training exercises usually featured duels between fighter aircraft from the same squadron.

The F-4 was a big, highly capable aircraft—but it had not been designed specifically for the air superiority role. It could do many missions well. However, it was large and unwieldy, it provided relatively poor visibility to the pilot, and it was saddled with flight envelope limitations that undercut its effectiveness in the air superiority role. Later, when USAF fielded the F-4E and its pilots had thoroughly absorbed Col. John Boyd's concept of aerial maneuverability, USAF could overcome the opposition with the E's greater relative strength in certain parts of the combat envelope. That took a while, though.

Moreover, USAF aircraft were equipped with Sidewinder and Sparrow missiles designed to strike at

bombers, not fighters that were engaging in high-g combat maneuvers. For their part, USAF pilots were inhibited by rules of engagement requiring visual identification of the enemy and thus ensuring that air combat would occur at close ranges, where gun armament had an edge over missiles. Experienced leaders helped pilots cope with such disadvantages but at the cost of intensive in-theater training and combat losses.

Soon, the failure of USAF's peacetime training approach became only too apparent. The exchange ratio in the best of times was no better than 2-to-1 and, at the lowest, actually fell to under the break-even 1-to-1 level.

During the Vietnam War, USAF conducted a thorough analysis of air superiority operations. It was called "Red Baron," after Manfred von Richthofen, the famed German ace of World War I. The study demonstrated three sobering facts about USAF aircrews:

- The enemy often caught them by surprise.
- They had inadequate training for the mission.
- They were not fully informed about the enemy.

The problems became especially acute whenever pilots with relatively little fighter experience rotated into the cockpit. As a result, the service during the war considered various proposals to change the training sys-

tem. However, they were not thought to be feasible. The pressure to get pilots through the pipeline and into combat operations was so great that USAF had no assets to begin new programs.

In the early 1970s, USAF pilots and leaders came home from the Vietnam War bent on making some serious changes.

One change, of course, concerned the service's main air fighting instrument—the fighter aircraft itself. Problems with the jack-of-all-trades F-4 generated the drive to produce the specialized F-15 air superiority fighter. Just as important, however, was the renewed emphasis on training the human beings who had been shown in the Red Baron study to be poorly prepared for battle.

Red Flag did not come into being fully formed. It derived from a series of ideas from different people over many years. In 1951, Vol. 1, No. 1, of *Fighter Gunnery Newsletter* appeared. The publication was dedicated to "spreading the gunnery gospel." The January 1954 issue of *Fighter Gunnery* contained an article, by Maj. Frederick C. "Boots" Blesse, which maintained that positioning oneself at the proper angle was 85 percent of the air battle, while adjusting the pipper was 10 percent and actually firing was only 5 percent. In the March 1968 issue, an article noted a change in Tactical

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Staff photo by Guy Aetio

The integrated and instrumented range complex at Nellis affords control from the ground. The Red Flag Measurement and Debriefing System, TV ordnance scoring, and threat video are part of a lessons-learned replay afterward.

Air Command procedures calling for training in dissimilar aircraft.

“Aggressors”

For many years, the idea of an “aggressor” squadron germinated. One important event was the transformation of the 4520th Combat Crew Training Wing at Nellis into the Tactical Fighter Weapons Center, under the leadership of Maj. Gen. R.G. “Zack” Taylor. Taylor saw that the huge area surrounding Nellis would be ideal for an aerial training range of mammoth proportions, ultimately reaching 12,000 square miles.

Meanwhile, things were happening back in Washington, D.C. In the Pentagon’s basement, in the electronic combat directorate, Col. William L. Kirk had some majors working for him, and they knew that among the problems was the need for more rigorous training. Maj. John A. Corder, for example, was aware that the Foreign Technology Division at Wright-Patterson AFB, Ohio, had a number of Soviet aircraft. He thought these could be used to provide realistic air combat maneuvering training. As desirable as this might have been, there were too many administrative problems in the way, and the project was shelved. But Corder was soon joined by two other officers who would be heard from in years to come—Maj. Richard Moody Suter and Lt. Col. Charles A. Horner.

Gen. John D. Ryan, the then-Chief of Staff, had become dissatisfied with



Photo by Ted Carlison

This Nellis-based F-16, in the role of the enemy Red Force, bears the multi-color Warsaw Pact-style camouflage, as did the F-5Es that simulated MiG-21s in the early years of Red Flag.

the loss rate in Vietnam and accuracy of bomb delivery. He approved a proposal made by Kirk and Corder that recommended, among other things, the formation of an air-to-air aggressor squadron. Horner then advanced the idea of using excess Northrop T-38 Talons for the new unit. He proposed that fighter squadrons rotate through Nellis to train with the aggressors and that the aggressors would go out to “visit” squadrons in the field.

The Air Force in fall 1972 established the 64th Fighter Weapons Squadron at Nellis AFB, Nev. It was

equipped initially with T-38s and then with Northrop F-5E Tiger aircraft. These small supersonic aircraft were used to simulate the MiG-21 in air combat maneuvers. The resulting exercises were deemed to be so useful that the Air Force fashioned a second squadron—the 65th FWS—at Nellis and two more for overseas training.

A Way to Cut Losses

In the meantime, Moody Suter, who had been a strong proponent of the aggressor squadron concept and had worked out the training program at Nellis, was visualizing a large-scale combat training operation going beyond mere air-to-air combat maneuvering. A charismatic if sometimes contentious figure, Suter elaborated on Corder’s and Horner’s original work with air-to-air aggressors to create a briefing that outlined the basic concepts of what would become Red Flag. He saw it from the start as a means of improving and extending the ability of Air Force integrated strike packages to get to their targets with maximum accuracy and minimum losses.

Suter was once described as a man who performed systems management before systems management was invented. He had the ability to visualize operations on a grand scale and know exactly what would be required—not only of the fighter force but also of all the supporting elements. Among his many challenges

Staff photo by Guy Aceto



An Mi-24 Hind from the US Army’s Opposing Force unit lends authenticity to many Red Flag exercises. The presence of the Soviet-made attack helicopter allows for training against the capabilities of the real thing.

was finding a way to conduct realistic training while accommodating the general Air Force-wide desire for flying safety. This desire was certainly justified.

In 1951, USAF lost 824 aircraft. The figure dropped to 472 in 1959 and 262 in 1965 as a result of adherence to rigorous safety guidelines. No one in the Air Force wanted the numbers to rise, yet the emphasis on safety made a mockery of air combat training. Training missions had become standardized, with as much emphasis on filling squares on paper as putting bombs on target.

Suter knew of studies demonstrating that the majority of combat losses occur during a pilot's first 10 combat missions. After that point, losses dropped nearly to zero. Suter argued for the creation of a training environment so realistic that a new pilot would log his first 10 "combat" missions in a controlled environment. The idea was that when he went into actual combat, the pilot would have "survived" his most vulnerable period.

Suter acknowledged that realistic training, no matter how carefully controlled, could result in accidents. His argument was that the acceptance of a few losses in training would prevent large-scale losses in combat. In essence, Red Flag was to teach pilots how to adapt quickly to combat and show them what would happen to them if they did not.

Suter envisioned from the start an environment that offered an intense learning opportunity—and was not a career-threatening test.

After having secured the necessary approvals in the Pentagon, Suter went to Tactical Air Command in May 1975 to brief its commander, Gen. Robert J. Dixon, and his senior staff. Dixon listened intently and then approved the idea. He instructed his operations deputy, Maj. Gen. Charles A. Gabriel, and the commander of the Tactical Fighter Weapons Center, Maj. Gen. James A. Knight Jr., to establish Red Flag at Nellis within six months. He instructed his comptroller, Col. Richard Murray, to find the money to do it.

Dixon's Deal

Dixon would prove to be a strong patron of Red Flag. He conferred with Gen. David C. Jones, Chief of Staff, on the matter of flying safety



Staff photo by Guy Aceto

Red Flag now includes a full spectrum of assets, like this EC-130H Compass Call. Although the first exercise featured 37 aircraft, today as many as 750 aircraft of different types participate annually.

and got Jones to go along. They agreed to take the risk of realistic training as long as TAC kept the accident rate below seven per 100,000 flying hours. This was an almost heroic position to take, given the tenor of the times.

At Nellis, Suter was well-known and well-liked. He had 232 Vietnam combat missions (as wing weapons and tactical officer) under his belt; other pilots listened to what he had to say. The series of briefings that he delivered inspired enthusiasm among key personnel at the base. These included Col. P.J. White, Lt. Col. Marty Mahrt, Col. David Burney, and Ned Greenhalgh, a civilian computer expert. This small crew undertook the mammoth task of establishing the program. Their hard, imaginative work over the early years would confirm Red Flag's promise and turn it into the finest training system in aviation history.

Suter's briefing was remarkably farsighted, lifting the whole concept of air combat training to a new, more sophisticated level. In the past, range training was routine. Instructors knew the routes, the headings, and the call signs by rote, and the students were given much the same training as was given to World War II-era students.

In Suter's view, the Air Force had to create a new program to provide realistic training against a realistic threat to test hardware and tactics. He argued that Red Flag should be not only a proving ground but also a

laboratory, one where the service could quickly test possible solutions for urgent problems.

Suter wanted to employ the whole force—tankers, electronic countermeasures, bombers, fighters, reconnaissance aircraft, and so forth—against a realistic enemy that operated advanced radar systems, integrated missile and anti-aircraft systems, and first-rate, dissimilar interceptors.

As a cheerleader for the program, Suter was indefatigable, visiting squadrons all over the world, hammering home the notion that realistic training was vital and that saving lives in combat would not be the only result. He knew that the skills gained in Red Flag not only kept Air Force pilots alive but also enabled them to score victories against the enemy and to get their bombs on target with greater proficiency.

The first actual Red Flag took place on Nov. 29, 1975, exactly on Dixon's schedule. It featured participation by 37 aircraft, shepherded by 561 people. Some 552 sorties were flown. The effort was small compared to later efforts. Today's Red Flag over a single year will involve as many as 250 different units and 750 aircraft of many different types. About 11,000 aircrew and squadron personnel will amass more than 12,000 sorties and 21,000 flight hours in the course of the year.

Though small, the first Red Flag was an unqualified success. Initially oriented primarily to air-to-surface



Red Flag teaches pilots to adapt quickly to combat. It has become the model for Flights conducted by other major commands and air forces of other countries.

activities. Other flags would follow. By the time Dixon completed his tour at TAC, training standards had progressed dramatically—so much so that it became harder to qualify for a stint at Red Flag than it had been to qualify for combat operations in Vietnam. Dixon's successor, Gen. W.L. Creech, greatly accelerated and expanded Red Flag. The rest, as they say, is history.

One major milestone in that history, without question, was the stunning performance of American airmen in the Gulf War of 1991. It was the first war to showcase the results of Red Flag, and it produced a curious tribute. It came from an Air Force pilot who, returning from a combat mission over Iraq, was heard to remark, "It was almost as intense as Red Flag." ■

training, Red Flag had from the start a substantial air-to-air component, and this would grow over time. Other US services joined in, as did units from around the world. Red Flag grew in size and sophistication.

Nonetheless, skepticism prevailed for a long time outside Nellis and TAC headquarters. Air Force commanders were concerned that accidents would reflect poorly on their leadership. For many, their initial participation was somewhat conditional. The accident rate indeed was high during the first two years of the program, with about eight aircraft being lost.

Perseverance

To Dixon's credit, he persevered, and the accident rate came down to below that of the Air Force as a whole. Further, when Air Force Systems Command sought to use Red Flag for operational test and evaluation, Dixon refused. He wanted it to evolve, to grow, to let all the major commands contribute their good ideas.

Dixon saw that Red Flag could be expanded to provide benefits to other commands, including Strategic Air Command, and to other air forces. The international Maple Flag was created and is hosted by Canadian forces. Blue Flag was established at Hurlburt Field, Fla., to train people for the command and control system in the European theater. Green Flag was created to integrate electronic countermeasure warfare with Red Flag

The Man Behind Red Flag



Richard Moody Suter had many friends, and each one has a load of Moody Suter stories. He was a larger-than-life character, quick to laugh, quick to show anger, always so intensely focused on the mission that he threw off heat and energy like a boiler.

He would have considered himself first and foremost a fighter pilot, a man whose job was destruction of the enemy. Even so, he was a visionary. He produced a constant flow of ideas—not unusual for a visionary—but he also had an intimate knowledge of the USAF system that allowed him to bring his ideas to fruition.

Suter had the ability to inspire people, to translate his far-out ideas into fighter pilot terms that stirred the soul and led to great actions. He also had the ability to irritate people, regardless of rank or position. There is no question that he took pride and pleasure from doing this.

Aviation artist Keith Ferris, one of Suter's friends, has over the years compiled a list of "Suterisms." For example, if a pilot showed up slightly the worse for wear, he'd say, "The fruit flies are circling around his head." If he did not have a great opinion of someone's intellect, he'd say, "He looks at his name tag a lot." To inquisitive superior officers, he'd say, "We are looking at a glaring glimpse of the obvious."

He provided the following advice on air combat:

Mount it with the sharp end in front of you. Move all shiny switches outboard and forward. And don't [mess] with the red-covered or rusty knobs.

After he retired in July 1984, Suter stayed abreast of technological advances and development of the airman's art and did so until his death in January 1996. By that time, he was already a legend.

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